MARMARA OTOYOL İNŞAATI
ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

AVRUPA OTOYOLU
YATIRIM VE İŞLETME A.Ş.

NORTH MARMARA MOTORWAY PROJECT

(EUROPEAN PART: KINALI-ODAYERI SECTION)

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

FINAL ESIA REPORT (ANNEXES)

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MARCH 2018

ANNEXES

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ANNEX-1 OFFICIAL DOCUMENTS AND LETTERS

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Annex-1. Official Documents/Letters

Annex-1.1. EIA Exemption Letter Regarding the Project

T.C.
ÇEVRE VE ORMAN BAKANLIĞI
Çevresel Etki Değerlendirmesi ve Planlama Genel Müdürlüğü

Sayı : B.18.0.ÇED.[illegible] 5704 4493 [illegible]
Konu: Kuzey Marmara Otoyolu

ULAŞTIRMA BAKANLIĞINA
(Karayolları Genel Müdürlüğü)

İlgi : Ulaştırma Bakanlığı Karayolları Genel Müdürlüğü'nün [illegible] tarih ve B.11.1.TCK.0.11.04-70-214-915 sayılı yazısı.

İlgide kayıtlı yazı ile 2009 Yatırım Programı ve Detaylı Proje Desteği'nde 1991E040150 DPT numarasıyla yer alan "Kuzey Marmara Otoyolu (İstanbul Boğazı 3 Karayolu Geçişi dahil) Projesi"nin 17.07.2008 tarih ve 26939 sayılı ÇED Yönetmeliği'nin Geçici 3 maddesi kapsamında değerlendirilmesi talep edilmektedir.

İlgi yazı ekinde yer alan 1993 öncesi yıllarda yatırım programına alındığı tespit edilen karayolu projesi 17.07.2008 tarih ve 26939 sayılı ÇED Yönetmeliği'nin Geçici 3. maddesi uyarınca ÇED Yönetmeliği hükümlerine tabi değildir.

Diğer taraftan söz konusu projelerin inşaat ve işletme aşamasında 2872 sayılı Çevre Kanunu ile 5491 sayılı Çevre Kanunu'nda Değişiklik Yapılmasına Dair Kanun ve bu kanunlara istinaden çıkarılan yönetmeliklere uyulması ve ilgili kurum/kuruluşlardan gerekli izinlerin alınması gerekmektedir.

Bilgilerinizi ve gereğini arz ve rica ederim.

Fevzi İŞBİLİR
Bakan a.
Genel Müdür

DAĞITIM:
-Ulaştırma Bakanlığı
(Karayolları Genel Müdürlüğü)
-İstanbul Valiliği
(İl Çevre ve Orman Müdürlüğü)

KARAYOLLARI [illegible]
Genel [illegible]
Havale [illegible]
Tarih [illegible]
9-8 [illegible]

Annex-1.2. Urgent Expropriation Decisions for the Project

Annex-1.2.1. Decision numbered 2017/10039 and dated 20/3/2017

Karar Sayısı : 2017/10039

Kuzey Marmara Otoyolu (3. Boğaz Köprüsü Dahil) Projesi kapsamında bazı taşınmazların Karayolları Genel Müdürlüğü tarafından acele kamulaştırılması hakkındaki ekli Kararın yürürlüğe konulması; Ulaştırma, Denizcilik ve Haberleşme Bakanlığının 20/3/2017 tarihli ve 81545 sayılı yazısı üzerine, 2942 sayılı Kamulaştırma Kanununun 27 nci maddesine göre, Bakanlar Kurulu'nca 20/3/2017 tarihinde kararlaştırılmıştır.

Recep Tayyip ERDOĞAN
CUMHURBAŞKANI

Binali YILDIRIM
Başbakan

N. CANİKLİ Başbakan Yardımcısı	M. ŞİMŞEK Başbakan Yardımcısı	N. KURTULMUŞ Başbakan Yardımcısı	V. T. TÜRKEŞ Başbakan Yardımcısı
V. KAYNAK Başbakan Yardımcısı	B. BOZDAĞ Adalet Bakanı	F. B. SAYAN KAYA Aile ve Sosyal Politikalar Bakanı	Ö. ÇELİK Avrupa Birliği Bakanı
F. ÖZLÜ Bilim, Sanayi ve Teknoloji Bakanı	M. MÜEZZİNOĞLU Çalışma ve Sosyal Güvenlik Bakanı	M. ÖZHASEKİ Çevre ve Şehircilik Bakanı	M. ÇAVUŞOĞLU Dışişleri Bakanı
N. ZEYBEKCİ Ekonomi Bakanı	B. ALBAYRAK Enerji ve Tabii Kaynaklar Bakanı	A. Ç. KILIÇ Gençlik ve Spor Bakanı	F. ÇELİK Gıda, Tarım ve Hayvancılık Bakanı
B. TÜFENKCİ Gümrük ve Ticaret Bakanı	S. SOYLU İçişleri Bakanı	L. ELVAN Kalkınma Bakanı	N. AVCI Kültür ve Turizm Bakanı
N. AĞBAL Maliye Bakanı	İ. YILMAZ Milli Eğitim Bakanı	F. IŞIK Milli Savunma Bakanı	
V. EROĞLU Orman ve Su İşleri Bakanı	R. AKDAĞ Sağlık Bakanı	A. ARSLAN Ulaştırma, Denizcilik ve Haberleşme Bakanı	

20/3/2017 TARİHLİ VE 2017/10039 SAYILI KARARNAMENİN EKİ

KARAR

Acele kamulaştırma

MADDE 1- (1) Kuzey Marmara Otoyolu (3. Boğaz Köprüsü Dahil) Projesi kapsamında ekli harita ile (I) sayılı listede güzergâhı, bulunduğu yer ve ada/parsel numaraları belirtilen taşınmazların Karayolları Genel Müdürlüğü tarafından acele kamulaştırılması kararlaştırılmıştır.

Yürürlükten kaldırılan hükümler

MADDE 2- (1) Kuzey Marmara Otoyolu (3. Boğaz Köprüsü Dahil) Projesi kapsamında bazı taşınmazların Karayolları Genel Müdürlüğü tarafından acele kamulaştırılması hakkındaki 11/10/2016 tarihli ve 2016/9373 sayılı Bakanlar Kurulu Kararının, ekli (II) sayılı listede belirtilen taşınmazlara ilişkin hükümleri yürürlükten kaldırılmıştır.

Yürürlük

MADDE 3- (1) Bu Karar yayımı tarihinde yürürlüğe girer.

Yürütme

MADDE 4- (1) Bu Karar hükümlerini Ulaştırma, Denizcilik ve Haberleşme Bakanı yürütür.

Annex-1.2.2. Former Decision numbered 2016/9373 and dated 11/10/2016, which is abolished with the Publishing of Current Decision numbered 2017/10039 and dated 20/3/2017

<u>Karar Sayısı : 2016/9373</u>

Kuzey Marmara Otoyolu (3. Boğaz Köprüsü Dahil) Projesi kapsamında ekli harita ile listede güzergâhı, bulunduğu yer ve ada/parsel numaraları gösterilen taşınmazların Karayolları Genel Müdürlüğü tarafından acele kamulaştırılması; Ulaştırma, Denizcilik ve Haberleşme Bakanlığının 7/10/2016 tarihli ve 233686 sayılı yazısı üzerine, 2942 sayılı Kamulaştırma Kanununun 27 nci maddesine göre, Bakanlar Kurulu'nca 11/10/2016 tarihinde kararlaştırılmıştır.

Recep Tayyip ERDOĞAN
CUMHURBAŞKANI

Binali YILDIRIM
Başbakan

N. CANİKLİ Başbakan Yardımcısı	M. ŞİMŞEK Başbakan Yardımcısı	N. KURTULMUŞ Başbakan Yardımcısı	V. T. TÜRKEŞ Başbakan Yardımcısı
V. KAYNAK Başbakan Yardımcısı	B. BOZDAĞ Adalet Bakanı	F. B. SAYAN KAYA Aile ve Sosyal Politikalar Bakanı	Ö. ÇELİK Avrupa Birliği Bakanı
F. ÖZLÜ Bilim, Sanayi ve Teknoloji Bakanı	M. MÜEZZİNOĞLU Çalışma ve Sosyal Güvenlik Bakanı	M. ÖZHASEKİ Çevre ve Şehircilik Bakanı	M. ÇAVUŞOĞLU Dışişleri Bakanı
N. ZEYBEKCİ Ekonomi Bakanı	B. ALBAYRAK Enerji ve Tabii Kaynaklar Bakanı	A. Ç. KILIÇ Gençlik ve Spor Bakanı	F. ÇELİK Gıda, Tarım ve Hayvancılık Bakanı
B. TÜFENKCİ Gümrük ve Ticaret Bakanı	S. SOYLU İçişleri Bakanı	L. ELVAN Kalkınma Bakanı	N. AVCI Kültür ve Turizm Bakanı
N. AĞBAL Maliye Bakanı	İ. YILMAZ Milli Eğitim Bakanı	F. IŞIK Milli Savunma Bakanı	
V. EROĞLU Orman ve Su İşleri Bakanı	R. AKDAĞ Sağlık Bakanı	A. ARSLAN Ulaştırma, Denizcilik ve Haberleşme Bakanı	

Annex-1.3. Prime Ministry Circular (1/2)

Başbakanlıktan:

Konu : Kuzey Marmara (3. Boğaz Köprüsü Dahil)
Otoyolu Projesi

GENELGE

2016/20

Karayolları Genel Müdürlüğünce (KGM) ihalesi yapılan Kuzey Marmara Otoyolu (3. Boğaz Köprüsü dahil) Projesi, Kınalı-Odayeri (Bağlantı Yolları Dahil) Kesimi ve Kurtköy-Akyazı (Bağlantı Yolları Dahil) Kesimi işlerinin belirlenen süre içerisinde tamamlanabilmesi için aşağıdaki tedbirlerin alınması uygun görülmüştür:

1- Proje kapsamında yapılacak kamulaştırmalar için gerekli olacak ödeneklerin serbest bırakma işlemleri işlerin gecikmesine meydan verilmeyecek şekilde yapılacak, yılı ödeneklerinin tamamının ilk üç ayda serbest bırakılması sağlanacaktır.

2- Proje güzergâhında yapılması gereken imar planı ve değişiklikleri, ilgili idarelerce 6001 sayılı Karayolları Genel Müdürlüğünün Teşkilat ve Görevleri Hakkında Kanunun 19'uncu maddesinde belirtilen azami sürelerin sonu beklenmeksizin en kısa sürede neticelendirilecektir.

3- Proje güzergâhında yapılması gereken imar planı çalışmaları ve bu çalışmalara altlık teşkil edecek hâlihazır haritaların üretimi, kıyı kenar çizgisinin tespiti, imar planına esas jeolojik ve jeoteknik etüt raporlarının hazırlanması veya onaylanmasına ilişkin her türlü iş ve işlemler; ilgili kamu kurum ve kuruluşlarınca en kısa zamanda sonuçlandırılacaktır.

4- Proje güzergâhında bulunan su, kanalizasyon, doğalgaz ve petrol boru hatları ile elektrik, haberleşme hatları ve tesislerinin güzergâh dışına taşınması sırasında bunlara ilişkin KGM ilgili birimleri tarafından talep edilecek izin, onay, kabul gibi iş ve işlemler, ilgili kuruluşlar tarafından geciktirilmeksizin yerine getirilecektir.

5- Projenin yapımı için gerekli olacak taş ocakları, kum-çakıl ocakları ve ariyet ocaklarının kamulaştırma, üretim izni, ruhsat ve tahsis işlemlerinin hızla gerçekleştirilebilmesi için gereken işlemler; ilgili kamu kurum ve kuruluşlarınca öncelikli ve ivedi olarak neticelendirilecektir.

6- Projenin gerçekleştirilmesi için gerekli olan Hazinenin özel mülkiyetinde veya Devletin hüküm ve tasarrufu altındaki taşınmazlar ile ormanlık alanlar ve diğer kamu kurum ve kuruluşlarına ait taşınmazların KGM'nin talebi doğrultusunda tahsis, izin, irtifak, devir veya yola terkin işlemlerinin hızla yürütülebilmesi için gerekli önlemler ilgili idarelerce alınacak, bunun için gerekirse mevzuatı çerçevesinde ilgili idarelerin taşra birimleri de yetkilendirilerek gecikmeye mahal verilmeyecektir.

7- Proje güzergâhında yapılacak kamulaştırmalar için 2942 sayılı Kamulaştırma Kanununun 10'uncu maddesi uyarınca açılan bedel tespit ve tescil davalarının kısa sürede neticelenebilmesi için ilgili kamu kurum ve kuruluşlarınca gerekli tedbirler alınacak, kamulaştırılacak taşınmazların değer tespitine yönelik olarak, KGM'nin ve mahkemelerin talep edeceği bilgi ve belgeler ilgili kamu kurum ve kuruluşları tarafından gerekli özen gösterilerek en kısa zamanda gönderilecektir.

8- Kamulaştırma çalışmalarının sağlıklı ve acele olarak neticelendirilebilmesi için; Proje bünyesinde yapılacak çalışmalar sırasında talep edilmesi halinde kamulaştırma planlarının hazırlanmasına ilişkin bilgi ve belgelerin gönderilmesine, planların arazi ve büro kontrollerinin yapılmasına ve 2942 sayılı Kanun uyarınca kamulaştırma işlemleri tamamlanan taşınmazların tapuda tescil-terkin edilmesine dair işlemler Tapu ve Kadastro Genel Müdürlüğü ilgili birimlerince acele olarak gerçekleştirilecektir.

Annex-1.3. Prime Ministry Circular (2/2)

9- Projenin gerçekleştirilmesi için gerekli olan malzeme ocakları, bağlantı yolları, enerji nakil hatları, depo alanları, hazır beton tesisleri, asfalt plenti ile alt ve üst yapı imalatları için gereken üretim tesisleri vb. diğer tesislerin çevresel etki değerlendirmeleri yapılırken projenin 7 Şubat 1993 tarihinden önce yatırım programına alınmış olması durumu ve Danıştay İdari Dava Daireleri Kurulunun 25 Mart 2015 tarih ve E: 2013/2534, K: 2015/915 sayılı kararı dikkate alınacak, Çevresel Etki Değerlendirmesi Yönetmeliğinden muafiyet hususu buna göre değerlendirilecektir.

10- Proje güzergâhı kapsamında bulunan veya yol yapım çalışmaları sırasında ortaya çıkacak taşınır veya taşınmaz tabiat ve kültür varlıklarına konu olan buluntulara rastlanması durumunda, durum ilgili Tabiat Varlıklarını Koruma Bölge Kurulu Müdürlüğü ve Kültür Varlıklarını Koruma Bölge Kurulu Müdürlüğüne bildirilecek ve Kurullar konuyu gündemine ivedilikle alacaktır. Bu konudaki Kurul çalışmalarına, sadece üyelere konu hakkında bilgi vermek üzere KGM teknik elemanları da çağrılacak, çalışmaların projenin özellikleri de dikkate alınarak, gecikmesine meydan verilmeden yapılması sağlanacaktır.

11- Kuzey Marmara Otoyolu Projesi, etkileşim halinde olduğu veya etkileşime girebileceği diğer projelere göre öncelik teşkil edecektir.

12- Güzergâhın geçtiği yerlerdeki mülki ve idari yöneticiler ile ilgili idarelerin taşra birimleri, kamulaştırılması yapılan taşınmaz malların maliklerinin ve adreslerinin tespitinde gecikmeye mahal verilmeyecek şekilde yardımcı olacaktır.

13- Kamu kurum ve kuruluşlarından, belediyelerden ve ilgili tapu müdürlüklerinden proje güzergahında kamulaştırılacak taşınmaz mallar için; 2942 sayılı Kamulaştırma Kanununun 10'uncu maddesi uyarınca açılabilecek olan davalarda, aynı Kanunun 11'inci maddesi gereğince KGM'ye verilecek emsal verileri ile mahkemelere sunulacak veriler arasında yeknesaklığın sağlanabilmesi için gerekli özen gösterilecektir.

14- Projenin hazırlanması için fotogrametrik yöntemle alım için gereken uçuş izinlerinin ivedilikle verilmesi sağlanacaktır.

15- Askeri alanlarda çalışma (proje ve kamulaştırma planları) yapmak için gerekli izin süreçleri en seri bir şekilde tamamlanacak, çalışmaların tamamlanabilmesi için verilecek müsaadenin işlemlerin gerektirdiği süreleri ihtiva etmesine özen gösterilecektir.

16- Proje ile ilgili her türlü plan, proje, yapım ve detay çalışmaları sırasında iş ve işlemlerin hızlı ve eksiksiz bir şekilde yerine getirilmesi için KGM merkez birimlerine, Karayolları 1. (İstanbul) Bölge Müdürlüğü ile KGM'nin görev ve yetki vereceği diğer taşra birimlerine, idare adına iş yapan yüklenici ve alt yüklenicilere tüm kamu kurum ve kuruluşları ile Valilikler tarafından mevzuatı gereğince gerekli yardım ve destek sağlanacaktır.

Bilgilerinizi ve gereğini önemle rica ederim.

Binali YILDIRIM
Başbakan

Annex-1.4. KGM Official Letter to Governmental Stakeholders (1/4)

T.C.
KARAYOLLARI GENEL MÜDÜRLÜĞÜ
I. Bölge Müdürlüğü

Sayı : 12134907-170.99/E. 2511737 — 23.10.2016
Konu : Kuzey Marmara Otoyolu Kurum Görüşü ve Altyapı Deplasmanları

Paraf Nüshası

İlgi: Başbakanlık Personel ve Prensipler Genel Müdürlüğünün 23.08.2016 tarihli ve 2016/20 sayılı genelgesi.

Yap-İşlet-Devret yöntemi ile ihalesi yapılan Kuzey Marmara Otoyolu (3. Boğaz Köprüsü Dahil) Projesi, Kınalı-Odayeri (Bağlantı Yolları Dahil) Kesimi İşi KMO Avrupa Otoyol İşletmesi A.Ş. taahhüdünde, Kurtköy-Akyazı (Bağlantı Yolları Dahil) Kesimi İşi KMO Anadolu Otoyol İşletmesi A.Ş. taahhüdünde ve Bölge Müdürlüğümüzün denetiminde yürütülmektedir.

24 Ağustos 2016 tarihli ve 29811 sayılı Resmi Gazete'de yayımlanan Kuzey Marmara Otoyolu (3. Boğaz Köprüsü Dahil) Projesi hakkındaki Başbakanlık Makamının ilgi sayılı Genelgesi ekte gönderilmektedir. 78 km uzunluğundaki Kınalı-Odayeri Kesimi güzergahı ve 176 km. uzunluğundaki Kurtköy-Akyazı Kesimi güzergahı; Kuzey Marmara Otoyolu'nun 3. Boğaz Köprüsü ile birlikte trafiğe açılan Odayeri-Paşaköy Kesimine bağlantıyı sağlayacaktır.

Belirtilen güzergahların 1/5000 Ölçekli Ön Projelerine ait planlar (ED50 3 derece, ED50 6 derece, ITRF96 koordinat sistemlerinde) yazımız ekinde CD ortamında gönderilmekte olup;

İlgili kurumlar (Liste 1) tarafından konuya ilişkin görüşlerin ivedilikle bildirilmesi, güzergah üzerinde yer alan meri 1/5000 ölçekli nazım imar planlarının ve 1/1000 ölçekli uygulama imar planlarının sayısal ortamda gönderilmesi,

Otoyol ve Bağlantı Yolu yapım çalışmalarının aksamadan ve zamanında gerçekleştirilebilmesi için belirtilen güzergahlar üzerinde bulunan mevcut yeraltı ve yerüstü tesislerinin tespit edilerek Otoyol Kamulaştırma sınırlarının dışına deplase edilmesi gerekmektedir. Güzergahlara rastlayan mevcut yeraltı ve yerüstü tesislerinin ilgili kurumlar (Liste 2) tarafından gönderilen planlara işlenerek tarafımıza iletilmesi ve deplasesi gereken tesisler için ivedilikle gereğinin yapılması hususlarında,

Gereğini bilgilerine arz/rica ederim.

Dr. Ahmet Taner HERGÜNER
Bölge Müdürü a.
Bölge Müdür Yardımcısı

EKLER:
1. Genelge (2 sayfa)
2. CD (1 adet)

DAĞITIM:

"Bu belge, güvenli elektronik imza ile imzalanmıştır."
http://www.kgm.gov.tr adresinden "mhjez211CNC" DYS No ve evrak tarihi ile erişebilirsiniz.

Hamidiye Mah. Kemerburgaz Cad. No: 170 PK 34408 Kağıthane İSTANBUL — Bilgi için: Sinan SEZEN, Proje ve Danışmanlık Şefi
Telefon No: 212 3121700 — Faks: 212 3125412 — Tel - Faks: 212 3121700 —
İnternet Adresi: www.kgm.gov.tr — e-posta: [illegible]@kgm.gov.tr

Annex-1.4. KGM Official Letter to Governmental Stakeholders (2/4)

T.C.
KARAYOLLARI GENEL MÜDÜRLÜĞÜ
1. Bölge Müdürlüğü

Liste 1:

1- Altyapı Yatırımları Genel Müdürlüğü (Ankara)
2- TCDD 1. Bölge Müdürlüğü (Haydarpaşa)
3- Karayolları Düzenleme Genel Müdürlüğü (Ankara)
4- Ulaştırma Denizcilik Ve Haberleşme Bakanlığı 1. Bölge Müdürlüğü
5- Ulaştırma, Denizcilik Ve Haberleşme Bakanlığı 13. Bölge Müdürlüğü
6- Dsi 1. Bölge Müdürlüğü - Bursa
7- Dsi 3. Bölge Müdürlüğü - Eskişehir
8- Dsi 14. Bölge Müdürlüğü-Istanbul
9- İstanbul Orman Bölge Müdürlüğü
10- Sakarya Orman Bölge Müdürlüğü
11- Orman Ve Su İşleri Bakanlığı 1. Bölge Müdürlüğü
12- Milli Savunma Bakanlığı İstanbul İnşaat Emlak Bölge Başkanlığı
13- Milli Savunma Bakanlığı İzmit İnşaat Emlak Bölge Başkanlığı (Kocaeli)
14- Maden Tetkik Arama Marmara Bölge Müdürlüğü
15- Kültür Varlıkları ve Müzeler Genel Müdürlüğü
16- İstanbul 1 Numaralı Kültür Varlıklarını Koruma Bölge Kurulu Müdürlüğü
17- İstanbul 2 Numaralı Kültür Varlıklarını Koruma Bölge Kurulu Müdürlüğü
18- İstanbul 5 Numaralı Kültür Varlıklarını Koruma Bölge Kurulu Müdürlüğü
19- Kocaeli Kültür Varlıklarını Koruma Bölge Kurulu Müdürlüğü
20- Tabiat Varlıklarını Koruma Genel Müdürlüğü
21- İstanbul 1. Tabiat Varlıklarını Koruma Bölge Komisyonu
22- İstanbul 3. Tabiat Varlıklarını Koruma Bölge Komisyonu
23- İstanbul 4. Tabiat Varlıklarını Koruma Bölge Komisyonu
24- Kocaeli Tabiat Varlıklarını Koruma Bölge Komisyonu
25- İstanbul Çevre Ve Şehircilik İl Müdürlüğü

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Annex-1.4. KGM Official Letter to Governmental Stakeholders (3/4)

KGM

T.C.
KARAYOLLARI GENEL MÜDÜRLÜĞÜ
1. Bölge Müdürlüğü

26- Kocaeli Çevre Ve Şehircilik İl Müdürlüğü
27- Sakarya Çevre Ve Şehircilik İl Müdürlüğü
28- İstanbul Büyükşehir Belediye Başkanlığı
29- Kocaeli Büyükşehir Belediye Başkanlığı
30- Sakarya Büyükşehir Belediye Başkanlığı

Liste 2:

31- İstanbul Su Ve Kanalizasyon İdaresi Genel Müdürlüğü (İski)
32- Kocaeli Su Ve Kanalizasyon İdaresi Genel Müdürlüğü (İsu)
33- Sakarya Su Ve Kanalizasyon İdaresi Genel Müdürlüğü
34- Botaş Boru Hatları İle Petrol Taşıma A.Ş.
35- İstanbul Gaz Dağıtım Sanayi Ve Tic. A. Ş.
36- İzmit Gaz Dağıtım Sanayi Ve Ticaret A.Ş.
37- Gebze Gaz Dağıtım A.Ş.
38- Adapazarı Gaz Dağıtım A.Ş.
39- Teiaş 1. İletim Tesis Ve İşletme Gurup Müdürlüğü
40- Teiaş 4. İletim Tesis Ve İşletme Grup Müdürlüğü
41- Teiaş 5. İletim Tesis Ve İşletme Grup Müdürlüğü
42- Boğaziçi Elektrik Dağıtım A.Ş.
43- Anadolu Yakası Elektrik Dağıtım A.Ş.
44- Sakarya Elektrik Dağıtım A.Ş
45- Türk Telekom İstanbul Anadolu Yakası İl Müdürlüğü
46- Türk Telekom İstanbul Avrupa Yakası İl Müdürlüğü
47- Türk Telekom Kocaeli İl Müdürlüğü
48- Türk Telekom Sakarya İl Müdürlüğü
49- Silivri Belediye Başkanlığı
50- Çatalca Belediye Başkanlığı
51- Arnavutköy Belediye Başkanlığı
52- Eyüp Belediye Başkanlığı
53- Esenler Belediye Başkanlığı
54- Sultangazi Belediye Başkanlığı
55- Pendik Belediye Başkanlığı
56- Tuzla Belediye Başkanlığı
57- Gebze Belediye Başkanlığı
58- Dilovası Belediye Başkanlığı
59- Körfez Belediye Başkanlığı

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Annex-1.4. KGM Official Letter to Governmental Stakeholders (4/4)

T.C.
KARAYOLLARI GENEL MÜDÜRLÜĞÜ
1. Bölge Müdürlüğü

60- Derince Belediye Başkanlığı
61- İzmit Belediye Başkanlığı
62- Kartepe Belediye Başkanlığı
63- Adapazarı Belediye Başkanlığı
64- Serdivan Belediye Başkanlığı
65- Akyazı Belediye Başkanlığı
66- Milli Savunma Bakanlığı Akaryakıt İkmal Ve Nato Pol Tesisleri İşletme Başkanlığı

26/10/2016		N. ACAR
26/10/2016	Şef	: S. SEZEN
26/10/2016	Şef	: K. KİLİMCİ
26/10/2016	K.M.O.Başmühendisi	: B. YARAMAN

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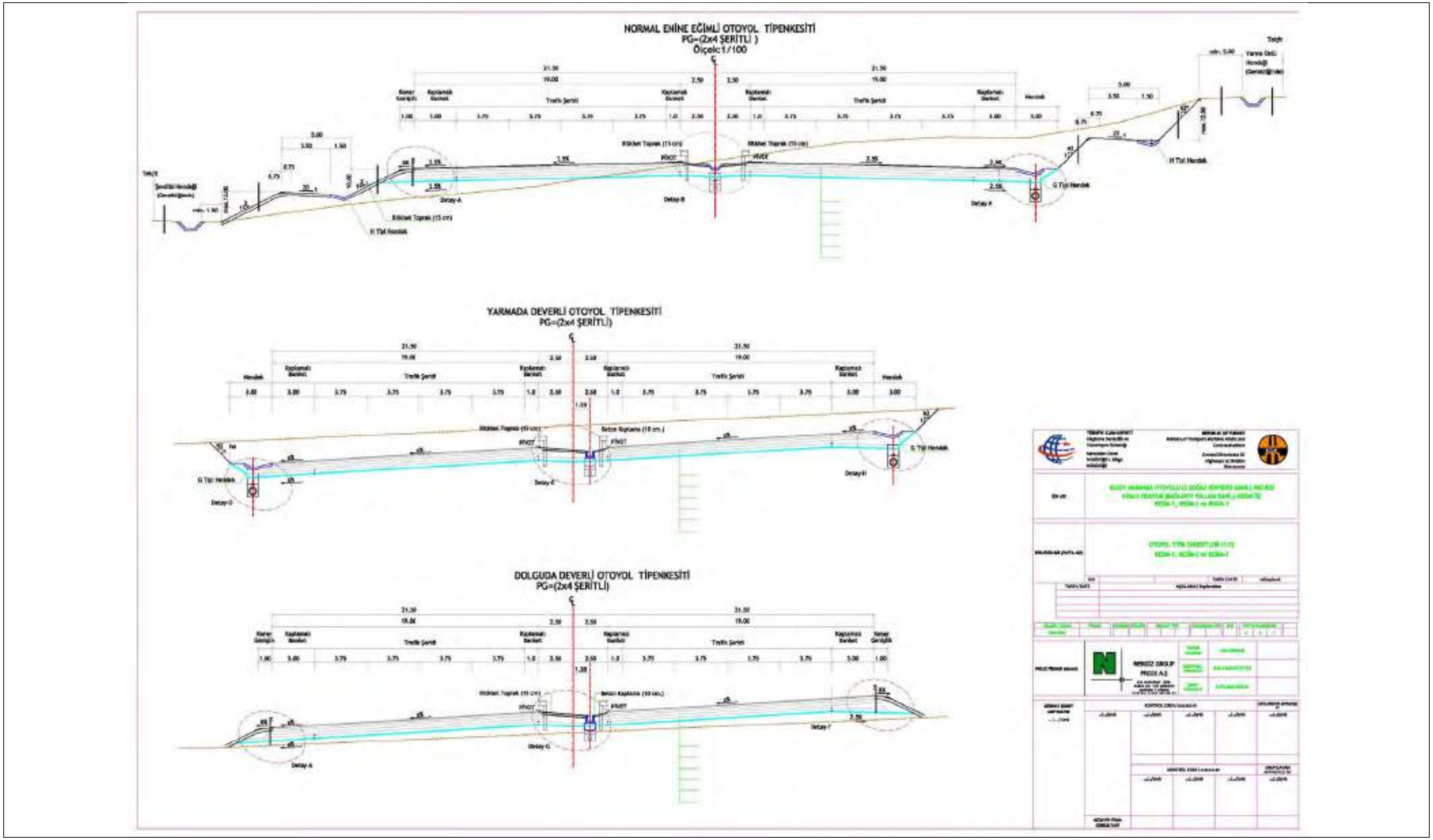
ANNEX-2

MAPS AND DRAWINGS

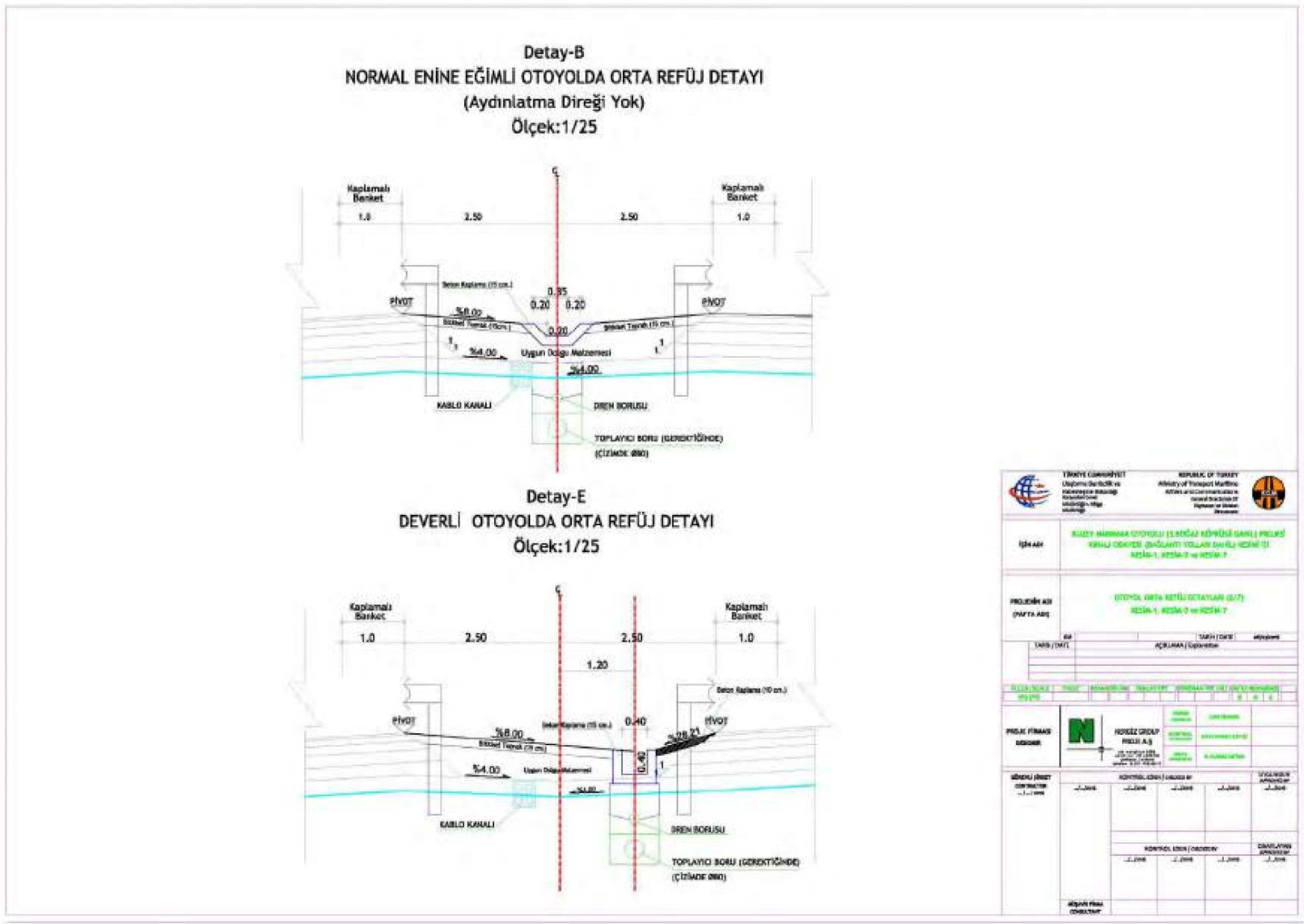
ANNEX-2. DRAWINGS AND MAPS

Annex-2. Drawing and Maps

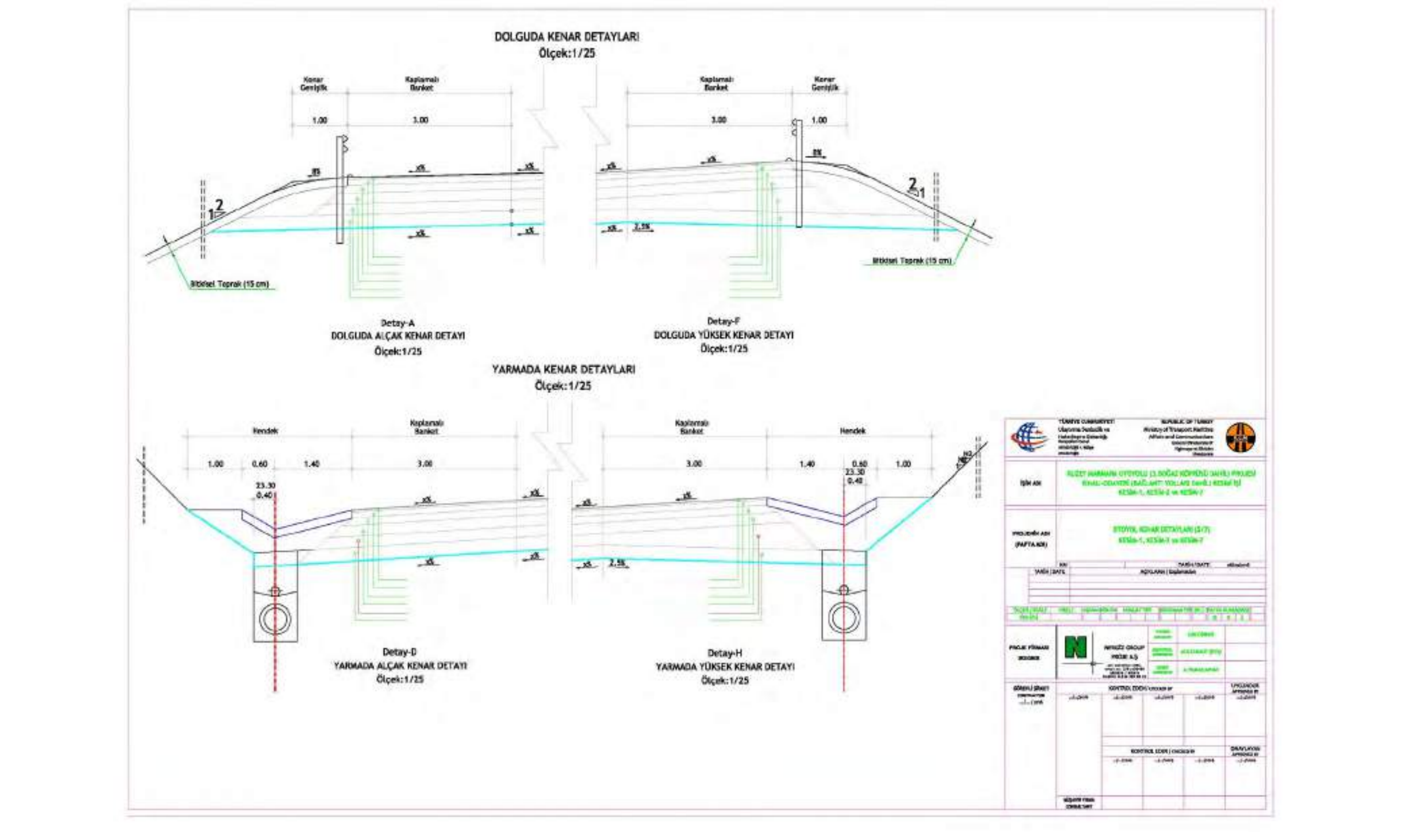
Annex-2.1. Typical Cross-sections for the Motorway



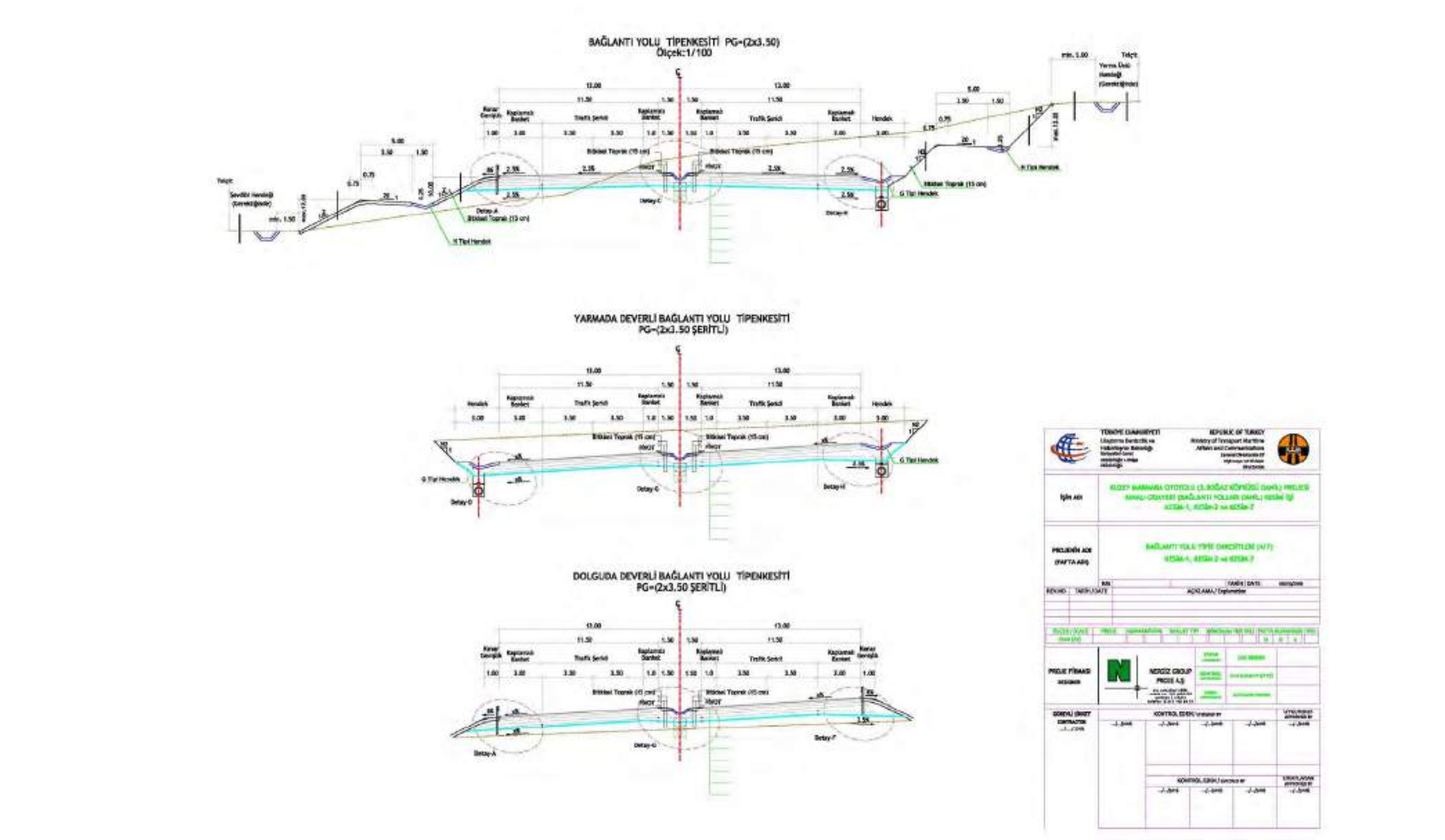
Annex-2.2. Typical Cross-sections for the Central Reserve of the Motorway



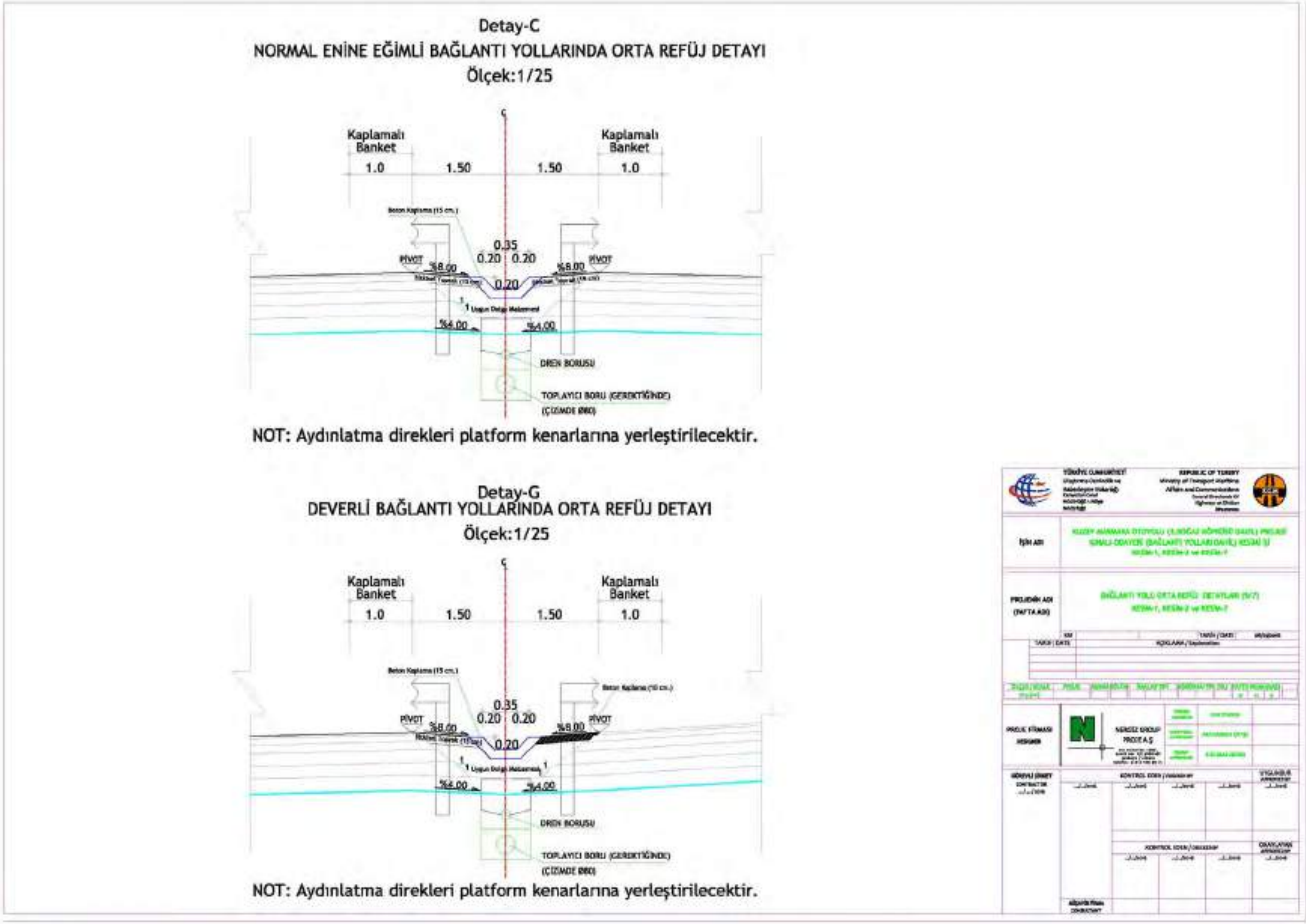
Annex-2.3. Typical Cross-sections for the Motorway Side Slopes



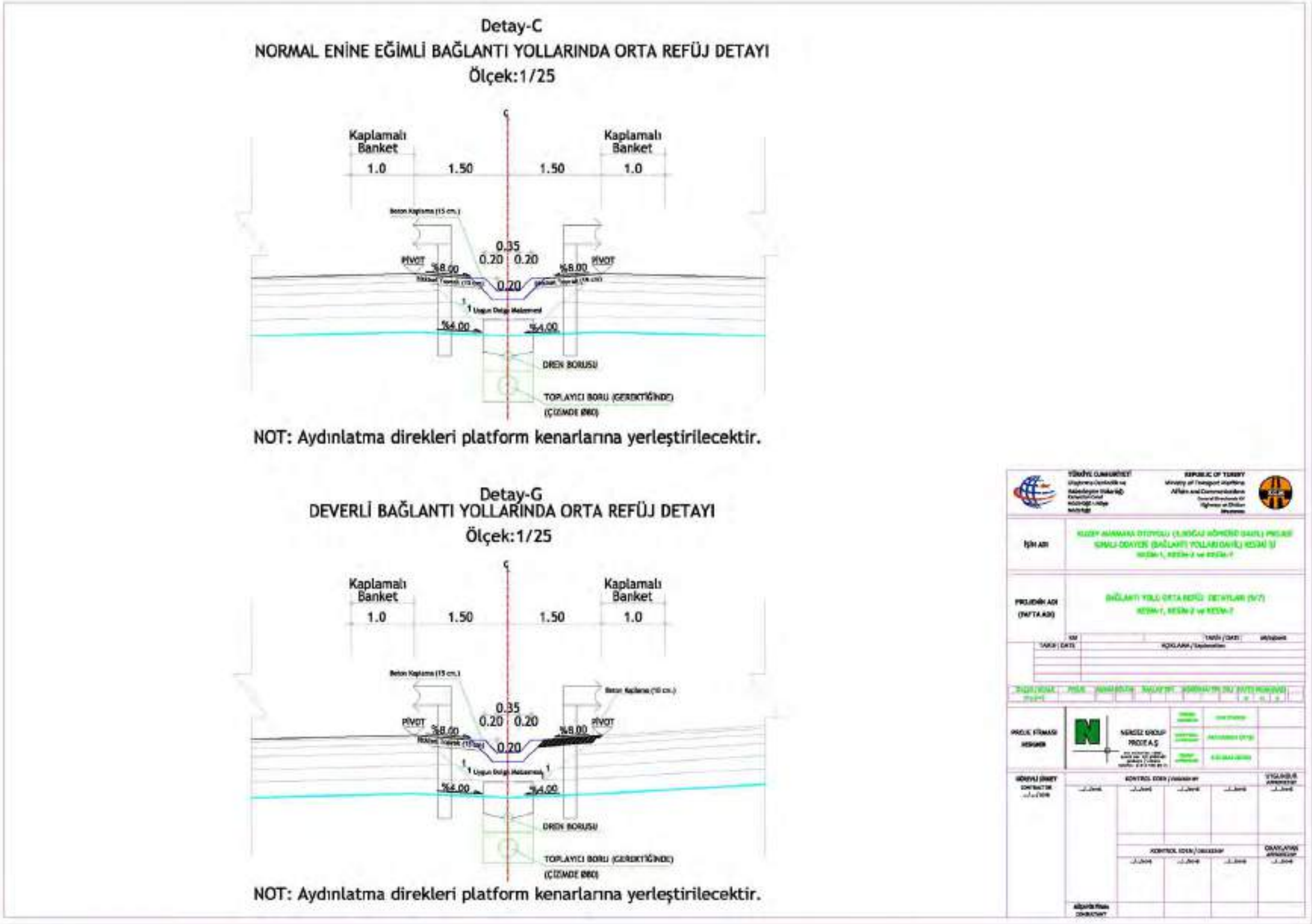
Annex-2.4. Typical Cross-sections for the Access Roads



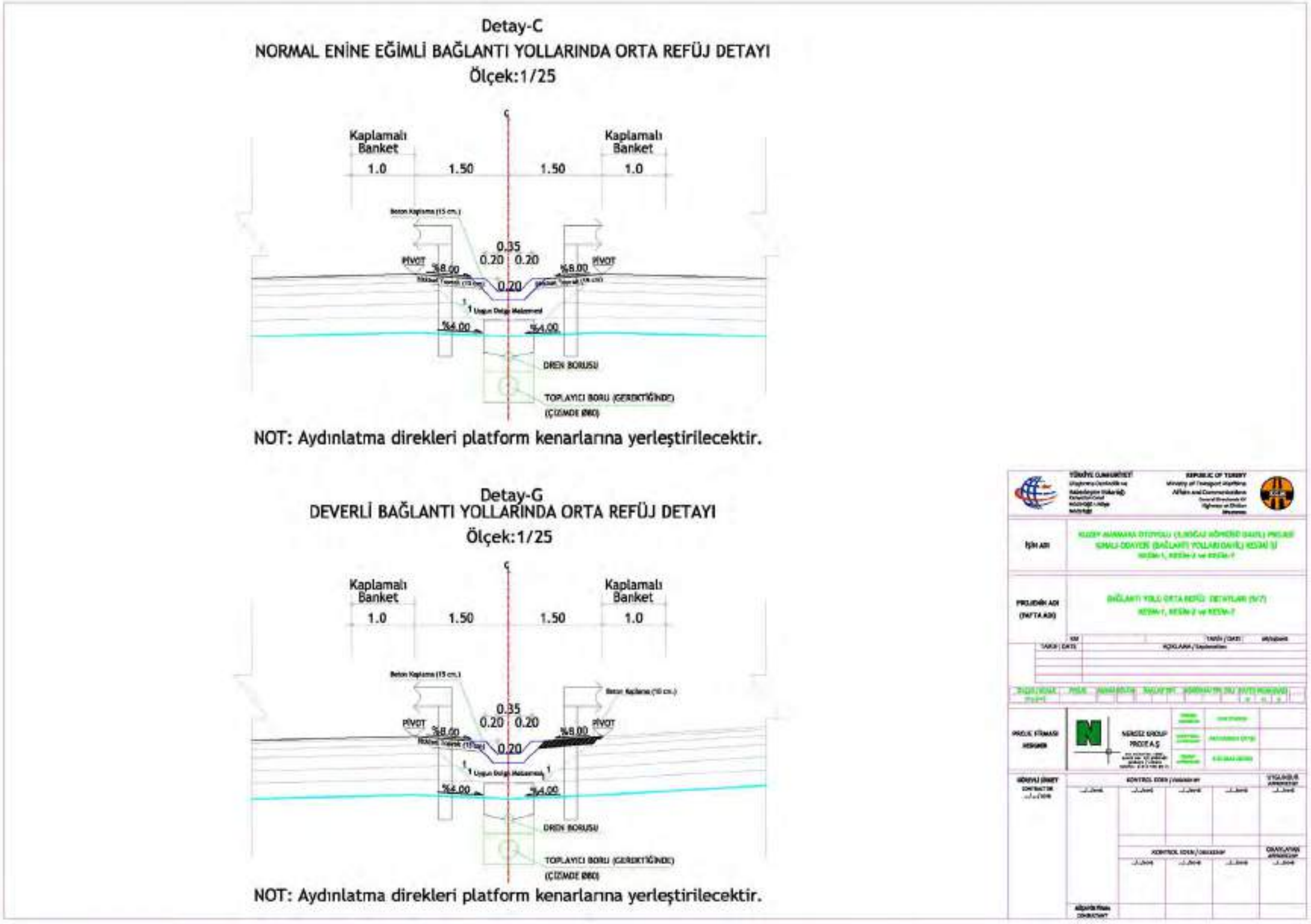
Annex-2.5. Typical Cross-sections for the Central Reserve in Access Roads



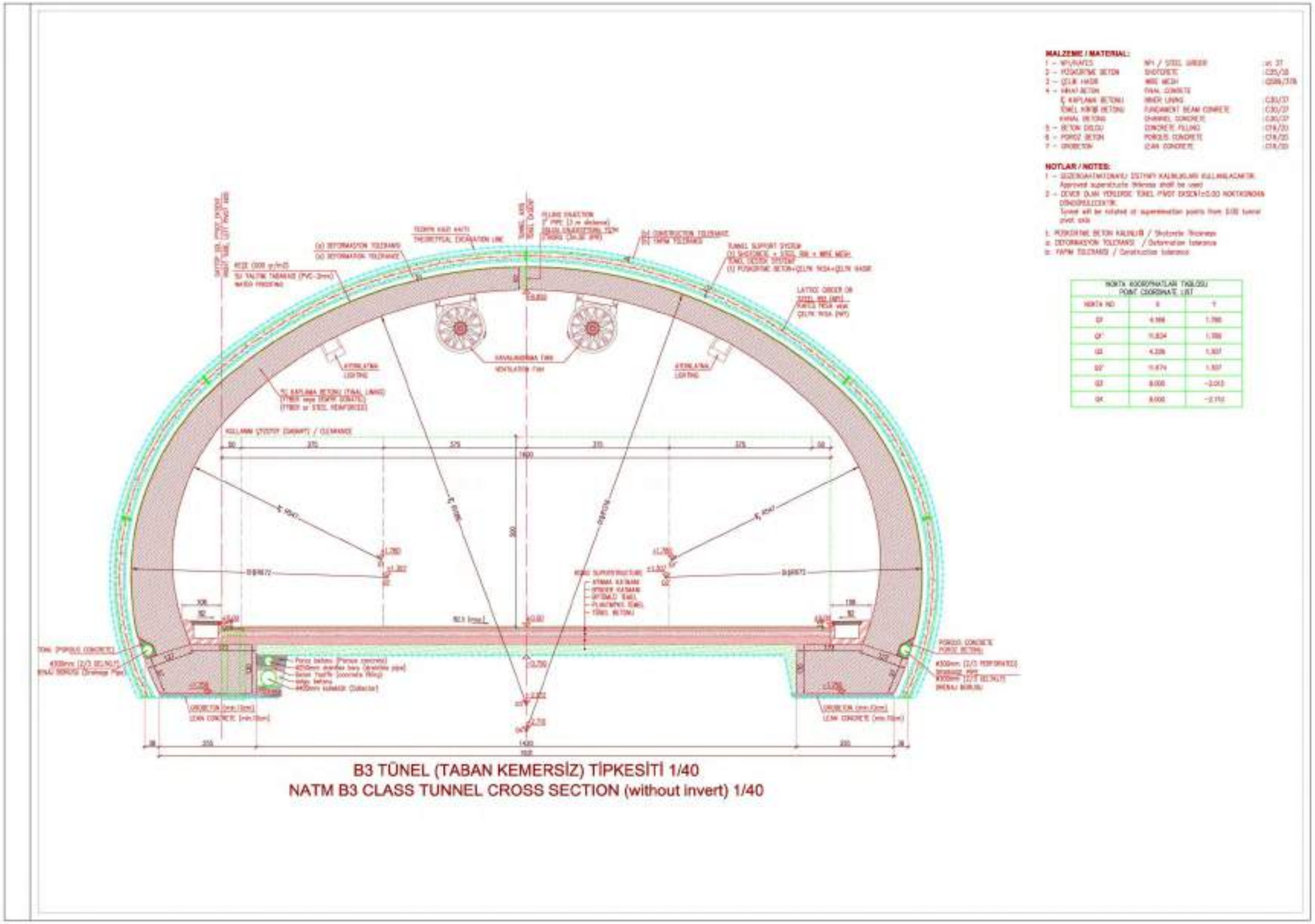
Annex-2.6. Typical Cross-sections for the Interchange Access Roads



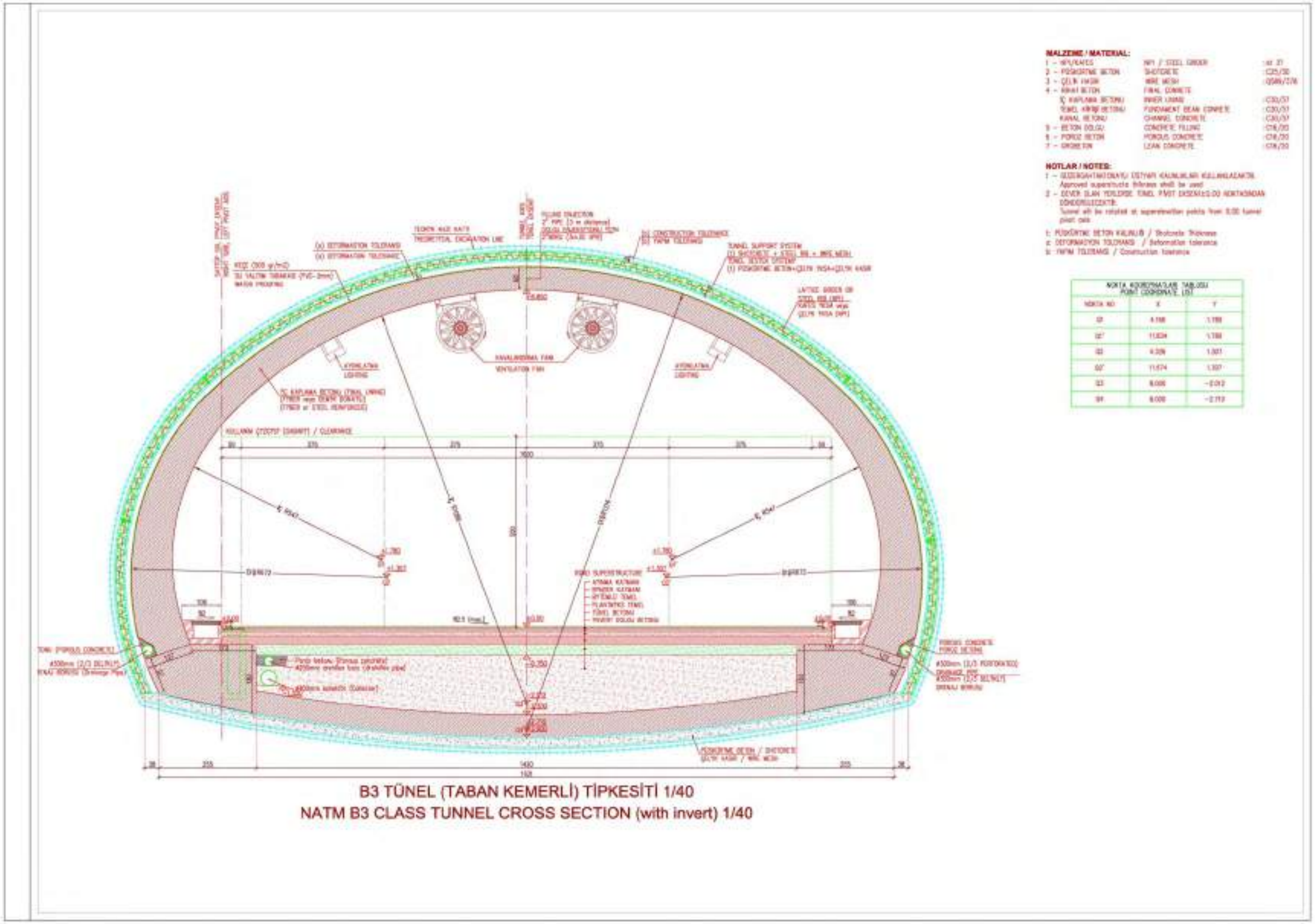
Annex-2.7. Typical Cross-sections for the Interchange Arms



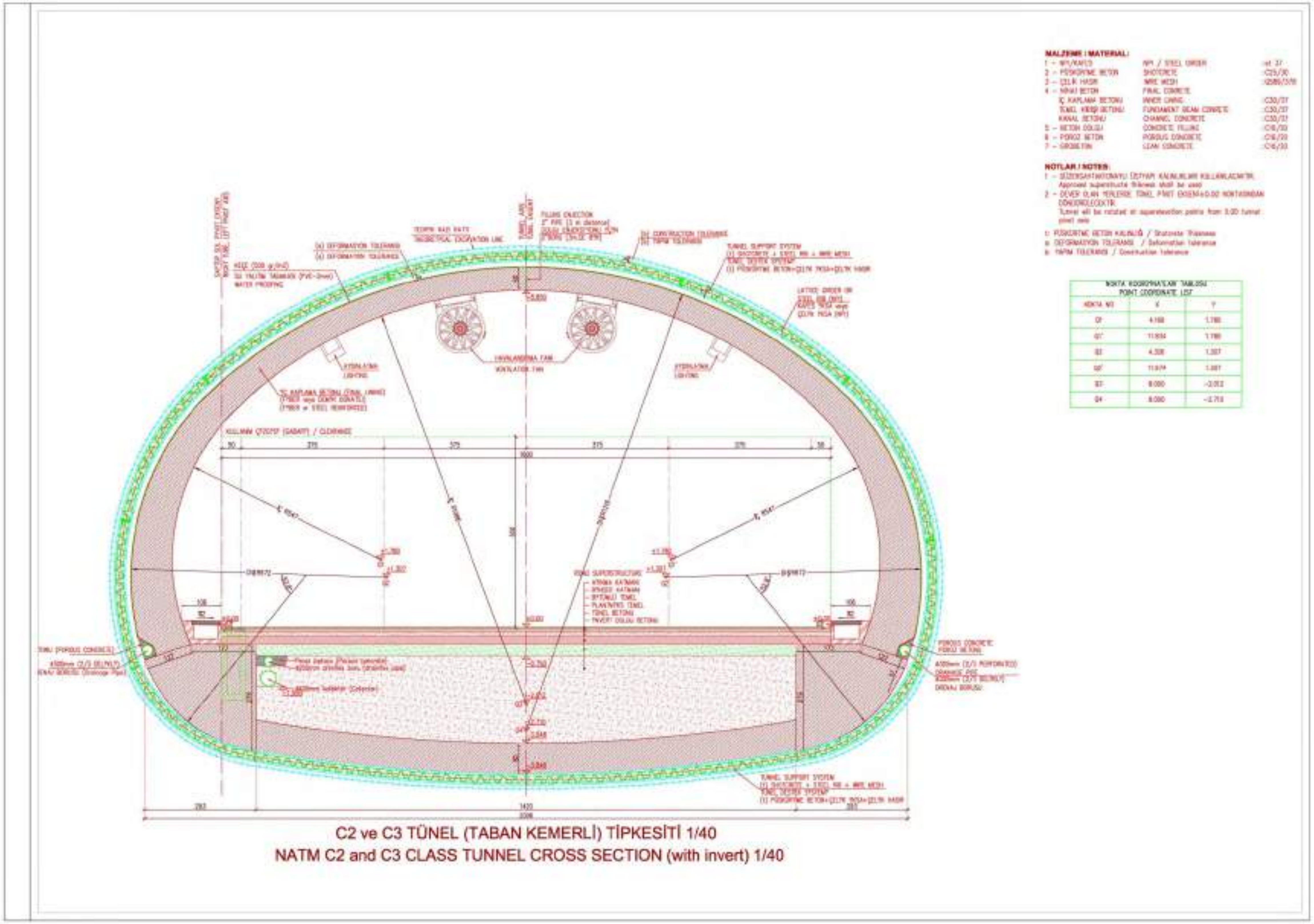
Annex-2.8. Typical Cross-section for Tunnel (1/3)



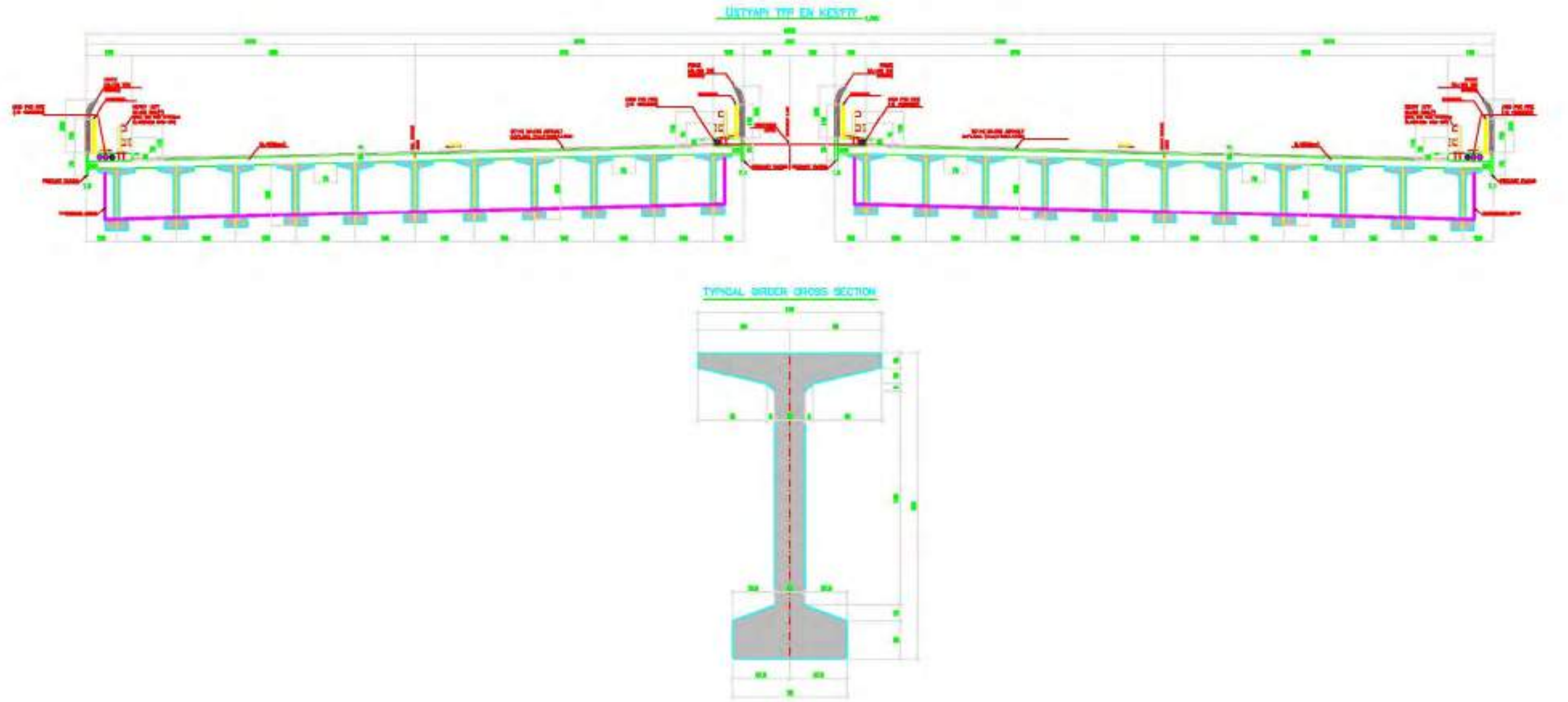
Annex-2.8. Typical Cross-section for Tunnel (2/3)



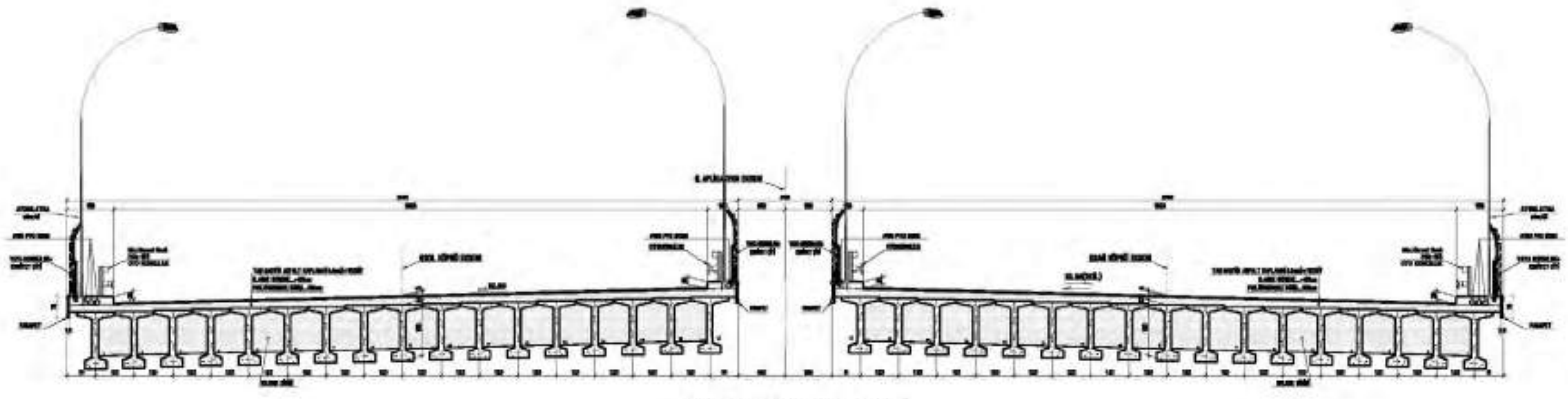
Annex-2.8. Typical Cross-section for Tunnel (3/3)

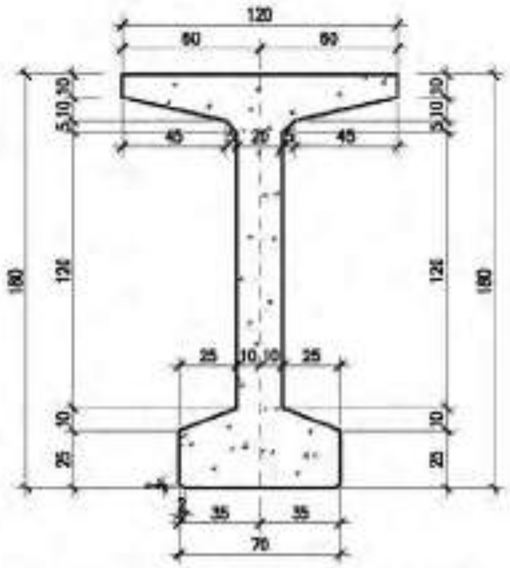


Annex-2.9. Typical Girder Cross-section (Closely Spaced) (1/4)



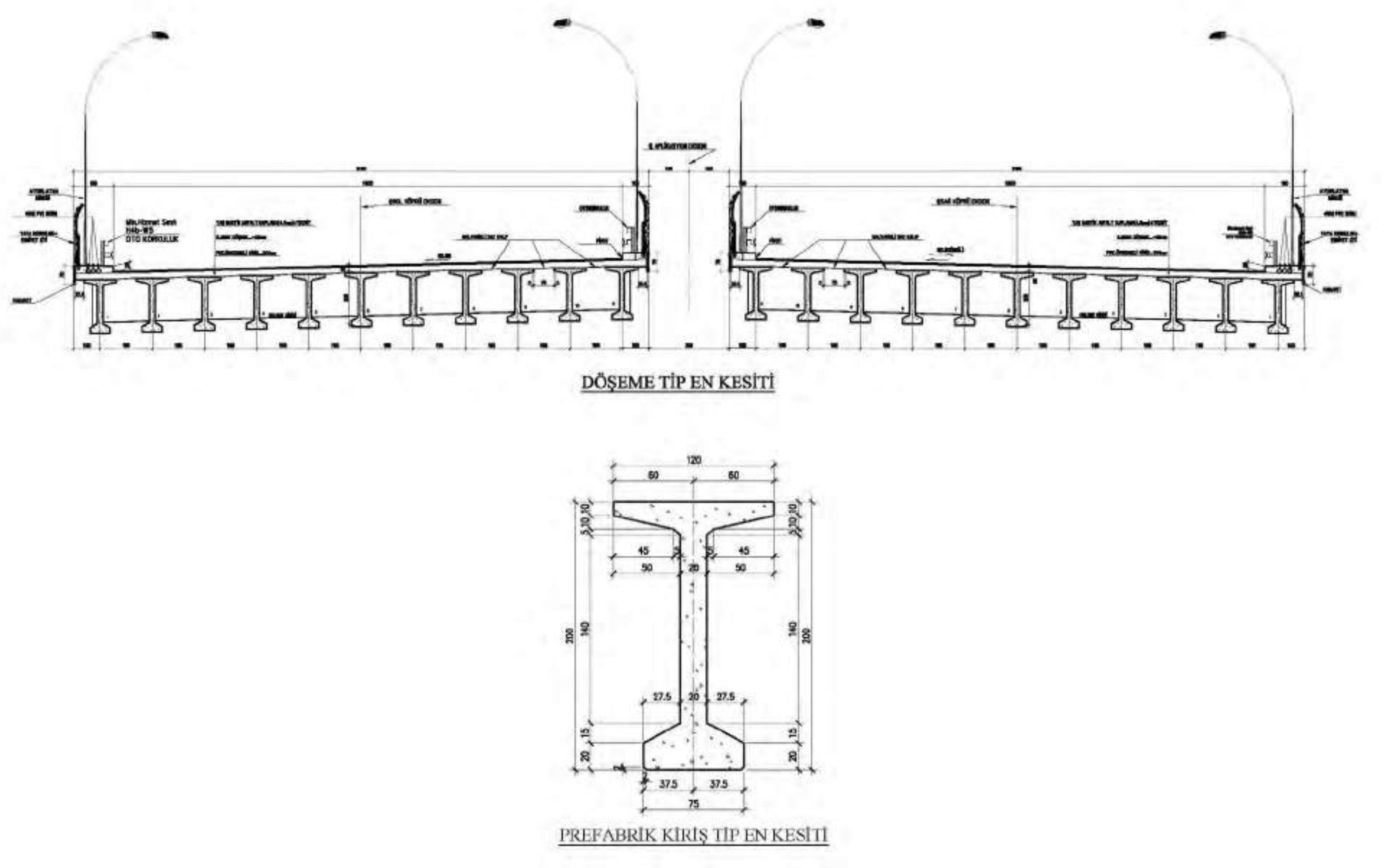
Annex-2.9. Typical Girder Cross-section (Adjacent) (2/4)


DÖŞEME TİP EN KESİTİ

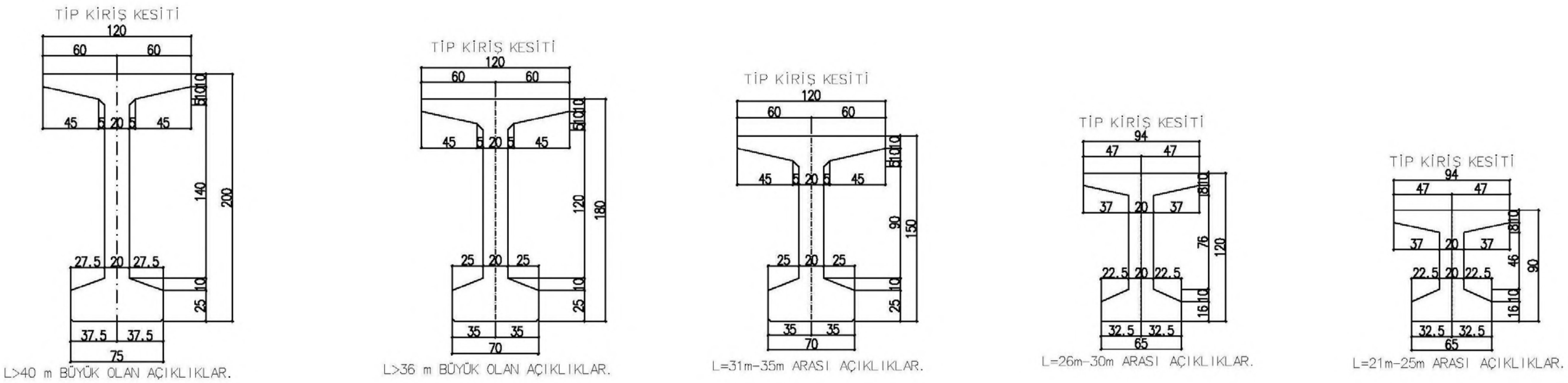


PREFABRİK KİRİŞ TİP EN KESİTİ

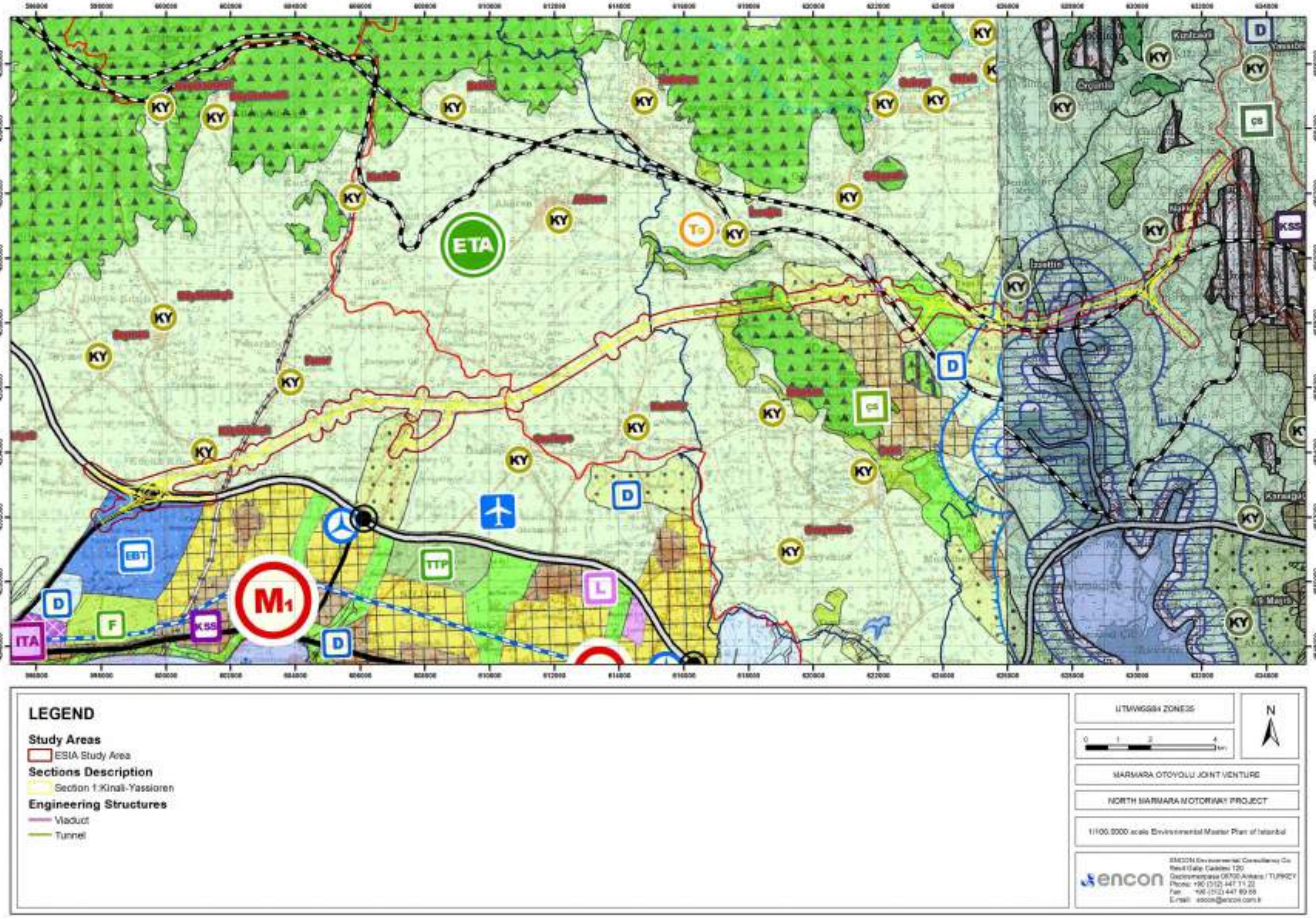
Annex-2.9. Typical Girder Cross-section (Separated) (3/4)



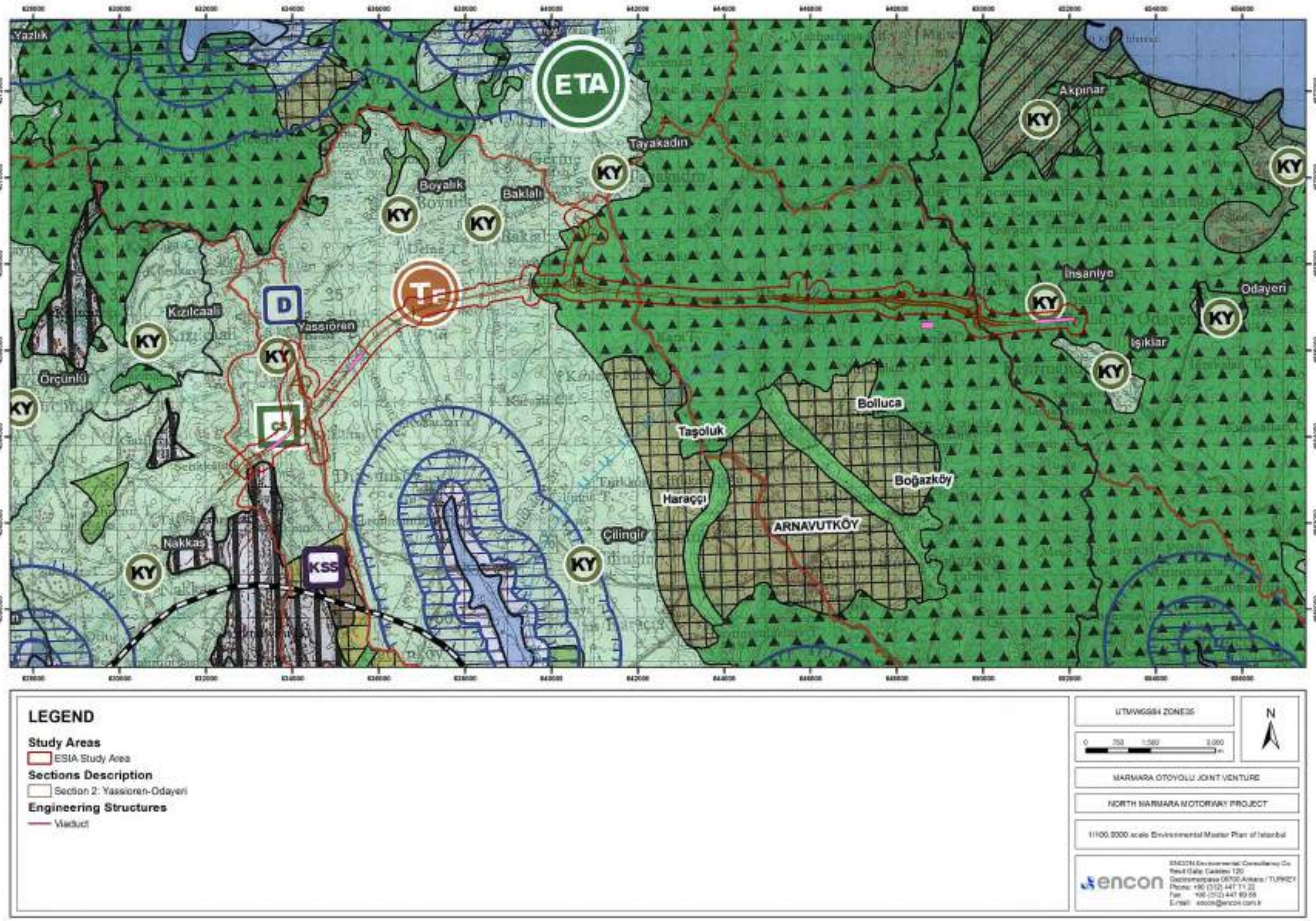
Annex-2.9. Typical Girder Cross-section (Separated) (4/4)



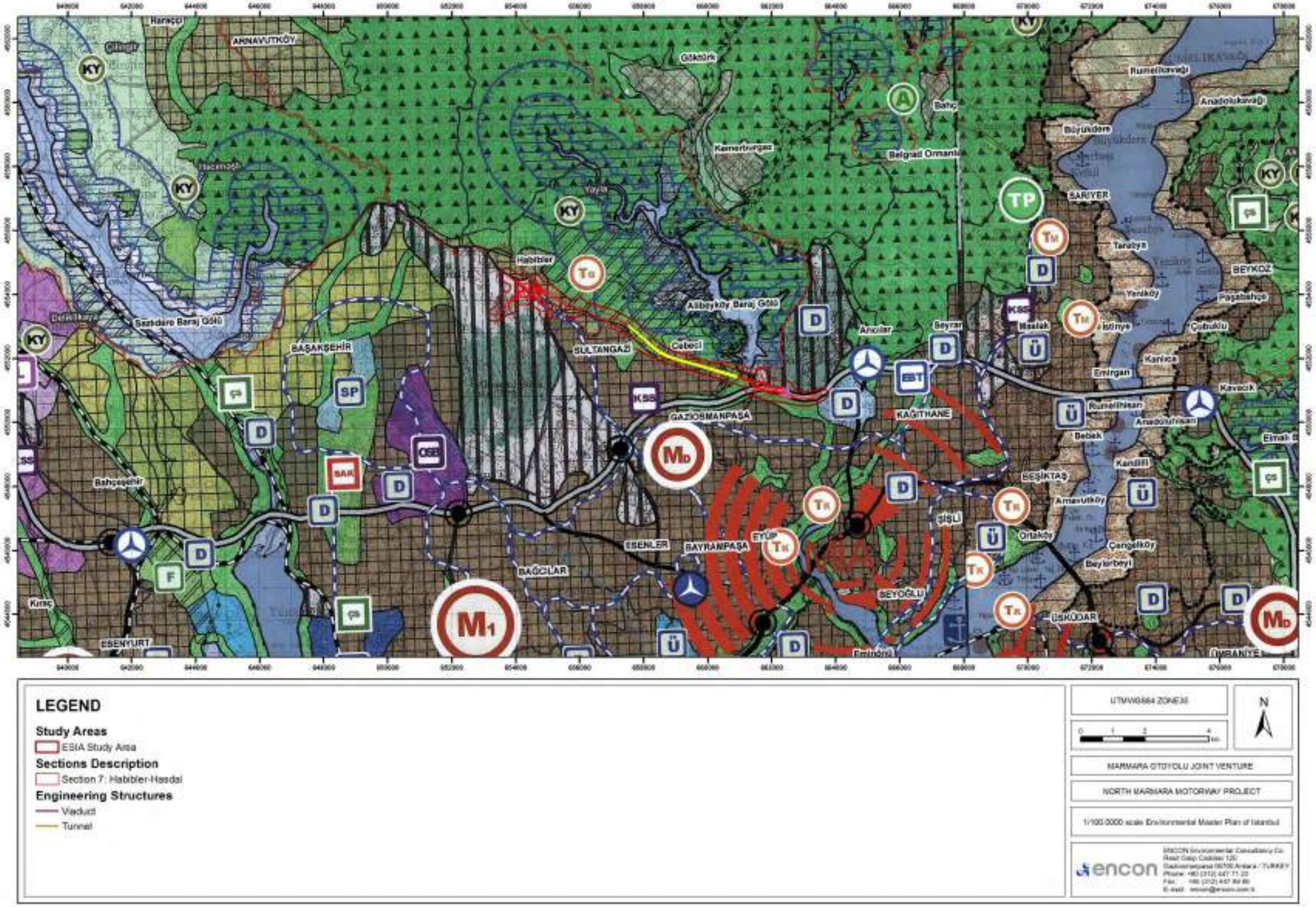
Annex-2.10. Demonstration of the North Marmara Motorway on the Environmental Master Plan of Istanbul (Section 1)



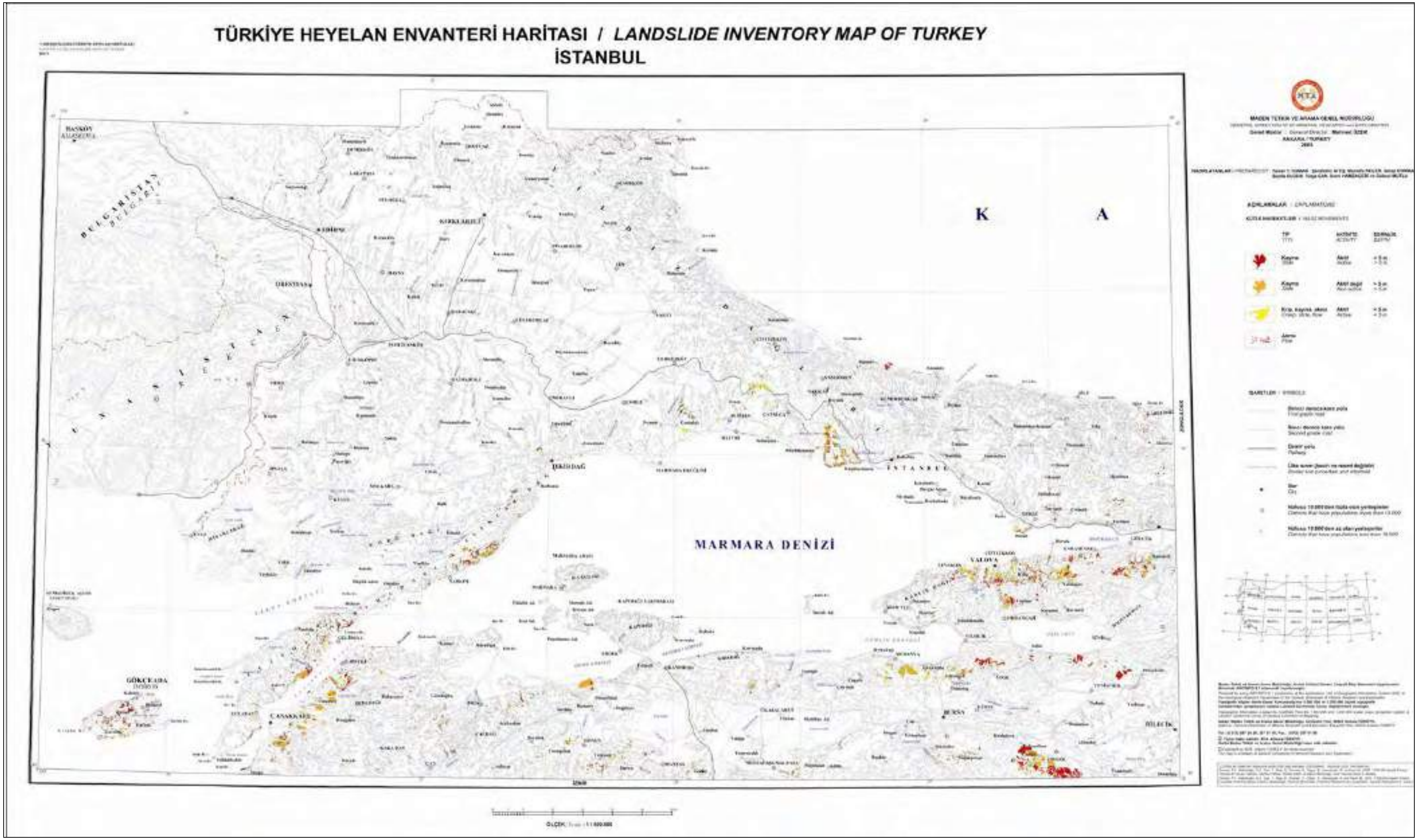
Annex-2.10. Demonstration of the North Marmara Motorway on the Environmental Master Plan of Istanbul (Section 2)



Annex-2.10. Demonstration of the North Marmara Motorway on the Environmental Master Plan of Istanbul (Section 7)



Annex-2.11. 1/500.000 scale MTA Landslide Risk Map



ANNEX-3

EMERGENCY PREPAREDNESS AND RESPONSE PLAN

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ABBREVIATIONS

BOT	Build, Operate and Transfer
CCTV	Closed Circuit Television System
EHS	Environmental, Health & Safety
EPR	Emergency Preparedness and Response
EPRC	Emergency Preparedness and Response Coordinator
EPRP	Emergency Preparedness and Response Policy
ERC	Emergency Response Centers
ERP	Emergency Response Procedures
ERT	Emergency Response Teams
ESIA	Environmental and Social Impact Assessment
EU	European Union
MOJV	Marmara Otoyolu Joint Venture
MoTMAC	Ministry of Transport, Maritime Affairs ad Communications
MTS	Traffic Direction Matrices
NGO	Nongovernmental Organisation
SPV	Special Purpose Entities
VMS	Variable Message Signs
VTS	Traffic Velocity Matrices

1. INTRODUCTION

Ministry of Transport, Maritime Affairs and Communications (MoTMAC), General Directorate of Highways (“KGM” or “the Administration”), as the owner of the North Marmara Motorway Project, has tendered for a contract in May 2016 in accordance with the Law on Implementation of Some of the Investments and Services in the Framework of Build, Operate and Transfer Model (Law No: 3996). As a result of this tender, KGM has commissioned two different special purpose entities (SPV) for the implementation of the European and Asian sections of the Project under the related Build, Operate and Transfer (BOT) contracts. In this regard, Avrupa Otoyolu Yatirim ve Isletme A.S. (Avrupa OYIAS) has been awarded with a BOT Contract for the implementation of the European sections of the Project and KMO Anadolu Otoyol Isletme A.S. (Anadolu OIAS) has been awarded with a BOT Contract for the implementation of the Asian sections of the Project. These two entities together form the Marmara Otoyolu Joint Venture (MOJV) and referred as “Project Sponsors” in the scope this Emergency Preparedness and Response Policy.

Emergency preparedness and response can be defined as the organization, coordination and implementation of a range of measures to prevent, mitigate, respond to, overcome and recover from the consequences of emergency events affecting the community, its assets and the environment. Emergency preparedness is an integrated part of the planning and implementation process for the Project. It starts from proper planning and design and extends to safe construction and operation including further considerations regarding emergency response.

Emergency planning requires identification and assessment of the hazards likely to cause an emergency. In this regard risk assessment and management will be carried out in line with related Turkish legislation and international standards. EPRP focuses on reducing the risks that would end up as emergencies and at the same time being prepared for the unavoidable emergency events. The first part is more related to proper environmental, health and safety management, while the second part is concentrating on the means of response to emergencies (including sufficient care, trained staff, tools and equipments, etc.). Thus, this Emergency Preparedness and Response Policy (EPRP) establishes the targets and framework regarding the means for dealing with possible emergency situations during construction and operation.

2. PROJECT SPONSORS EMERGENCY PREPAREDNESS AND RESPONSE POLICY (EPRP)

2.1. Objectives

Project Sponsors and their nominated contractors will respond to and manage emergency events in accordance with statutory requirements, best practice procedures and the requirements of this EPRP. Project Sponsors will implement this policy with a continuous improvement approach by monitoring and further developing/refining the relevant emergency response measures.

The main objective of the EPRP of Project Sponsors is to establish strategies and procedures for managing all aspects of emergency situations associated with project components. In this regard the EPRP consists of targets and procedures regarding the following aspects of emergency management:

- Prevention and preparation measures (actions to be taken before emergency)
- Response measures (actions to be taken during emergency)
- Damage assessment and recovery measures (actions to be taken after emergency)

2.2. Principles

The basic principles that Project Sponsors have adopted, which provide a basis for the policies and practices provided in the upcoming sections are as follows:

- Providing a safe working environment for the workers in line with Occupational Health and Safety Management policies.
- Providing safe transportation infrastructure for all users in line with Community Health and Safety Management policies.
- Maintaining the integrity of the motorway system (including all infrastructure, tunnels, bridges, etc.) through proper operation, maintenance and repair as necessary.
- Managing the Project in an environmentally responsible and sustainable manner in line with Environmental Management policies.
- Providing road corridors and user facilities with appropriate amenity.
- Developing, implementing and maintaining emergency preparedness and response plans and practices for emergency events specific to the Project components.
- Ensuring that there will be sufficient number of trained and capable staff and relevant tools and equipments, at all times, to manage emergency events.
- Monitoring and reviewing the EPRP regularly and making improvements as necessary.
- Involving subcontractors and suppliers in the adoption of the same commitments taken on in the matter of EPRP.

2.3. Institutional/Organizational Arrangements

2.3.1. Framework for Emergency Preparedness and Response

The framework for EPR is outlined by the relevant Turkish laws and regulations and international industry/sector good practices for motorways. The minimum requirements are established by the provisions in relevant legislation, including provisions for the occupational and public health and safety integrated with the environmental protection in the case of accidental cases or disastrous events. This legal and regulatory framework comprises the following:

- Environmental Law No: 2872
- Occupational Health and Safety Law No: 6331
- Labor Law No: 4857
- Social Insurance and General Health Insurance Law No: 5510
- Public Health Law No: 1593
- Law of Precautions and Aids in Case of Disasters Affecting Public No: 7269
- Law on Forests No: 6831
- Law on Special Provincial Administration No: 5302
- Regulation on Occupational Health and Safety
- Regulation on Safety and Health Signs
- Regulation on Health and Safety Provisions in Use of Work Equipment
- Regulation Concerning Health and Safety Measures for Works Involving Chemical Substances
- Regulation Concerning Protection of Workers from the Dangers of Explosive Environments
- Regulation on First Aid
- Regulation on Procedures and Principles of Occupational Health and Safety Trainings of Employees
- Regulation Concerning Use of Personal Protective Equipment at Workplaces
- Regulation on Protection of Buildings from Fire
- Regulation Concerning Buildings to be Built at Earthquake Zones
- Regulation Concerning Buildings to be Built at Disaster Zones
- Regulation on Environmental Impact Assessment
- Regulation on Protection of Workers From Risks of Vibration
- Regulation on Protection of Workers From Risks of Noise
- Regulation on Prevention and Mitigation of Impacts of Large-Scale Industrial Accidents
- Regulation Regarding Hazardous Substances Transportation via Motorway Waste Oil Control Regulation
- Environmental, Health, and Safety Guidelines for Toll Roads (IFC, 2007)
- Environmental Health and Safety General Guidelines (IFC, 2007)

Some emergency categories are defined with regard to the significance scale of the emergency occasions. With this regard 4 categories are defined from least significant (Category 1) to most significant (Category 4). Some of the incidences defined under these categories can be summarized below in Figure 1.

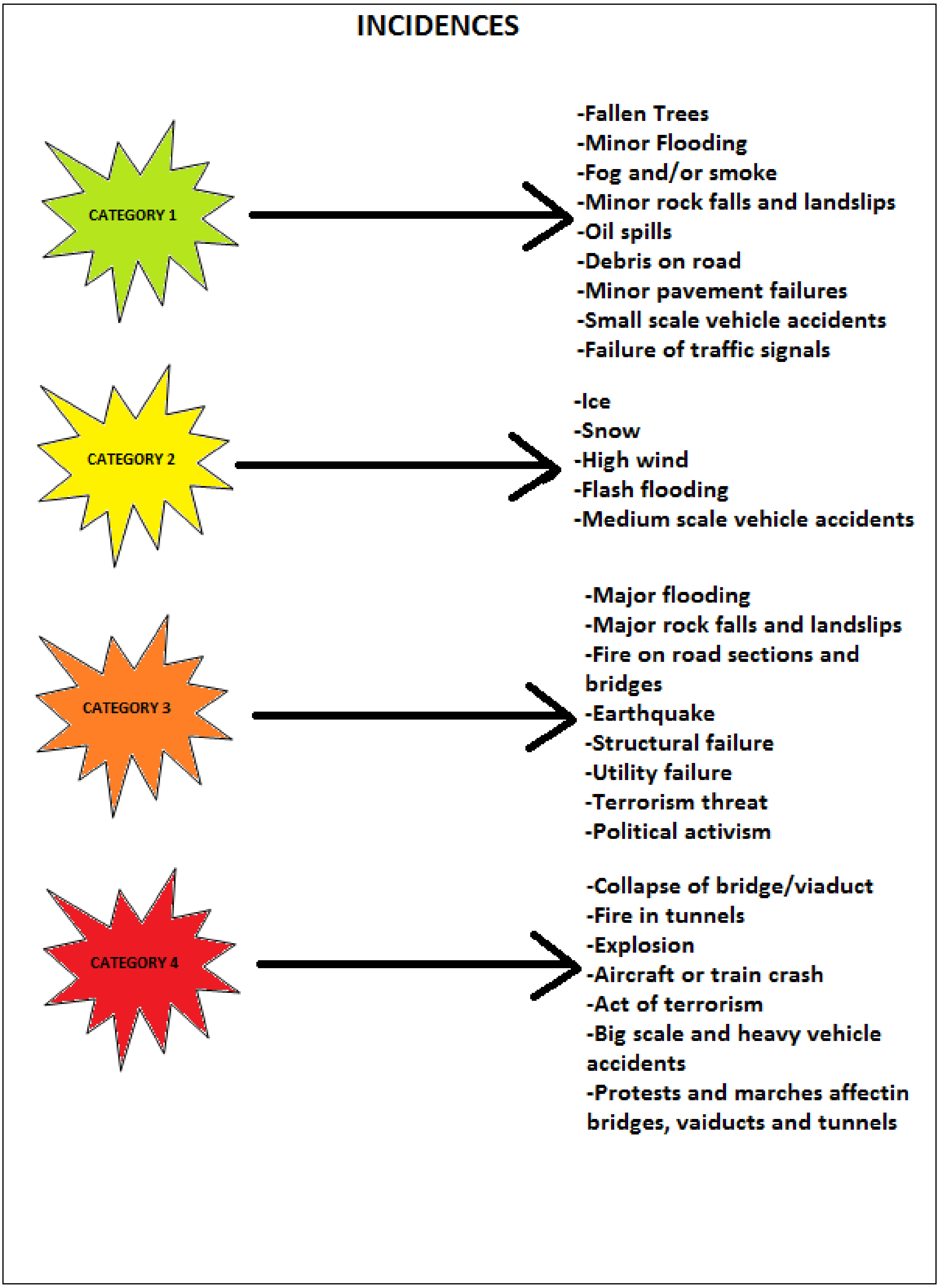

Figure 1. Categories of Incidences

2.3.2. Institutional Arrangements for Emergency Categories 1 and 2

For these emergency categories Project Sponsors, and their contractors, are the main responsible bodies. For traffic control and relevant road closures Turkish Police/Gendarme Force will be responsible. Province/District Fire Departments/Services have the responsibility for management of fire incidents during operation phase. Where Police/Gendarme Force or Fire Departments are involved they act as the Lead Agency and staff of Project Sponsors or its' contractors (e.g. maintenance contractor, etc.) will provide the relevant support.

In this respect, Project Sponsors will assign an Emergency Preparedness and Response Coordinator and establish Emergency Response Teams to act in line with the EPRP. In addition, Emergency Response Centers will be established for control and coordination of emergency response actions. Relevant institutional bodies and information about them are submitted in Table 1 below.

Table 1. Institutional Arrangements and Responsibilities for Emergency Categories 1 and 2

Title	Remark	Responsibilities
Project Sponsors Management	All activities that are performed during construction and operation phases of the project are under the responsibility of the Project Sponsors Project Management	• Selection and assignment of the Emergency Preparedness and Response Coordinator and approval of Emergency Response Teams to be established by the EPR Coordinator. • Providing necessary resources to Emergency Response Centers (e.g. staff, vehicles, equipments etc.). • Annual management review related to EPRP and approval of the recent version of the EPRP and related procedures. • Approval of the major activities, which are not included in this EPRP, to be developed further and taken during an emergency situation. • Evaluation of the incidence reports prepared after any emergency situation.
Emergency Preparedness and Response Coordinator (EPRC)	In general, implementation of the activities developed and specified in the EPRP and improvement of this policy and related procedures are the main responsibilities of the EPRC.	• Establishment of the Emergency Response Teams (ERT). • Training the ERT and the project staff for emergency situations in line with the EPRP. • Making the division of responsibilities between ERT members. • Reviewing and improving, if necessary, the EPRP and related procedures together with the ERT annually. • Controlling functionality and practicality of the EPRP and related procedures by performing exercises in specified intervals. • According to type of emergency situation, determination of the people that will be contacted during emergency response, and keeping contact information of these people in written form in a place that everybody in the ERT can reach. • Keeping the contact information of the ERT and people that will be contacted in emergency situations updated. • Coordinating the ERT in order to successfully implement the EPRP and related procedures in emergency situations. • After the end of emergency, reviewing the situation with the ERT and preparation of the incidence report. • Communication and coordination with the district and provincial emergency management centers and responsible organizations. • Disclosure or relevant information to public and activities for arising awareness.
Emergency Response Teams (ERT)	Emergency Response Teams will be established from the project staff according to their capabilities.	• Attending the training sections and exercises for implementing the EPRP and related procedures. • Reviewing and improving, if necessary, the EPRP and related procedures annually together with the EPRC. • Informing EPRC when an emergency situation occurs. • According to type of emergency situation, implementing the necessary measures in accordance with the EPRP and related procedures. • Notifying the relevant designated contact people and authorities/agencies. • Reviewing the situation with the EPRC after the end of emergency situation, and preparation of the incidence report.
Emergency Response Centers (ERC)	Emergency Response Centers will be established in the construction sites by EPRC during the construction phase. During the operation phase, the centers will be established in operation center(s) as relevant.	• An ambulance will be available on-site for 24 hours for emergency situations. • Vehicles that will directly be involved in any emergency situation will be identified. • The necessary equipments to be utilized in any emergency situation will be identified and placed in the ERC. • Communication infrastructure to act as centers of coordination. • Sufficient staff to manage emergency response activities.

2.3.3. Institutional Arrangements for Emergency Categories 3 and 4

For these emergency categories relevant governmental agencies have the leading role. Project Sponsors, and their contractors, have the responsibility to communicate the situation to relevant authorities and for providing all necessary support during and after emergency incidence. In this regard the General Directorate of Highways (KGM) and its Regional Directorates carry the main responsibilities for severe emergency situations related to the Project, especially during the operation phase, together with relevant local and central governmental agencies. Such severe emergency situations would include occasions such as earthquakes, terrorist attacks, collapse of bridge and viaducts.

The central government and provincial and district authorities have legal responsibility for emergency management nationwide and in their area of authority as they have direct responsibility for the protection of life and property of the public against the effects of natural and human caused disasters. In Turkey, institutions responsible for emergency preparedness and response mainly include the following governmental bodies:

- General Directorate of Disaster Affairs
- Provincial and district governorships (including all relevant local governmental agencies such as fire departments)
- Municipalities
- Red Crescent of Turkey

In addition, various nongovernmental organizations (NGOs), such as Search and Rescue Association (AKUT), take part in emergency situations, as necessary in coordination with the governmental leading agencies. The hierarchy of responsibility for emergency response at national scale is presented in Figure 2.

At provincial level, local directorate of various agencies carry the responsibility of dealing with emergency situations in coordination with the governor's office. These agencies include, but not limited to, Provincial Directorates of Health, Fire Fighting, Environment and Forestry, and Special Provincial Administration. These emergency situations include natural disasters (e.g. earthquakes, major floods, extended fires, explosions, significant accidents, etc.)

In a major emergency event if the capacity of a local authority (agency/center) responsible for managing emergencies is not sufficient to handle the situation, it shall require support from the closest authorities. In addition, all governmental authorities have obligations to provide relevant support and help in the capacity to overcome major emergency situations (e.g. storms, severe weather conditions, major floods, earthquakes, accidents on motorway, public health epidemic, civil disturbance/riot, and terrorism).

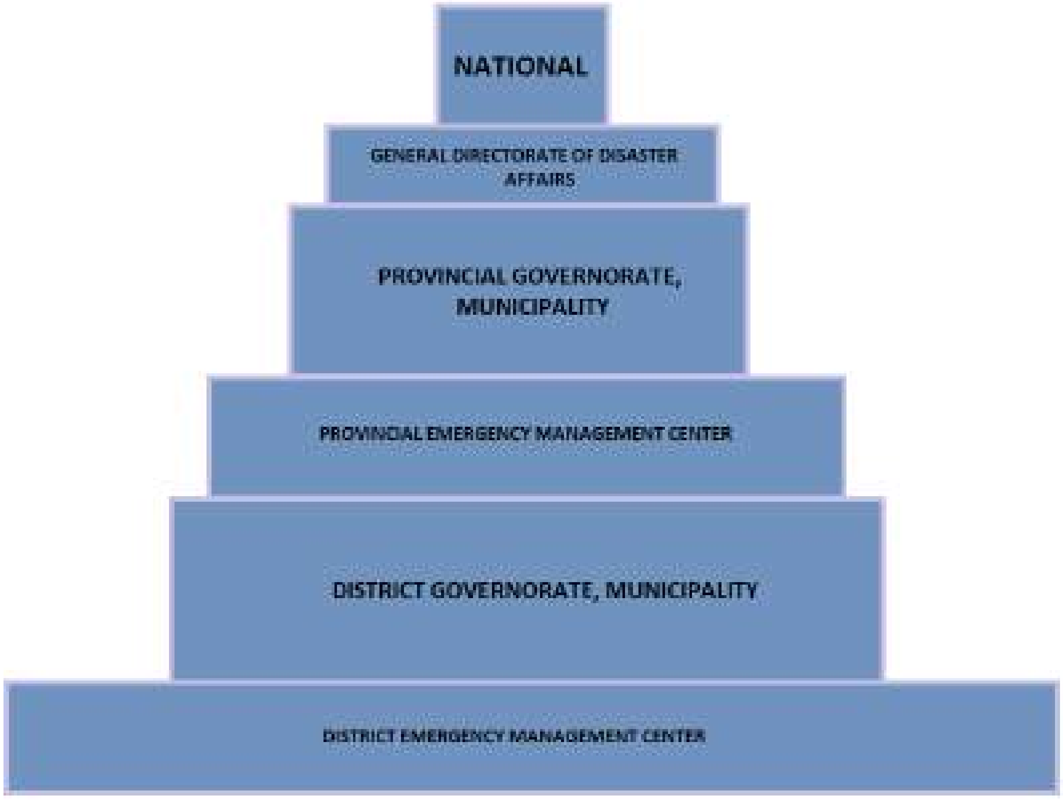

Figure 2. National Scale Emergency Response and Coordination Hierarchy

2.4. Organization Chart

2.4.1. Construction Phase

At the construction phase of North Marmara Motorway Project, there will be two main organizational structures responsible for the construction activities of the Asian and European sections. With respect to emergency preparedness and response the organizational structures to be employed would be the same.

It is planned that the Health and Safety Manager would also act as the Emergency Preparedness and Response Coordinator (EPRC). Thus, emergency preparedness and response would be under the responsibility of the Health and Safety Department. The emergency response teams and centers would be acting under the coordination of the EPRC. Here it should be noted emergency response teams would be composed of staff from all relevant directorates/department.

The responsibilities and functions of the EPRC and ERT and the functions of the ERC are presented in the previous section. The overall organization charts for the construction and operation phases of the project are provided in the EHS and Labor/Employment Policy. Therefore, here only the general organizational structure with regard to EPRP is provided. The general EPRP organization chart for the construction phase is presented in Figure 3.

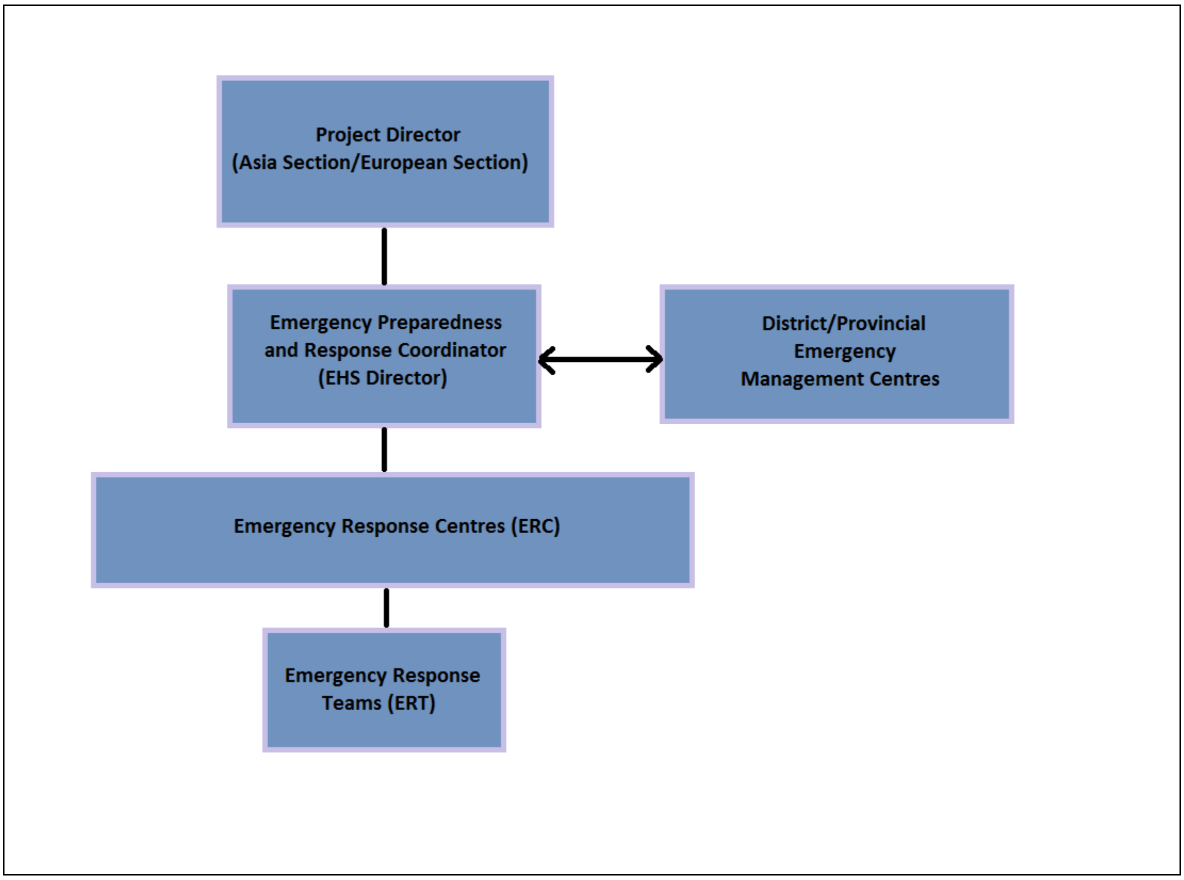

Figure 3. Emergency Preparedness and Response Organization Chart for the Construction Phase

2.4.2. Operation Phase

With the start of the operation period, the organization will be operation-oriented. Roles and responsibilities for Project Coordination, Traffic Management, Safety and Maintenance functions including Traffic and Safety Control and control and maintenance of booth equipment will be assigned.

Similar to the construction phase, the Health and Safety Manager is envisaged to act as the Emergency Preparedness and Response Coordinator (EPRC) during the operation phase as well. Thus, emergency preparedness and response would be under the responsibility of the Health and Safety Department. The emergency response teams (composed of staff from various relevant directorates/departments) and centers would be acting under the coordination of the EPRC.

The responsibilities and functions of the EPRC and ERT and the functions of the ERC are presented in the previous section. Therefore, here only the general organizational structure with regard to EPRP is provided. The general EPRP organization chart for the organization phase is presented in Figure 4.

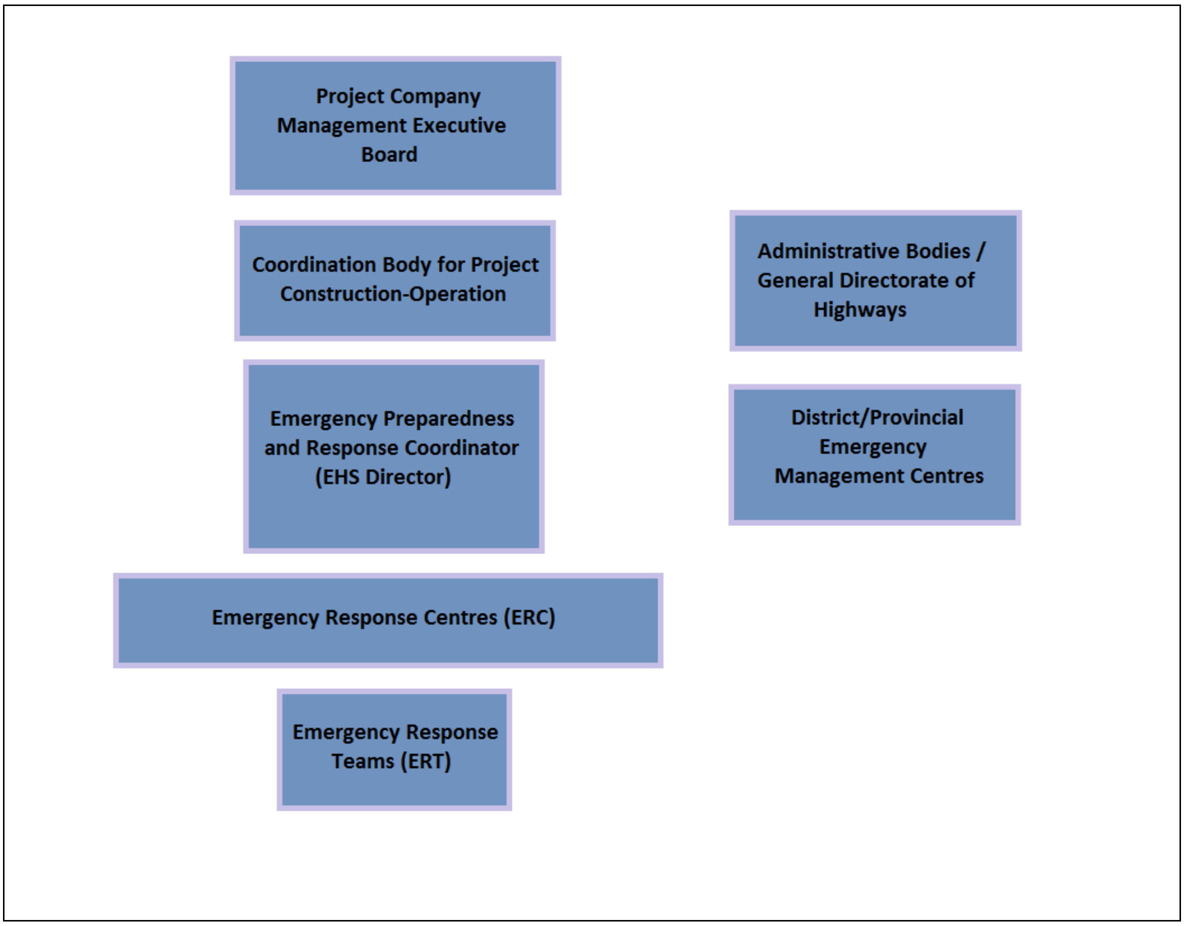

Figure 4. Emergency Preparedness and Response Organization Chart for the Operation Phase

3. PROJECT SAFETY REQUIREMENTS AND EMERGENCY PREPAREDNESS

This section covers the actions to be taken before an emergency situation takes place. These actions are mainly associated with proper planning and design of the project units, construction in accordance with specifications and operation and maintenance in line with project safety requirements. It also includes the actions to be taken for preparing to an emergency such as installation of monitoring and warning systems, communication systems, and carrying out impact studies, training of staff for vigilance, procedures for warning, communication, mobilization of emergency forces and equipment, responsibilities, and evacuation practices.

3.1. Objective and Scope

Project safety requirements aim to develop the Project in a safe manner preventing or minimizing the possible impacts to be caused by the project on human and environmental health and safety during its construction and operation. Planning for emergency preparedness aim to eliminate or reduce the impacts of a potential hazard and increase the resilience of potentially affected communities to recover from the consequences. Thus, emergency preparedness planning is a part of project safety requirements and an integral part of the project planning activities.

Project Sponsors are responsible for developing the Project in compliance with national and international safety standards including necessary means for the prevention of emergencies related to the Project, and where this is not possible minimization of the adverse consequences on humans and the environment. The major emergency preparedness planning actions would include briefly the following:

- Setting, implementing and reviewing the EPRP and related procedures.
- Managing and monitoring the conditions of the Project components.
- Establishing communication mechanisms for close cooperation and coordination with the General and Regional Directorates of Highways, Provincial Governorships and Municipalities across the route of the Project.
- Preparing and updating risk assessment studies, taking into account of any new or emerging risk related to the Project components and adequacy of present control measures.
- Assigning resources (e.g. man power, equipment, funding, etc.) to establish mitigation measures for the identified hazards that have a risk of causing significant adverse impacts.

3.2. Hazard Identification and Analysis and Control of Risks

3.2.1. General Hazards

In this EPRP a number of major hazards have been identified, which might have the potential to affect the integrity of the Project and placing the construction workers, the community residing in the vicinity of the Project route and road users at risk. These hazards, any other that might be identified, and their possible consequences would be studied in further detail during environmental and social impact assessment (ESIA) studies.

The hazards are classified into four main categories that reflect the potential level of significance with respect to mainly the consequences. Category 1 and 2 type incidences might be more frequently seen when compared with Category 3 and 4 type incidences. However, generally the consequences of Category 3 and 4 type incidences would be more significant requiring the involvement of more than Project Sponsors including various governmental agencies and sometimes relevant NGOs.

3.2.2. Analysis of Risks

In line with this EPRP and the further planning studies including design and ESIA, Environmental and Health and Safety Departments, or consultants to be designated, will conduct risk analyses, as necessary, for all major project components (i.e. tunnels, bridge and viaducts, motorway). The results of the risk analysis shall be included in the safety documentation to be submitted to the relevant governmental authorities in line with their reporting requirements.

The risk analysis would take the following factors into consideration:

- All design specifications
- Geographical characteristics (i.e. topography, geology, weather, etc.)
- Forecast for traffic loads (including heavy vehicle traffic)
- Traffic characteristics and type
- Length and geometry of tunnels
- Length and geometry of bridge and viaducts

As a result of these studies a risk/hazard register would be established and would be reviewed and updated, if necessary, on a regular basis (i.e. annually). While forming and updating the register the following issues would be taken into account:

- Project components and any new installations
- Nearby land use and changes with time
- Demography and settlements, as well as community behaviour (e.g. increasing traffic loads on particular sections), and changes with time
- Priorities for risk control
- Opportunities and mechanisms to treat and mitigate risks
- Risk control measures
- Availability of necessary resources and their supply

3.2.3. Risk Control Measures

Based on the results of the risk analysis Project Sponsors aim to reduce the likelihood and adverse consequences of emergency events through risk control measures, which would broadly cover two main areas as follows:

- Physical treatment and measures
- Process and procedural measures

Physical Treatment and Measures

Physical measures include physical safeguards taken, or installed, for prevention and minimization of the occurrences of emergency events. In general these include the following main items:

- Establishment of proper infrastructure and improvements as necessary such as proper maintenance and upgrading of road surfaces, bridges and drainage systems.
- Establishment of standard structural measures such as safety barriers and traffic control devices including signals, warning signs, etc.
- Establishment of maintenance and management units with sufficient resources.

Process and Procedural Measures

These measures mainly cover establishment of systems and procedures that enable effective and efficient emergency response arrangements. In general these measures would cover the following main areas:

- Management of Project components and work programs.
- Training and awareness increasing programs for project staff.
- Establishing adequate risk management and reporting systems
- Establishing procedures for the safety of physical and human assets.
- Participating in the municipal and governorship level emergency management planning and response committees.
- Keeping the emergency management among on one of the important management functions through provision of sufficient resources.

3.3. Project Safety Requirements

In Turkey the safety requirements for motorways are following the European Union (EU) standards based on the fact that Turkey is in the accession period to EU. In fact, in many fields Turkey has been adopting the *EU acquis*. In the following sub-sections the safety requirements are provided for the motorway in general and for tunnels and bridge and viaducts.

3.3.1. General Safety Requirements for the Motorway

In order to secure the proper and safe traffic flow along the motorway some major structures and physical measures will be provided. These measures aim to minimize the potential for accidents and other risky incidences. In addition, they would contribute to make emergency response and management easier and more effective. These can be summarized as follows:

- Service roads and under and over passages
- Big culverts
- Retaining walls
- Maintenance facilities, service and resting/parking areas
- Guard rails
- Traffic signalization plates and lighting
- Horizontal marking

Based on the results of further studies including the risk analysis, further details regarding the physical safety measures for the motorways would be identified and applied as appropriate.

Service Roads

The construction contractor will construct service roads in order not the affect (such as increasing the heavy traffic load) the natural flow on the existing roads and for avoiding the passage of heavy vehicles through residential areas to the extent possible. In addition service roads will be constructed where the traffic will be temporarily diverted. Furthermore, service roads will be used for transportation of the construction machinery, equipments and materials used for Project.

A series of local roads will intersect with the motorway so necessary structures such as under and over passages for these intersections will be built.

Big Culverts and Retaining Walls

The culverts are standard structures of motorways designed generally for the passage of water and some wildlife species. In addition to those, big culverts would be constructed, where necessary, for stream passages and for farm roads.

The retaining walls might be needed at certain sections for achieving soil and slope stability and prevention of rock or stone falling to the road. At such sections retaining walls will be used.

Maintenance Facilities, Service and Resting/parking Areas

Maintaining the motorway surface and structures at best conditions ensured during design and construction is one of the key activities to prevent emergency events. In this regard sufficient maintenance facilities would be established and regular checks of the motorway would be conducted.

Service and resting areas carry importance for the users of the motorway both providing them assistance with their vehicles and providing areas for refreshing, which would in turn contribute to safe driving. Thus, at proper intervals along the motorway route these areas would be established.

Guard Rails

Guard rails planned in line with the work program covers separator and protector guard rails to be placed on all or particular sections of the road upon fabrication in accordance with the project specifications in order to ensure safe flow of traffic on the motorway.

Traffic Signalization Plates

Fabrication and installation of traffic signs, utilization principles and horizontal marking will be carried out in accordance with the principles specified under Traffic Signs Handbook I and II and “Traffic Signalization Standard in Access Controlled Highways” published by Directorate General of Highways. These signs would be installed on the relevant sections of the motorway. In addition to that, during construction of the motorway, principles specified under “Traffic Signs Standards of Road Construction, Maintenance and Repair” will be used.

Proper lighting is an important issue that can prevent accidents especially for the night time. Necessary lighting would be installed at all junctions, fee collection areas, tunnels, service areas, and parking/rest areas.

Horizontal Marking

Horizontal marking will facilitate controlled and safe flow of traffic on the motorway. Thus, horizontal marking would include; drawing of lane and side lines, designation of pedestrian crossings by lines, drawing of arrows that show appropriate choice of lane on junction approaches, painting of bordures of junctions, refuges and islands to improve night visibility, marking of branching and joining lanes, drawing of parking lots, marking of refuge approaches, marking of turn islands approaches and such transverse markings.

3.3.2. Safety Requirements for the Tunnels

Tunnels are among the special and critical structural parts of a motorway. Some of the incidents that can be considered as minor on various motorway sections might have drastic consequences when took place in a tunnel due to various factors associate with tunnels. Thus, design, construction and operation of tunnels will take into consideration such risk factors and proper emergency response. The risk factors can be summarized as types of vehicles and their loads (i.e. use of the tunnels by some vehicles carrying specified dangerous goods can be forbidden), characteristics of the infrastructure, operator's ability to make effective use of the facilities made available, and lastly tunnel-user behavior.

Project tunnels will be designed and constructed in compliance with technical specifications in the contract, which are in line with national legislation and EU standards taking all the risk factors into account. The General Directorate of Highways adopted the EU Directive on Minimum Safety Requirements for Tunnels in the trans-European Road Network in 2005.

In line with the requirements of tunnel geometry necessary emergency exits, power supply, lighting, adequate ventilation ensuring proper air quality, detection, signaling, radio-communication, etc. will be installed both for minimizing risks in any unwanted event such as accidents or fires, and for driving safety and comfort.

To secure a safe and fast traffic flow through the motorway tunnels and to prevent, minimize and manage emergency situations necessary precautions will be designed and implemented. These measures can be summarized as follows:

- Proper operating system in the tunnels.
- Proper functioning of electric and electronic installations.
- Periodical examination and maintenance of the operating systems.

3.3.2.1. Design Considerations for the Tunnels

Safety measures to be implemented in a tunnel shall be based on a systematic consideration of all aspects of the system composed of the infrastructure, operation, users and vehicles. In this regard following parameters need to be taken into account:

- Tunnel length
- Number of tubes
- Number of lanes and lane width
- Cross-sectional geometry
- Vertical and horizontal alignment
- Type of construction
- Uni-directional or bi-directional traffic
- Traffic volume per tube (including its time distribution)
- Risk of congestion (daily or seasonal)
- Access time for the emergency services
- Presence and percentage of heavy vehicles
- Presence, percentage and type of dangerous materials traffic

- Characteristics of the access roads
- Speed considerations
- Geographical and meteorological conditions

Where a tunnel has a special characteristic as regards the aforementioned parameters, a risk analysis will be carried out to establish whether additional safety measures and/or supplementary equipment is necessary to ensure tunnel safety. This risk analysis shall take into consideration possible accidents, which clearly affect the safety of road users in tunnels and which might occur during the operation phase of the Project and the nature and magnitude of their possible consequences. Accordingly, emergency preparedness measures will be designed and constructed.

Escape Routes and Emergency Exits

In tunnels without an emergency lane, emergency walkways, elevated or not, shall be provided for use by tunnel users in the event of a breakdown or an accident. In such a case lay-bys would also be needed. However, when there is an emergency lane these factors would not of concern.

In addition emergency exits will be available in tunnels longer than 500 m. Emergency exits allow tunnel users to leave the tunnel without their vehicles and reach a safe place in the event of an accident or a fire and also provide access on foot to the tunnel for emergency services. Examples of some emergency exits are provided below:

- Direct exits from the tunnel to the outside
- Cross-connections between tunnel tubes
- Exits to an emergency gallery
- Shelters with an escape route separate from the tunnel tube

Emergency exits will be provided in tunnels since the expected traffic volume (as annual average daily traffic) is higher than 2 000 vehicles per lane. The distance between two emergency exits will be 500 m at a minimum. At emergency exits appropriate means, such as doors, will be used to prevent smoke and heat from reaching the escape routes behind the emergency exit. Thus, the tunnel users would safely reach outside and the emergency services can have access to the tunnel.

Access for Emergency Response Services

In twin-tube tunnels where the tubes are at the same or similar levels, cross-connections suitable for the use of emergency services shall be provided at 1,500 m intervals. Where it is geographically possible, crossing of the central reserve (median strip) would be made possible outside each portal of a twin tunnel. This measure will allow emergency services to gain immediate access to either tube.

Drainage

Where the transport of dangerous goods is permitted, the drainage of flammable and toxic liquids might be needed. Therefore, well-designed slot gutters or other measures within the tunnel cross sections will be needed for drainage. In addition, the drainage system would prevent fire and flammable and toxic liquids from spreading inside tubes and between tubes.

Fire Resistance of Structures and Equipment

The main structure of all tunnels will ensure a sufficient level of fire resistance where a local collapse of the structure could have catastrophic consequences such as collapse of nearby structures. The level of fire resistance of tunnel equipment will consider the technological possibilities and aim at maintaining the necessary safety functions in the event of a fire.

Lighting

Normal lighting will be provided to ensure appropriate visibility day and night for drivers in the entrance zone as well as in the interior of the tunnels. Safety lighting will also be provided to allow a minimum visibility for tunnel users to evacuate the tunnel in their vehicles in the event of a breakdown of the power supply. Evacuation lighting (e.g. evacuation markers) will be provided at a height of no more than 1.5 m to guide tunnel users to evacuate the tunnel on foot, in the event of an emergency.

Ventilation

A mechanical ventilation system capable of evacuating smoke in the event of a fire will be installed in tunnels. The design, construction and operation of the ventilation system will take the following into account:

- Control of pollutants emitted by road vehicles under normal and peak traffic flow.
- Control of pollutants emitted by road vehicles where traffic is stopped due to an incident or an accident.
- Control of heat and smoke in the event of a fire.

Emergency Stations

Emergency stations will be provided near the portals and inside at intervals which will not exceed 150 m. These stations are intended to provide various items of safety equipment, in particular emergency telephones and extinguishers, but are not intended to protect road users from the effects of fire. Emergency stations would consist of a box or a recess on the sidewall. These will be equipped with at least an emergency telephone and two fire extinguishers.

Water Supply

Water supply will be by hydrants located near the portals and inside at intervals which will not exceed 250 m.

Road Signs

Specific signs in compliance with the requirements of the General Directorate of Highways (in line with EU standards) will be used for all safety facilities provided for tunnel users.

Monitoring System

Video monitoring systems and a system able to automatically detect traffic incidents (such as stopping vehicles) and/or fires will be installed in the tunnels with a control center. For tunnels without a control center, automatic fire-detection systems will be installed where the operation of mechanical ventilation for smoke control is different from the automatic operation of ventilation for the control of pollutants.

Tunnel-closing Equipment

In the tunnels longer than 1,000 m, traffic signals will be installed before the entrances so that the tunnel can be closed in case of an emergency. Additional means, such as variable message signs and barriers, would also be provided if found necessary.

Inside of tunnel, which are longer than 3,000 m with a control center and a traffic volume higher than 2.000 vehicles per lane, equipments to stop vehicles in the event of an emergency would be installed at intervals of 1,000 m. This equipment would consist of traffic signals and additional means, such as loudspeakers and variable message signs.

Communication Systems

Radio re-broadcasting equipment for emergency services (e.g. fire fighting, ambulance, etc.) use will be installed in the tunnels longer than 1,000 m with a traffic volume higher than 2 000 vehicles per lane. Where there is a control center, it must be possible to interrupt radio re-broadcasting of channels intended for tunnel users in order to give emergency messages. Shelters and other facilities where evacuating tunnel users must wait before they can reach the outside will be equipped with loudspeakers for the provision of information to users.

Power Supply and Electrical Circuits

All tunnels will have an emergency power supply capable of ensuring the operation of safety equipment necessary for evacuation until all users have evacuated the tunnel. Electrical measurement and control circuits will be designed such that a local failure, such as one due to a fire, does not affect unimpaired circuits.

3.3.2.2. Operating System for the Tunnels

Tunnel operation will be organised to ensure the continuity and safety of the traffic through the tunnel. In this regard, the equipments presented in the following paragraphs will be installed in the tunnels to secure proper traffic flow, minimize accident risks and ease to manage any emergency situations. These equipments and the overall system will be monitored and maintained as appropriate.

Fiber Communication Optical Network Structure

The communication of the data inspection signal between the tunnel area and the control center, as well as image transfer from closed circuit television system (CCTV), is provided through the fiber-optic communication infrastructure. During the operation period, the fiber-optic network will be examined, maintained and repaired as necessary.

Closed Circuit Television System (CCTV)

The main components of the closed circuit television system are internal video cameras, external road video cameras, plate reading video cameras, environmental safety cameras, video camera image recording devices and video camera image monitoring devices. Periodical maintenance of the closed circuit television system will be done on monthly and yearly basis. It will also be ensured that the inside, outside and surroundings of the tunnel be monitored via video cameras and the desired images are recorded and saved.

Safety and Protection System

The established safety and protection system will be kept operational during the whole operation period and periodical maintenance of this system would be conducted.

Fire Alarm System

The fire alarm system, composed of linear fire sensing cable and device, smoke detectors, heat detectors and warning buttons, will be constantly audited in addition to periodical maintenance and kept operational at all times.

Fire Fighting System

It will be ensured that fire extinguishers, fire hydrants, fire hoses, water pipes, pumps, valves, water tanks, sprinklers, fire fighting vehicles and the system in general is inspected in addition to periodical maintenance and be kept operational at all times.

Lightning Control System

The lightning control system and its units such as luminance meters inside and outside the tunnel, lightning fixture inside the tunnel, emergency lighting fixture and environmental luminance will be constantly inspected in addition to periodical maintenance and kept operational at all times.

Ventilation System

The ventilation system of the tunnel, composed of devices for the clearance and carbon monoxide pollution within the tunnel, jet fans, positive pressure devices and air conditioners will be constantly inspected in addition to periodical maintenance and kept operational at all times.

Traffic Control Signs

The traffic control system composed of traffic lamps, traffic direction matrices (MTS), traffic velocity matrices (VTS), and variable message signs (VMS) like warning flashers, billboards for road information, and road blocking barriers will be constantly inspected in addition to periodical maintenance to clean traffic control signs, substitute missing parts, or renew them, and kept operational at all times.

Vehicle Counting System

The vehicle counting loops and vehicle counting detectors within the system will be constantly maintained and repaired as necessary to allow the collection of vehicle count data.

Radio Operating System

Composed of a computer and periodical transmission, switching device and devices that release announcements through FM channels into the tunnel, this system will be constantly inspected in addition to periodical maintenance and kept operational at all times.

Communication (SOS) System

This communication system, composed of SOS (Morse Code Distress Signal) telephones within the tunnel, their protective enclosures and external announcement devices, will be constantly inspected in addition to periodical maintenance and kept operational at all times.

Power Supply System

Medium-voltage facilities, low-voltage facilities, generators, UPSs and electric instalment of service facilities within this system will be constantly inspected in addition to periodical maintenance and kept operational at all times to provide power supply to the system without any interruptions.

Control Center Devices

Inspection computers, PLC system devices and power station, incident and status printers and all other electronic and mechanical hardware will be available in the control center, which allows inspection of the whole operating system in the tunnel from a single center. These equipments will be constantly inspected in addition to periodical maintenance and kept operational at all times by updating the hardware and software as required.

3.3.2.3. Transportation of Hazardous Material through Tunnels

The passage of hazardous materials/goods through the tunnel is subject to restrictions as outlined in the Regulation Regarding Hazardous Substances Transportation via Highways (published by Ministry of Transport in Official Gazette dated 24 October, 2013 with No: 28801).

The classes of dangerous goods according to the European Agreement concerning the International Carriage of Dangerous Goods by Road are the following:

Class 1: Explosive substances and articles
Class 2: Gases; compressed, liquefied or refrigerant
Class 3: Flammable liquids
Class 4.1: Flammable solids, self-reactive substances and solid desensitised explosives
Class 4.2: Substances liable to spontaneous combustion
Class 4.3: Substances which in contact with water emit flammable gases
Class 5.1: Oxidising substances
Class 5.2: Organic peroxides
Class 6.1: Toxic substances
Class 6.2: Infectious substances
Class 7: Radioactive material
Class 8: Corrosive substances
Class 9: Miscellaneous dangerous substances and articles

Larger loads and tankers carrying hazardous goods are generally prohibited from road tunnels, but permitted access will depend on the substance being carried. Some will be allowed access under escort. To gain approval for carriage of hazardous goods through the tunnels, the consignor of those goods, substances or articles that are on the list of restrictions must submit a written declaration as to the nature and quantity of such goods to the Operations Team Manager. Similarly for empty petrol or other tankers, a declaration is required as to the nature of the substance last carried if it has not been cleaned since that loaded journey. Permission may be granted for passage through the tunnel at a prescribed off peak time when the tunnel can be closed to the public following notification to the public of the temporary tunnel closure.

3.3.3. Safety Requirements for the Bridges and Viaducts

Bridges and viaducts are among the special and critical structural parts of a motorway. Some of the incidents that can be considered as minor on various motorway sections might have significant results when took place on a bridges. Thus, design, construction and operation of the bridges and viaduct structures will take into consideration relevant risk factors and proper emergency response. The risk factors can be summarized as types of vehicles and their loads, characteristics of the infrastructure (length and geometry), and user behavior.

In order to secure the proper and safe traffic through the bridges and viaducts some physical measures will be provided. These measures aim to minimize the potential for accidents and other risky incidences. In addition, they would contribute to make emergency response and management easier and more effective. These can be summarized as follows:

- Traffic signs, communication means and monitoring devices
- Electrical and mechanical installations
- Drainage
- Aircraft alert lights

Traffic Signalization, Communication and Monitoring

Apart from the legislative requirements for the traffic signs (overhead and horizontal), communication and monitoring means, further necessities might be identified for enhancing the proper working of the facilities. The communication means would be mainly telephones and monitoring means will be CCTV cameras.

For the installation of the bedplates of equipment, power units and controller wiring with channels will be provided. The locations to be selected for these bedplates will be suitable to structural lay out, arrangements regarding access and operation of the bridges.

Standard motorway direction signs will be available on the structure. In addition, installation of bedplates and lighting system for these signs will be provided. Where the overhead signs are to be used, they will extend beyond the width of the motorway.

The detector circuit of the automatic incidence detection equipment and the cable connection to canals will be provided. Therefore, a canal grid which consists of longitudinal canals under each shoulder (or access/maintenance road) median and at every 500 m motorway traverse canals connecting to them will be required on the bridges. For the whole installation, suitable entrances will be made into canals and at least two spare canals and tension wires all around the system will be available.

Electrical and Mechanical Installations

All of the electrical and mechanical equipments and their installations will be in compliance with the following regulations and specifications:

- Motorway Technical Specifications
- Regulation on Occupational Health and Safety
- English Standards and Rules or equivalent European Rules related to Electrical / Mechanical Equipment and Installations.

For safe and effective operation and maintenance of the bridges suitable mechanical and electrical equipment and supplementary systems will be used. The capacity of the electric circuits will be capable of providing all needs of the lighting systems, maintenance needs and in addition the power demands of all overhead signs, platforms, toll collection boxes and ventilation installations, marine and aviation supports. Diesel generators will be used to provide uncut power supply.

The power (220 V) connection points will be set at 50 m intervals on the bridges These will be placed at accessible points of the structure; in gap foundations, in middle piers and in pylons for easy maintenance and control. All other external maintenance platforms will be equipped with electric connection points.

To expel water infiltration, pump equipment with suitable catch pits will be provided. Spare pumping equipment will be ready to use in case main water pipe bursts or drainage is blocked.

A lighting system will be provided for the inspection and maintenance works in the inner parts of the structures including the slab, gap foundation, middle piers and pylons. All electric systems will be supported by suitable emergency lighting which has independent power source.

All equipments, conduits, cables, pipes, and the similar will be supported and fixed steadying. The bridge will be equipped with lightning guard system. This will be provided by steel structures in reinforcements system included equipotential steel structure link and concrete structures. Independent power sources for all the electrical equipment and emergency spare systems for the electrical equipment will be provided.

Aircraft Warning Lights

Towers of bridges will be lighted as to provide warning for aircrafts according to requirements of Civil Aviation Authority.

Drainage

A drainage system will be constructed without damaging the bridges' structure to discharge the precipitation falling on the road platform from several points. Drainage canals and other rain water discharge structures will be constructed such that no flooding would take place in the roadside section.

The rain water falling on the bridge will be allowed to flow to the sea. The rain falling on the bridge sections on land will be collected by the drainage system of the motorway sections. Drainage systems will be constructed on all moveable joints and drainage holes will be made in all box beams and protection slabs.

The materials to be used in the drainage system will have a lifetime comparable to that of the bridge structure. Drainage installation components will be replaceable. Material that may be easily damaged in the slab, which may burn by fuel oil, diesel oil or chemical materials or those can be reshaped will not be used.

3.4. Preparedness to Emergency Situations

3.4.1. Planning and Coordination

Preparedness ensures that arrangements and resources are maintained in a state of readiness to be mobilized and deployed for response and recovery to an emergency event. In this regard planning plays a key role together with coordination. The previous sections described some of the studies and measures for identifying the hazards and risks and designing mitigation measures. These are part of the planning activities for any case of emergency. In addition, preparing the staff, relevant resources and activity programs are important for effective emergency response.

Coordination is not only important during an emergency, but it is also vital throughout project implementation and management. In this regard, effective coordination before an emergency event would ensure a more efficient response. Furthermore, good coordination is also a measure of building thrust between parties and developing confidence against emergency situations.

The following is a summary of activities for emergency preparedness to be conducted and coordinated by the EPRC in the scope of planning and coordination:

- Regular review and updating, when necessary, of the Emergency Preparedness and Response Policy, and plans and procedures.
- Ensure all personnel are aware of, and hold sufficient competency to perform, their emergency response/management roles and responsibilities, as detailed in the Emergency Response Procedures.
- Arrange training and education programs for staff, contractors and the community. This includes increasing the awareness of staff and managers regarding their roles and responsibilities across the EPRP or targeted community awareness programs (for example regarding road construction and maintenance activities).
- Planning and conducting exercises to test specific aspects of the EPRP, and its procedures.
- Establishing processes for lessons learned including conducting debriefs and reviews of other emergency events or exercises that are relevant to Project Sponsors.
- Maintaining working relationships for emergency management and refreshing any specific response and recovery support arrangements with municipalities and other agencies.

- Having supporting systems in place for response and recovery (e.g. cost capture, documents and records management).
- Ensure the nominated Emergency Response Centers are adequate, accessible and properly resourced to meet needs during an emergency.
- Continual review, evaluation and auditing of emergency management arrangements, identifying and promoting opportunities for improvement.

These activities will be performed continuously and/or at regular intervals. Some of the above activities would be conducted by the EPRC and ERT, while for some of them staff and management from various directorates/departments would need to participate.

3.4.2. Training

The EPRC will review staff and contractor competency with regard to emergency preparedness and identify training needs for management, staff and/or contractors. The training activities would cover the following:

- Project Sponsors' internal inductions and specific training (EPRP and further plans and procedures)
- Preparation of online or self-training materials and making them available to relevant parties.
- Courses and workshops for the EPRP and emergency event case studies, as well as enquiries and programs of relevant governmental agencies.
- Debriefs and shared learning's with or from other emergency response organizations.
- On the job training through exercises.

The exercises related to the EPRP will be a part of the training activities. The EPRP, and related plans and procedures will be tested or exercised to determine the effectiveness and efficiency of emergency management arrangements, and identify opportunities for improvement. These exercises can cover the following:

- Field exercises; where a scenario is created (e.g. a staged traffic accident or bridge failure) and emergency responders (ERT) approach the scenario as though it were a real situation.
- Desktop exercises; where the scenario is described and participants discuss their roles and can examine various aspects and alternatives. This can include testing a procedure or process.

In determining what aspect of the emergency management process will be exercised, consideration will be given to the issues below:

- Any new or emerging hazard.
- The sections of the EPRP that has not recently been tested.
- If there have been any specific changes for the emergency management roles or the people who can perform them (such as changes in the ERT.
- If a field exercise is being planned independently of other agencies related to emergency response, it is important to inform the local emergency services regarding the exercise details, so the exercise does not disrupt their response to genuine emergency calls.

For big scale field exercises and/or for the ones participation of other agencies is requested, the EPRC will consult the schedule and scope of the exercise with the related parties including the General Directorate of Highways, municipalities, governorships, etc. The EPRC would coordinate the implementation of the exercise and participation of the relevant persons. The results of the exercises would also be evaluated together with the participants to determine their usefulness. In this regard ERT will conduct debriefs following the exercise to identify what worked well and what are the opportunities for improvement.

3.4.3. Resources

The resources required for overall emergency management process would include; in-kind (e.g. equipments, vehicles, etc.), cash and human resources. In this regard, Administrative and Financial Affairs Directorate would cooperate with the EPRC to ensure provision of necessary resources. Accordingly, this directorate/department would be able to follow and record the related expenditures for emergency preparedness and response. This would especially be important for the after emergency actions in terms of determination of damage or losses, and recovery actions.

In order to mobilize the necessary resources administrative arrangements will be made by the EPRC in cooperation with the Project Management and all the active directorates/department during the construction and planning phases. Thus, EPRC would be regularly informing the management units and consulting with them regarding the emergency preparedness and response issues.

4. EMERGENCY RESPONSE

4.1. General

Emergency response is defined as actions taken to minimize the effects of an emergency event, and to limit the threat to life, property and the environment. Some emergency categories are defined with regard to the significance scale of the emergency events. With this regard 4 categories are defined from least significant (Category 1) to most significant (Category 4). In line with this categorization the emergency events in the first two categories are comparatively small scale where the main responsibility generally has to be taken by Project Sponsors. In more severe emergency events (categories 3 and 4) relevant governmental agencies, starting with the local ones, shall act as the lead agency for emergency response. In Turkey the district and provincial governorships are the main bodies under which the local directorates of the central agencies work. Therefore, generally governorships act as the lead coordinating agency together with municipalities.

Emergency response mainly covers the following:

- Initial assessment and reporting of the event, location and identified communication methods.
- On-site management of the situation.
- Coordination of resources (off-site coordination) to support the on-site management.
- Providing advice and reports of the situation to stakeholders.
- Ending response actions when the situation is resolved.

The following emergency response procedures (ERP) define the arrangements for the management of emergencies related to roads, bridges, tunnels, and viaducts, other civil engineering structures and traffic signals and flow. The ERP specifies some of the actions needed for the identified hazards and structures.

Emergency response procedures will be reviewed and elaborated, including addition of further procedures/activities, as found necessary, based on the further studies being undertaken in the scope of project development and on regular review of the risks and hazards. In addition, further measures can be defined or changes on the procedures can be considered based on testing of these through exercises.

4.2. Emergency Response Procedures (ERP) for Motorway, Bridges and Viaducts

The general emergency response procedures cover the whole motorway including bridges and viaducts. For tunnels further specific procedures are presented in the next session. These procedures cover the emergency response activities mainly for the following major hazards:

- Accidents
- Fires
- Earthquakes
- Spills and leakages

4.2.1. Accidents

Potential accidents during construction and operation may cause injuries and even death. In accident events that caused human injury, first aid will be provided by the ERT. Then, for further action assistance will be sought from the closest village clinic and/or the closest hospital. In this regard safe transport of the injured persons to the closest health facility will be the first priority.

In any injury encountered at the construction sites first aid will be the responsibility of the ERT members including the medical doctor available at the main camp facilities. In the meantime, to prevent any further damage other ERT members will ensure environmental safety, investigate any fire possibility, and clean any spilled materials.

As a result of some accidents, fuel, oil, or other hazardous liquids may reach the surface waters. When fuel or other hazardous materials are seen floating in the surface waters, first ERT will intervene, and, if necessary, the closest fire department will be contacted to get assistance. Fuel, oil, and other floating materials will be separated from water via skimming. These skimmed materials will be collected in sealed tanks and disposed in accordance with Waste Oil Control Regulation.

Mission and responsibilities of the ERT in accidents are as follows:

- All of the team members should know the type of injury risk in the work areas and project sections.
- In emergency situations, team members will check for the persons that might be injured in their area of responsibility.
- The ERT member who identifies a person with injury will provide first aid as proper. If he/she decides that the injury is beyond his/her ability for first aid than a more capable, or authorized, person (such as a doctor) will be waited. Any attempt that may worsen the situation of the injured person should be prevented.
- Depending on the type and extent of injury an ambulance may be required. In such a case, a member of the ERT will wait in the road junction (or such) to direct the ambulance to the incident location.
- After the arrival of the ambulance the responsibility passes to the medical personnel that arrived with the ambulance, but ERT member(s) will help first aid activities if needed.
- During the first aid activities, ERT prevents the entrance of irrelevant people to the incident area.
- After the completion of the necessary actions and/or injured person is sent to the hospital, the incident record is prepared.
- If there is no injured person in an accident, ERT secures the incident area and reports to the EPRC.

4.2.2. Fires

Fire possibilities will be minimized in the construction sites and camp facilities by taking necessary preventive measures. In addition, in working areas fire extinguishing equipments will be kept at proper places for emergency action. Furthermore, no fires are allowed in the forest areas and all precautions will be taken in the construction sites to prevent fire.

Fire events that might be of concern during the operation of the project would be mainly associated with accidents. Thus, emergency response actions for such fires would follow the procedures both given below and specified for accidents.

Mission and responsibilities of the ERT in case of fire are as follows:

- All of the team members should know the fire risk in each work area. They have to know how to extinguish different types of fires as well.
- In emergency situations, team members will check for any fire in their area of responsibility.
- If any fire is determined or emergency situation is a fire, ERT takes the necessary actions for extinguishing without panic under the control of a team leader.
- Depending on the type and extent of fire a fire engine may be required. In such a case, a member of the ERT will wait in the road junction (or such) to direct the fire engine to the incident location.
- After fire engine arrives, team members help extinguishing activities if needed.
- During the fire fighting, ERT prevents the entrance of irrelevant people to the area.
- If any fire is not determined after emergency situation, team members are counted, and present under the head of team leader collectively.
- Ambulance will be called in case there are injuries or smoke poisoning.

4.2.3. Earthquakes

Trainings will be provided to all workers related to actions to be taken during an earthquake for their safety. If an earthquake with a scale of more than 4.5 on Richter scale is determined in the area, and workers on duty feel earth tremor or are exposed to specified earthquake consequences (feeling of the earthquake by everybody, moving/falling of objects in the shelves, moving/falling down of furniture, fracturing of some plasters and walls, quaking of trees and shrubs), the steps given below will be followed and implemented:

- General visual check of the Project components (motorway sections, tunnels, bridges and viaducts and associated structures) after the earthquake.
- After completion of the relevant controls and audits, findings will be communicated to the relevant authorities.
- If the structures are collapsing or had such a damage that may cause the collapse of the structure, the users will be informed through signalization and radios. In addition, at a relevant distance from the structural damage the area or the road section would be closed to users by barriers. Furthermore, the closest settlement(s) located in the area will be informed immediately.
- If the structures have a damage, which is not as serious to cause a collapse, necessary observations and collapse risk assessment will be made immediately. Then, the assessment will be communicated with relevant local and national authorities and the instructions of the technical specifications and that would come from these authorities will be followed.

4.2.4. Spills and Leakages

Oil, fuel, dye etc. may spill on the construction sites and/or roads that are used for transportation. The activities that shall be performed immediately following these spills are important in terms of prevention of contamination. The actions to be taken in case of leakage and/or spill after an accident are as follows:

- Leakage source will be determined and if possible, leakage will be stopped.
- Trucks, construction equipment etc. that had an accident on the roads will be brought into their normal position as fast as possible, and by this way more leakage and/or spill will be prevented.
- In order to prevent spreading of leakage sandbags will be placed around the leakage source.
- In case of big leakages, depending on the slope of the land, a small canal will be opened in the downstream part of the leakage, and this canal will be filled with absorbent material to collect leakage in this canal and prevent mixing with groundwater.
- Pollutant, polluted absorbent material, and soil will be put into bags that have proper size and durability, and these bags will be labeled properly.
- In case of a big leakage and/or spill, the incident will be reported to the construction site director/manager (during construction phase) and the operation director/manager (during the operation phase) immediately. Relevant local authorities will also be informed about the incident as necessary.

In case of leakage of oil, fuel or other chemicals to water resources, absorbent barges will be used to prevent the dispersion of the spill and to keep the surface area of the spill as small as possible. Inner part of the absorbent barges will be filled with absorbent fibrous material. When required, based on the extent of leakage and flow of water, more than one barge can be used. Following these actions the water quality will be monitored at relevant locations in the downstream and upstream of the leakage point.

A kit will be ready at each site and operation center with fuel and chemical leak risks and the emergency response team will be ready to act as soon as possible. The minimum extent of equipments such a kit will contain is summarized below:

- Fuel/Chemical absorbents (covers, sand etc.)
- Manuel pump
- Electrical pump
- Drainage tanks
- Chemical resistant gloves, clothes, tall boots, face covers and other personal protective equipment
- Equipment to disperse chemical gases
- Sand (sand is a good material that absorbs pollutants on roads and soil)
- Sawdust: Sawdust is one of the materials used to prevent dispersion of liquid material spilled to the roads and soil.
- In the leakages originating from damaged tins, barrel or such, the material in these packages will be transferred safe packages immediately.
- Absorbent barges.
- Absorbent bolster.
- Barrels resistant to chemical material.
- Firm plastic bags
- Warning signs

4.3. Emergency Response Procedures for Tunnel

The tunnel emergency response procedures cover the emergency events that can take place in and close to tunnels. Main hazards of concern are traffic accidents, vehicle breakdowns and fire events. The response procedures for emergency events related to tunnels include the following:

- Intervention procedures
- Incident management procedures
- Evacuation procedures

4.3.1. Major Hazards

Breakdowns

As per normal practice in long tunnels, recovery vehicles are located at each side of the tunnel adjacent to the portal and once the incident is detected, a recovery vehicle is dispatched to the traffic incident. The driver of the broken down vehicle is instructed via radio or public announcement to remain in their vehicle pending recovery. Traffic in the tunnel should be able to flow without serious congestion behind.

Traffic Accidents

A minor accident is managed in the same way as a breakdown, however in this instance two or more recovery vehicles may need to be dispatched to deal with the stricken vehicles. In the event of a serious accident where debris blocks the tunnel and traffic backs up behind the incident, a recovery vehicle from the opposite end of the tunnel can use an available vehicle cross over to enter the incident tunnel. The emergency services enter in a similar manner. Variable Message Signs (VMS) and lane closure indicators are activated to warn tunnel users about an incident and if necessary, the incident tunnel is closed and alternative traffic management plans are implemented. These could include the introduction of a temporary contra-flow system in the non-incident tube or complete diversion elsewhere on the trunk road network in this instance.

Fire

In case of fire in the tunnels access for the emergency services is provided in number of ways depending on the circumstances. They can drive down the affected tube directly to the incident if there is no traffic blocking the route. Alternatively, if the route is blocked, the non-affected tunnel can be closed to traffic and the emergency services can use available crossovers to access the non-affected tunnel. If vehicular access is not possible or preferable, emergency access points will be used for access on foot via stairs and lifts.

In addition to abovementioned major hazards, there are some cases specialized for tunnel and may generate major hazards. These cases should be considered when noticed and relevant precautions should be taken, which are listed at above Table 2.

4.3.2. Intervention Procedures

Access for the emergency services will be provided in number of ways depending on the circumstances. The first option is that they can drive down the affected tube directly to the incident if there is no traffic blocking the route. Alternatively, if the traffic is stopped behind the incident and the route is blocked, the non-affected tube can be closed to traffic and the emergency services can use the crossovers to access the non-affected tube. From here the emergency vehicle can stop at the nearest pedestrian cross passage to the incident and proceed on foot.

If vehicular access is not possible or preferable, emergency access points will be used for access on foot via stairs and lifts. The emergency personnel can then continue on foot down the affected tunnel directly to the incident. Alternatively they can proceed down the non-affected tunnel and access the incident via the nearest pedestrian cross passage. Initially the traffic may still be running in the non-incident tube. The walkways are provided on sides of the carriageway and a wheeled trolley bed can easily continue into the cross passage through the walkways.

Table 2. Some Cases Specialized for Tunnel Emergency

Case	Things to Do
Stationary Vehicle in Tunnel	• The lane on which the stationary vehicle is present shall be marked with traffic signs in the fastest manner possible. • Drivers shall be warned through VMS. • If any announcement or SOS system is present in the tunnel, drivers shall be warned using them and communication with the driver of the stationary vehicle shall be established through these systems if possible. • The reason for the vehicle to stop in the tunnel shall be investigated and the vehicle shall securely be towed out of the tunnel with towing vehicles if possible.
Vehicles Carrying Haul without Canvas Roof	• Vehicles without canvas roof shall be stopped at the entrance of the tunnel and authorized personnel shall be notified for penal action. • If the vehicle has already entered the tunnel, its photos or videos shall be recorded and kept. The license plate must be legible in the photo.
Tall Vehicle Near Tunnel	• The personnel in charge shall be immediately notified and sent to the direction the tall vehicle is approaching from. • Alarm beacons under VMS shall be checked to see if they are working as expected. • The tall vehicle shall be turned away from the tunnel and its driver shall be notified of the illegal situation. If the driver resists, armed forces shall be notified about the situation. (with the exception of vehicles which have been provided a road permission document by KGM). • Relevant VMS shall be checked for the delivery of “ Your vehicle is tall” message after controlling computer of the tunnel supervision system has been alarmed • Tall vehicles passing through the tunnel shall be monitored with cameras till the vehicle leaves the tunnel and the tunnel shall be checked for possible damage by the tall vehicle. If damage is detected, a crew shall be sent to the tunnel for checking the extent of the damage. • Licence plate of the infringing vehicle shall be identified and handed off to authorised personnel for fines. • Tollbooth stations and traffic police control points along the direction of the tall vehicle passing through the tunnel shall be notified about the situation. • If the vehicle does not approach the tunnel despite the warning from remote clearance height sensors, parking lots shall be checked. • The possibility of multiple successive tall vehicles shall be taken into consideration and other vehicles coming after a tall vehicle shall be checked as well. • After removing the tall vehicle alarm from the controlling computers, VMS shall be checked to verify that tall vehicle warnings have been removed from them and have been replaced with the normal messages.
Wide Vehicles	• Wide vehicles shall be stopped before entering the tunnel. • Wide vehicles without permission to use motorways will not be permitted to pass through the tunnel. • Wide vehicles with permission to use motorways shall pass through the tunnel on right lane. Permission of the wide vehicle shall be photocopied and archived. • If the drivers of wide vehicles without permissions insist on passing through the tunnel, armed forces shall be notified about the situation.
Suspicious Events, Objects or Vehicles	• In case a suspicious vehicle is detected, it shall be followed by the cameras to make sure if it really is suspicious. • The suspicious vehicle will be observed using cameras to check if it drops a suspicious object or package in the tunnel. • In the event a suspicious package or object is dropped, the area of incident shall be watched using cameras and armed forces shall be notified. Also, the electricity of the GSM stations within the tunnel shall be cut off immediately.
Convoys	• If is known in advance that the convoy is approaching, lanes closed due to maintenance shall be opened for incoming traffic. Also, jet fans will be manually engaged for operation due to high level of in-tunnel pollution that will be generated by the convoy.
Electrical Room Door Open	• If the electrical room door is opened by authorized personnel, then the alarm shall be cancelled. • If the identity of the person who has opened the door is unknown, the area shall be checked with cameras and the phone in the room shall be called. • If the reason why the alarm has triggered cannot be determined, a crew shall be sent to the incident area for checking the door. • If it is found out that the door has been opened by an unknown person, armed forces shall be notified immediately against the possibility of theft or sabotage.
Intense Pollution within the Tunnel	• If a high level of air pollution is observed in the tunnel, CO (carbon monoxide) and VIS (visibility) values will be checked. • If CO and VIS have high values, other fans shall be manually engaged in addition to the ones that are already running.

4.3.3. Incident Management Procedures

The management of an incident in the tunnel is controlled by the Operation Teams which are reporting to Project Operation Coordinator. The operation team/center is responsible for monitoring the tunnel at all times, traffic management, traffic information communication and signal control. The automatic incident detection system (i.e. CCTV Alert) is used to feed information to the operator identifying the nature, cause and severity of incidents that occur. CCTV Alert can automatically detect a vehicle stopping in the tunnel in the event of a breakdown or accident and it also detects fire. Typical response time should be approximately five minutes but will depend upon its location within the tunnel.

4.3.4. Evacuation Procedures

Evacuation of tunnel users in an emergency will be carried out via the pedestrian cross passages and emergency exits with fire proof doors. Emergency walkways will be raised above the carriageway such that a wheelchair can easily climb the curb and continue into the cross passage. The evacuation can be to the non-affected tube or directly to open air. Consequently offside walkways will be provided in the tunnels so that people can safely continue along the non-affected tunnel away from the incident and prevent a back up of people through the cross passages.

Emergency exits will be located on each shoreline, if possible. Stairs and lifts will be provided so that a suitable escape route is available for mobility impaired people.

Requirements for the ventilation system are such that ventilation will be provided in the cross passages and that positive pressure or other means of excluding smoke from the cross passages and non-affected tube will be provided. The ventilation system also shall provide a means of extracting smoke in the event of a fire, so movement of smoke and fire gases in the tunnel near the incident should be minimized or eliminated by the ventilation system allowing clear unrestricted means of escape for users in the vicinity of the incident.

4.4. Incident Command

During an emergency incident the effective management and control of the emergency response actions might keep the adverse consequences of the incident at rather low levels. Therefore, for efficient coordination and cooperation during an emergency management roles and communication channels carry importance. Accordingly, two command systems for simple and complex incidents can be foreseen.

For the simple incidents, which would have small and local adverse consequences, EPRC will be in command and ERT will manage the emergency situation. In the mean time cooperation with the directors/directorates of construction site administrative and financial affairs will be achieved during construction phase. During he operation phase operation teams and the coodination body for operation will cooperate with the EPRC as necessary. Following the end of emergency incident, post emergency report will be prepared and relevant information will be provided to top management and relevant departments.

In a complex emergecy incident, which would have significant and extended consequences, while EPRC will have the firsthand incident command for Project Sponsors, during construction phase directors/managers would assume command if necessary. Similarly, during the operation phase the operation coordination body might be the decision-maker for Project Sponsors, as necessary. In addition, in such incidents generally the leading agency that carries the authırity would be relevant governmental agency, such as the provincial governorship.

4.5. Activation Triggers

In the scope of further detailed planning for emergency management Environment, Health and Safety Directorate (i.e. EPRC) would prepare an Emergency Response Time Schedule (ERTS) in consultation with the other units of management for both construction and operation phase. This schedule will take the dedicated resources (staff, tools and equipment) for emergency response and the location and number of emergency response centers as key variables. The response times for emergency incidents would be based on the severity of the incident, thus the emergency categories as defined previously.

4.6. Environment, Health & Safety (Occupational and Community)

The policies and procedures related to EHS and Labor/Workforce will be the leading documents for personnel who will be involved in the emergency situations directly or indirectly. These policies and procedures are in fact the key documents for prevention of emergency events if they are implemented sufficiently.

4.7. Communication and Information Disclosure

Communication about the emergency preparedness and response activities would be governed by the following principles:

- Only nominated Project Sponsors' spokesperson(s) shall make public comment about the response or recovery efforts.
- Project Sponsors' comments would be made following consultation with the General and Regional Directorates of Highways, and the other lead agency, if any, for the emergency incident.
- Project Sponsors' spokesperson(s) would take care to restrict their comments to factual information that is relevant to Project Sponsors' activities and especially to avoid commenting on other agencies actions.
- Project Sponsors' spokesperson(s) would make themselves available for media enquiries, as appropriate, and give relevant messages to promote community safety and limit possible disruptions caused by emergency events.

4.8. Emergency Contacts

Emergency Contacts including the key internal and external persons, contact means and information (i.e. cellular and stationary phones, radio, pager, etc.) will be managed by the ERT and the EPRC. This information would be kept updated in its most recent form. In addition, it will be posted to relevant places and at least be available to all relevant staff taking a role in emergency preparedness and response.

4.9. Reports from Contractors and Incident Debriefs

The assigned ERT member(s) would ensure that the reporting of responses to incidents attended by contractors follows appropriate procedures and those opportunities for improvement are acted upon.

The EPRC will ensure that all Project Sponsors' staff and contractors are debriefed and/or attend debriefs organized by the lead agency following a major incident. It will be ensured that the lessons learned are considered in the management of future emergency arrangements. This would include any revisions or updated in the EPRP and associated procedures, equipments, staffing, etc.

Project Sponsors' personnel may be involved in traumatic incidents as part of the emergency response activities they had been involved. The Directorate of Administrative Affairs and Human Resources will be responsible for managing the critical incident stress debriefing process.

5. END OF EMERGENCY SITUATION, FURTHER ACTIONS AND RECOVERY

5.1. After Emergency Actions

When the emergency conditions end, EPRC approves the safety of the project/incidence area, and relevant units and authorities are informed related to the incidence. ERT makes a general assessment together with the EPRC and prepares the report regarding the emergency incidence (event), the damage caused (consequences), and the status of the incidence area and project structures. This report would be shared by the General and Regional Directorates of the Highways as well and would serve for the improvement of the future studies and providing information for further planning

The activities taken during the emergency will be assessed and any necessary adjustments and/or improvements shall be made in the emergency preparedness and response procedures and measures. If the emergency incidence is an unforeseen case, the precaution measures to prevent this type of emergency incidences and the action plan for such emergencies will be developed and integrated into the EPRP.

In case of a significant emergency incidence, General Directorate of Highways (KGM) or the relevant governorship will establish a committee for identification of the damages and losses due to the event. This committee might be formed from the representatives of various local governmental agencies, where the presence of KGM representatives is obligatory. This committee prepares a report to be submitted to the Ministry of Interior and KGM.

5.2. Recovery Management

Recovery is defined as measures which support emergency affected individuals and communities in the reconstruction of physical infrastructure and restoration of emotional, economic, and physical well –being.

Project Sponsors’ would be managing all the relevant recovery operations and needs in the construction sites during the construction phase. This would also cover the recovery issues for Project Sponsors’ staff in line with the national legislation and Project Sponsors’ Labour/Employment Policy.

During operation Project Sponsors would typically manage the following road and infrastructure operations:

- Damage assessment and categorization.
- Management of the demolition process.
- Provision of temporary services.
- Reinstatement of traffic signals.
- Structural repairs.
- Maintenance of environmental and workplace standards.

Recovery efforts associated with significant emergency events (i.e. categories 3 and 4) may be coordinated by General and Regional Directorates of Highways, local authorities (i.e. governorship or municipality) and other relevant agencies and institutions.

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ANNEX-4

AFFORESTATION PLAN

MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.

NORTH MARMARA MOTORWAY PROJECT

(EUROPEAN PART: KINALI-ODAYERI SECTION)

ANNEX-4 AFFORESTATION PLAN (EUROPE)

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT STUDY

ENCON ENVIRONMENTAL CONSULTANCY CO

MARCH 2017

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ANNEX-4 AFFORESTATION PLAN

1. INTRODUCTION

The Afforestation Plan provides an insight into international requirements in terms of mitigating loss of forests and identifies the strategy for actions. Overall, it is prepared in order to determine the type and characteristics of the forest areas in the Project Area, potential loss of forests and the options (including estimates for the number of trees to be replanted and size of land needed for afforestation) for mitigation of the adverse impacts. The mitigation and compensation options will be in accordance with relevant Turkish legislation and international practices.

This Afforestation Plan has been prepared in relation to the national requirements to compensate the loss of forests due to European Part (Section 1, 2 and 7) of the North Marmara Motorway Project which starts at Kinali toll plaza in Silivri district of Istanbul province, crosses the city of Kocaeli and ends at Akyazi toll plaza in Akyazi district of Sakarya province, where the sea crossing is provided by the existing Yavuz Sultan Selim (Istanbul's Third Bosphorus) Bridge and its associated motorways that are operational since August 2016 as well as summarising the process for compensation (replanting of trees at alternative sites).

Avrupa Otoyolu Yatirim ve Isletme A.S. (Avrupa OYIAS) has been awarded with a BOT Contract for the implementation of the European part. There are three Sections in European part of the Motorway, Section 1 (Kinali-Yassioren), Section 2 (Yassioren-Odayeri) and Section 7 (Habibler-Hasdal). The Motorway will be a dual carriageway of 4 lanes (2 x 4) in each direction. According to the current design and total length of the European sections (including the main carriageway and the access roads) of the Project will be 87,5 km (as of end of March 2016). General information about each section described as follow:

Section 1

Section 1 of the Motorway starts at Kinali Interchange connecting the Project to the Trans European Motorway (TEM or O-3). This section of the route passes mostly through agricultural areas over a length of 48,9 km including the main road and the access roads.

The starting location of Section 1 (KM 0), Kinali interchange is an intersection point for the roads connecting to Istanbul, Tekirdag and Edirne. In the first ten kilometers of the Motorway, the route passes close to the Kucukkilicli and Fenerkoy neighborhoods. At around KM 12, there is Silivri Interchange. The route continues from the south of an operating Wind Power Plant near KM 15, where wheat fields surround the area. Incegiz Archaeological Site (caves), which caused the route to be shifted in the southern direction, are located around 1,5 km north of the Motorway KM 22. At this point, the route enters a Tunnel to pass Catalca Hills, which are dominated by forest vegetation. Over the hills, Catalca Wind Power plant is being operated (additional turbines are understood to be under construction) and the tunnel exit portal is located under one of the turbines of this power plant.

At the exit portal of the Tunnel, the route passes around 200 m south of an existing factory. In the north of Catalca district center, which is settled at the hillside, Catalca Interchange is planned at KM 28. At the southern side of Catalca, large limestone quarries are observed from the planned Motorway route on the northwest of the Buyukcekmece Lake.

Between KM 29 and 30, the route passes from the south of Izzettin neighborhood, where some of the buildings and structures (i.e. vineyard houses) of this settlement fall within the expropriation corridor of the Motorway. A viaduct is planned at KM 32 to allow the route pass between the existing Buyukcekmece Lakes (used for drinking water pruposes) water catchment area in the south and the Hamzali Dam (on Hamzadere River) of DSI in the north. Running through agricultural fields, the Motorway reaches Nakkas Interchange at around KM 34 in the southwest of Nakkas neighborhood. The route ends at KM 39+500 in the south-west of Yassioren Interchange.

Section 2

Section 2 of the Motorway has a length of nearly 26,7 km including main roads and access roads. The Section starts with a viaduct in the southwest of Yassioren Interchange land reaches to Yassioren Interchange at KM 41. Until KM 48, the route passes mainly through agricultural areas, while between KM 48 and 60 where the Section ends, generally forestry areas and locally former mining sites, mine pit lakes and former waste disposal sites are crossed.

First eight kilometers of the route in Section 2 mainly has agricultural character consisting of the agricultural lands of Baklali and Boyalik neighborhoods. At around KM 48, the Motorway enters a route mainly surrounded by forest lands, where northern forests are mostly degraded by former mining (i.e. lignite mines) activities started to be conducted in the area in the beginning of 1990’s and continued up until 1990’s. Those forests are former mining sites located in north of the Motorway route falls within the boundaries of the Istanbul Grand Airport Project, which is currently under construction. Between KM 51 and KM 60, where the Section ends, the North Marmara Motorway Project route runs generally parallel to the southern boundary of the Istanbul Grand Airport. In this section of the Motorway, the soils are mostly disturbed due to former activities (i.e. mining, construction and demolition waste disposal) and thus significant soil improvement and/or rehabilitation works are required prior to construction of the Motorway to ensure suitable geological and geotechnical conditions. It is assumed that the thickness of waste layers in the former waste disposal sites would reach up to 40-45 m and these layers may need to be removed before construction. At KM 59-60, a Viaduct passes around 200 m south of Ihsaniye neighborhood where it connect Section 2 to the associated highway section (Section 3) of Istanbul’s Third Bosphorus Bridge.

Section 7

Section 7 starts at the west of an area where there are active quarries near Cebeci neighborhood of Sultangazi district and will connect to Section 2 via the access roads of the existing Section 3 between Basaksehir and Odayeri interchanges. Section 7 will also provide connection of the Project to the 2nd Ring Road (E-80) and Fatih Sultan Mehmet Bridge and offer an alternative route to Istanbul’s important centers such as Besiktas and Sariyer.

Cebeci quarries, located at the beginning part of Section 7, have been operated since 1960s (small-scale blasting operations are understood to be conducted) in order to supply the construction material requirements of Istanbul province. For the Motorway section between KM 63 and 66 (south of the quarries), substantial rehabilitation works are required for the preparation of land for construction works. Following the Habibler Interchange planned at KM 62, the route runs through the south of Cebeci quarries and north of Cebeci’s residential area.

The main structure of this Section, Cebeci Tunnel, starts at KM 65+500 and crosses under corresponding sections of the Cebeci, Gazi and Zubeydehanim neighborhoods with a tunnel of 3.360 m length. The geological formation along the tunnel route involves hard rocks, thus there is no risk of subsidence foreseen by the design team and the site is assumed to be convenient for tunnel construction. The tunnel exit portal is at KM 69 at the eastern side of Alibey Dam's spillway channel. The route finally connects to the European Motorway (O-2 or Trans European Motorway, E-80) at KM 70-71 by means of viaducts.

Within the scope of this afforestation plan report is mainly based on the following information and studies:

- Forest management plans (official data of General Directorate of Forestry), management plan data and maps provided by Project Sponsors.
- Forest data serving as a basis for the forestry permit.
- The Project Master Plan.
- Information and data obtained from the visits to General Directorate of Forestry and Regional Directorates of Forestry.
- Data collected during the ESIA field surveys on biodiversity/ecology especially vegetation cover, flora and habitats.

2. BASELINE CONDITIONS

2.1. General

For the European part, North Marmara Motorway Project falls within the jurisdiction of two different Forestry Management Directorates (Istanbul and Catalca) under Istanbul Regional Directorate of Forestry as summarized in Table 1. The boundaries of these directorates are presented in Figure 1.

Table 1. Relevant Forestry Directorates for the Project (European Part)

Section	Regional Directorate	Forestry Management Directorate	Management Sub-directorate
Section 1	Istanbul Regional Directorate of Forestry	Catalca Forestry Management Directorate	Catalca Forestry Management Sub-directorate
			Durusu Forestry Management Sub-directorate
			Silivri Forestry Management Sub-directorate
Section 2	Istanbul Regional Directorate of Forestry	Catalca Forestry Management Directorate	Durusu Forestry Management Sub-directorate
		Istanbul Forestry Management Directorate	Arnavutkoy Forestry Management Sub-directorate
			Kemerburgaz Forestry Management Sub-directorate
Section 7	Istanbul Regional Directorate of Forestry	Istanbul Forestry Management Directorate	Fenertepe Forestry Management Sub-directorate
			Kemerburgaz Forestry Management Sub-directorate

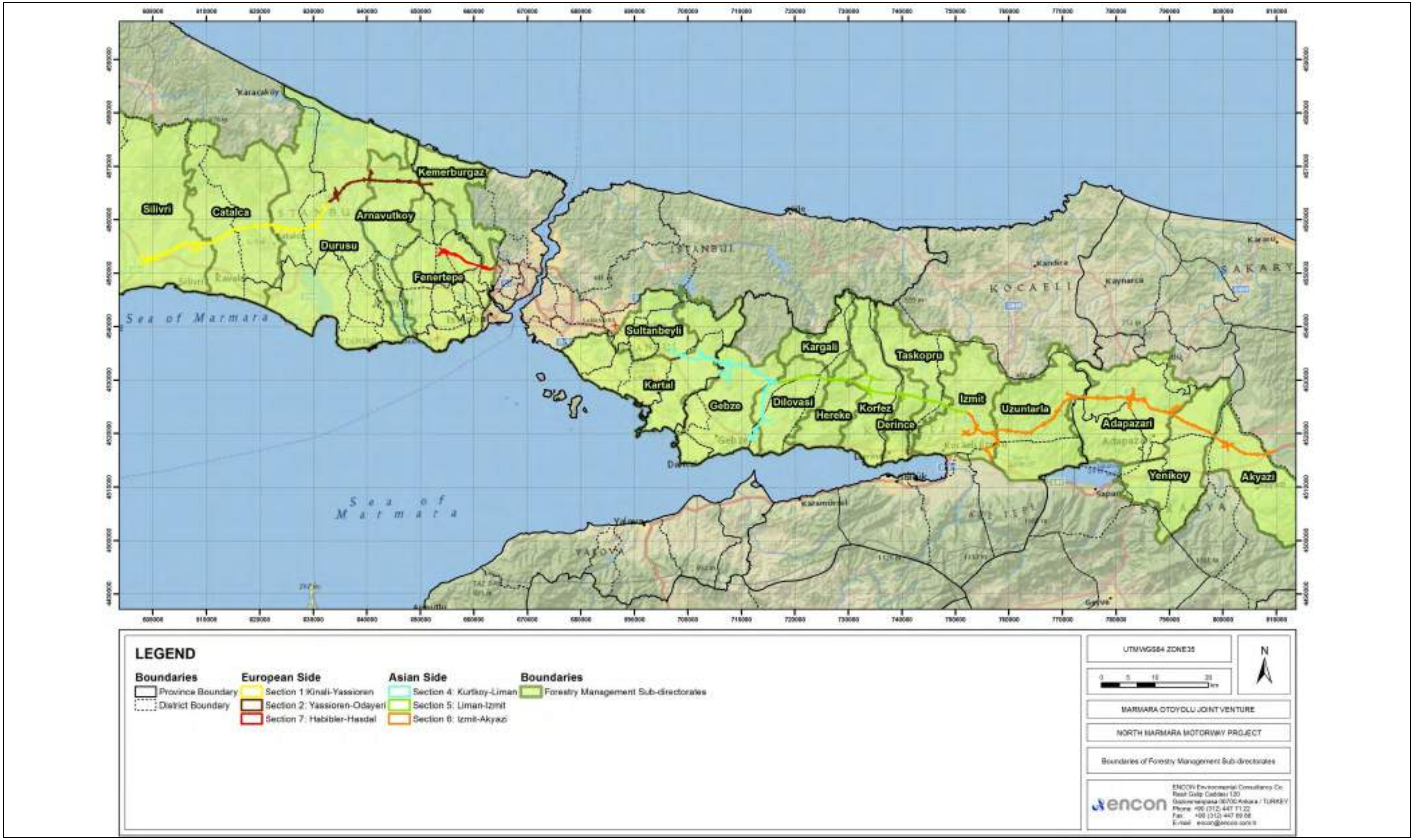

Figure 1. Boundaries of Forestry Management Sub-directorates

2.2. Land Use Characteristics within the Study Corridor

The entire study corridor for the European part covers an area of 4.021,8 ha (for a width of 400 meter along the total length of the route in the European part except the length of tunnels and viaducts, see Chapter 5 for details).

The results of the land use analyses (land use type and land use capability) done for the study corridor (4.021,8 ha; for a width of 400 meter along the total length of the route in the European part except the length of tunnels and viaducts as discussed previously) based on the Turkish General Directorate for Rural Services database are provided in Table 2. As it can bee seen in the Table, a considerable part (71,1%; 2.860,9 ha) of the entire study corridor is covered by agricultural areas and farmlands. Forest areas cover 16,5% (664,5 ha) of the entire study corridor.

Table 2. Land Use Characteristics within the Study Corridor for European Sections (*according to Turkish General Directorate for Rural Services, 1987)*

Land Use Type	Data Source GDRS (1987) Area (ha)	Percent (%)
Agriculture/Farmlands	2.860,9	71,1
Forestry	664,5	16,5
Shrubbery	314,7	7,8
Pastures, Meadows, etc.	114,1	2,8
Others (Settlements/Urban Fabric, Mineral Extraction Sites, Transport Networks, etc.)	67,6	1,7
Total	**4.021,8**	**100,0**

Within the study corridor, there is no forest specified as “coppice forest”, and thus all of the actual forests are categorized as high forests having different canopy covers. The key findings of the analyses done based on the relevant Forest Management Plans of the study area are summarized below (see Chapter 5 for details):

- According to the Forest Management Plans, only 16,6 % (666,33 ha) of the entire study corridor is covered by actual forests. Almost 90% (596,46 ha) of the actual forests within the study corridor correspond to Section 2.
- Of the entire study corridor, 91,2% (612,1 ha) correspond to productive forests where the canopy cover level changes between 10-100%, while the remainder 8,1% (54,2 ha) correspond to degraded forests where the canopy cover level is less than 10%.
- Regarding the forest functions, almost 75% (496,3 ha) of the all actual forests serve for social and cultural function, while the remaining 15% (97,2 ha) serves for ecological and 10% (65,6 ha) serves for economic functions.
- In Section 1, actual forests (productive and degraded) cover an area of 35,81 ha, all of which serves for ecological function, which is specified as nature protection.
- In Section 2, actual forests (productive and degraded) cover an area of 596,5 ha, of which 7,3 ha correspond to private afforestation areas. A major part (77,5%;

462,2 ha) of the entire actual forest area in Section 2 serves for socio-cultural function, while the remaining area is divided between ecological (and economic (forest products production) functions in addition to the private afforestation areas.

- In Section 7, actual forests (productive and degraded) cover an area of 34,1 ha, which entirely correspond to forests with social and cultural function (national security).

2.3. Forest Types and Tree Species

According to forest management process of the General Directorate of Forestry (under Ministry of Forests and Water Affairs), forests are divided into stands and sections. These stands and sections are defined according to partitioning of forest areas in terms of tree species, forest form, establishment type, operation type, age, mixture, canopy cover classification and potential for production (*General Directorate of Forestry, Forest Management and Planning Department, 2011*). The species with extensive distribution and large numbers in the Project Area with specific stand types are presented in Table 3.

Table 3. Tree Species in the Project Area and their Symbols

Specie Name	English Name	Stand Type Symbol
Pinus nigra	Black Pine	Çk
Fagus sp.	Beech	Kn
Populus sp.	Poplar	Kv
Quercus petraea (Mattuschka) Liebl.	Sessile Oak	Mz
	Other Leaved	Dy
Quercus cerris L. var. *Cerris*	Turkish Oak	Ml
Quercus frainetto Ten.	Hungarian Oak	Mc
Pinus pinea L.	Stone Pine	Cf
Pinus pinaster Aiton	Maritime Pine	Cm
Cupressus sempervirens L.	Cypress	Sr
Carpinus betulus L.	Hornbeam	Gn
Pinus radiata	Radiata Pine	Cr
Cedrus sp.	Cedar	S
Fraxinus sp.	Ash Tree	Ds
Acer sp.	Maple Tree	Ak
Ulmus sp.	Elm Tree	Ka
Pinus brutia	Turkish Pine	Çz
Tilia sp.	Linden Tree	Ih

3. POTENTIAL IMPACTS ASSOCIATED WITH THE PROJECT

The potential impacts on forestry associated with the North Marmara Motorway Project are expected to be primarily related to the land take requirements of the Project and will occur during the earthworks and construction phases (including mobilisation and preparatory works). Therefore, the potential impacts on forestry are considered under the following main issues in this section:

- Loss of forest land and assets; and
- Loss of carbon capture capacity.

3.1. Loss of Trees

Trees corresponding to the permitted road construction areas (road footprint and embankment and fill zones) will be removed and appraised by the relevant Regional Directorate of Forestry in coordination with the KGM and Project Sponsors. In this scope, exact number of trees to be removed is determined by the Regional Directorate after examination of current management plans and field studies. Accordingly, number of trees to be removed in the scope of the Project has been estimated by relevant forestry directorates for each section of the Project and is summarized in Table 4. The figures given in this table has been calculated to cover the trees to be removed from the footprint of the Motorway construction areas including the embankment and fill zone. As can be seen from Table 4, total forest area corresponding to the area to be acquired for Motorway route is 763,8 ha, 12,5 ha (around 1,64%) is formed of degraded forests where the canopy cover rate is lower than 10% that is represented by absent to sparse vegetation cover.

Table 4. Estimated Number of Trees to be Removed in Each Section of the Motorway (Main Road)

Section	Regional Directorate	Forestry Management Directorate	Management Sub-directorate	Number of Trees to be Lost	Corresponding Forest Area (ha)	
					Total Area	Area of Degraded Forest Lands
Section 1	Istanbul Regional Directorate of Forestry	Catalca Forestry Management Directorate	Catalca	11.165	50,6	4,4
Section 2	Istanbul Regional Directorate of Forestry	Catalca Forestry Management Directorate	Durusu	5.585	31,9	0
		Istanbul Forestry Management Directorate	Arnavutkoy	92.551	563,8	8,1
			Kemerburgaz	16.916	117,5	0
Sub-total (Section1 and 2)				**126.217**	**763,8**	**12,5**
Percent (%)					**100,0**	**1,64**

When the forest stand types are considered Turkish Oak is stand out the most common types of species that will be affected from the Project.

Table 5. Percentage of Trees to be removed according to their Stand Types

Forest Stand Type		Percentage of Stand Type Among All Trees to be Removed in the		
		Authority Area of Related Forestry Management Directorate (%)		Total (Catalca and Istanbul)
Stand Map Code	English Name	Catalca	Istanbul	
Çk-Karaçam	Black Pine	8,53	91,47	11.435
Dy-Diğer Yapraklılar	Other Leaved	0,44	99,56	8.353
M-Meşe	Oak	4,40	95,6	89.779
Cf-Fıstık Çamı	Stone Pine	67,71	32,29	2.657
Cm-Sahil Çamı	Maritime Pine	16,89	83,11	6.372
Gn-Gürgen	Hornbeam	1,49	98,51	5.732
Dş-Dişbudak	Ash Tree	17,79	82,21	297
Çz-Kızılçam	Turkish Pine	0	100	489
Ih-Ihlamur	Linden Tree	0	100	1.103

3.2. Loss of Carbon Capture Capacity

Carbon is retained in biomass, decomposing organic matter and soil in terrestrial ecological systems. Carbon stock in terrestrial ecological systems plays an important role in the global carbon cycle. Carbon is exchanged between ecological systems and the atmosphere through natural processes such as photosynthesis, respiration, decomposition and combustion. Human activities change the carbon stocks in ecological systems and alter the exchanges between the carbon pools and the atmosphere through land use and land use change (*IPCC, 2000*).

North Marmara Motorway Project is considered to have a potential impact on regional carbon stocks through removal of forests for motorway construction. In this section, the loss in carbon capture oxygen generation capacities due to deforestation activities are estimated. Loss of carbon capture capacity is based on a comparative analysis of this capacity with regard to the official data held by the District and Sub-District Directorates of Forestry regarding the capacity that has been calculated to exist in the region of responsibility of each directorate. The region of responsibility is the geographical area/region where the directorate is responsible for managing all the forest areas and assets in this region (including provision of permits in the forest areas, reforestation/afforestation activities, tree planting and removing). As a result of this evaluation, the significance assessment has been made based on the calculated availability of carbon capture capacity and the forest area to be lost.

Carbon capture and oxygen generation capacities of the forest areas around the Motorway Route are detailed in Chapter 10 (Air Quality and Climate Change). According to the assessment, approximately %1,35 of the total carbon capture and oxygen generation capacities will be lost in the forests of District and Sub-District Directorates of Forestry.

4. LEGAL STATUS AND COMPENSATORY REQUIREMENTS

4.1. Relevant Turkish Legislation and Procedures for Projects on Forest Land

The legislation related to forest areas, their protection and utilization for public benefit is composed of laws and regulations that are based on the constitution of Turkey. The central administrative authority is the Ministry of Forestry and Water Affairs (MFWA). The relevant agency within MFWA is the General Directorate of Forestry, which itself has Regional Directorates in the country and Operational Directorates and Sections in those regions. These Directorates are responsible for protecting forestry and forestry resources against negative impacts, and developing and managing forestry and forestry resources in a sustainable way.

Laws and regulations for realization of various types of projects on state owned forest land and regulation of afforestation and other related measures on these areas can be summarized as follows:

- Forest Law (Law No. 6831, Official Gazette date 8.9.1956, No. 9402)
- Implementing Regulation of 16th Article of the Forest Law (Official Gazette dated 18.04.2014, No. 28976)
- Implementing Regulation of 17th/3 and 18th Articles of the Forest Law (Official Gazette dated 18.04.2014, No. 28976)
- Regulation on Permits to be Granted in Areas Considered as Forest
- Regulation on Afforestation (Official Gazette dated 23.08.2012, No. 28390)

Ministry of Transport, Maritime Affairs and Communications (MoTMAC), General Directorate of Highways (“KGM” or “the Administration”), as the owner of the North Marmara Motorway Project, has commissioned two different special purpose entities (SPV) for the implementation of the European and Asian sections of the Project under the related Build, Operate and Transfer (BOT) contracts. The Project Area contains forest areas under the authority of the Ministry of Forestry and Water Affairs, General Directorate of Forestry. Article 4 of “Implementing Regulation of 17th/3 and 18th Articles of the Forest Law,” and Section 10 of “Regulation on Permits to be Granted in Areas Considered as Forest” state that a permit application must be made for motorways (amongst other construction types listed in this article) that are to be built in forest land. Therefore, it will be necessary for project protocols to be established between the two relevant ministries. An application by General Directorate of Highways must be made to the Ministry of Water Affairs and Forestry in order to proceed with the project construction.

Following documents are required for this application (note that these documents are required for infrastructure projects and this list excludes additional documents needed for mine projects):

a. Operation license
b. Map or sketch with 1/25.000 scale
c. Stand map
d. Layout plan 1/1.000 or appropriate scale
e. Coordinate lists
f. Forest cadastral map
g. Tree relievo plan with 1/1.000 or appropriate scale
h. Local zoning plan with 1/1.000 scale
i. EIA permit license
j. Bill of quantities of the facilities that will be built in the requested area and summary of estimates prepared according to proforma invoices or current year unit prices which will be determined by the Ministry of Environment and Urbanization and the relevant state authorities or public institutions and organizations.

General Directorate of Highways should commission an authorized company to prepare the aforementioned documents. Where the application paperwork is complete and accurate, a delegation from the Regional Directorate explores the land and prepares a preliminary, or final, permit report. This report includes consideration of whether the project is in the public interest. In the event the final permit report is given, permission for up to 49 years (extendable up to 100 years) is given. Within one month following the permit issuance, relevant fees and assurance are taken from the General Directorate of Highways by the General Directorate of Forestry.

The General Directorate of Forestry and its Regional Directorate perform all the works (including tree marking, felling, logging, chipping and removal) on the area during the period between permit issuance and delivery of the land to the General Directorate of Highways.

The above documentation is required for final permitting and by preparing the documents mentioned in items (a), (b), (c), (d), (e) and (f), an application for pre-approval may be made to the regional directorate. A pre-approval application generally serves as a permit to prepare the documents and information needed to apply for the final permit. Thus, preparatory studies could be done for permitting in this period (which is generally 24 months), but construction is not allowed.

Fees required to be paid for the application are; afforestation fee, land permit fee, forest-village relations fee (Orkoy fee), erosion fee and storage fee. However, here it should be noted that state institutions and organizations are not required to pay these fees for pre-approval application. Therefore, The General Directorate of Highways relieved from payment of any such fee in connection with the North Marmara Motorway Project.

A raw material production permit is required for activities concerning the production of construction raw materials, by state institutions and organizations, in forest areas. Based on this permit, allowance of all operations and constructions for this purpose is regulated by Implementing Regulation of 16th Article of the Forest Law and Implementing Regulation of 17/3 and 18th Articles of the Forest Law.

The documents for permitting are being prepared by the The General Directorate of Highways through a consultant authorized (by the Ministry of Forestry and Water Affairs) to prepare those documents. The data used in this plan are also mainly based on the data of the authorized forestry consultant. For the forestry lands, treasury lands and other state-owned lands, necessary permits, land use permits and/or easement rights will be obtained by KGM from the related authorities in the scope of applicable legislation.

4.2. Further Compensatory Actions with regard to International Requirements

Starting with the United Nations (UN) Conference on Environment and Development (UNCED), international conferences like the UN Convention on Biological Diversity, the UN Convention to Combat Desertification (UNCCD) and the UN Framework Convention on Climate Change (UNFCCC) are some of the many conventions which have given forests an increasingly important role in the context of sustainable development and environmental conservation. UN Forum on Forests (UNFF) and its supporting institution Collaborative Partnership on Forests (CPF) are currently responsible of international arrangements on forests. Although these conventions and institutions did not manage a consensus for a single legally binding document, they each contributed to the terms and conditions regarding subjects like sustainable forestry, reforestation and afforestation (*Eurostat, 2001; European Communities (EC), 2003; UNCCD, 2012; UNCED, 1992*).

Since international finance is widely used for large scale projects, standards and guidelines regarding environmental and social issues associated with the projects that are supported by such finance, have been developed by worldwide financing institutions. Among these institutions, the World Bank Group has a specifically important role, having established multiple documents covering almost every environmental and social aspect related to various project types. International Finance Corporation (IFC), which serves the private sector projects in the World Bank Group, has established well developed performance standards and guidance regarding environmental and social issues including forestry and biodiversity.

IFC lists key initiatives and practices for forestry sector in its web based “Guide to Biodiversity for the Private Sector” (*IFC, 2006*). Among these key initiatives the following two, which have comparatively more importance, are defined as follows:

- The World Bank/WWF Forest Alliance: The Alliance works with governments, the private sector and civil society to create new protected areas of forest, improve the management of existing protected areas and promote independent certification of the world's production forests.

- The Forest Stewardship Council (FSC): The FSC is a global multi-stakeholder standard setter for sustainable forest management certification, promoting “environmentally appropriate, socially beneficial, and economically viable management of the world's forests.”

As stated in Section 4.1, the General Directorate of Forestry and its Regional Directorate are responsible for establishing and maintaining new forest areas, as compensation for the losses caused by the relevant project. The project sponsor is only responsible for paying an amount required for compensation. No international requirements regarding compensation in form of afforestation are given in this section, since only the Directorate is responsible for such forest works.

Furthermore, IFC Performance Standard 6 (PS6) - Biodiversity Conservation and Sustainable Management of Living Natural Resources, categorises habitats as modified, natural and critical. Critical habitats are a subset of modified or natural habitats, which also includes forest areas. The main requirements contained in PS6 are summarised as follows:

- The risk and impact identification process, as set out in Performance Standard 1 (PS1), should consider direct and indirect project-related impacts on biodiversity and ecosystem services and identify any significant residual impacts. This process will consider relevant threats to biodiversity and ecosystem services, especially focussing on habitat loss, degradation and fragmentation, invasive alien species, overexploitation, hydrological changes, nutrient loading, and pollution;

- As a matter of priority, the client should seek to avoid impacts on biodiversity and ecosystem services. When avoidance of impacts is not possible, measures to minimise impacts and restore biodiversity and ecosystem services should be implemented; and

- Where paragraphs 13–15 (the paragraphs which concern natural habitats) are applicable, the client will retain competent professionals to assist in conducting the risks and impacts identification process. Where paragraphs 16–19 (the paragraphs which concern critical habitats) are applicable, the client should retain external experts with appropriate regional experience to assist in the development of a mitigation hierarchy that complies with PS6 and to verify the implementation of those measures (*IFC, 2006; Forest Stewardship Council, 2013; IFC, 2012*).

In the scope of the Project, these international requirements and guidance have been and will be taken into account during planning (including ESIA and design), construction and operation activities. Relevant measures are developed during the planning phase in the context of the ESIA, especially in the scope of the assessment made on ecology, and master plan/design studies for mitigating and, where necessary, compensating the adverse impacts on forests and forest habitats. These mitigation and compensation measures are explained in detail in the following sections.

5. AFFORESTATİON PLANNING AS MITIGATION AND SITES TO BE PROTECTED

The impacts on forests will take place during the pre-construction/construction period and relevant mitigation measures are presented in this section. It should be noted that some of the mitigation actions, mainly afforestation, will be implemented through both the construction and operational phases of the Project. This topic is also addressed in the following section.

The main measures that will be implemented for the mitigation of impacts on forestry in the Project Area are as follows:

- Protecting the existing forests in the Project Area to the extent possible;
- Replacing the forests at alternative off-site locations (afforestation/reforestation) and on site;
- Establishment of similar habitats at alternative sites; and
- Compensation through payment of fees to the General Directorate of Forestry.

5.1. General Provisions

According to relevant regulations, the General Directorate of Forestry is the authority that manages the forests in Turkey. In this regard, this Directorate is responsible for plantation works and maintenance of trees, cutting and/or translocation of trees, identification of species and locations for afforestation. Project owners are only required to pay the fees that are determined by this Directorate.

In order to compensate for the loss of forest assets in the Project Area, Project Sponsors committed to invest/pay for planting five times the number of trees to be removed from the Project Area. The afforestation will be done by the General Directorate of Forestry and Istanbul Regional Directorate of Forestry in accordance with Turkish legislation. However, volunteer company/organization can perform afforestation works in cooperation with Forestry administrations. Planning of the afforestation works will be outlined in protocol between Project Sponsor and Forestry administration. Since afforestation area to compensate the losses would be rather large as estimated below, the time needed for afforestation is expected to take many years and details are provided below.

5.2. Replacing the Forests/Afforestation at Alternative Sites and On Site, and Translocation Potential

Afforestation at Alternative Sites (Off Site)

For permit applications regarding projects on forest areas, no fee is required for state property forests (i.e. forests that are not established by third parties through private plantation work) if the applicant is a government body. In case private forests or plantation areas are present, the project owner pays the necessary fees regardless of it being a governmental organisation, for this type of forests. Therefore, Ministry of Transport, Maritime

Affairs and Communications acquired the necessary preliminary permit by only paying the fees needed for plantation areas.

According to Turkish Legislation, afforestation for compensation is not required by the law, when the project owner is a government body. For privately owned projects, total area of afforestation is determined by General Directorate of Forestry and this area is always equal to the total forest area loss caused by the related private sector project. For the North Marmara Motorway Project, the government is responsible for taking clearance for the whole Project Area and later on, will handover the land to the appointed project sponsor to build and operate the Project. Therefore, for the Project, there is no legal requirement of compensation afforestation. However, the Project Sponsors voluntarily committed to compensate for the loss of all forest assets by afforestation. This commitment involves the number of trees for new plantations to be five times the loss caused by the Project.

Ministry of Forestry and Water Affairs Department of Permission and Easements states that for individual afforestation applications, as it is the case with Project Sponsors, afforestation can be done in any region of Turkey. However, Project Sponsors plan to compensate for the forest habitat losses specific to Marmara region, so the new plantation areas would be in this region. For each region, specific tree species for plantations are determined by the related regional forestry directorate, depending on the forest habitats and economic requirements of that region. These requirements are determined yearly and are specified on that year's afforestation plans of the Regional Directorate. Since it is local specie, *Pinus pinea* (Stone Pine) is one of suitable species for Marmara Region. Other suitable species are *Pinus pinaster* (Maritime Pine), *Quercus cerris* (Turkish Oak), *Quercus frainetto* Ten. (Hungarian Oak) and *Quercus petraea* (Sessile Oak) for Marmara Region. However, *Pinus pinea* is most recommended afforestation plant specie by expert botanists for the Region.

In this context, the area to be afforested for compensating the loss due to the Project would be determined in coordination and cooperation of Project Sponsor with related Directorate/Directorates. In worst case scenario, where all of the trees in the entire permit area of the Project are removed, a total of 126.217 trees would be lost. For compensation afforestation planning, Istanbul Regional Directorate of Forestry and/or Sakarya Regional Directorate of Forestry will determine the total area for planned plantations depending on the total forest assets that will be lost and the total annual increase this asset creates.

Considering the number of trees that will be lost is 126.217 the number of trees for compensation will be around 631.085 Plantations will be made elsewhere in the region and based on the availability of land outside the Project Area. The Project Sponsor will sign a protocol with relevant Regional Forestry Directorates. The number of saplings for plantation will be determined based on the area and tree species/types. Stated numbers of saplings that can be planted per hectare, by the Istanbul Regional Forestry Directorate, for different tree types, are as follows: 1.600 maritime pine saplings; 500 stone pine; 1.100 deciduous trees and 3.000 oak saplings. Therefore, maximum afforestation area will be 1262 hectare in case only stone pine saplings used for afforestation and minimum afforestation area will be 210 hectare in case only oak saplings used for afforestation. When considered afforestation will be implemented at unwooded forest soils (OT stand code) and degraded forest areas (%0-10 canopy cover) there is a need for this type of areas to implement afforestation. Amount of these areas in each forestry management sub-directorate is presented in Table 6.

Table 6. Unwooded Forest Soils and Degraded Forest Areas in each Relevant Management Sub-Directorate for the Project (European Part)

Management Sub-directorate	Unwooded Forest Soils (OT)	Degraded Forest Areas (%0-10 Canopy Cover)
Catalca Forestry Management Sub-directorate	224,8	684,6
Durusu Forestry Management Sub-directorate	156,2	654,7
Silivri Forestry Management Sub-directorate	1.021,2	762,4
Arnavutkoy Forestry Management Sub-directorate	158,5	331
Kemerburgaz Forestry Management Sub-directorate	255,4	641,2
Fenertepe Forestry Management Sub-directorate	340,6	1.042,2
Sub-total	**2.156,7**	**4.116,1**
Total		**6.272,8**

According to stand data of relevant forest sub-district directorates, there are 2.156,7 hectares of unwooded forest soils and 4.116,1 hectares of degraded (%0-10 canopy cover) forest areas around the Project Area. Therefore, there are 6.272,8 hectares of area available for afforestation around the Project Area. Map of unwooded forest soils and degraded forest areas around the Project Area is presented in Figure 2.

Under Turkish law, there is no legal requirement for payment of any fees for compensation as discussed above, due to the nature of the Project (designed as a build, operate, transfer project). However, Project Sponsors will implement afforestation activities to replace the lost forest assets at relevant locations to be showed by the Forestry Directorates. In this regard, costs associated with the afforestation activities will be paid by Project Sponsors.

The time required for exact compensation for the loss of forest assets depends on various interacting factors regarding forest conditions of the Project Area and conditions of afforestation. Some of these factors are as follows:

- Factors regarding species that will be lost and that will be planted such as growth rate
- Proportion of different age stands of different species that will be lost
- Proportion of different species that will be planted
- Proportion of trees that will be planted each year
- Site specific conditions like average precipitation and soil productivity of the selected afforestation areas

Planting as well as growing of the forests to maturation will take a rather long time and this will be an unavoidable consequence of the Project. Thus, compensating the impacts on forests would be achieved in medium to long term (including maturation of the forests to be planted).

Translocation Potential

In the Project Area, some species such as maritime pine (*Pinus pinaster Aiton)* that have rapid growth rates and low landscape and economic value, cutting and selling of all-age stands of these species is acceptable by the General Directorate of Forestry and that all timber cutting and selling would be conducted by the General Directorate of Forestry C-age (20 35.9 cm in diameter) larch and red pine stands are likely to be cut and a market assessment provided by the General Directorate of Forestry since they have a greater commercial value.

Translocation of a-age seedling stands of oaks (*Quercus sp*.) and hornbeams (*Carpinus betulus*) like MDya, Ma and Ma3's is not economicaly feasible due to low rate of translocation success, and also because their landscape value is low, these stands' translocation is considered infeasible. It is not possible to translocate c-age (20-35.9 cm in diameter) and d-age (36-51.9 cm in diameter) tree species, however, they have economic value and therefore it is appropriate that the Administration cut the c-age trees and provide them to market.

A-age genus and species, such as *Pinus pinea* (Stone pine), *Robinia* (Black locust), *Pinus nigra* (Black pine), *Cedrus* (Cedar), *Tilia* (Linden), *Acer* (Maple) and *Fraxinus* (Ash) have landscape and economic importance and c-age (8-19.9 cm in diameter) *Pinus brutia* (Red pine), *Pinus nigra* (Black pine), *Pinus pinea* (Stone pine), *Tilia* (Linden), *Acer* (Maple), *Robinia* (Black locust), *Cedrus* (Cedar) , *Fraxinus* (Ash) have landscape value. Of these genera, only Robinia is not present in the Project Area. Other species are present in the Project Area, with age groups suitable for translocation, however translocation of these species is not considered a viable option since both are plantation trees and not representative of the natural habitats of the area.

Afforestation on Site

General Directorate of State Highways (KGM) has technical specifications for landscaping works and a motorway maintenance handbook. These specifications cover project design, implementation and operation/maintenance phases. Therefore, all mitigation measures about landscaping have been provided in the technical attachments of the contract and Project Sponsors are responsible to implement and keep these measures. According to these attachments, landscaping works around highways include hereinbelow;

- Urban Crossings
    - Side Slopes
    - Central Reserves
    - Intersections
    - Engineering Structures (Underpass/Overpass, Viaducts, Tunnels and Retaining Wall
    - Motorway Service Facilities
    - Toll Plazas and Maintenance Services
    - Special Areas
        - (Areas between expropriation borders and side slopes)
        - Expropriation borders
        - Material Borrow Sites and Quarries
- Rural Crossings

According to KGM handbook, side slopes that wider than three meters should be afforested. In case side slope is narrower than three meters, side slope should be planted with groundcover species, shrub and tree clubmoss. Similarly, central reserves that wider than three meters should be planted with shrub and three species. When afforestation at these two large components of the Motorway is considered, compensation on tree assets will be much more, regardless the voluntary afferostation of the Project Sponsors.

5.3. Sites to be protected

Several tunnels and viaducts have been included in the Project design to overcome geotechnical and/or topographic challenges along the route as well as to protect environmental and/or social resources/receptors such as forest areas, important water bodies, residential areas and/or cultural heritage sites corresponding to those sites. Detailed information on route changes, integration of engineering structures such as tunnels, viaducts to protect forest areas and other sensitive areas is provided in Chapter 18-Alternatives.

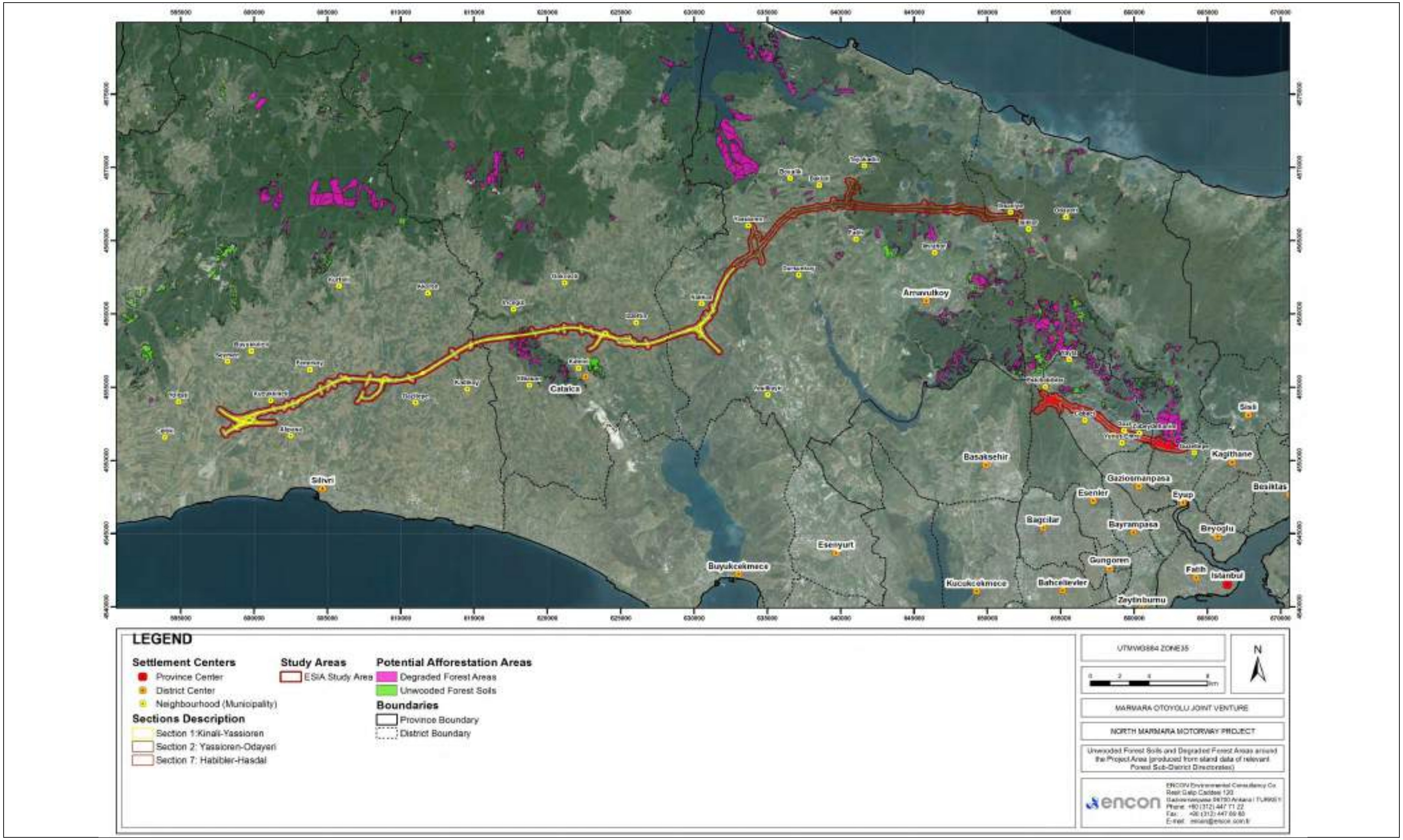

Figure 2. Unwooded Forest Soils and Degraded Forest Areas around the Project Area (produced from stand data of relevant Forest Sub-District Directorates)

ANNEX-5

LABORATORY RESULT FORMS

SOIL QUALITY

TÜRKAK

Test
TS EN ISO/IEC 17025
AB-0158-T

AB-0158-T

LR.17.0156

10.03.2017

ENCON LABORATUVARI A.Ş.

ANALİZ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	10.03.2017 / LR.17.0156	NUMUNE KAYIT NO	NUM.17.0156
NUMUNE ALINAN YER	Kuzey Marmara Otoyo. Projes , Kadıköy	NUMUNE TÜRÜ / NUMUNE İŞARETİ	Toprak T1-1
NUMUNE ALMA ŞEKLİ / YÖNTEMİ	...	NUMUNEYİ ALAN	Uğur Şahin
NUMUNEYE UYGULANAN İŞLEMLER / GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	1,0 kg Mühürsüz, Poşet,	NUMUNE ALMA / KABUL TARİHİ	24.01.2017 25.01.2017
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	Kapalı	ANALİZİN YAPILDIĞI TARİH	25.01.2017 - 08.03.2017

Toprak numunesi ENCON personeli tarafından ENC-LABPR-NUM-13 Nolu Numune Alma Prosedürü 'ne göre alınmıştır.

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (c) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip .... tarafından yapılmıştır.

TÜRKAK
TS EN ISO/IEC 17025
AB-0158-T
LN 17.0156
13.03.2017

ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

Parametreler	Birim	Analiz Sonucu	Metotlar
BTEX (*)	mg/kg	<0.01	EPA 5030 C-EPA 8260 C GC MS Metot
Toplam Petrol Hidrokarbonler (TPH)	mg/kg	62.33	TS EN 14039
VOC (*)	mg/kg	<0.01	EPA 5030 C-EPA 8260 C GC MS Metot

KONTROL EDEN:	ONAYLAYAN:
ADI / SOYADI: Hakan Yılmaz	ADI / SOYADI: Hüseyin Tekin
İMZA:	İMZA / KAŞE:
TARİH: 10 Mart 2017	TARİH: 10 Mart 2017

ENCON LABORATUVARI A.Ş.

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçlar, ENCON Laboratuvarı A.Ş.'nin izni olmadan tıbbi ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (c) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip .... tarafından yapılmıştır.

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ANALİZ RAPORU

TÜRKAK
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TS EN ISO/IEC 17025
AB-0159-T

AB-0159-T
LR.17.0167
10.03.2017

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	10.03.2017 / LR.17.0167	**NUMUNE KAYIT NO**	NUM.17.0167
NUMUNE ALINAN YER	Kuzey Marmara Otoyol Projesi	**NUMUNE TÜRÜ / NUMUNE İŞARETİ**	Toprak T2-1 Arnavutköy
NUMUNE ALMA ŞEKLİ / YÖNTEMİ	---	**NUMUNEYİ ALAN**	Uğur Şarın
NUMUNEYE UYGULANAN İŞLEMLER / GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	1.0 kg, Mühürsüz Poşet.	**NUMUNE ALMA / KABUL TARİHİ**	27.01.2017 28.01.2017
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	Kapalı	**ANALİZİN YAPILDIĞI TARİH**	28.01.2017 - 08.03.2017

Toprak numunesi ENCON personeli tarafından ENC-LABPR-NUM-13 Nolu Numune Alma Prosedürü 'ne göre alınmıştır.

Açıklamalar. Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

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ANALİZ RAPORU

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0168-T

AB-0168-T
LR 17.0167
10.03.2017

Parametreler	Birim	Analiz Sonucu	Metotlar
BTEX (*)	mg/kg	<0.01	EPA 5030 C EPA 8260 C GC MS Metot
Toplam Petrol Hidrokarbonlar (TPH)	mg/kg	166.00	TS EN 14039
VOC (*)	mg/kg	<0.01	EPA 5030 C EPA 8260 C GC MS Metot

KONTROL EDEN:	**ONAYLAYAN:**
ADI / SOYADI: Hakan Yılmaz	**ADI / SOYADI:**
İMZA: 10 Mart 2017	**İMZA / KAŞE:** encon ENCON LABORATUVARI A.Ş. Reşit Galip Cad. No:120 G.O.P. ANKARA www.enconlab.com.tr
TARİH:	**TARİH:**

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip ________ tarafından yapılmıştır.

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AB-0168-T
LR.17.0168
10.03.2017

ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	10.03.2017 / LR.17.0168	NUMUNE KAYIT NO	NUM.17.0168
NUMUNE ALINAN YER	Kuzey Marmara Otoyol Projesi	NUMUNE TÜRÜ / NUMUNE İŞARETİ	Toprak T7-1 Sultangazi Zübeydehanım
NUMUNE ALMA ŞEKLİ / YÖNTEMİ	...	NUMUNEYİ ALAN	Uğur Şahin
NUMUNEYE UYGULANAN İŞLEMLER / GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	1,0 kg, Mühürsüz, Poşet,	NUMUNE ALMA / KABUL TARİHİ	27.01.2017 28.01.2017
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	Açık	ANALİZİN YAPILDIĞI TARİH	28.01.2017 - 08.03.2017

Toprak numunesi ENCON personeli tarafından ENC-LABPR-NUM-13 Nolu Numune Alma Prosedürü 'ne göre alınmıştır.

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

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AB-0168-T

AB-0168-T
LR.17.0168
10.03.2017

ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

Parametreler	Birim	Analiz Sonucu	Metotlar
BTEX (*)	mg/kg	<0.01	EPA 5030 C-EPA 8260 C GC MS Metot
Toplam Petrol Hidrokarbonlar (TPH)	mg/kg	59.46	TS EN 14039
VOC (*)	mg/kg	<0.01	EPA 5030 C-EPA 8260 C GC MS Metot

KONTROL EDEN:	**ONAYLAYAN:**
ADI / SOYADI: Hakan Yılmaz	**ADI / SOYADI:**
İMZA:	**İMZA / KAŞE:** ENCON LABORATUVARI A.Ş. Reşit Galip Cad. No:120 G.O.P. / ANKARA Tel: (0312) 447 71 22 Fax: (0312) 447 69 88 Cumhuriyet V.D. [illegible] Tic.Sic.No [illegible] Mersis No: [illegible] www.enconlab.com.tr
TARİH: 10 Mart 2017	**TARİH:** 10 Mart 2017

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

WATER QUALITY

(Surface Water – Table 2)

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0160-T
AB-0160-T
LR 17.0160
10.03.2017

ENCON LABORATUVARI A.Ş.

ANALİZ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	10.03.2017 / LR.17.0150	**NUMUNE KAYIT NO**	NUM 17.0160
NUMUNE ALINAN YER	Kuzey Marmara Otoyol Projesi,	**NUMUNE TÜRÜ / NUMUNE İŞARETİ**	Yüzey Suyu S1-Sızzedin(KM.32+100)
NUMUNE ALMA ŞEKLİ / YÖNTEMİ	Anlık Numune	**NUMUNEYİ ALAN**	Uğur Şahin
NUMUNEYE UYGULANAN İŞLEMLER / GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma; 500.0 mL Mühürlü, Plastik Şişe, Soğuk koruma+HNO_3; 500.0 mL Mühürlü, Cam Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma+H_2SO_4; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma+H_2SO_4; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma	**NUMUNE ALMA / KABUL TARİHİ**	26.01.2017 27.01.2017
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	Kapalı	**ANALİZİN YAPILDIĞI TARİH**	26.01.2017 - 06.03.2017

Yüzey Suyu numunesi ENCON personeli tarafından ENC-LABPR-NUM-13 Nolu Numune Alma Prosedürü 'ne göre alınmıştır.

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni alınmadan ilan ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip NFM Müh. ve Lab. Hiz. İnş. Tic. Ltd. Şti. Çevre Referans Laboratuvarı tarafından yapılmıştır.

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ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

TÜRKAK
TS EN ISO/IEC 17025

Parametreler	Birim	Analiz Sonucu	Metotlar
1,2 Dikloretan (*)	µg/L	<0.1	EPA 5030 C-EPA 8260 C GC MS Metot
Aclonifen (*)	µg/L	<0.05	İşletme İçi Metot (EPA 538), ENC.LABTL.LCP.176, 5990-4253EN Agilent Application Notes
Alachlor	µg/L	<0.25	EPA 3510 C, EPA 3620 C, EPA 8081 B
Anthracene	µg/l	<0.1000	EPA 3510 C, EPA 3620 C, EPA 8270 D
Atrazine (*)	µg/L	<0.05	İşletme İçi Metot (EPA 538), ENC.LABTL.LCP.176, 5990-4253EN Agilent Application Notes
Benzen (*)	µg/l	<0.1	EPA 5030 C-EPA 8260 C GC MS Metot
Benzo(a)pyrene	µg/L	<0.15	EPA 3510 C, EPA 3620 C, EPA 8270 D
Benzo (b) fluoranthene	µg/L	<0.1300	EPA 3510 C, EPA 3620 C, EPA 8270 D
Benzo (g,h,i) perylene	µg/L	<0.1000	EPA 3510 C, EPA 3620 C, EPA 8270 D
Benzo (k) fluoranthene	µg/L	<0.1100	EPA 3510 C, EPA 3620 C, EPA 8270 D
Bifenox (*)	µg/L	<0.05	İşletme İçi Metot (EPA 538), ENC.LABTL.LCP.176, 5990-4253EN Agilent Application Notes
Bromlu difenileter (**)	mg/L	<0.02	İşletme İçi Metot N-10
C10-13 Kloroalkanlar (**)	µg/L	<1.0	ISO 12010
Civa ve Bileşikleri (*)	µg/L	<0.05	EPA 6020 B
Cybutryne (*)	µg/L	<0.05	İşletme İçi Metot (EPA 538), ENC.LABTL.LCP.176, 5990-4253EN Agilent Application Notes
Di(2-etilheksil)ftalat (DEHP) (**)	µg/L	<0.13	İşletme İçi Metot N-15
Dichlorvos (*)	µg/L	<0.1	İşletme İçi Metot (EPA 538), ENC.LABTL.LCP.176, 5990-4253EN Agilent Application Notes
Dicofol (*)	µg/L	<0.1	EPA 3510 C, EPA 3620 C, EPA 8081 B
Diklorometan (*)	µg/l	<0.1	EPA 5030 C-EPA 8260 C GC MS Metot
Dioksinler ve Dioksin Benzeri Bileşikler (**)	pg-TEQ/L	15.0584	EPA 1613B-1994
Diuron (*)	µg/L	<0.05	İşletme İçi Metot (EPA 538), ENC.LABTL.LCP.176, 5990-4253EN Agilent Application Notes
Endosulfan	µg/L	<0.1	EPA 3510 C, EPA 3620 C, EPA 8081 B

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) işaretli parametreler akreditasyon olmayan parametrelerdir.
- (φ) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) işaretli parametreler ISO 17025 Akreditasyonuna sahip NEN Müh. ve Lab. Hiz. İnş. Tic. Ltd. Şti. Çevre Referans Laboratuvarı tarafından yapılmıştır.

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AB-0166-T
LR.17.0160
10.01.2017

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ANALİZ RAPORU

Parametreler	Birim	Analiz Sonucu	Metotlar
Fluoranthene	µg/L	<0.1000	EPA 3510 C, EPA 3620 C, EPA 8270 D
Hekzabromo - siklododekanlar (HBCDD) (**)	ng/L	<0.8	İşletme İçi Metot N-15
Hekzaklorobenzen	µg/L	<0.1	EPA 3510 C EPA 3620 C EPA 8081 B
Hekzaklorobutadien	µg/L	<0.1	EPA 3510 C, EPA 3620 C, EPA 8081 B
Hekzakloro - siklohekzan (*)	µg/L	<0.1	EPA 3510 C, EPA 3620 C, EPA 8081 B
Heptachlor	µg/L	<0.1	EPA 3510 C EPA 3620 C EPA 8081 B
Heptachlor epoxide	µg/L	<0.1	EPA 3510 C, EPA 3620 C, EPA 8081 B
Indeno (1,2,3-cd) pyrene	µg/L	<0.1000	EPA 3510 C, EPA 3620 C, EPA 8270 D
Isoproturon (*)	µg/L	<0.05	İşletme İçi Metot (EPA 538), ENC.LAB.TL.LCP.176, 5990-4253EN Agilent Application Notes
Kadmiyum ve Bileşikleri (*)	µg/L	<0.25	EPA 6020 B
Klorfenvinfos (*)	µg/L	<0.05	İşletme İçi Metot (EPA 538), ENC.LAB.TL.LCP.176, 5990-4253EN Agilent Application Notes
Klorpyrifos	µg/L	<0.1	EPA 3510 C, EPA 3620 C, EPA 8081 B
Kurşun ve Bileşikleri (*)	µg/L	0.545	EPA 6020 B
Naphthalene	µg/L	<0.1000	EPA 3510 C, EPA 3620 C, EPA 8270 D
Nikel ve Bileşikleri (*)	µg/L	<10.0	EPA 6020 B
Nonilfenoller (4-Nonilfenol) (**)	µg/L	<1.0	ASTM D7065-11
Oktilfenoller ((4-(1,1',3,3'-tetrametilbütil)-fenol)) (**)	µg/L	<1.0	ASTM D7065-11
Pentaklorobenzen	µg/L	<0.1	EPA 3510 C EPA 3620 C EPA 8081 B
Pentaklorofenol	mg/L	<0.0125	EPA 528, EPA 8041 A
Perflorooktan sülfonik asit ve türevleri (PFOS) (**)	ng/L	<0.13	İşletme İçi Metot N-15
Polisiklik Aromatik Hidrokarbonlar	µg/L	<0.15	EPA 3510 C, EPA 3620 C, EPA 8270 D
Quinoxyfen (*)	µg/L	<0.05	İşletme İçi Metot (EPA 538), ENC.LAB.TL.LCP.176, 5990-4253EN Agilent Application Notes
Simazine (*)	µg/L	<0.05	İşletme İçi Metot (EPA 538), ENC.LAB.TL.LCP.176, 5990-4253EN Agilent Application Notes
Sipermetrin	µg/L	<0.1	EPA 3510 C EPA 3620 C EPA 8081 B

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (◊) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip NEN Müh. ve Lab. Hiz. İnş. Tic. Ltd. Şti. Çevre Referans Laboratuvarı tarafından yapılmıştır.

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AB-0144-T

AB-0144-T
LP-17.4100
10.03.2017

ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

Parametreler	Birim	Analiz Sonucu	Metotlar
Terbutryn (*)	µg/L	<0.05	İşletme İçi Metot (EPA 539) ENC.LABTL LCP.175, 5990 4253EN Agilent Application Notes
Tributilkalay bileşikler (Tributilkalay-katyonu) (*)	µg/l	<10.0	ISO 17353
Trifluralin	µg/L	<0.1	EPA 3510 C EPA 3620 C EPA 8081 B
Trikloro-benzenler (*)	µg/L	<0.1	EPA 5030 C-EPA 8260 C GC MS Metot
Triklorometan (*)	µg/l	<0.1	EPA 5030 C-EPA 8260 C GC MS Metot

KONTROL EDEN:	**ONAYLAYAN:**
ADI / SOYADI: Hakan Yılmaz	**ADI / SOYADI:** Hüseyin Tekin
İMZA:	**İMZA / KAŞE:** ENCON LABORATUVARI A.Ş.
TARİH: 10 Mart 2017	**TARİH:** 10 Mart 2017

Açıklamalar: Müşteri talebi üzerine özel tabak numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ilan ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- İçi işaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip NEN Müh. ve Lab. Hiz. İnş. Tic. Ltd. Şti. Çevre Referans Laboratuvarı tarafından yapılmıştır.

Adres: Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 23 **Fax: 0 312 447 88 88** www.enconlab.com.tr

T.C.
ÇEVRE VE ŞEHİRCİLİK BAKANLIĞI

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T.C.
ÇEVRE VE ŞEHİRCİLİK BAKANLIĞI
Çevresel Etki Değerlendirmesi İzin ve Denetim Genel Müdürlüğü
Laboratuvar,Ölçüm ve İzleme Dairesi Başkanlığı

ÇEVRE REFERANS LABORATUVARI
KİMYA LABORATUVARI ANALİZ RAPORU

AB-0262-T
17/SN/28
14.02.2017

Rapor No : 17/SN/28
Rapor Tarihi : 14.02.2017
Numuneyi Alan Kurum/Kişi : Encon Laboratuvarı A.Ş.
Numunenin Cinsi : Yüzeysel Su
Numune Alınan Yerin Adı ve Adresi : Marmara Otoyolu Joint Venture
Numunenin Alındığı Nokta : S1-5 (mühür no:17.01859-17.01860)
Numune Alma Yöntemi : Anlık
Numune Alınış Tarihi : 26.01.2017
Numunenin Miktarı ve Kabul Durumu : 1 lt. cam şişe içinde + 4 °C soğutma korumalı ve mühürlü olarak elden teslim alınmıştır
Numunenin Laboratuvara Ulaşma Tarihi : 30.01.2017
Analiz Tarihleri : 30.01.2017-13.02.2017

ÇRL_LAB_BLANK

PCDD/F	I-TEF	WHO TEF	Amount (pg)	I-TEQ (pg)	WHO TEQ (pg)	% Contrubution to Total PCDD/F TEQ	
						NATO	WHO
2,3,7,8-TCDF	0.1	0.1	0.140	0.0140	0.0140	3.67	3.80
1,2,3,7,8-PeCDF	0.05	0.03	0.112	0.0056	0.0034	1.47	0.91
2,3,4,7,8-PeCDF	0.5	0.3	0.198	0.0990	0.0594	25.93	16.11
1,2,3,4,7,8-HxCDF	0.1	0.1	0.201	0.0201	0.0201	5.26	5.45
1,2,3,6,7,8-HxCDF	0.1	0.1	0.161	0.0161	0.0161	4.22	4.37
1,2,3,7,8,9-HxCDF	0.1	0.1	0.228	0.0228	0.0228	5.97	6.18
2,3,4,6,7,8-HxCDF	0.1	0.1	0.249	0.0249	0.0249	6.52	6.75
1,2,3,4,6,7,8-HpCDF	0.01	0.01	0.168	0.0017	0.0017	0.44	0.46
1,2,3,4,7,8,9-HpCDF	0.01	0.01	0.211	0.0021	0.0021	0.55	0.57
OCDF	0.001	0.0003	0.350	0.0004	0.0001	0.09	0.03
2,3,7,8-TCDD	1	1	0.098	0.0980	0.0980	25.67	26.58
1,2,3,7,8-PeCDD	0.5	1	0.059	0.0293	0.0586	7.67	15.89
1,2,3,4,7,8-HxCDD	0.1	0.1	0.137	0.0137	0.0137	3.59	3.72
1,2,3,6,7,8-HxCDD	0.1	0.1	0.105	0.0105	0.0105	2.75	2.85
1,2,3,7,8,9-HxCDD	0.1	0.1	0.211	0.0211	0.0211	5.53	5.72
1,2,3,4,6,7,8-HpCDD	0.01	0.01	0.218	0.0022	0.0022	0.57	0.59
OCDD	0.001	0.0003	0.388	0.0004	0.0001	0.10	0.03
Toplam PCDD/F (pg)			3.2336				
Toplam PCDF (pg)			1.2156				
Toplam PCDD (pg)			2.0180				
Toplam TEQ (pg)				**0.3818**	**0.3688**		
Toplam TEQ (ng)				**0.0004**	**0.0004**		
Toplam (pg-TEQ/L)*				**0.7636**	**0.7375**		

500 mL örnek üzerinde çalışılmıştır.

-Bu analiz raporu laboratuvara gelen numuneyi temsil eder.
-Bu rapor ve sonuçları Çevresel Etki Değerlendirmesi İzin ve Denetim Genel Müdürlüğünün izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
-Raporda (*) işaretli analizler akredite parametrelerdir.
-Rapor numarasının başında yer alan (G) harfi raporun güncellendiğini belirtir.
-Analiz yapılan numunede; numune alımından laboratuvarımıza teslimine kadar olan prosedürlerin ve bakılması istenilen grup ve parametrelerin belirlenmesinde teknik ve hukuki sorumluluk numuneyi alana aittir.
-İmzasız ve mühürsüz Analiz Sonuç Raporları geçersizdir.

Haymana Yolu 5. Km Gölbaşı ANKARA
Telefon: (0 312) 498 21 50 **Faks: (0 312) 498 21 66**
e-posta: laboratuvar@csb.gov.tr **Elektronik Ağ: www.csb.gov.tr**

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BAKANLIĞI

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ÇEVRE VE ŞEHİRCİLİK BAKANLIĞI
Çevresel Etki Değerlendirmesi İzin ve Denetim Genel Müdürlüğü
Laboratuvar,Ölçüm ve İzleme Dairesi Başkanlığı

ÇEVRE REFERANS LABORATUVARI
KİMYA LABORATUVARI ANALİZ RAPORU

AR-0262-T
17/SN/28
14.02.2017

28

PCDD/F	I-TEF	WHO TEF	Amount (pg)	I-TEQ (pg)	WHO TEQ (pg)	% Contribution to Total PCDD/F TEQ	
						NATO	WHO
2,3,7,8-TCDF	0.1	0.1	2.300	0.2300	0.2300	2.73	2.42
1,2,3,7,8-PeCDF	0.05	0.03	3.500	0.1750	0.1050	2.08	1.11
2,3,4,7,8 PeCDF	0.5	0.3	4.700	2.3500	1.4100	27.94	14.86
1,2,3,4,7,8 HxCDF	0.1	0.1	3.200	0.3200	0.3200	3.80	3.37
1,2,3,6,7,8 HxCDF	0.1	0.1	2.900	0.2900	0.2900	3.45	3.06
1,2,3,7,8,9 HxCDF	0.1	0.1	4.400	0.4400	0.4400	5.23	4.64
2,3,4,6,7,8-HxCDF	0.1	0.1	3.100	0.3100	0.3100	3.69	3.27
1,2,3,4,6,7,8-HpCDF	0.01	0.01	3.800	0.0380	0.0380	0.45	0.40
1,2,3,4,7,8,9-HpCDF	0.01	0.01	2.700	0.0270	0.0270	0.32	0.28
OCDF	0.001	0.0003	6.400	0.0064	0.0019	0.08	0.02
2,3,7,8-TCDD	1	1	1.200	1.2000	1.2000	14.27	12.64
1,2,3,7,8 PeCDD	0.5	1	4,200	2.1000	4.2000	24.97	44.25
1,2,3,4,7,8-HxCDD	0.1	0.1	2.700	0.2700	0.2700	3.21	2.84
1,2,3,6,7,8-HxCDD	0.1	0.1	2.700	0.2700	0.2700	3.21	2.84
1,2,3,7,8,9-HxCDD	0.1	0.1	3.400	0.3400	0.3400	4.04	3.58
1,2,3,4,6,7,8-HpCDD	0.01	0.01	3.600	0.0360	0.0360	0.43	0.38
OCDD	0.001	0.0003	8.600	0.0086	0.0026	0.10	0.03
Toplam PCDD/F (pg)			**63.4000**				
Toplam PCDF (pg)			**26.4000**				
Toplam PCDD (pg)			**37.0000**				
Toplam TEQ (pg)				**8.4110**	**9.4905**		
Toplam TEQ (ng)				**0.0084**	**0.0095**		
Toplam (pg-TEQ/L)				**16.8220**	**18.9810**		

500 mL örnek üzerinde çalışılmıştır.

16,5272 − 0,3636

-Bu analiz raporu laboratuvara gelen numuneyi temsil eder.
-Bu rapor ve sonuçları Çevresel Etki Değerlendirmesi İzin ve Denetim Genel Müdürlüğünün izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
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-İmzasız ve mühürsüz Analiz Sonuç Raporları geçersizdir.

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Çevresel Etki Değerlendirmesi İzin ve Denetim Genel Müdürlüğü
Laboratuvar,Ölçüm ve İzleme Dairesi Başkanlığı

ÇEVRE REFERANS LABORATUVARI
KİMYA LABORATUVARI ANALİZ RAPORU

AB-0262-T
17/SS/28
14.02.2017

Extraction Geri Kazanim Sonuclari

Analyte(IS)	QC limits(%)	% Recovery Blank	% Recovery 1.Olcum
^{13}C-2378-TCDF	30-130	40.6	47.8
^{13}C-23478-PeCDF	30-130	55	81.1
^{13}C-123678-HxCDF	30-130	54.0	97.4
^{13}C-1234678-HpCDF	30-130	76.8	93.5
^{13}C-2378-TCDD	30-130	41.2	46.8
^{13}C-12378-PeCDD	30-130	56.7	81.3
^{13}C-123678-HxCDD	30-130	61.7	88.8
^{13}C-1234678-HpCDD	30-130	83.1	101.8
^{13}C-OCDD	30-130	70	88.7

Clean-up Geri Kazanim Sonuclari

Analyte(IS)	QC limits(%)	% Recovery Blank	% Recovery 1.Olcum
^{37}Cl-2,3,7,8 TCDD	30-130	67.2	42.2

AÇIKLAMALAR :

Metod: EPA 1613B: 1994
I-TEF: NATO Uluslararası Toksik Eşdeğerlik Faktörü
WHO TEF: Dünya Sağlık Örgütü Toksik Eşdeğerlik Faktörü.
TEF : Toksik Eşdeğerlik Faktörü,
TEQ : Toksik Eşdeğerlikler,
*Cleanup ^{37}Cl IS: 800 pg Uygulandı
*Extraction ^{13}C$_{12}$ IS: 1000-2000 pg Uygulandı

KONTROL EDEN
17/02/2017
Ümit Güven ULUSOY
Çevre Ref. Lab. Şube Müdürü

ONAYLAYAN
17/02/2017
Süğer OLGUN
Daire Başkanı

-Bu analiz raporu laboratuvara gelen numuneyi temsil eder.
-Bu rapor ve sonuçları Çevresel Etki Değerlendirmesi İzin ve Denetim Genel Müdürlüğünün izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz..
-Raporda (*) işaretli analizler akredite parametrelerdir.
-Rapor numarasının başında yer alan (G) harfi raporun güncellendiğini belirtir.
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-İmzasız ve mühürsüz Analiz Sonuç Raporları geçersizdir

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ÇEVRE VE ŞEHİRCİLİK BAKANLIĞI

Yeterlilik Belge No
Y-06/091/2013

NEN MÜHENDİSLİK VE LABORATUVAR HİZ. İNŞ. TİC. LTD. ŞTİ.

Kızılcaşar Mh. Barış Cd. 2674 Sk. No:5 İncek-ANKARA

İncek	Tel.	0(312) 446 64 01-02	Merkez	Tel.	0(312) 437 30 71-72
Lab.	Faks	0(312) 446 64 03	Ofis	Faks	0(312) 437 30 73

TÜRKAK
TS EN ISO/IEC 17025
AB-0523-T

AB-0023-T
G-2017-1055
02-17

ANALİZ RAPORU
Testing Report

Rapor No	G - 2017-1055	**Analiz Talep No**	T-17/1010-D01
Müşterinin Adı	ENCON LABORATUVARLARI A.Ş		
Numunenin Alındığı Yerin Adı	MARMARA OTOYOLU JOINT VENTURE		
Numunenin Alındığı Yerin Adresi	ALTUNİZADE MAH. KISIKLI CAD. NO:37 İSTANBUL		
Numunenin Alındığı Nokta	NJM 17.0160-51-S		
Numuneyi Alan Kurum	ENCON LABORATUVAR A.Ş.		
Numuneyi Alan Kişi	-	**Numune Alma Yöntemi**	Anlık
Numunenin Cinsi	Yüzey Suyu	**Numune Alma Tarihi**	26.01.2017
Numunenin Miktarı	1,5 L	**Numune Kayıt Tarihi**	28.01.2017
Numune Kayıt No	17-00107	**Analiz Tarihi**	28.01.2017 - 22.02.2017
Numunenin Kabul Durumu	Cam - Soğuk ve Karanlık Ortamda Koruyucu İlaveli		
Numune Mühür No	-		
Rapor Tarihi	23.02.2017	**Rapor Nüsha Sayısı**	3 Orijinal Nüsha

İlgili Mevzuat

Parametre	**Birim**	**Anlık Limit Değer**	**Ölçülen Değer**	**Kullanılan Analiz Metodu**
Halojenli Hidrokarbonlar (C10-C13)	µg/L	-	<5	ISO 12010
Bis(2-ethylhexyl)phthalate	µg/L		<0,13	In-House Method
Dibutyltin (DBT)	ng/L	-	<10	ISO 17353
Tributyltin (TBT)	ng/L		<10	ISO 17353
Triphenyltin (TPhT)	ng/L	-	<10	ISO 17353
Nonylphenol (NP)	µg/L		<1	ASTM D7065-11
4-tert-Octylphenol	µg/L	-	<1	ASTM D7065-11
BDE183	ng/L		<0,02	İşletme İçi Metot (N-13/Rev.00/EPA 1614)
PBDE	ng/L		<0,02	İşletme İçi Metot (N-13/Rev.00/EPA 1614)
α-HBCDD	ng/L		<0,8	Inhouse Method
β-HBCDD	ng/L		<0,8	Inhouse Method
γ-HBCDD	ng/L		<0,8	Inhouse Method
PFOS	ng/L		<0,13	Inhouse Method
PFOS-K	ng/L		<0,13	Inhouse Method
PFOS-A	ng/L	-	<0,13	Inhouse Method

AÇIKLAMALAR: Analiz sonuçları yukarıdaki tabloda belirtilmiştir.

23.02.2017
Kıvılay YILMAZ
Laboratuvar Sorumlusu

23.02.2017
Laboratuvar Müdürü

NEN ÇEVRE KİRLİLİĞİ TESPİT VE ÖLÇÜM LABORATUVARI

1/65

T.C.
ÇEVRE VE ŞEHİRCİLİK BAKANLIĞI

Yeterlilik Belge No
Y-06/091/2013

NEN

NEN MÜHENDİSLİK VE LABORATUVAR HİZ. İNŞ. TİC. LTD. ŞTİ.

Kızılcaşar Mh. Barış Cd. 2674 Sk. No:5 İncek/ANKARA

İncek Tel.	0(312) 446 64 01-02	Merkez Tel.	0(312) 437 30 71-72
Lab. Faks	0(312) 446 64 03	Ofis Faks	0(312) 437 30 73

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0323-T

AB-0073-T
G-2017-1055
02-17

ANALİZ RAPORU
Testing Report

Rapor No	G - 2017-1055	**Analiz Talep No**	T-17/1010-D01
Müşterinin Adı	ENCON LABORATUVARLARI A.Ş.		
Numunenin Alındığı Yerin Adı	MARMARA OTOYOLU JOINT VENTURE		
Numunenin Alındığı Yerin Adresi	ALTUNIZADE MAH. KISIKLI CAD. NO:37 ISTANBUL		
Numunenin Alındığı Nokta	NUM 17 0150-51-5		
Numuneyi Alan Kurum	ENCON LABORATUVAR A.Ş.		
Numuneyi Alan Kişi	-	**Numune Alma Yöntemi**	Anlık
Numunenin Cinsi	Yüzey Suyu	**Numune Alma Tarihi**	26.01.2017
Numunenin Miktarı	1,5 L	**Numune Kayıt Tarihi**	28.01.2017
Numune Kayıt No	17-00107	**Analiz Tarihi**	28.01.2017 - 22.02.2017
Numunenin Kabul Durumu	Cam - Soğuk ve Karanlık Ortamda Koruyucu İlaveli		
Numune Mühür No	-		
Rapor Tarihi	23.02.2017	**Rapor Nüsha Sayısı**	3 Orijinal Nüsha

İlgili Mevzuat

Parametre	**Birim**	**Azami Limit Değer**	**Ölçülen Değer**	**Kullanılan Analiz Metodu**
Halojenli Hidrokarbonlar (C10-C13)	µg/l	-	<1	ISO 12010
Bis(2-ethylhexyl)phthalate	µg/L	-	<0,13	Inhouse Method
Dibutyltin (DBT)	ng/L	-	<10	ISO 17353
Tributyltin (TBT)	ng/L	-	<10	ISO 17353
Triphenyltin (TPhT)	ng/L	-	<10	ISO 17353
Nonylphenol (NP)	µg/L	-	<1	ASTM D7065-11
4-tert-Octylphenol	µg/l	-	<1	ASTM D7065-11
BDE183	mg/L	-	<0,02	İşletme İçi Metot (N.../Rev.03/EPA 1614)
PBDE	mg/L	-	<0,02	İşletme İçi Metot (N.../Rev.03/EPA 1614)
α-HBCDD	ng/L	-	<0,8	Inhouse Method
β-HBCDD	ng/L	-	<0,8	Inhouse Method
γ-HBCDD	ng/L	-	<0,8	Inhouse Method
PFOS	ng/L	-	<0,13	Inhouse Method
PFOS-K	ng/L	-	<0,13	Inhouse Method
PFOS-A	ng/L	-	<0,13	Inhouse Method

AÇIKLAMALAR: Analiz sonuçları yukarıdaki tabloda belirtilmiştir.

23.02.2017
Nilay YILMAZ
Laboratuvar Sorumlusu

23.02.2017
[illegible]
Laboratuvar Müdürü

ÇEVRE KİRLİLİĞİ TESPİT VE ÖLÇÜM LAB.

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0168-T

AB-0168-T
LR.17.0159
10.03.2017

ENCON LABORATUVARI A.Ş.

ANALİZ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No 120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	10.03.2017 / LR.17.0159	**NUMUNE KAYIT NO**	NUM.17.0169
NUMUNE ALINAN YER	Kuzey Marmara Otoyol Projesi	**NUMUNE TÜRÜ / NUMUNE İŞARETİ**	Yüzey Suyu S7-1 Zübeyde Hanım(KM: 56+700)
NUMUNE ALMA ŞEKLİ / YÖNTEMİ	Anlık Numune	**NUMUNEYİ ALAN**	Uğur Şahin
NUMUNEYE UYGULANAN İŞLEMLER / GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	1.0 L Mühürlü, Cam Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma; 1.0 L Mühürlü Cam Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma; 1.0 L Mühürlü, Cam Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Cam Şişe Soğuk Koruma; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma; 1.0 L Mühürlü, Cam Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma; 500.0 mL Mühürlü, Plastik Şişe Soğuk koruma+HNO3, 500.0 mL Mühürlü, Cam Şişe Soğuk Koruma 1.0 L, Mühürlü, Cam Şişe Soğuk Koruma+H_2SO_4, 1.0 L Mühürlü Cam Şişe, Soğuk Koruma+H_2SO_4	**NUMUNE ALMA / KABUL TARİHİ**	29.01.2017 30.01.2017
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	Yağışlı	**ANALİZİN YAPILDIĞI TARİH**	30.01.2017 - 08.03.2017

Yüzey Suyu numunesi ENCON personeli tarafından ENC-LABPR-NUM-13 Nolu Numune Alma Prosedürü 'ne göre alınmıştır.

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni alınmadan ilan ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
  (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip NEM Müh. ve Lab. Hiz. İnş. Tic. Ltd. Şti. Çevre Referans Laboratuvarı tarafından yapılmıştır.

Adres: Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
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TÜRKAK
TS EN ISO/IEC 17025
AB-0166-T
10.03.2017

ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

Parametreler	Birim	Analiz Sonucu	Metotlar
1,2 Dikloretan (*)	µg/L	<0,1	EPA 5030 C-EPA 8260 C GC MS Metot
Aclonifen (*)	µg/L	<0.05	İşletme İçi Metot (EPA 538), ENC.LAB.TL.LCP.176, 5990-4253EN Agilent Application Notes
Alachlor	µg/L	<0,25	EPA 3510 C, EPA 3620 C, EPA 8081 B
Anthracene	µg/L	<0.1000	EPA 3510 C, EPA 3620 C, EPA 8270 D
Atrazine (*)	µg/L	<0.05	İşletme İçi Metot (EPA 538), ENC.LAB.TL.LCP.176, 5990-4253EN Agilent Application Notes
Benzen (*)	µg/L	<0,1	EPA 5030 C-EPA 8260 C GC MS Metot
Benzo(a)pyrene	µg/L	<0.15	EPA 3510 C, EPA 3620 C, EPA 8270 D
Benzo (b) fluoranthene	µg/L	<0.1300	EPA 3510 C, EPA 3620 C, EPA 8270 D
Benzo (g,h,i) perylene	µg/L	<0.1000	EPA 3510 C, EPA 3620 C, EPA 8270 D
Benzo (k) fluoranthene	µg/L	<0.1100	EPA 3510 C, EPA 3520 C, EPA 8270 D
Bifenox (*)	µg/L	<0.05	İşletme İçi Metot (EPA 538), ENC.LAB.TL.LCP.176, 5990-4253EN Agilent Application Notes
Bromlu difenileterler (*)	mg/L	<0.02	İşletme İçi Metot N 13
C10-13 Kloroalkanlar (**)	µg/L	1.51	ISO 12010
Civa ve Bileşikleri (*)	µg/L	<0.05	EPA 6020 B
Cybutryn (*)	µg/L	<0.05	İşletme İçi Metot (EPA 538), ENC.LAB.TL.LCP.176, 5990-4253EN Agilent Application Notes
Di(2-etilhekzil) ftalat (DEHP) (**)	µg/L	<0.13	İşletme İçi Metot N 15
Dichlorvos (*)	µg/L	<0.1	İşletme İçi Metot (EPA 538), ENC.LAB.TL.LCP.176, 5990-4253EN Agilent Application Notes
Dicofol (*)	µg/L	<0.1	EPA 3510 C, EPA 3620 C, EPA 8081 B
Diklorometan (*)	µg/L	<0.1	EPA 5030 C-EPA 8260 C GC MS Metot
Dioksinler ve Dioksin Benzeri Bileşikler (**)	pg-TEQ/L	15.9442	EPA 1613B.1994
Diuron (*)	µg/L	<0.05	İşletme İçi Metot (EPA 538), ENC.LAB.TL.LCP.176, 5990-4253EN Agilent Application Notes
Endosulfan	µg/L	<0.1	EPA 3510 C, EPA 3620 C, EPA 8081 B

Açıklamalar: Müşteri talebi üzerine özel bilgi numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
  Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip NEN Müh. ve Lab. Hiz. İnş. Tic. Ltd. Şti. Çevre Ölçüm ve Analiz Laboratuvarı tarafından yapılmıştır.

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AB-0184-T

ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

Parametreler	Birim	Analiz Sonucu	Metotlar
Fluoranthene	µg/L	<0.1000	EPA 3510 C, EPA 3620 C, EPA 8270 D
Hekzabromo - siklododekanlar (HBCDD) (**)	ng/L	<0.8	İşletme İçi Metot N-15
Hekzaklorobenzen	µg/L	<0.1	EPA 3510 C EPA 3620 C EPA 8081 B
Hekzaklorobütadien	µg/L	<0.1	EPA 3510 C, EPA 3620 C EPA 8081 B
Hekzaklorosiklohekzan (*)	µg/L	<0.1	EPA 3510 C, EPA 3620 C EPA 8081 B
Heptachlor	µg/L	<0.1	EPA 3510 C EPA 3620 C EPA 8081 B
Heptaklor exo epoksit	µg/L	<0.1	EPA 3510 C EPA 3620 C EPA 8081 B
Indeno (1,2,3-cd) pyrene	µg/L	<0.1000	EPA 3510 C, EPA 3620 C, EPA 8270 D
Isoproturon (*)	µg/L	<0.05	İşletme İçi Metot (EPA 538), ENC.LABTL.LCP.176, 5990-4253EN Agilent Application Notes
Kadmiyum ve Bileşikleri (*)	µg/L	<0.25	EPA 6020 B
Klorfenvinfos (*)	µg/L	<0.05	İşletme İçi Metot (EPA 538), ENC.LABTL.LCP.176, 5990-4253EN Agilent Application Notes
Klorpyrifos	µg/L	<0.1	EPA 3510 C, EPA 3620 C, EPA 8081 B
Kurşun ve Bileşikleri (*)	µg/L	<0.5	EPA 6020 B
Naphthalene	µg/L	<0.1000	EPA 3510 C EPA 3620 C, EPA 8270 D
Nikel ve Bileşikleri (*)	µg/L	<1.0	EPA 6020 B
Nonilfenoller (4-Nonilfenol) (*)	µg/L	<1.0	ASTM D7065-11
Oktilfenol ((4-(1,1',3,3'-tetrametilbütil) - fenol)) (*)	µg/L	<1.0	ASTM D7065-11
Pentaklorobenzen	µg/L	<0.1	EPA 3510 C EPA 3620 C EPA 8081 B
Pentaklorofenol	mg/L	<0.0125	EPA 528, EPA 8041 A
Perfloroktan sülfonik asit ve türevleri (PFOS) (**)	ng/L	<0.13	İşletme İçi Metot N-15
Polisiklik Aromatik Hidrokarbonlar	µg/L	<0.15	EPA 3510 C, EPA 3620 C, EPA 8270 D
Quinoxyfen (*)	µg/L	<0.05	İşletme İçi Metot (EPA 538), ENC.LABTL.LCP.176, 5990-4253EN Agilent Application Notes
Simazine (*)	µg/L	<0.05	İşletme İçi Metot (EPA 538), ENC.LABTL.LCP.176, 5990-4253EN Agilent Application Notes
Sipermetrin	µg/L	<0.1	EPA 3510 C EPA 3620 C EPA 8081 B

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akreditasyon kapsamında olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip NEN Müh. ve Lab. Hiz. İnş. Tic. Ltd. Şti. Çevre Referans Laboratuvarı tarafından yapılmıştır.

Adres: Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
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TÜRKAK
TS EN ISO/IEC 17025
AB-0168-T

AB-0168-T
LR 17.0169
10.03.2017

ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

Parametreler	Birim	Analiz Sonucu	Metotlar
Terbutryn (*)	µg/L	<0.05	İşletme İç Metot (EPA 536), ENC.LAB.TL.LCP.176, 5990-4253EN Agilent Application Notes
Tributilkalay bileşikler (Tributilkalay-katyonu) (**)	ng/L	<10.0	ISO 17353
Trifluralin	µg/L	<0.1	EPA 3510 C EPA 3620 C EPA 8081 B
Trikloro-benzenler (*)	µg/L	<0.1	EPA 5030 C-EPA 8260 C GC MS Metot
Triklorometan (*)	µg/L	0.6	EPA 5030 C-EPA 8260 C GC MS Metot

KONTROL EDEN:		ONAYLAYAN:	
ADI / SOYADI:	Hakan Yılmaz	ADI / SOYADI:	Hüseyin Tekin
İMZA:		İMZA / KAŞE:	encon ENCON LABORATUVARI A.Ş.
TARİH:	10 Mart 2017	TARİH:	10 Mart 2017

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak gelişilmiştir. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tanıtılamaz veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (¡) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip NEN Mek. ve Lab. Hiz. İnş. Tic. Ltd. Şti. Çevre Referans Laboratuvarı tarafından yapılmıştır.

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T.C.
ÇEVRE VE ŞEHİRCİLİK BAKANLIĞI

Yeterlilik Belge No
Y-06/091/2013

NEN MÜHENDİSLİK VE LABORATUVAR HİZ. İNŞ. TİC. LTD. ŞTİ.
Kızılcaşar Mh. Barış Cd. 2074 Sk. No:5 İncek-ANKARA

İncek Lab	Tel.	0(312) 446 64 01-02	Merkez Ofis	Tel	0(312) 437 30 71-72
	Faks	0(312) 446 64 03		Faks	0(312) 437 30 73

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0023-T

AB-0023-T
G- 2017-1056
02-17

ANALİZ RAPORU
Testing Report

Rapor No	G - 2017-1056	**Analiz Talep No**	T-17/1010-D01
Müşterinin Adı	ENCON LABORATUVARLARI A.Ş.		
Numunenin Alındığı Yerin Adı	MARMARA OTOYOLU JOINT VENTURE		
Numunenin Alındığı Yerin Adresi	ALTUNİZADE MAH. KISIKLI CAD. NO 37 İSTANBUL		
Numunenin Alındığı Nokta	NUM.17 0769-57-1		
Numuneyi Alan Kurum	ENCON LABORATUVAR A.Ş.		
Numuneyi Alan Kişi	U.ŞAHİN	**Numune Alma Yöntemi**	Anlık
Numunenin Cinsi	Yüzey Suyu	**Numune Alma Tarihi**	29.01.2017
Numunenin Miktarı	1.5 L	**Numune Kayıt Tarihi**	30.01.2017
Numune Kayıt No	17-00108	**Analiz Tarihi**	30.01.2017 - 22.02.2017
Numuneden Kabul Durumu	Cam - Soğuk ve Karanlık Ortamda Koruyucu İlavel:		
Numune Mühür No	-		
Rapor Tarihi	23.02.2017	**Rapor Nüsha Sayısı**	3 Orjinal Nüsha

İlgili Mevzuat

Parametre	Birim	Anlık Limit Değer	Ölçülen Değer	Kullanılan Analiz Metodu
Halojenli hidrokarbonlar (C10-C13)	µg/L	-	1,51	ISO 12010
Bis(2-ethylhexyl)phthalate	µg/L	-	<0,10	Inhouse Method
Dibutyltin (DBT)	ng/L		<10	ISO 17353
Tributyltin (TBT)	ng/L		<10	ISO 17353
Triphenyltin (TPhT)	ng/L	-	<10	ISO 17353
Nonylphenol (NP)	µg/L		<1	ASTM D7065-11
4-tert-Octylphenol	µg/L		<1	ASTM D7065-11
BDE 183	mg/L		<0.02	İşletme İçi Metot (N-13/Rev.00/EPA 1614)
PBDE	mg/L	-	<0.02	İşletme İçi Metot (N-13/Rev.00/EPA 1614)
α-HBCDD	ng/L		<0.5	Inhouse Method
β-HBCDD	ng/L	-	<0.5	Inhouse Method
γ-HBCDD	ng/L	-	<0.5	Inhouse Method
PFOS	ng/L	-	<0.13	Inhouse Method
PFOS-K	ng/L		<0.13	Inhouse Method
PFOS-A	ng/L	-	<0.13	Inhouse Method

AÇIKLAMALAR: Analiz sonuçları yukarıdaki tabloda belirtilmiştir.

23.02.2017
Kutlay YILMAZ
Laboratuvar Sorumlusu

23.02.2017
Nuri KILIÇ
Laboratuvar Müdürü

- [illegible]
- [illegible] NEN ÇEVRE KİRLİLİĞİ TESPİT VE ÖLÇÜM LABORATUVARI [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]

T.C.
ÇEVRE VE ŞEHİRCİLİK BAKANLIĞI

Yeterlilik Belge No
Y 06/091/2013

NEN

NEN MÜHENDİSLİK VE LABORATUVAR HİZ. İNŞ. TİC. LTD. ŞTİ.
Kızılcaşar Mh. Barış Cd. 2674 Sk. No 5 İncek-ANKARA

İncek Lab	Tel. 0(312) 448 64 01-02	Merkez Ofis	Tel 0(312) 437 30 71-72
	Faks 0(312) 448 64 03		Faks 0(312) 437 30 73

TÜRKAK
TS EN ISO/IEC 17025
AB-0023-T
AB-0623-T
G-2017-1056
02-17

ANALİZ RAPORU
Testing Report

Rapor No	G - 2017-1056	**Analiz Talep No**	T-17/1010-D01
Müşterinin Adı	ENCON LABORATUVARLARI A.Ş.		
Numunenin Alındığı Yerin Adı	MARMARA OTOYOLU JOINT VENTURE		
Numunenin Alındığı Yerin Adresi	ALTUNİZADE MAH. KISIKLI CAD. NO:37 İSTANBUL		
Numunenin Alındığı Nokta	NUM.17 0169-57-1		
Numuneyi Alan Kurum	ENCON LABORATUVAR A.Ş.		
Numuneyi Alan Kişi	U.ŞAHİN	**Numune Alma Yöntemi**	Anlık
Numunenin Cinsi	Yüzey Suyu	**Numune Alma Tarihi**	29.01.2017
Numunenin Miktarı	1,5 L	**Numune Kayıt Tarihi**	30.01.2017
Numune Kayıt No	17-00109	**Analiz Tarihi**	30.01.2017 - 22.02.2017
Numunenin Kabul Durumu	Cam - Soğuk ve Karanlık Ortamda Koruyucu İlaveli		
Numune Mühür No	-		
Rapor Tarihi	23.02.2017	**Rapor Nüsha Sayısı**	3 Orijinal Nüsha

İlgili Mevzuat

Parametre	Birim	Anlık Limit Değer	Ölçülen Değer	Kullanılan Analiz Metodu
Halojen Hidrokarbonlar (C10-C13)	µg/L	-	1.5[illegible]	ISO 12010
Bis(2-ethylhexyl)phthalate	µg/L	-	<0.13	Inhouse Method
Dibutyltin (DBT)	ng/L	-	<10	ISO 17353
Tributyltin (TBT)	ng/L	-	<10	ISO 17353
Triphenyltin (TPhT)	ng/L	-	<10	ISO 17353
Nonylphenol (NP)	µg/L		<1	ASTM D7065-11
4-tert-Octylphenol	µg/L	-	<1	ASTM D7065-11
BDE100	mg/L	-	<0.02	İşletme İçi Metot (N-13/Rev.00/EPA 1614)
PBDE	mg/L	-	<0.02	İşletme İçi Metot (N-13/Rev.00/EPA 1614)
α-HBCDD	ng/L		<0.8	Inhouse Method
β-HBCDD	ng/L	-	<0.8	Inhouse Method
γ-HBCDD	ng/L		<0.8	Inhouse Method
PFOS	ng/L		<0.13	Inhouse Method
PFOS-K	ng/L		<0.13	Inhouse Method
PFOS-A	ng/L	-	<0.13	Inhouse Method

AÇIKLAMALAR: Analiz sonuçları yukarıdaki tabloda belirtilmiştir.

23.02.2017
Kubilay YILMAZ
Laboratuvar Sorumlusu

23.02.2017
Nur ABDİ
Laboratuvar Müdürü

ÇEVRE KİRLİLİĞİ TESPİT VE ÖLÇÜM LABORATUVARI

T.C.
ÇEVRE VE ŞEHİRCİLİK BAKANLIĞI
Çevresel Etki Değerlendirmesi İzin ve Denetim Genel Müdürlüğü
Laboratuvar,Ölçüm ve İzleme Dairesi Başkanlığı

T.C.
ÇEVRE VE ŞEHİRCİLİK BAKANLIĞI

ÇEVRE REFERANS LABORATUVARI
KİMYA LABORATUVARI ANALİZ RAPORU

AR-0262-T
17/SN/31
14.02.2017

Rapor No : 17/SN/31
Rapor Tarihi : 14.02.2017
Numuneyi Alan Kurum/Kişi : Encon Laboratuvarı A.Ş.
Numunenin Cinsi : Yüzeysel Su
Numune Alınan Yerin Adı ve Adresi : Marmara Oleyolu Joint Venture
Numunenin Alındığı Nokta : S7-1(mühür no : 17.01632-17.01665)
Numune Alma Yöntemi : Anlık
Numune Alınış Tarihi : 29.01.2017
Numunenin Miktarı ve Kabul Durumu : 1,5 lt cam şişe içinde + 4C soğutma korumalı ve mühürlü olarak elden teslim alınmıştır
Numunenin Laboratuvara Ulaşma Tarihi : 31.01.2017
Analiz Tarihleri : 31.01.2017-13.02.2017

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PCDD/F	I-TEF	WHO TEF	Amount (pg)	I-TEQ (pg)	WHO TEQ (pg)	% Contribution to Total PCDD/F TEQ	
						NATO	WHO
2,3,7,8-TCDF	0.1	0.1	0.140	0.0140	0.0140	3.67	3.80
1,2,3,7,8-PeCDF	0.05	0.03	0.112	0.0056	0.0034	1.47	0.91
2,3,4,7,8-PeCDF	0.5	0.3	0.198	0.0990	0.0594	25.93	16.11
1,2,3,4,7,8-HxCDF	0.1	0.1	0.203	0.0201	0.0201	5.26	5.45
1,2,3,6,7,8-HxCDF	0.1	0.1	0.161	0.0161	0.0161	4.22	4.37
1,2,3,7,8,9-HxCDF	0.1	0.1	0.228	0.0228	0.0228	5.97	6.18
2,3,4,6,7,8-HxCDF	0.1	0.1	0.249	0.0249	0.0249	6.52	6.75
1,2,3,4,6,7,8-HpCDF	0.01	0.01	0.168	0.0017	0.0017	0.44	0.46
1,2,3,4,7,8,9-HpCDF	0.01	0.01	0.214	0.0021	0.0021	0.55	0.57
OCDF	0.001	0.0003	0.350	0.0004	0.0001	0.09	0.03
2,3,7,8-TCDD	1	1	0.098	0.0980	0.0980	25.67	26.58
1,2,3,7,8-PeCDD	0.5	1	0.059	0.0293	0.0586	7.67	15.89
1,2,3,4,7,8-HxCDD	0.1	0.1	0.137	0.0137	0.0137	3.59	3.72
1,2,3,6,7,8-HxCDD	0.1	0.1	0.105	0.0105	0.0105	2.75	2.85
1,2,3,7,8,9-HxCDD	0.1	0.1	0.211	0.0211	0.0211	5.53	5.72
1,2,3,4,6,7,8-HpCDD	0.01	0.01	0.218	0.0022	0.0022	0.57	0.59
OCDD	0.001	0.0003	0.388	0.0004	0.0001	0.10	0.03
Toplam PCDD/F (pg)			**3.2336**				
Toplam PCDF (pg)			**1.2156**				
Toplam PCDD (pg)			**2.0180**				
Toplam TEQ (pg)				**0.3818**	**0.3688**		
Toplam TEQ (ng)				**0.0004**	**0.0004**		
Toplam (pg-TEQ/L)*				**0.7636**	**0.7375**		

500 mL örnek üzerinde çalışılmıştır.

-Bu analiz raporu laboratuvara gelen numuneyi temsil eder.
-Bu rapor ve sonuçları Çevresel Etki Değerlendirmesi İzin ve Denetim Genel Müdürlüğünün izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
-Raporda (*) işaretli analizler akredite parametrelerdir.
-Rapor numarasının başında yer alan (G) harfi raporun güncellendiğini belirtir.
-Analiz yapılan numunede; numune alımından laboratuvarımıza teslimine kadar olan prosedürlerin ve bakılması istenilen grup ve parametrelerin belirlenmesinde teknik ve hukuki sorumluluk numuneyi alana aittir.
-İmzasız ve mühürsüz Analiz Sonuç Raporları geçersizdir.

Haymana Yolu 5. Km Gölbaşı ANKARA
Telefon: (0 312) 498 21 50 **Faks: (0 312) 498 21 66**
e-posta: laboratuvar@csb.gov.tr **Elektronik Ağ: www.csb.gov.tr**

T.C.
ÇEVRE VE ŞEHİRCİLİK BAKANLIĞI

T.C.
ÇEVRE VE ŞEHİRCİLİK BAKANLIĞI
Çevresel Etki Değerlendirmesi İzin ve Denetim Genel Müdürlüğü
Laboratuvar,Ölçüm ve İzleme Dairesi Başkanlığı

ÇEVRE REFERANS LABORATUVARI
KİMYA LABORATUVARI ANALİZ RAPORU

AR-0262-T
17/SN/31
14.02.2017

31

PCDD/F	I-TEF	WHO TEF	Amount (pg)	I-TEQ (pg)	WHO TEQ (pg)	% Contribution to Total PCDD/F TEQ	
						NATO	WHO
2,3,7,8-TCDF	0.1	0.1	2.900	0.2900	0.2900	3.47	3.05
1,2,3,7,8-PeCDF	0.05	0.03	3.500	0.1750	0.1050	2.09	1.11
2,3,4,7,8 PeCDF	0.5	0.3	4.400	2.2000	1.3200	26.34	13.90
1,2,3,4,7,8 HxCDF	0.1	0.1	2.600	0.2600	0.2600	3.11	2.74
1,2,3,6,7,8 HxCDF	0.1	0.1	2.300	0.2300	0.2300	2.75	2.42
1,2,3,7,8,9 HxCDF	0.1	0.1	3.800	0.3800	0.3800	4.55	4.00
2,3,4,6,7,8-HxCDF	0.1	0.1	2.600	0.2600	0.2600	3.11	2.74
1,2,3,4,6,7,8-HpCDF	0.01	0.01	3.100	0.0310	0.0310	0.37	0.33
1,2,3,4,7,8,9-HpCDF	0.01	0.01	2.300	0.0230	0.0230	0.28	0.24
OCDF	0.001	0.0003	5.700	0.0057	0.0017	0.07	0.02
2,3,7,8-TCDD	1	1	1.600	1.6000	1.6000	19.15	16.85
1,2,3,7,8 PeCDD	0.5	1	4.200	2.1000	4.2000	25.14	44.23
1,2,3,4,7,8 HxCDD	0.1	0.1	2.300	0.2300	0.2300	2.75	2.42
1,2,3,6,7,8-HxCDD	0.1	0.1	2.500	0.2500	0.2500	2.99	2.63
1,2,3,7,8,9-HxCDD	0.1	0.1	2.800	0.2800	0.2800	3.35	2.95
1,2,3,4,6,7,8-HpCDD	0.01	0.01	3.200	0.0320	0.0320	0.38	0.34
OCDD	0.001	0.0003	7.200	0.0072	0.0022	0.09	0.02
Toplam PCDD/F (pg)			**57.0000**				
Toplam PCDF (pg)			**23.8000**				
Toplam PCDD (pg)			**33.2000**				
Toplam TEQ (pg)				**8.3539**	**9.4949**		
Toplam TEQ (ng)				**0.0084**	**0.0095**		
Toplam (pg-TEQ/L)				**16.7078**	**18.9897**		

500 mL örnek üzerinde çalışılmıştır.

16 2017-0 7636

15 3442

-Bu analiz raporu laboratuvara gelen numuneyi temsil eder.
-Bu rapor ve sonuçları Çevresel Etki Değerlendirmesi İzin ve Denetim Genel Müdürlüğünün izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
-Raporda (*) işaretli analizler akreditе parametrelerdir.
-Rapor numarasının başında yer alan (G) harfi raporun güncellendiğini belirtir.
-Analiz yapılan numunede; numune alımından laboratuvarımıza teslimine kadar olan prosedürlerin ve bakılması istenilen grup ve parametrelerin belirlenmesinde teknik ve hukuki sorumluluk numuneyi alana aittir.
-İmzasız ve mühürsüz Analiz Sonuç Raporları geçersizdir.

Haymana Yolu 5. Km Gölbaşı ANKARA
Telefon: (0 312) 498 21 90 Faks: (0 312) 498 21 66
e-posta: laboratuvar@csb.gov.tr Elektronik Ağ: www.csb.gov.tr

T.C.
ÇEVRE VE ŞEHİRCİLİK BAKANLIĞI

T.C.
ÇEVRE VE ŞEHİRCİLİK BAKANLIĞI
Çevresel Etki Değerlendirmesi İzin ve Denetim Genel Müdürlüğü
Laboratuvar,Ölçüm ve İzleme Dairesi Başkanlığı

ÇEVRE REFERANS LABORATUVARI
KİMYA LABORATUVARI ANALİZ RAPORU

AB-0262-T
17/SN/31
14.02.2017

Extraction Geri Kazanim Sonuclari

Analyte(IS)	QC limits(%)	% Recovery Blank	% Recovery 1,Olçum
^{13}C-2378-TCDF	30-130	40.6	70.4
^{13}C-23478-PeCDF	30-130	55	78.6
^{13}C-123678-HxCDF	30-130	54.0	98.6
^{13}C-1234678-HpCDF	30-130	76.8	98
^{13}C-2378-TCDD	30-130	41.2	32.1
^{13}C-12378-PeCDD	30-130	56.7	81.1
^{13}C-123678-HxCDD	30-130	61.7	92.1
^{13}C-1234678-HpCDD	30-130	83.1	105.1
^{13}C-OCDD	30-130	70	93.8

Clean-up Geri Kazanim Sonuclari

Analyte(IS)	QC limits(%)	% Recovery Blank	% Recovery 1,Olcum
^{37}Cl-2,3,7,8-TCDD	30-130	67.1	28

ACIKLAMALAR :
Metod: EPA 1613B: 1994
I-TEF: NATO Uluslararası Toksik Eşdeğerlik Faktörü
WHO TEF: Dünya Sağlık Örgütü Toksik Eşdeğerlik Faktörü.
TEF : Toksik Eşdeğerlik Faktörü.
TEQ : Toksik Eşdeğerlikler.
*Cleanup ^{37}C_4IS: 800 pg Uygulandı
*Extraction ^{13}C_{12}IS: 1000-2000 pg Uygulandı

KONTROL EDEN
17/02/2017
Ümit Güven ULUSOY
Çevre Ref. Lab. Şube Müdürü

ONAYLAYAN
17/02/2017
Soner OLGUN
Daire Başkanı

-Bu analiz raporu laboratuvara gelen numuneyi temsil eder.
-Bu rapor ve sonuçları Çevresel Etki Değerlendirmesi İzin ve Denetim Genel Müdürlüğünün izni alınmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz .
-Raporda (*) işaretli analizler akreditе parametrelerdir.
-Rapor numarasının başında yer alan (G) harfi raporun güncellendiğini belirtir
-Analiz yapılan numunede, numune alımından laboratuvarımıza teslimine kadar olan proseslerin ve bakılması istenilen grup ve parametrelerin belirlenmesinde teknik ve hukuki sorumluluk numuneyi alana aittir.
-İmzasız ve mühürsüz Analiz Sonuç Raporları geçersizdir.

Haymana Yolu 5. Km Gölbaşı ANKARA
Telefon: (0 312) 498 21 54 Faks: (0 312) 498 21 66
e-posta: laboratuvar@csb.gov.tr Elektronik Ağ: www.csb.gov.tr

WATER QUALITY

(Surface Water – Table 5)

TÜRKAK
TS EN ISO/IEC 17025
AB-0158-T

AB-0158-T
LR.17.0153
27.02.2017

ENCON LABORATUVARI A.Ş.

ANALİZ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	27.02.2017 / LR.17.0153	**NUMUNE KAYIT NO**	NUM.17.0153
NUMUNE ALINAN YER	Kuzey Marmara Otoyol Projesi,	**NUMUNE TÜRÜ / NUMUNE İŞARETİ**	Yüzey Suyu S1-1 Fenerköy(KM 9+900)
NUMUNE ALMA ŞEKLİ / YÖNTEMİ	Anlık Numune	**NUMUNEYİ ALAN**	Uğur Şahin
NUMUNEYE UYGULANAN İŞLEMLER / GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma+H_2SO_4; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma+HCl, 100.0 mL, Mühürlü Plastik Şişe, Soğuk Koruma+HCl, 100.0 mL, Mühürlü, Plastik Şişe, Soğuk koruma+HNO3, 500.0 mL, Mühürlü, Cam Şişe, Soğuk Koruma+Çinko Asetat Korumalı	**NUMUNE ALMA / KABUL TARİHİ**	24.01.2017 25.01.2017
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	Kapalı	**ANALİZİN YAPILDIĞI TARİH**	24.01.2017 - 22.02.2017

Yüzey Suyu numunesi ENCON personeli tarafından ENC-LABPR-NUM-13 Nolu Numune Alma Prosedürü'ne göre alınmıştır.

Açıklamalar: Müşteri talebi üzerine özel istek doğrultusu olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ilan ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş. Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eğ. Dan. A.Ş.

Adres: Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
Tel. 0 312 447 71 22 **Fax: 0 312 447 85 58** **www.enconlab.com.tr**

TÜRKAK
TS EN ISO/IEC 17025
AB-0166-T
AB-0166-T
LR 17.0160
27.02.2017

ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

Parametreler	Birim	TABLO ADI / SINIR DEĞER Yeraltı Su Kalitesi Yönetmeliği TABLO 2 I	II	III	IV	Analiz Sonucu	Metotlar
Amonyum Azotu (NH_4-N)	mg/l	<0.2	1.0	2.0	>2.0	<0.2	S.M. 4500 NH3 B S.M. 4500-NH3 C
Biyolojik Oksijen İhtiyacı	mg/L	<4.0	8.0	20.0	>20.0	4.84	S.M. 5210- B
Çözünmüş oksijen	mg/l	>8.0	6.0	3.0	<3.0	11.96	S.M. 4500-O G
Florür	µg/L	≤1000.0	1500.0	2000.0	>2000.0	292.8	S.M. 4110 B
İletkenlik	µS/cm	<400.0	1000.0	3000.0	>3000.0	817.0	S.M. 2510 B
Kimyasal Oksijen İhtiyacı	mg/L	<25.0	50.0	70.0	>70.0	13.20	SM 5220 B
Mangan	µg/L	<100.0	500.0	3000.0	>3000.0	23.53	EPA 6020 B
Nitrat Azotu	mg/l	<3.0	10.0	20.0	>20.0	4.12	EPA Metot:352.1
Orto Fosfat Fosforu	mg/L	<0.05	0.15	0.55	>0.55	0.091	S.M. 4500-P B S.M. 4500 P-E
pH	---	6.0-9.0	6.0-9.0	6.0-9.0	6.0-9.0	8.67	S.M. 4500-H-B
Renk	m^{-1}	RES 436 nm:≤1.5 RES 525 nm:≤1.2 RES 620 nm:≤0.6	RES 436 nm 3.0 RES 525 nm 2.4 RES 620 nm 1.7	RES 436 nm.4.3 RES 525 nm.3.7 RES 620 nm 2.5	RES 436 nm.>4.3 RES 525 nm.>3.7 RES 620 nm:>2.5	0.82 <0.57 0.04	TS EN ISO 7887 B
Selenyum	µg/l	<10.0	15.0	20.0	>20.0	<10.0	EPA 6020 B
Sülfür (S^{-2}) (*)	µg/L	≤2.0	5.0	10.0	>10.0	<2.00	Journal of Chromatography A. 1023 (2004) 105-112
Toplam Azot	mg/L	<3.5	11.5	25.0	>25.0	4.944	EPA Metod 352.1 S.M. 4500-NO2-B S.M. 4500-Norg-B
Toplam Fosfor	mg/L	<0.08	0.2	0.8	>0.8	0.017	S.M. 4500-P B S.M. 4500 P-E
Toplam Kjoldahl Azotu	mg/L	<0.5	1.5	5.0	>5.0	0.812	SM 4500 Norg B
Yağ Gres (**)	mg/L	<0.2	0.3	0.5	>0.5	<0.2	ALS Laboratory Method

KONTROL EDEN:
ADI / SOYADI: Hakan Yılmaz
İMZA:
TARİH: 27 Şubat 2017

ONAYLAYAN:
ADI / SOYADI: Hüseyin Tekin
İMZA / KAŞE:
TARİH: 27 Şubat 2017

encon
ENCON LABORATUVARI A.Ş.
Cumhuriyet V.D. 334 054 3425
Mersis No: 4782-5650 6350-2623

Açıklamalar: Müşteri talebi üzerine Anlık atık numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni alınmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (c) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Müh. Çevre Ölçüm ve Dan. Hiz. Tic. A.Ş. Düzen Yönetsel Çevre, Gıda ve Vet. Sağ. Hiz. Eğ. Dan. A.Ş.

ART AL 17 01 0499
01.17
02.17

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI

ANALİZ RAPORU

Mehmet Akif Mah. Elalmış Cad. Tarık Buğra Sok. No: 15 - Ümraniye / İSTANBUL
Tel: 0216 499 0 249 (Pbx) Faks: 0216 499 28 68
www.artekcevre.com.tr

Rapor No / Tarihi	ART AL 17 01 0499/17 02.2017		
Talep Eden	ENCON LABORATUVARI A.Ş.		
Talep Edenin Adresi	Reşit Galip Caddesi No.120 GOP/ANKARA		
Örnek Kayıt No	AL.17.01 0499		
Örnek / Durum	Atık Su / Sıvı	Örneğin Alındığı Yer	NUM 17 0153
Örneği Alan	Encon	Örnek Alınma Tarihi	25.01.2017 - 09:15
Örneğin Alınma Şekli	-	Örneğe Uyg.İşlemler	Soğuk Zincir-Kimyasal Koruma
Örneğin Getirilişi	Kargo İle Teslim	Lab.Kabul Tarihi	31 01 2017 - 15:25
Örnek Sayısı/Ambalajı	1 Adet / 1000 mL / Cam şişe	Analiz Tarihi	31.01.2017 - 10.02.2017

ENCON LABORATUVARI A.Ş. tarafından alınarak kargo ile laboratuvarımıza ulaştırılan NUM 17.0153 kodlu atık su numunesine ilişkin analiz sonuçları, analiz metotları ile birlikte aşağıda sunulmuştur

Metot No: Tarih	Metot Adı
ALS Laboratory Method	ALS Laboratory Metrod

ARTEK MÜHENDİSLİK
ÇEVRE ÖLÇÜM ... HİZ. TİC. A.Ş.

ART.AL-
17.01.0499
01.17
02.17

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI
ANALİZ RAPORU

Firma Adı : ENCON LABORATUVARI A.Ş.
Rapor No/Tarihi : ART.AL.17.01.0499/17.02.2017

Yapılan Analizler	Analiz Sonucu	Analiz Metodu
Yağ ve Gres (mg/L)	<0,2	ALS Laboratory Method

Açıklamalar : Bu rapor 2 (iki) nüsha halinde hazırlanıp, müşteriye gönderilmiştir. Bu rapor laboratuvarımız tarafından elektronik ortamda arşivlenmektedir.
Tüm parametrelerin analizi ALS Laboratory Group tarafından gerçekleştirilmiştir.

Sorumlu İmzalar:

Özlem GÜLER
Laboratuvar Birim Yöneticisi

Melahat AYDIN
Laboratuvar Müdürü

ARTEK MÜHENDİSLİK
ÇEVRE ÖLÇÜM VE DAN. HİZ. TİC. A.Ş.

DÜZEN NORWEST
ÇEVRE, GIDA VE VETERİNER SAĞLIK HİZMETLERİ EĞİTİM DANIŞMANLIK TİCARET A.Ş.
Büyükesat Mh. Kaptanpaşa Sk. No: 2/1-2 06700 G.O.P. - ANKARA
Tel: 0312. 447 20 89 Faks. 0312. 447 66 86 • www.duzennorwest.com.tr

TÜRKAK AB-0375-T DÇ-20045 26.01.2017

ANALİZ RAPORU

ÖRNEK : NUM.17.0153 KODLU SU NUMUNESİ (*) (KİMYASAL ANALİZ)

MÜŞTERİ BİLGİLERİ			
Rapor No :	DÇ-20045	Rapor Tarihi :	26.01.2017
Müşteri Adı :	ENCON LABORATUVARI A.Ş.	Müşteri Adresi :	REŞİT GALİP CADDESİ, NO:120 G.O.P. ÇANKAYA/ANKARA
İlgili Kişi :		Tel / Fax :	(0312) 447 71 22 / (0312) 447 69 88

NUMUNE BİLGİLERİ						
Kayıt No	Ambalaj	Alındığı Tarih	Alındığı Yer	Geliş Tarihi	Analiz Tarihi	Bitiş Tarihi
DÇ-20045	AMBER CAM ŞİŞE x 1	25.01.2017	-	25.01.2017	25.01.2017	26.01.2017

NUM.17.0153 KODLU SU NUMUNESİ ; ilgili kişi tarafından örneklendirilmiş ve KORUMASIZ olarak saat 15:35'de laboratuvara ulaştırılmıştır. Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır.

(*) Numune tanımı müşteri beyanı esas alınarak yapılmıştır.

PARAMETRE	BİRİM	ANALİZ SONUCU
Sülfür (S)	µg/L	< 2 (*)
(*) MDL, Metod Dedeksiyon Limiti		

Sorumlu ve Teknik Yönetici Yrd.

KORAY TEMEL

DÜZEN - NORWEST ÇEVRE GIDA VE VETERİNER SAĞLIK HİZM. EĞT. DAN. TİC. A.Ş. Büyükesat Mh. Kaptanpaşa Sk. No: 2/1-2-3 06700 G.O.P. ANKARA Çankaya V.D. 325 003 9517 Tic. Sic. No: 151830 Mersis No: 0325003951700014

KYF 510-1

AB-0375-T
DÇ-20045
26.01.2017

ANALİZ RAPORU

ÖRNEK : NUM.17.0153 KODLU SU NUMUNESİ (*) (KİMYASAL ANALİZ)

RAPOR NO: DÇ-20045

Kullanılan Metodlar:

Parametre	Metod	Referans
Sülfür (S)	Ion Chromatography Metnod	Journal of Chromatography A, 1023 (2004) 105-112

NOT:	1. Test sonuçları sadece test edilen numuneler ile ilgilidir. 2. Rapor laboratuvarın izni olmadan kısmi olarak çoğaltılamaz, kullanılamaz.
Analizin Yapıldığı Yer:	Adres: Düzen Norwest Laboratuvarı, Büyükesat Mah. Kaptanpaşa Sok. No:2/2-4 Gaziosmanpaşa / ANKARA E-mail: duzennorwest@duzen.com.tr
Taşeron Laboratuvar:	Bu testler için taşeron laboratuvar kullanılmamıştır.

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0158-T

AB-0158-T
LR.17.0154
27.02.2017

ENCON LABORATUVARI A.Ş.

ANALİZ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	27.02.2017 / LR.17.0154	**NUMUNE KAYIT NO**	NUM.17.0154
NUMUNE ALINAN YER	Kuzey Marmara Otoyol Projesi, Kadıköy	**NUMUNE TÜRÜ / NUMUNE İŞARETİ**	Yüzey Suyu ST-2 Kadıköy (KM:16+700)
NUMUNE ALMA ŞEKLİ / YÖNTEMİ	Anlık Numune	**NUMUNEYİ ALAN**	Uğur Şahin
NUMUNEYE UYGULANAN İŞLEMLER / GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma+H_2SO_4; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma+HCl; 100.0 mL, Mühürlü, Plastik Şişe, Soğuk Koruma+HCl; 100.0 mL, Mühürlü, Plastik Şişe, Soğuk Koruma+HNO3; 500.0 mL, Mühürlü, Cam Şişe, Soğuk Koruma+Çinko Asetat Korumalı	**NUMUNE ALMA / KABUL TARİHİ**	24.01.2017 25.01.2017
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	Kapalı	**ANALİZİN YAPILDIĞI TARİH**	24.01.2017 - 22.02.2017

Yüzey Suyu numunesi ENCON personeli tarafından ENC-LABPR-NUM-13 Nolu Numune Alma Prosedürü 'ne göre alınmıştır.

Açıklamalar: Müşteri talebi üzerine Anlık tek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

Adres: Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA

Tel: 0 312 447 71 22 **Fax: 0 312 447 99 44** **www.enconlab.com.tr**

TÜRKAK
Test
TS EN ISO IEC 17025
AB-0168-T

AB-0168-T
19.17.0104
27.02.2017

ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

		TABLO ADI / SINIR DEĞER Yeraltı Su Kalitesi Yönetmeliği TABLO 2					
Parametreler	**Birim**	**I**	**II**	**III**	**IV**	**Analiz Sonucu**	**Metotlar**
Amonyum Azotu (NH_4-N)	mg/L	<0.2	1.0	2.0	>2.0	<0.2	S.M. 4500 NH3 B S.M. 4500 NH3 C
Biyolojik Oksijen İhtiyacı	mg/L	<4.0	8.0	20.0	>20.0	<3.00	S.M. 5210 B
Çözünmüş oksijen	mg/L	>8.0	6.0	3.0	<3.0	12.75	S.M. 4500-O G
Florür	µg/L	≤1000.0	1500.0	2000.0	>2000.0	273.4	S.M. 4110 B
İletkenlik	µS/cm	<400.0	1000.0	3000.0	>3000.0	688.0	S.M. 2510 B
Kimyasal Oksijen İhtiyacı	mg/L	<25.0	50.0	70.0	>70.0	9.20	SM 5220 B
Mangan	µg/L	<100.0	500.0	3000.0	>3000.0	<10.0	EPA 6020 B
Nitrat Azotu	mg/L	<3.0	10.0	20.0	>20.0	9.52	EPA Metot:352.1
Orto Fosfat Fosforu	mg/L	<0.05	0.16	0.65	>0.65	0.231	S.M. 4500 P B S.M. 4500 P-E
pH	—	6.0-9.0	6.0-9.0	6.0-9.0	6.0-9.0	8.73	S.M. 4500-H+B
Renk	m^{-1}	RES 436 nm:≤1.5 RES 525 nm:≤1.2 RES 620 nm:≤0.8	RES 436 nm:3.0 RES 525 nm:2.4 RES 620 nm:1.7	RES 436 nm:4.3 RES 525 nm:3.7 RES 620 nm:2.5	RES 436 nm:>4.3 RES 525 nm:>3.7 RES 620 nm:>2.5	0.54 <0.37 0.08	TS EN ISO 7887 B
Selenyum	µg/L	<10.0	15.0	20.0	>20.0	<10.0	EPA 6020 B
Sülfür (S^{2-}) (**)	µg/L	≤2.0	5.0	10.0	>10.0	<2.00	Journal of Chromatography A, 1023 (2004) 105-112
Toplam Azot	mg/L	<3.5	11.5	25.0	>25.0	10.62	EPA Metod 352.1 S.M. 4500-NO2 B S.M. 4500 Norg B
Toplam Fosfor	mg/L	<0.08	0.2	0.8	>0.8	0.235	S.M. 4500-P B S.M. 4500 P-E
Toplam Kjeldahl Azotu	mg/L	<0.5	1.5	5.0	>5.0	1.064	SM 4500-Norg B
Yağ Gres (**)	mg/L	<0.2	0.3	0.5	>0.5	<0.2	A.S Laboratory Method

KONTROL EDEN:
ADI / SOYADI: Hakan Yılmaz
İMZA:
TARİH: 27 Şubat 2017

ONAYLAYAN:
ADI / SOYADI: Hüseyin Tekin
İMZA / KAŞE: ENCON LABORATUVARI
TARİH: 27 Şubat 2017

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (c) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş. Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eğ. Dan. A.Ş.

Adres: Reşit Galip Caddesi No:125 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 **Fax: 0 312 447 85 88** www.enconlab.com.tr

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI

ART AL -
17.01.0497
01.17
02.17

ANALİZ RAPORU

Mehmet Akif Mah. Elalmış Cad. Tarık Buğra Sok. No: 15 - Ümraniye / İSTANBUL
Tel: 0216 499 0 249 (Pbx) Faks: 0216 499 28 68
www.artekcevre.com.tr

Rapor No / Tarihi	ART AL 17 01 0497/17 02 2017		
Talep Eden	ENCON LABORATUVARI A.Ş.		
Talep Edenin Adresi	Reşit Galip Caddesi No:120 GOP/ANKARA		
Örnek Kayıt No	AL 17 01.0497		
Örnek / Durum	Atık Su / Sıvı	**Örneğin Alındığı Yer**	NUM 17.0154
Örneği Alan	Encon	**Örnek Alınma Tarihi**	25.01.2017 - 09:15
Örneğin Alınma Şekli	-	**Örneğe Uyg.İşlemler**	Soğuk Zincir Kimyasal Koruma
Örneğin Getirilişi	Kargo İle Teslim	**Lab Kabul Tarihi**	31.01.2017 - 15.25
Örnek Sayısı/Ambalajı	1 Adet / 1000 mL / Cam Şişe	**Analiz Tarihi**	31.01.2017 - 10.02.2017

ENCON LABORATUVARI A.Ş. tarafından alınarak kargo ile laboratuvarımıza ulaştırılan NUM.17.0154 kodlu atık su numunesine ilişkin analiz sonuçları, analiz metotları ile birlikte aşağıda sunulmuştur.

Metot No: Tarih	Metot Adı
ALS Laboratory Method	ALS Laboratory Method

ARTEK MÜHENDİSLİK
ÇEVRE ÖLÇ. VE DAN. HİZ. TİC. A.Ş.

FORM NO: TR.510.01-03
YAYIN TARİHİ: 20.08.2014
REV. NO: 0
REV. TAR.: -

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI

ANALİZ RAPORU

ART.AL-17.01.0497
01.17
02.17

Firma Adı : ENCON LABORATUVARI A.Ş
Rapor No/Tarihi: ART.AL 17.01.049/17.02.2017

Yapılan Analizler	Analiz Sonucu	Analiz Metodu
Yağ ve Gres (mg/L)	<0.2	ALS Laboratory Method

Açıklamalar : Bu rapor 2 (iki) nüsha halinde hazırlanıp, müşteriye gönderilmiştir. Bu rapor laboratuvarımız tarafından elektronik ortamda arşivlenmektedir.
Tüm parametrelerin analizi ALS Laboratory Group tarafından gerçekleştirilmiştir.

Sorumlu İmzalar:

Özlem GÜLER
Laboratuvar Birim Yöneticisi

Melahat AYDIN
Laboratuvar Müdürü

ARTEK MÜHENDİSLİK
ÇEVRE ÖLÇÜM VE DAN. HİZ. TİC. A.Ş

DÜZEN NORWEST
ÇEVRE, GIDA VE VETERİNER SAĞLIK HİZMETLERİ EĞİTİM DANIŞMANLIK TİCARET A.Ş.
Büyükesat Mh. Kaplanpaşa Sk. No: 2/1-2 06700 G.O.P. - ANKARA
Tel. 0312. 447 29 99 Faks: 0312. 447 86 86 • www.duzennorwest.com.tr

AB-0375-T
DÇ-20046
26.01.2017

ANALİZ RAPORU

ÖRNEK : NUM.17.0154 KODLU SU NUMUNESİ (*) (KİMYASAL ANALİZ)

MÜŞTERİ BİLGİLERİ

Rapor No :	DÇ-20046	Rapor Tarihi :	26.01.2017
Müşteri Adı :	ENCON LABORATUVARI A.Ş.	Müşteri Adresi :	REŞİT GALİP CADDESİ, NO:120 G.O.P. ÇANKAYA/ANKARA
İlgili Kişi :		Tel / Fax :	(0312) 447 71 22 / (0312) 447 69 88

NUMUNE BİLGİLERİ

Kayıt No	Ambalaj	Alındığı Tarih	Alındığı Yer	Geliş Tarihi	Analiz Tarihi	Bitiş Tarihi
DÇ-20046	AMBER CAM ŞİŞE x 1	25.01.2017	-	25.01.2017	25.01.2017	26.01.2017

NUM.17.0154 KODLU SU NUMUNESİ ; ilgili kişi tarafından örneklendirilmiş ve KORUMASIZ olarak saat 15.35'de laboratuvara ulaştırılmıştır. Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır.

(*) Numune tanımı müşteri beyanı esas alınarak yapılmıştır.

PARAMETRE	BİRİM	ANALİZ SONUCU
Sülfür (S)	µg/L	< 2 (1)

(1) MDL, Metod Dedeksiyon Limiti

Sorumlu ve Teknik Yönetici Yrd.

KORAY TEMEL

DÜZEN NORWEST ÇEVRE GIDA VE VETERİNER SAĞLIK HİZM. EĞT. DAN. TİC. A.Ş. Büyükesat Mah. Kaplanpaşa Sk. No: 2/1-2-4 06700 G.O.P. ANKARA Gaziosmanpaşa V.D. 320 013 8517 Tic. Sic. No: 151830 Mersis No: 0320013851700014

KYF 510-1

Bu rapor toplam 2 sayfadan oluşmuştur.

ANALİZ RAPORU

AB-0375-T
DÇ-20046
26.01.2017

ÖRNEK : NUM.17.0154 KODLU SU NUMUNESİ (*) (KİMYASAL ANALİZ)
RAPOR NO: DÇ-20046

Kullanılan Metodlar:

Parametre	Metod	Referans
Sülfür (S)	Ion Chromatography Method	Journal of Chromatography A, 1023 (2004) 105-112

NOT:	1. Test sonuçları sadece test edilen numuneler ile ilgilidir. 2. Rapor laboratuvarın izni olmadan kısmi olarak çoğaltılamaz, kullanılamaz.
Analizin Yapıldığı Yer:	Adres: Düzen Norwest Laboratuvarı, Büyükesat Mah. Kaptanpaşa Sok. No:2/2-4 Gaziosmanpaşa / ANKARA E-mail: duzennorwest@duzen.com.tr

Taşeron Laboratuvar:	Bu testler için taşeron laboratuvar kullanılmamıştır.

TÜRKAK
TS EN ISO/IEC 17025
AB-0168-T

AB-0168-T

LR.17.0285

09.03.2017

ENCON LABORATUVARI A.Ş.

ANALİZ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	09.03.2017 / LR.17.0285	**NUMUNE KAYIT NO**	NUM.17.0285
NUMUNE ALINAN YER	Kuzey Marmara Otoyolu Projesi	**NUMUNE TÜRÜ / NUMUNE İŞARETİ**	Yüzey Suyu S1.3 İnceğiz(KM 22+100)
NUMUNE ALMA ŞEKLİ / YÖNTEMİ	Anlık Numune	**NUMUNEYİ ALAN**	Uğur ŞAHİN
NUMUNEYE UYGULANAN İŞLEMLER / GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	250.0 mL, Mühürlü, Plastik Şişe, Soğuk Koruma+HNO3; 250.0 mL, Mühürlü, Plastik Şişe, Soğuk Koruma+HCl; 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma; 500.0 mL, Mühürlü, Cam Şişe, Soğuk Koruma+Çinko Asetat Korumalı; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma+HCl; 1.0 L, Mühürsüz, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürsüz, Plastik Şişe, NaOH Korumal	**NUMUNE ALMA / KABUL TARİHİ**	21.02.2017 22.02.2017
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	Açık	**ANALİZİN YAPILDIĞI TARİH**	21.02.2017 - 08.03.2017

Yüzey Suyu numunesi ENCON personeli tarafından ENC-LABPR-NUM-13 Nolu Numune Alma Prosedürü 'ne göre alınmıştır.

Açıklamalar: Müşteri talebi üzerine özel atık numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

Adres: Reşit Galip Caddesi No: 120 Gaziosmanpaşa/ANKARA

Tel: 0 312 447 71 22 **Fax: 0 312 447 89 88** **www.enconlab.com.tr**

TÜRKAK
TS EN ISO/IEC 17025
AB-0156-T
AB-0156-T
LR.17.0286
09.03.2017

encon

ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

		TABLO ADI / SINIR DEĞER Yerüstü Su Kalitesi Yönetmeliği TABLO 2					
Parametreler	**Birim**	**I**	**II**	**III**	**IV**	**Analiz Sonucu**	**Metotlar**
Amonyum Azotu (NH_4-N)	mg/L	<0.2	1.0	2.0	>2.0	0.3024	S.M. 4500-NH3 B S.M 4500-NH3 C
Biyolojik Oksijen İhtiyacı	mg/L	<4.0	8.0	20.0	>20.0	5.60	S.M. 5210- B
Çözünmüş oksijen	mg/L	>8.0	6.0	3.0	<3.0	13.07	S.M. 4500-O_G
Florür	µg/L	≤1000.0	1500.0	2000.0	>2000.0	188.0	S.M. 4110-B
İletkenlik	µS/cm	<400.0	1000.0	3000.0	>3000.0	560.0	S.M. 2510_B
Kimyasal Oksijen İhtiyacı	mg/L	<25.0	50.0	70.0	>70.0	18.25	SM 5220 B
Mangan	µg/l	≤100.0	500.0	3000.0	>3000.0	59.59	EPA 6020 B
Nitrat Azotu	mg/L	<3.0	10.0	20.0	>20.0	6.11	EPA Metot.352.1
Orto Fosfat Fosforu	mg/L	<0.05	0.16	0.65	>0.65	0.194	S.M. 4500-P B S.M. 4500 P-E
pH	—	6.0-9.0	6.0-9.0	6.0-9.0	6.0-9.0	9.72	S.M. 4500-H+B
Renk	m^{-1}	RES 436 nm ≤1.5 RES 525 nm ≤1.2 RES 620 nm ≤0.8	RES 436 nm 3.0 RES 525 nm 2.4 RES 620 nm 1.7	RES 436 nm 4.3 RES 525 nm 3.7 RES 620 nm 2.5	RES 436 nm >4.3 RES 525 nm >3.7 RES 620 nm >2.5	1.68 0.92 0.5	TS EN ISO 7887 B
Selenyum	µg/l	≤10.0	15.0	20.0	>20.0	<10.0	EPA 6020 B
Sülfür (S^{2-}) (*)	µg/L	<2.0	5.0	10.0	>10.0	<2.00	Journal of Chromatography A, 1023 (2004) 105-112
Toplam Azot	mg/L	<3.5	11.5	25.0	>25.0	12.65	EPA Metod 352.1 S.M. 4500-NO2-B S.M. 4500-Norg-B
Toplam Fosfor	mg/L	<0.08	0.2	0.8	>0.8	0.225	S.M. 4500 P B S.M 4500 P E
Toplam Kjeldahl Azotu	mg/L	<0.5	1.5	5.0	>5.0	6.440	SM 4500-Norg B
Yağ Gres (*)	mg/l	<0.2	0.3	0.5	>0.5	0.21	ALS Laboratory Method

KONTROL EDEN:	**ONAYLAYAN:**
ADI / SOYADI: Hakan Yılmaz	**ADI / SOYADI:** Hüseyin Tekin
İMZA:	**İMZA / KAŞE:** ENCON LABORATUVARI A.Ş.
TARİH: 10 Nis. 2017	**TARİH:**

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (◊) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Anes Müh. Çevre Ölçüm ve Dan. Hiz. Tic. A.Ş. Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eğ. Dan. A.Ş.

Adres: Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
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ALS ARTEK

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI

ART.AL.17.02.0928
02.17
03.17

ANALİZ RAPORU

Mehmet Akif Mah. Elalmış Cad. Tarık Buğra Sok. No: 15 - Ümraniye / İSTANBUL
Tel: 0216 499 0 349 (Pbx) Faks: 0216 499 28 68
www.artekcevre.com.tr

Rapor No / Tarihi	ART.AL.17.02.0928/09.03.2017		
Talep Eden	ENCON LABORATUVARI A.Ş.		
Talep Edenin Adresi	Reşit Galip Caddesi No:120 GOP/ANKARA		
Örnek Kayıt No	AL.17.02.0928		
Örnek / Durum	Atık Su / Sıvı	Örneğin Alındığı Yer	Num.17.0285
Örneği Alan	Encon	Örnek Alınma Tarihi	22.02.2017
Örneğin Alınma Şekli	-	Örneğe Uyg.İşlemler	Soğuk Zincir - Kimyasal Koruma
Örneğin Getirilişi	Kargo İle Teslim	Lab.Kabul Tarihi	24.02.2017 11:27
Örnek Sayısı/Ambalajı	1 Adet / 1000 mL / Mühürlü / Cam Şişe	Analiz Tarihi	24.02.2017 - 02.03.2017

ENCON LABORATUVARI A.Ş. tarafından alınarak kargo ile laboratuvarımıza gönderilen Num.17.0285 kodlu Atık Su numunesine ilişkin analiz sonuçları, analiz metotları ile birlikte aşağıda sunulmuştur.

Metot No: Tarih	Metot Adı
ALS Laboratory Method	ALS Laboratory Method

ARTEK MÜHENDİSLİK
ÇEVRE ÖLÇÜM VE DAN.HİZ.TİC.A.Ş

ALS ARTEK

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI

ANALİZ RAPORU

ART.AL 17.02.0928
02.17
03.17

Firma Adı : ENÇON LABORATUVARI A.Ş.
Rapor No/Tarihi: ART.AL 17.02.0928/09.03.2017

Yapılan Analizler	Analiz Sonucu	Analiz Metodu
Yağ ve Gres (mg/L)	0.21	ALS Laboratory Method

Açıklamalar : Bu rapor 2 (iki) nüsha halinde hazırlanıp, müşteriye gönderilmiştir. Bu rapor laboratuvarımız tarafından elektronik ortamda arşivlenmektedir.
Tüm parametrelerin analizi ALS Laboratory Group tarafından gerçekleştirilmiştir.

Sorumlu İmzalar:

Özlem GÜLER
Laboratuvar Birim Yöneticisi

Melahat AYDIN
Laboratuvar Müdürü

ARTEK MÜHENDİSLİK
ÇEVRE ÖLÇÜM VE DAN. HİZ. TİC. A.Ş.

FORM NO: RL510.01-03
YAYIN TARİHİ: 20.08.2014

REV. NO: 0
REV. TAR.: -

DÜZEN NORWEST
ÇEVRE, GIDA VE VETERİNER SAĞLIK HİZMETLERİ EĞİTİM DANIŞMANLIK TİCARET A.Ş.
Büyükesat Mh. Kaplanpaşa Sk. No. 2/1-2 06700 G.O.P. - ANKARA
Tel: 0312 447 79 99 Faks: 0312 447 86 66 - www.duzennorwest.com.tr

TÜRKAK
AB-0375-T
DÇ-20415
08.03.2017

ANALİZ RAPORU

ÖRNEK : 285 KODLU S1-3 YÜZEY SUYU NUMUNESİ(*) (KİMYASAL ANALİZ)

MÜŞTERİ BİLGİLERİ			
Rapor No :	DÇ-20415	Rapor Tarihi :	08.03.2017
Müşteri Adı :	ENCON LABORATUVAR A.Ş.	Müşteri Adresi :	REŞİT GALIP CADDESİ, NO-120 G.O.P. ÇANKAYA/ANKARA
İlgili Kişi :		Tel / Fax :	(0312) 447 71 22 / (0312) 447 69 68

NUMUNE BİLGİLERİ						
Kayıt No	Ambalaj	Alındığı Tarih	Alındığı Yer	Geliş Tarihi	Analiz Tarihi	Bitiş Tarihi
DÇ-20415	AMBER CAM ŞİŞE x 1	23.02.2017	-	23.02.2017	24.02.2017	08.03.2017

285 KODLU S1-3 YÜZEY SUYU NUMUNESİ; ilgili kişi tarafından örneklendirilmiş ve KİMYASAL KORUMALI olarak saat: 18:47'de laboratuvara ulaştırılmıştır. Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır.

(*) Numune tanımı müşteri beyanı esas alınarak yapılmıştır.

PARAMETRE	BİRİM	ANALİZ SONUCU
Sülfür (S)	µg/L	< 2 (1)

(1) MDL, Metod Dedeksiyon Limiti

Kalite Yöneticisi	Sorumlu ve Teknik Yönetici Yrd.
ECE KIZILKAYA	KORAY TEMEL

DÜZEN - NORWEST
ÇEVRE GIDA ve VETERİNER SAĞLIK HİZM. EĞT. DAN. TİC. A.Ş.
Büyükesat Mah. Kaplanpaşa Sk. No: 2/1-2-4 06700 G.O.P. ANKARA
Çankaya V.D. 323 013 0517
Tic. Sic. No: 157800
Mersis No: 0323013051700014

AB-0375-T
DÇ-20415
08.03.2017

ANALİZ RAPORU

ÖRNEK : 285 KODLU S1-3 YÜZEY SUYU NUMUNESİ(*) (KİMYASAL ANALİZ)

RAPOR NO: DÇ-20415

Kullanılan Metodlar:

Parametre	Metod	Referans
Sülfür (S)	Ion Chromatography Method	Journal of Chromatography A, 1023 (2004) 105-112

NOT:	1. Test sonuçları sadece test edilen numuneler ile ilgilidir. 2. Rapor laboratuvarın izni olmadan kısmi olarak çoğaltılamaz, kullanılamaz. 3. İmzasız ve kaşesiz deney raporları geçersizdir.
Analizin Yapıldığı Yer:	Adres: Düzen Norwest Laboratuvarı, Büyükesat Mah. Kaptanpaşa Sok. No:2/2-4 Gaziosmanpaşa / ANKARA E-mail: duzennorwest@duzen.com.tr

Taşeron Laboratuvar:	Bu testler için taşeron laboratuvar kullanılmamıştır.

TÜRKAK
TS EN ISO/IEC 17025
AB-0150-T
LR.17.0161
27.02.2017

encon

ENCON LABORATUVARI A.Ş.

ANALİZ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	27.02.2017 / LR.17.0161	**NUMUNE KAYIT NO**	NUM.17.0161
NUMUNE ALINAN YER	Kuzey Marmara Otoyol Projesi	**NUMUNE TÜRÜ / NUMUNE İŞARETİ**	Yüzey Suyu S1.4 Gökçeali (KM 28+200)
NUMUNE ALMA ŞEKLİ / YÖNTEMİ	Anlık Numune	**NUMUNEYİ ALAN**	Uğur Şahin
NUMUNEYE UYGULANAN İŞLEMLER / GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma, 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma, 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma+H_2SO_4, 1.0 L Mühürlü, Cam Şişe, Soğuk Koruma+HCl, 100.0 mL, Mühürlü Plastik Şişe, Soğuk Koruma+HCl; 100.0 mL, Mühürlü, Plastik Şişe, Soğuk koruma+HNO3, 500.0 mL Mühürlü, Cam Şişe, Soğuk Koruma+Çinko Asetat Korumalı	**NUMUNE ALMA / KABUL TARİHİ**	26.01.2017 27.01.2017
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	Yağışlı	**ANALİZİN YAPILDIĞI TARİH**	26.01.2017 - 22.02.2017

Yüzey Suyu numunesi ENCON personeli tarafından ENC-LABPR-NUM-13 Nolu Numune Alma Prosedürü 'ne göre alınmıştır.

Açıklamalar: Müşteri talebi üzerine özel istek nedeniyle olarak çıkarılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (c) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş. Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Sn. Dan. A.Ş.

TÜRKAK
TS EN ISO/IEC 17025
AB-0156-T
LR.17.0161
17.02.2017

ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

Parametreler	Birim	I	II	III	IV	Analiz Sonucu	Metotlar
		TABLO ADI / SINIR DEĞER Yerüstü Su Kalitesi Yönetmeliği TABLO 2					
Amonyum Azotu (NH_4-N)	mg/L	<0.2	1.0	2.0	>2.0	<0.2	S.M. 4500-NH3 B S.M. 4500-NH3 C
Biyolojik Oksijen İhtiyacı	mg/L	<4.0	8.0	20.0	>20.0	5.48	S.M. 5210- B
Çözünmüş oksijen	mg/L	>8.0	6.0	3.0	<3.0	12.52	S.M. 4500 O_G
Florür	µg/l	≤1000.0	1500.0	2000.0	>2000.0	154.9	S.M. 4110-B
İletkenlik	µS/cm	<400.0	1000.0	3000.0	>3000.0	653.0	S.M. 2510_B
Kimyasal Oksijen İhtiyacı	mg/L	<25.0	50.0	70.0	>70.0	10.80	SM 5220 B
Mangan	µg/l	≤100.0	500.0	3000.0	>3000.0	195.181	EPA 6020 B
Nitrat Azotu	mg/L	<3.0	10.0	20.0	>20.0	3.105	EPA Metot.352.1
Orto Fosfat Fosforu	mg/L	<0.05	0.16	0.65	>0.65	0.084	S.M. 4500-P B S.M. 4500 P-E
pH	—	6.0-9.0	6.0-9.0	6.0-9.0	6.0-9.0	8.57	S.M. 4500-H+B
Renk	m^{-1}	RES 436 nm ≤1.5 RES 525 nm ≤1.2 RES 620 nm ≤0.8	RES 436 nm:3.0 RES 525 nm 2.4 RES 620 nm 1.7	RES 436 nm:4.3 RES 525 nm:3.7 RES 620 nm:2.5	RES 436 nm >4.3 RES 525 nm >3.7 RES 620 nm >2.5	1.18 0.8 0.38	TS EN ISO 7887 B
Selenyum	µg/L	≤10.0	15.0	20.0	>20.0	<10.0	EPA 6020 B
Sülfür (S^{-2}) (**)	µg/L	≤2.0	5.0	10.0	>10.0	<2.00	Journal of Chromatography A, 1023 (2004) 105-112
Toplam Azot	mg/L	<3.5	11.5	25.0	>25.0	4.387	EPA Metot 352.1 S.M. 4500-NO2-B S.M. 4500-Norg-B
Toplam Fosfor	mg/L	<0.08	0.2	0.8	>0.8	0.104	S.M. 4500 P B S.M. 4500 P-E
Toplam Kjeldahl Azotu	mg/L	<0.5	1.5	5.0	>5.0	1.282	SM 4500-Norg B
Yağ Gres (**)	mg/L	<0.2	0.3	0.5	>0.5	<0.2	ALS Laboratory Methos

KONTROL EDEN:
ADI / SOYADI: Hakan Yılmaz
İMZA:
TARİH: 27 Şubat 2017

ONAYLAYAN:
ADI / SOYADI: Hüseyin Tekin
İMZA / KAŞE: 27 Şubat 2017
ENCON LABORATUVARI A.Ş.
Reşit Galip Cad. No:126 ...
Tel: (0312) 447 71 22
Cumhuriyet V.D. 334 056 ...
Mersis No. ...
www.enconlab.com.tr
TARİH:

Açıklamalar: Müşteri talebi üzerine özel fatek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları, analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akreditasyon kapsamında olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Arsek Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş. Düzen Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eğ. Dan. A.Ş.

Adres: Reşit Galip Caddesi No:126 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 **Fax: 0 312 447 58 44** www.enconlab.com.tr

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI

ART.AL.
17.01.0495

ANALİZ RAPORU

Mehmet Akif Mah. Elalmış Cad. Tarık Buğra Sok. No: 15 - Ümraniye / İSTANBUL
Tel: 0216 499 0 249 (Pbx) Faks: 0216 499 28 68
www.artekcevre.com.tr

Rapor No / Tarihi	ART.AL.17.01.0495/17.02.2017		
Talep Eden	ENCON LABORATUVARI A.Ş.		
Talep Edenin Adresi	Reşit Galip Caddesi No.120 GOP/ANKARA		
Örnek Kayıt No	AL.17.01.0495		
Örnek / Durum	Atık Su / Sıvı	Örneğin Alındığı Yer	NUM.17.0161
Örneği Alan	Encon	Örnek Alınma Tarihi	27.01.2017 - 09:00
Örneğin Alınma Şekli	-	Örneğe Uyg.İşlemler	Soğuk Zincir Kimyasal Koruma
Örneğin Getirilişi	Kargo İle Teslim	Lab.Kabul Tarihi	31.01.2017 - 15.25
Örnek Sayısı/Ambalajı	1 Adet / 1000 mL / Cam şişe	Analiz Tarihi	31.01.2017 - 10.02.2017

ENCON LABORATUVARI A.Ş. tarafından alınarak kargo ile laboratuvarımıza ulaştırılan NUM.17.0161 kodlu atık su numunesine ilişkin analiz sonuçları, analiz metotları ile birlikte aşağıda sunulmuştur.

Metot No: Tarih	Metot Adı
ALS Laboratory Method	ALS Laboratory Method

ARTEK MÜHENDİSLİK
ÇEVRE ÖLÇÜM VE DAN. HİZ. TİC. A.Ş.

ALS ARTEK

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI
ANALİZ RAPORU

ART AL-17.01.0495
01.17
02.17

Firma Adı : ENCON LABORATUVARI A.Ş.
Rapor No/Tarihi: ART AL-17.01.0495/17.02.2017

Yapılan Analizler	Analiz Sonucu	Analiz Metodu
Yağ ve Gres (mg/L)	<0,2	ALS Laboratory Method

Açıklamalar : Bu rapor 2 (iki) nüsha halinde hazırlanıp, müşteriye gönderilmiştir. Bu rapor laboratuvarımız tarafından elektronik ortamda arşivlenmektedir.
Tüm parametrelerin analizi ALS Laboratory Group tarafından gerçekleştirilmiştir.

Sorumlu İmzalar:

Özlem GÜLER
Laboratuvar Birim Yöneticisi

Melahat AYDIN
Laboratuvar Müdürü
ARTEK MÜHENDİSLİK
ÇEVRE ÖLÇÜM VE DAN. HİZ. TİC. A.Ş.

DÜZEN NORWEST

ÇEVRE, GIDA VE VETERİNER SAĞLIK HİZMETLERİ EĞİTİM DANIŞMANLIK TİCARET A.Ş.

Büyükesat Mh. Kaptanpaşa Sk. No: 2/1-2 06700 G.O.P. - ANKARA

Tel: 0312 447 29 99 Faks: 0312 447 86 96 - www.duzennorwest.com.tr

TÜRKAK

AB-0375-T
DÇ-20060
09.02.2017

ANALİZ RAPORU

ÖRNEK : NUM.17.0161 KODLU SU NUMUNESİ (*) (KİMYASAL ANALİZ)

MÜŞTERİ BİLGİLERİ

Rapor No :	DÇ 20060	Rapor Tarihi :	09.02.2017
Müşteri Adı :	ENCON LABORATUVARI A.Ş.	Müşteri Adresi :	REŞİT GALİP CADDESİ NO:120 G.O.P. ÇANKAYA/ANKARA
İlgili Kişi :		Tel / Fax :	(0312) 447 71 22 / (0312) 447 69 88

NUMUNE BİLGİLERİ

Kayıt No	Ambalaj	Alındığı Tarih	Alındığı Yer	Geliş Tarihi	Analiz Tarihi	Bitiş Tarihi
DÇ 20060	AMBER CAM ŞİŞE x 1	27.01.2017	-	27.01.2017	27.01.2017	09.02.2017

NUM.17.0161 KODLU SU NUMUNESİ ; İlgili kişi tarafından örneklendirilmiş ve KİMYASAL KORUMALI olarak saat 16:57'de laboratuvara ulaştırılmıştır. Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır.

(*) Numune tanımı müşteri beyanı esas alınarak yapılmıştır.

PARAMETRE	BİRİM	ANALİZ SONUCU
Sulfur (S)	µg/L	< 2 (1)

(1) MDL : Metod Dedeksiyon Limiti

Kalite Yöneticisi	Sorumlu ve Teknik Yönetici Yrd.
ECE KIZILKAYA	KORAY TEMEL

DÜZEN - NORWEST

AB-0375-T
DÇ-20060
09.02.2017

ANALİZ RAPORU

ÖRNEK : NUM.17.0161 KODLU SU NUMUNESİ (*) (KİMYASAL ANALİZ)

RAPOR NO: DÇ-20060

Kullanılan Metodlar:

Parametre	Metod	Referans
Sülfür (S)	Ion Chromatography Method	Journal of Chromatography A, 1023 (2004) 105-112

NOT:	1. Test sonuçları sadece test edilen numuneler ile ilgilidir. 2. Rapor laboratuvarın izni olmadan kısmi olarak çoğaltılamaz, kullanılamaz.
Analizin Yapıldığı Yer:	Adres: Düzen Norwest Laboratuvarı, Büyükesat Mah. Kaptanpaşa Sok. No:2/2-4 Gaziosmanpaşa / ANKARA E-mail: duzennorwest@duzen.com.tr

Taşeron Laboratuvar:	Bu testler için taşeron laboratuvar kullanılmamıştır.

TÜRKAK
TS EN ISO/IEC 17025
AB-0168-T

AB-0168-T
LR.17.0164
27.02.2017

ENCON LABORATUVARI A.Ş.

ANALİZ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	27.02.2017 / LR.17.0164	**NUMUNE KAYIT NO**	NUM.17.0164
NUMUNE ALINAN YER	Kuzey Marmara Otoyol Projesi,	**NUMUNE TÜRÜ / NUMUNE İŞARETİ**	Yüzey Suyu S1-6 Yaşas Deresi(KM:40+700)
NUMUNE ALMA ŞEKLİ / YÖNTEMİ	Anlık Numune	**NUMUNEYİ ALAN**	Uğur Şahin
NUMUNEYE UYGULANAN İŞLEMLER / GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma+H_2SO_4; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma+HCl; 100.0 mL, Mühürlü, Plastik Şişe, Soğuk Koruma+HCl; 100.0 mL, Mühürlü, Plastik Şişe, Soğuk koruma+HNO3; 500.0 mL, Mühürlü, Cam Şişe, Soğuk Koruma+Çinko Asetat Korumalı	**NUMUNE ALMA / KABUL TARİHİ**	27.01.2017 28.01.2017
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	Açık	**ANALİZİN YAPILDIĞI TARİH**	27.01.2017 - 22.02.2017

Yüzey Suyu numunesi ENCON personeli tarafından ENC-LABPR-NUM-13 Nolu Numune Alma Prosedürü 'ne göre alınmıştır.

Açıklamalar: Müşteri talebi üzerine özel izleme numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ilan ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Müh. Çevre Ölçüm ve Dan. Hiz. Tic. A.Ş. Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Sağ. Con. A.Ş.

encon

ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0166-T
AB-0166-T
LR 17 0164
27.02.2017

		TABLO ADI / SINIR DEĞER Yerüstü Su Kalitesi Yönetmeliği TABLO 2					
Parametreler	**Birim**	**I**	**II**	**III**	**IV**	**Analiz Sonucu**	**Metotlar**
Amonyum Azotu (NH_4-N)	mg/L	≤0.2	1.0	2.0	>2.0	0.706	S.M. 4500-NH3 B S.M. 4500-NH3 C
Biyolojik Oksijen İhtiyacı	mg/L	≤4.0	8.0	20.0	>20.0	5.44	S.M. 5210- B
Çözünmüş oksijen	mg/L	>8.0	6.0	3.0	<3.0	13.06	S.M. 4500-O_G
Florür	µg/L	≤1000.0	1500.0	2000.0	>2000.0	149.9	S.M. 4110-B
İletkenlik	µS/cm	<400.0	1000.0	3000.0	>3000.0	609.0	S.M. 2510_B
Kimyasal Oksijen İhtiyacı	mg/L	<25.0	50.0	70.0	>70.0	10.00	S.M. 5220 B
Mangan	µg/L	≤100.0	500.0	3000.0	>3000.0	28.004	EPA 6020 B
Nitrat Azotu	mg/L	<3.0	10.0	20.0	>20.0	12.6	EPA Metot:352.1
Orto Fosfat Fosforu	mg/L	<0.05	0.16	0.65	>0.65	0.145	S.M. 4500-P B S.M. 4500 P-E
pH		6.0-9.0	6.0-9.0	6.0-9.0	6.0-9.0	8.46	S.M. 4500-H+B
Renk	m^{-1}	RES 436 nm ≤1.5 RES 525 nm. ≤1.2 RES 620 nm. ≤0.8	RES 436 nm 3.0 RES 525 nm.2.4 RES 620 nm.1.7	RES 436 nm 4.3 RES 525 nm.3.7 RES 620 nm.2.5	RES 436 nm >4.3 RES 525 nm. >3.7 RES 620 nm. >2.5	1.48 0.84 0.58	TS EN ISO 7887 B
Selenyum	µg/L	≤10.0	15.0	20.0	>20.0	<10.0	EPA 6020 B
Sülfür (S^{-2}) (*)	µg/L	<2.0	5.0	10.0	>10.0	<2.00	Journal of Chromatography A, 1023 (2004) 105-112
Toplam Azot	mg/L	<3.5	11.5	25.0	>25.0	14.05	EPA Metod 352.1 S.M. 4500-NO2-B S.M. 4500-Norg-B
Toplam Fosfor	mg/L	<0.08	0.2	0.8	>0.8	<0.017	S.M. 4500 P B S.M. 4500 P-E
Toplam Kjeldahl Azotu	mg/L	<0.5	1.5	5.0	>5.0	1.372	S.M. 4500 Norg B
Yağ Gres (**)	mg/L	<0.2	0.3	0.5	>0.5	<0.2	ALS Laboratory Method

KONTROL EDEN:
ADI / SOYADI: Hakan Yılmaz
İMZA:
TARİH: 27 Şubat 2017

ONAYLAYAN:
ADI / SOYADI: Hüseyin Tekin
İMZA / KAŞE: ENCON LABORATUVARI A.Ş.
TARİH: 27 Şubat 2017

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş. Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eş. Dan. A.Ş.

Adres: Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 74 23 **Fax:** 0 312 447 60 00 www.enconlab.com.tr

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI

ART.AL.17.01.0501
01.17
02.17

ANALİZ RAPORU

Mehmet Akif Mah. Elalmış Cad. Tarık Buğra Sok. No: 15 - Ümraniye / İSTANBUL
Tel: 0216 499 0 249 (Pbx) Faks: 0216 499 28 68
www.artekcevre.com.tr

Rapor No / Tarihi	ART.AL.17.01.0501/17.02.2017		
Talep Eden	ENCON LABORATUVARI A.Ş.		
Talep Edenin Adresi	Reşit Galip Caddesi No:120 GOP/ANKARA		
Örnek Kayıt No	AL.17.01.0501		
Örnek / Durum	Atık Su / Sıvı	Örneğin Alındığı Yer	NUM.17.0164
Örneği Alan	Encon	Örnek Alınma Tarihi	28.01.2017 - 09:00
Örneğin Alınma Şekli	-	Örneğe Uyg.İşlemler	Soğuk Zincir-Kimyasal Koruma
Örneğin Getirilişi	Kargo İle Teslim	Lab.Kabul Tarihi	31.01.2017 - 15:25
Örnek Sayısı/Ambalajı	1 Adet / 1000 mL / Cam şişe	Analiz Tarihi	31.01.2017 - 10.02.2017

ENCON LABORATUVARI A.Ş. tarafından alınarak kargo ile laboratuvarımıza ulaştırılan NUM.17.0164 kodlu atık su numunesine ilişkin analiz sonuçları, analiz metotları ile birlikte aşağıda sunulmuştur.

Metot No: Tarih	Metot Adı
ALS Laboratory Method	ALS Laboratory Method

ARTEK MÜHENDİSLİK ÇEVRE ÖLÇ. VE DAN. HİZ. TİC. A.Ş.

FORM NO: FR.310.01-00
YAYIN TARİHİ: 20.08.2014
REV. NO: 0
REV. TAR.: -

ART AL 17 01 0501
01 17
02 17

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI
ANALİZ RAPORU

Firma Adı : ENCON LABORATUVARI A.Ş
Rapor No/Tarihi: ART AL 17 01 0501/17.02.2017

Yapılan Analizler	Analiz Sonucu	Analiz Metodu
Yağ ve Gres (mg/L)	<0,2	ALS Laboratory Method

Açıklamalar : Bu rapor 2 (iki) nüsha halinde hazırlanıp, müşteriye gönderilmiştir. Bu rapor laboratuvarımız tarafından elektronik ortamda arşivlenmektedir.
Tüm parametrelerin analizi ALS Laboratory Group tarafından gerçekleştirilmiştir.

Sorumlu İmzalar:

Özlem GÜLER
Laboratuvar Birim Yöneticisi

Melahat AYDIN
Laboratuvar Müdürü

ARTEK MÜHENDİSLİK
ÇEVRE ÖLÇÜM VE DAN. HİZ. TİC. A.Ş.

İmzasız ve kaşesiz raporlar geçersizdir. Raporda yer alan sonuçlar sadece incelenen numuneye aittir. Analiz yapılan numunede, numunenin alınışından laboratuvarımıza gelişine kadar olan prosedürlerin ve bakılması istenen grup ve parametrelerin belirlenmesinde teknik ve hukuki sorumluluk numuneyi, örnekleyeni alana aittir. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz. Bu rapor laboratuvarımızın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.	Sayfa 2 / 2

DÜZEN NORWEST
ÇEVRE, GIDA VE VETERİNER SAĞLIK HİZMETLERİ EĞİTİM DANIŞMANLIK TİCARET A.Ş.
Büyükesat Mh. Kaptanpaşa Sk. No: 2/1-2 06700 G.O.P. - ANKARA
Tel: 0312. 447 29 99 Faks: 0312. 447 86 66 • www.duzennorwest.com.tr

TÜRKAK
AB-0175 T
DÇ-20061
09.02.2017

ANALİZ RAPORU

ÖRNEK : 17,0164 KODLU YÜZEY SUYU NUMUNESİ(*) (KİMYASAL ANALİZ)

MÜŞTERİ BİLGİLERİ			
Rapor No :	DÇ-20061	Rapor Tarihi :	09.02.2017
Müşteri Adı :	ENCON LABORATUVARI A.Ş.	Müşteri Adresi :	REŞİT GALİP CADDESİ, NO:120 G.O.P. ÇANKAYA/ANKARA
İlgili Kişi :		Tel / Fax :	(0312) 447 71 22 / (0312) 447 69 88

Kayıt No	Ambalaj	Alındığı Tarih	Alındığı Yer	Geliş Tarihi	Analiz Tarihi	Bitiş Tarihi
DÇ-20061	AMBER CAM ŞİŞE x 1	26.01.2017	-	28.01.2017	26.01.2017	09.02.2017

17.0164 KODLU YÜZEY SUYU NUMUNESİ ilgili kişi tarafından gönderilmiş ve İS. KORUMALI olarak saat 11.38'de laboratuvara ulaştırılmıştır. Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır.

(*) Numune tanımı müşteri beyanı esas alınarak yapılmıştır.

PARAMETRE	BİRİM	ANALİZ SONUCU
Sülfür (S)	µg/L	< 2 (1)

(1) MDL, Metod Dedeksiyon Limiti

Kalite Yöneticisi	Sorumlu ve Teknik Yönetici Yrd.
ECE KIZILKAYA	KORAY TEMEL

DÜZEN - NORWEST ÇEVRE GIDA VE VETERİNER SAĞLIK HİZM. EĞT. DAN. TİC. A.Ş. Büyükesat Mah. Kaptanpaşa Sk. No: 2/1-2 06700 G.O.P. ANKARA Çankaya V.D. 323 013 8517 Tic. Sic. No: 151830 Mersis No: 0323013851700014

KYF 510-1

AB-0175-T
DÇ-20061
09.02.2017

ANALİZ RAPORU

ÖRNEK : 17.0164 KODLU YÜZEY SUYU NUMUNESİ(*) (KİMYASAL ANALİZ)
RAPOR NO: DÇ-20061

Kullanılan Metodlar:

Parametre	Metod	Referans
Sülfür (S)	Ion Chromatography Metod	Journal of Chromatography A 1023 (2004) 105-112

NOT:	1. Test sonuçları sadece test edilen numuneler ile ilgilidir. 2. Rapor laboratuvarın izni olmadan kısmi olarak çoğaltılamaz, kullanılamaz
Analizin Yapıldığı Yer:	Adres: Duzen Norwest Laboratuvarı Buyukesat Mah. Kaplanpasa Sok. No:2/2-4 Gaziosmanpaşa / ANKARA E-mail: duzennorwest@duzen.com.tr

Taşeron Laboratuvar:	Bu testler için taşeron laboratuvar kullanılmamıştır.

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0168-T

AB-0168-T
LR.17.0165
27.02.2017

ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	27.02.2017 / LR.17.0165	**NUMUNE KAYIT NO**	NUM.17.0155
NUMUNE ALINAN YER	Kuzey Marmara Otoyol Projesi	**NUMUNE TÜRÜ / NUMUNE İŞARETİ**	Yüzey Suyu S2-1 Boyalık(KM:44+900)
NUMUNE ALMA ŞEKLİ / YÖNTEMİ	Anlık Numune	**NUMUNEYİ ALAN**	Uğur Şahin
NUMUNEYE UYGULANAN İŞLEMLER / GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma+H_2SO_4; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma+HCl, 100.0 mL, Mühürlü, Plastik Şişe, Soğuk Koruma+HCl, 100.0 mL, Mühürlü, Plastik Şişe, Soğuk koruma+HNO3, 500.0 mL, Mühürlü, Cam Şişe, Soğuk Koruma+Çinko Asetat Korumalı	**NUMUNE ALMA / KABUL TARİHİ**	27.01.2017 28.01.2017
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	Açık	**ANALİZİN YAPILDIĞI TARİH**	27.01.2017 - 27.02.2017

Yüzey Suyu numunesi ENCON personeli tarafından ENC-LABPR-NUM-13 Nolu Numune Alma Prosedürü 'ne göre alınmıştır.

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.

-(**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş. Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eğ. San. A.Ş.

Adres: Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 **Fax: 0 312 447 69 86** **www.enconlab.com.tr**

ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

TÜRKAK
TS EN ISO/IEC 17025
AB-0156-T
27.02.2017

		TABLO ADI / SINIR DEĞER Yerüstü Su Kalitesi Yönetmeliği TABLO 2					
Parametreler	**Birim**	**I**	**II**	**III**	**IV**	**Analiz Sonucu**	**Metotlar**
Amonyum Azotu (NH_4-N)	mg/L	<0.2	1.0	2.0	>2.0	0.65	S.M. 4500-NH3 B S.M. 4500-NH3 C
Biyolojik Oksijen İhtiyacı	mg/L	<4.0	8.0	20.0	>20.0	4.52	S.M. 5210- B
Çözünmüş oksijen	mg/L	>8.0	6.0	3.0	<3.0	12.84	S.M. 4500-O_G
Florür	µg/L	≤1000.0	1500.0	2000.0	>2000.0	120.5	S.M. 4110-B
İletkenlik	µS/cm	<400.0	1000.0	3000.0	>3000.0	500.0	S.M. 2510_B
Kimyasal Oksijen İhtiyacı	mg/L	<25.0	50.0	70.0	>70.0	12.60	SM 5220 B
Mangan	µg/L	≤100.0	500.0	3000.0	>3000.0	58.51	EPA 6020 B
Nitrat Azotu	mg/L	<3.0	10.0	20.0	>20.0	3.405	EPA Metot 352.1
Orto Fosfat Fosforu	mg/L	<0.05	0.16	0.65	>0.65	0.179	S.M. 4500-P B S.M. 4500 P-E
pH	---	6.0-9.0	6.0-9.0	6.0-9.0	6.0-9.0	8.62	S.M. 4500-H+B
Renk	m^{-1}	RES 436 nm ≤1.5 RES 525 nm ≤1.2 RES 620 nm ≤0.8	RES 436 nm 3.0 RES 525 nm 2.4 RES 620 nm 1.7	RES 436 nm 4.3 RES 525 nm 3.7 RES 620 nm 2.5	RES 436 nm >4.3 RES 525 nm >3.7 RES 620 nm >2.5	1.18 0.88 0.5	TS EN ISO 7887 B
Selenyum	µg/L	≤10.0	15.0	20.0	>20.0	<10.0	EPA 6020 B
Sülfür (S^{-2}) (*)	µg/L	≤2.0	5.0	10.0	>10.0	<2.00	Journal of Chromatography A, 1023 (2004) 105-112
Toplam Azot	mg/L	<3.5	11.5	25.0	>25.0	5.561	EPA Metod:352.1 S.M. 4500-NO2-B S.M. 4500-Norg-B
Toplam Fosfor	mg/L	<0.08	0.2	0.8	>0.8	0.195	S.M. 4500-P B S.M. 4500 P-F
Toplam Kjeldahl Azotu	mg/L	<0.5	1.5	5.0	>5.0	2.156	SM 4500-Norg B
Yağ Gres (**)	mg/L	<0.2	0.3	0.5	>0.5	0.3	ALS Laboratory Methos

KONTROL EDEN:
ADI / SOYADI: Hakan Yılmaz
İMZA:
TARİH: 27.04.2017

ONAYLAYAN:
ADI / SOYADI: Hüseyin Tekin
İMZA / KAŞE:
TARİH: 27 Nis. 2017

ENCON LABORATUVARI A.Ş.

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ilan ve reklam amaçlı tamamen veya kısmen çoğaltılamaz, saklı yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Mun. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş. Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eğ. Dan. A.Ş.

Adres: Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 **Fax: 0 312 447 49 84** www.enconlab.com.tr

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI

ARTAL-17.01.0500
01.17
02.17

ANALİZ RAPORU

Mehmet Akif Mah. Elalmış Cad. Tarık Buğra Sok. No: 15 - Ümraniye / İSTANBUL
Tel: 0216 499 0 249 (Pbx) Faks: 0216 499 28 68
www.artekcevre.com.tr

Rapor No / Tarihi	ARTAL.17.01.0500/17.02.2017		
Talep Eden	ENCON LABORATUVARI A.Ş.		
Talep Edenin Adresi	Reşit Galip Caddesi No:120 GOP/ANKARA		
Örnek Kayıt No	AL.17.01.0500		
Örnek / Durum	Atık Su / Sıvı	Örneğin Alındığı Yer	NUM 17.0165
Örneği Alan	Encon	Örnek Alınma Tarihi	26.01.2017 - 09.00
Örneğin Alınma Şekli	-	Örneğe Uyg.İşlemler	Soğuk Zincir-Kimyasal Koruma
Örneğin Getirilişi	Kargo İle Teslim	Lab.Kabul Tarihi	31.01.2017 - 15.25
Örnek Sayısı/Ambalajı	1 Adet / 1000 mL / Cam şişe	Analiz Tarihi	31.01.2017 - 10.02.2017

ENCON LABORATUVARI A.Ş. tarafından alınarak kargo ile laboratuvarımıza ulaştırılan NUM 17.0165 kodlu atık su numunesine ilişkin analiz sonuçları, analiz metotları ile birlikte aşağıda sunulmuştur.

Metot No: Tarih	Metot Adı
ALS Laboratory Method	ALS Laboratory Method

ARTEK MÜHENDİSLİK ÇEVRE ÖLÇ. VE DAN. HİZ. TİC. A.Ş.

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI

ANALİZ RAPORU

ART A. - 17.01.0500
01.17
02.17

Firma Adı : ENCON LABORATUVARI A.Ş.
Rapor No/Tarihi: ART AL 17 01 0500/17.02.2017

Yapılan Analizler	Analiz Sonucu	Analiz Metodu
Yağ ve Gres (mg/L)	0.3	ALS Laboratory Method

Açıklamalar : Bu rapor 2 (iki) nüsha halinde hazırlanıp, müşteriye gönderilmiştir. Bu rapor laboratuvarımız tarafından elektronik ortamda arşivlenmektedir.
Tüm parametrelerin analizi ALS Laboratory Group tarafından gerçekleştirilmiştir.

Sorumlu İmzalar: Özlem GÜLER
Laboratuvar Birim Yöneticisi

Melahat AYDIN
Laboratuvar Müdürü

ARTEK MÜHENDİSLİK
ÇEVRE ÖLÇÜM VE DAN. HİZ. TİC. A.Ş.

İmzasız ve kaşesiz raporlar geçersizdir. Raporda yer alan sonuçlar sadece incelenen numuneye aittir. Analiz yapılan numunede, numunenin alındığı [illegible] laboratuvarımıza teslimine kadar olan prosedürlerin ve bunların [illegible] teknik ve hukuki sorumluluk numuneyi, örneklemeyi alana aittir. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz. Bu rapor laboratuvarımızın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.

DÜZEN NORWEST
ÇEVRE, GIDA VE VETERİNER SAĞLIK HİZMETLERİ EĞİTİM DANIŞMANLIK TİCARET A.Ş.
Büyükesat Mh. Kaptanpaşa Sk. No. 2/1-2 06700 G.O.P. - ANKARA
Tel: 0312 447 29 99 Faks: 0312 447 66 66 www.duzennorwest.com.tr

TÜRKAK
AB-0375-T
DÇ-20062
09.02.2017

ANALİZ RAPORU

ÖRNEK : 17.0165 KODLU YÜZEY SUYU NUMUNESİ(*) (KİMYASAL ANALİZ)

MÜŞTERİ BİLGİLERİ			
Rapor No :	DÇ-20062	Rapor Tarihi :	09.02.2017
Müşteri Adı :	ENCON LABORATUVARI A.Ş.	Müşteri Adresi :	REŞİT GALİP CADDESİ, NO:120 G.O.P. ÇANKAYA/ANKARA
İlgili Kişi :		Tel / Fax :	(0312) 447 71 22 / (0312) 447 69 88

NUMUNE BİLGİLERİ						
Kayıt No	Ambalaj	Alındığı Tarih	Alındığı Yer	Geliş Tarihi	Analiz Tarihi	Bitiş Tarihi
DÇ 20062	AMBER CAM ŞİŞE x 1	28.01.2017	-	28.01.2017	28.01.2017	09.02.2017

17.0165 KODLU YÜZEY SUYU NUMUNESİ; ilgili kişi tarafından örneklendirilmiş ve ISI KORUMALI olarak saat 11:38'de laboratuvara ulaştırılmıştır. Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır.

(*) Numune tanımı müşteri beyanı esas alınarak yapılmıştır.

PARAMETRE	BİRİM	ANALİZ SONUCU
Sülfür (S)	µg/L	< 2 (1)

(1) MDL, Metod Dedeksiyon Limit

Kalite Yöneticisi	Sorumlu ve Teknik Yönetici Yrd.
ECE KIZILKAYA	KORAY TEMEL

DÜZEN - NORWEST ÇEVRE GIDA VE VETERİNER SAĞLIK HİZMETLERİ EĞT. DAN. TİC. A.Ş. Büyükesat Mh. Kaptanpaşa Sk. No: 2/1-2-4 06700 Kavaklıdere/ANKARA Çankaya V.D. 313 0517 Tic. Sic. No: 151930 Mersis No: 0313013051700014

KYF 510-1

Bu rapor toplam 2 sayfadan oluşmuştur.

AB-0375-T
DÇ-20062
09.02.2017

ANALİZ RAPORU

ÖRNEK : 17.0165 KODLU YÜZEY SUYU NUMUNESİ(*) (KİMYASAL ANALİZ)
RAPOR NO: DÇ-20062

Kullanılan Metodlar:

Parametre	Metod	Referans
Sülfür (S)	Ion Chromatography Method	Journal of Chromatography A, 1023 (2004) 105-112

NOT:	1. Test sonuçları sadece test edilen numuneler ile ilgilidir. 2. Rapor laboratuvarın izni olmadan kısmi olarak çoğaltılamaz, kullanılamaz
Analizin Yapıldığı Yer:	Adres: Düzen Norwest Laboratuvarı, Büyükesat Mah. Kaptanpaşa Sok. No:2/2-4 Gaziosmanpaşa / ANKARA E-mail: duzennorwest@duzen.com.tr

Taşeron Laboratuvar:	Bu testler için taşeron laboratuvar kullanılmamıştır.

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0[illegible]-T

AB-0168-T
LR.17.0166
27.02.2017

ENCON LABORATUVARI A.Ş.

ANALİZ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:126 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	27.02.2017 / LR.17.0166	**NUMUNE KAYIT NO**	NUM.17.0166
NUMUNE ALINAN YER	Kuzey Marmara Otoyol Projesi	**NUMUNE TÜRÜ / NUMUNE İŞARETİ**	Yüzey Suyu S2.2 Tayakadır (KM 46+500)
NUMUNE ALMA ŞEKLİ / YÖNTEMİ	Anlık Numune	**NUMUNEYİ ALAN**	Uğur Şahin
NUMUNEYE UYGULANAN İŞLEMLER / GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma+H_2SO_4; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma+HCl; 100.0 mL, Mühürlü, Plastik Şişe, Soğuk Koruma+HCl; 100.0 mL, Mühürlü, Plastik Şişe, Soğuk Koruma+HNO3; 500.0 mL, Mühürlü, Cam Şişe, Soğuk Koruma+Çinko Asetat Korumalı	**NUMUNE ALMA / KABUL TARİHİ**	27.01.2017 28.01.2017
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	Açık	**ANALİZİN YAPILDIĞI TARİH**	27.01.2017 - 22.02.2017

Yüzey Suyu numunesi ENCON personeli tarafından ENC-LABPR-NUM-13 Nolu Numune Alma Prosedürü 'ne göre alınmıştır.

Açıklamalar: Müşteri talebi üzerine özel atık numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı, tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş. Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eğt. Ürt. A.Ş.

Adres: Reşit Galip Caddesi No:126 Gaziosmanpaşa/ANKARA

Tel: 0 312 447 71 22 **Fax: 0 312 447 [illegible]** **www.enconlab.com.tr**

TÜRKAK
AB-0168-T
LR.17 0166
27.02.2017

ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

Parametreler	Birim	TABLO ADI / SINIR DEĞER Yerüstü Su Kalitesi Yönetmeliği TABLO 2				Analiz Sonucu	Metotlar
		I	II	III	IV		
Amonyum Azotu (NH_4-N)	mg/L	<0.2	1.0	2.0	>2.0	<0.2	S.M. 4500-NH3 B S.M. 4500-NH3 C
Biyolojik Oksijen İhtiyacı	mg/L	<4.0	8.0	20.0	>20.0	4.80	S.M. 5210- B
Çözünmüş oksijen	mg/L	>8.0	6.0	3.0	<3.0	12.64	S.M. 4500-O_G
Florür	µg/L	≤1000.0	1500.0	2000.0	>2000.0	131.4	S.M. 4110-B
İletkenlik	µS/cm	<400.0	1000.0	3000.0	>3000.0	650.0	S.M. 2510_B
Kimyasal Oksijen İhtiyacı	mg/l	<25.0	50.0	70.0	>70.0	13.20	SM 5220 B
Mangan	µg/L	≤100.0	500.0	3000.0	>3000.0	30.51	EPA 6020 B
Nitrat Azotu	mg/L	<3.0	10.0	20.0	>20.0	5.53	EPA Metot 352.1
Orto Fosfat Fosforu	mg/l	<0.05	0.16	0.65	>0.65	0.14	S.M. 4500-P B S.M. 4500 P-E
pH	—	6.0-9.0	6.0-9.0	6.0-9.0	6.0-9.0	8.69	S.M. 4500-H+B
Renk	m^{-1}	RES 436 nm:≤1.5 RES 525 nm: ≤1.2 RES 620 nm: ≤0.8	RES 436 nm:3.0 RES 525 nm:2.4 RES 620 nm:1.7	RES 436 nm:4.3 RES 525 nm:3.7 RES 620 nm:2.5	RES 436 nm:>4.3 RES 525 nm: >3.7 RES 620 nm: >2.5	0.86 0.42 0.26	TS EN ISO 7887 B
Selenyum	µg/l	<10.0	15.0	20.0	>20.0	<10.0	EPA 6020 B
Sülfür (S^{-2}) (*)	µg/L	≤2.0	5.0	10.0	>10.0	<2.00	Journal of Chromatography A 1023 (2004) 105-112
Toplam Azot	mg/L	<3.5	11.5	25.0	>25.0	8.525	EPA Metod:352.1 S.M. 4500-NO2-B S.M. 4500-Norg-B
Toplam Fosfor	mg/L	<0.08	0.2	0.8	>0.8	0.166	S.M. 4500-P B S.M. 4500 P E
Toplam Kjeldahl Azotu	mg/L	<0.5	1.5	5.0	>5.0	2.996	SM 4500-Norg B
Yağ Gres (**)	mg/L	<0.2	0.3	0.5	>0.5	0.25	ALS Laboratory Method

KONTROL EDEN:
ADI / SOYADI: Hakan Yılmaz
İMZA:
TARİH: 27 Şubat 2017

ONAYLAYAN:
ADI / SOYADI: Dilşeyla Tekin
İMZA / KAŞE: encon ENCON LABORATUVARI A.Ş.
TARİH: 27 Şubat 2017

Açıklamalar: Müşteri talebi üzerine özel izleme numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş. Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eğ. Dan. A.Ş.

Adres: Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 **Fax: 0 312 447 88 48** **www.enconlab.com.tr**

LABORATUVAR SONUÇ RAPORU FORMU			
Doküman No	**İlk Yayın Tarihi**	**Revizyon No / Tarih:**	**Sayfa**
ENC.P.14.F.01.A	04.05.2007	15 / 31.08.2014	2 / 2

ART.AL-17.01.0499
01.17
02.17

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI

ANALİZ RAPORU

Mehmet Akif Mah. Elalmış Cad. Tarık Buğra Sok. No: 15 - Ümraniye / İSTANBUL
Tel: 0216 499 0 249 (Pbx) Faks: 0216 499 28 68
www.artekcevre.com.tr

Rapor No / Tarihi	ART.AL 17.01.0498/17.02.2017		
Talep Eden	ENCON LABORATUVARI A.Ş.		
Talep Edenin Adresi	Reşit Galip Caddesi No:120 GOP/ANKARA		
Örnek Kayıt No	AL 17.01.0498		
Örnek / Durum	Atık Su / Sıvı	**Örneğin Alındığı Yer**	NUM.17.0166
Örneği Alan	Encon	**Örnek Alınma Tarihi**	28.01.2017 - 09:15
Örneğin Alınma Şekli	-	**Örneğe Uyg.İşlemler**	Soğuk Zincir Kimyasal Koruma
Örneğin Getirilişi	Kargo İle Teslim	**Lab.Kabul Tarihi**	31.01.2017 - 15:25
Örnek Sayısı/Ambalajı	1 Adet / 1000 mL / Cam şişe	**Analiz Tarihi**	31.01.2017 - 10.02.2017

ENCON LABORATUVARI A.Ş. tarafından alınarak kargo ile laboratuvarımıza ulaştırılan NUM.17.0166 kodlu atık su numunesine ilişkin analiz sonuçları, analiz metotları ile birlikte aşağıda sunulmuştur.

Metot No: Tarih	Metot Adı
ALS Laboratory Method	ALS Laboratory Method

ARTEK MÜHENDİSLİK
ÇEVRE ÖLÇÜM VE DAN. HİZ. TİC. A.Ş.

ART.AL-
17.01.0498

01.17
02.17

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI
ANALİZ RAPORU

Firma Adı : ENCON LABORATUVARI A.Ş
Rapor No/Tarihi : ART.AL.17.01.0498/17.02.2017

Yapılan Analizler	Analiz Sonucu	Analiz Metodu
Yağ ve Gres (mg/L)	0,25	ALS Laboratory Method

Açıklamalar : Bu rapor 2 (iki) nüsha halinde hazırlanıp, müşteriye gönderilmiştir. Bu rapor laboratuvarımız tarafından elektronik ortamda arşivlenmektedir.
Tüm parametrelerin analizi ALS Laboratory Group tarafından gerçekleştirilmiştir.

Sorumlu İmzalar:

Çiğdem GÜLER
Laboratuvar Birim Yöneticisi

Melahat AYDIN
Laboratuvar Müdürü

ARTEK MÜHENDİSLİK
ÇEVRE ÖLÇÜM VE DAN.HİZ.TİC.A.Ş

DÜZEN NORWEST

ÇEVRE, GIDA VE VETERİNER SAĞLIK HİZMETLERİ EĞİTİM DANIŞMANLIK TİCARET A.Ş.

Büyükesat Mh. Kaplanpaşa Sk. No: 2/1-2 06700 G.O.P. - ANKARA

Tel: 0312. 447 29 90 Faks: 0312. 447 86 66 - www.duzennorwest.com.tr

TÜRKAK

AB-0375-T
DÇ-20063
09.02.2017

ANALİZ RAPORU

ÖRNEK : 17.0166 KODLU YÜZEY SUYU NUMUNESİ(*) (KİMYASAL ANALİZ)

MÜŞTERİ BİLGİLERİ			
Rapor No :	DÇ-20063	Rapor Tarihi :	09.02.2017
Müşteri Adı :	ENCON LABORATUVARI A.Ş.	Müşteri Adresi :	REŞİT GALİP CADDESİ NO: 120 G.O.P. ÇANKAYA/ANKARA
İlgili Kişi :		Tel / Fax :	(0312) 447 71 22 / (0312) 447 69 88

NUMUNE BİLGİLERİ						
Kayıt No	Ambalaj	Alındığı Tarih	Alındığı Yer	Geliş Tarihi	Analiz Tarihi	Bitiş Tarihi
DÇ 20063	AMBER CAM ŞİŞE x 1	28.01.2017	-	28.01.2017	28.01.2017	09.02.2017

17.0166 KODLU YÜZEY SUYU NUMUNESİ; ilgili kişi tarafından örneklendirilmiş ve ISI KORUMALI olarak saat 11:38'de laboratuvara ulaştırılmıştır. Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır.

(*) Numune tanımı müşteri beyanı esas alınarak yapılmıştır.

PARAMETRE	BİRİM	ANALİZ SONUCU
Sülfür (S)	µg/L	< 2 (1)

(1) MDL, Metod Dedeksiyon Limiti

Kalite Yöneticisi	Sorumlu ve Teknik Yönetici Yrd.
ECE KIZILKAYA	KORAY TEMEL

DÜZEN - NORWEST ÇEVRE GIDA VE VETERİNER SAĞLIK HİZMETLERİ EĞT. DAN. TİC. A.Ş.

KYF 510-1

ANALİZ RAPORU

ÖRNEK : 17.0166 KODLU YÜZEY SUYU NUMUNESİ(*) (KİMYASAL ANALİZ)

RAPOR NO: DÇ-20063

Kullanılan Metodlar;

Parametre	Metod	Referans
Sulfur (S)	Ion Chromatography Method	Journal of Chromatography A, 1023 (2004) 105-112

NOT:	1. Test sonuçları sadece test edilen numuneler ile ilgilidir 2. Rapor laboratuvarın izni olmadan kısmi olarak çoğaltılamaz, kullanılamaz.
Analizin Yapıldığı Yer:	Adres: Düzen Norwest Laboratuvarı, Buyukeşat Mah. Kaptanpaşa Sok. No:2/2-4 Gaziosmanpaşa / ANKARA E-mail: duzennorwest@duzen.com.tr

Taşeron Laboratuvar:	Bu testler için taşeron laboratuvar kullanılmamıştır.

WATER QUALITY

(Groundwater)

Türkak
Test
TS EN ISO/IEC 17025
AB-0166-T

AB-0166-T
LR 17.0155
27.02.2017

encon

ENCON LABORATUVARI A.Ş.

ANALİZ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	27.02.2017 / LR.17.0155	**NUMUNE KAYIT NO**	NUV 17.0155
NUMUNE ALINAN YER	Kuzey Marmara Otoyol Projesi,	**NUMUNE TÜRÜ / NUMUNE İŞARETİ**	Yeraltı Suyu GW1-1 Kadıköy (KV 17.1530)
NUMUNE ALMA ŞEKLİ / YÖNTEMİ	Anlık Numune	**NUMUNEYİ ALAN**	Uğur Şahin
NUMUNEYE UYGULANAN İŞLEMLER / GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma+H_2SO_4; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma+HCl; 100.0 mL, Mühürlü, Plastik Şişe, Soğuk Koruma+HCl; 100.0 mL, Mühürlü, Plastik Şişe, Soğuk Koruma+HNO3; 500.0 mL, Mühürlü, Cam Şişe, Soğuk Koruma+Çinko Asetat Koruma	**NUMUNE ALMA / KABUL TARİHİ**	24.01.2017 25.01.2017
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	Kapalı	**ANALİZİN YAPILDIĞI TARİH**	24.01.2017 - 22.02.2017

Yeraltı Suyu numunesi ENCON personeli tarafından ENG-LABPR-NUM-13 Nolu Numune Alma Prosedürü'ne göre alınmıştır.

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatıyla ilişkin resmi işlemlerde kullanılamaz.

- Mühürsüz ve imzasız analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) işaretli parametreler akredite olmayan parametrelerdir.
- (¢) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) işaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş. Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eğ. Dan. A.Ş.

Adres: Reşit Galip Caddesi No. 120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 **Fax: 0 312 447 59 66** **www.enconlab.com.tr**

TÜRKAK
TS EN ISO/IEC 17025
AB-0168-T

AB-0168-T
LR 17.0165
27.02.2017

ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

Parametreler	Birim	TABLO ADI / SINIR DEĞER Yerüstü Su Kalitesi Yönetmeliği TABLO 2 I	II	III	IV	Analiz Sonucu	Metotlar
Amonyum Azotu (NH_4-N)	mg/L	<0.2	1.0	2.0	>2.0	<0.2	S.M. 4500-N-3 B S.M 4500-NH3 C
Biyolojik Oksijen İhtiyacı	mg/L	<4.0	8.0	20.0	>20.0	<3.00	S.M. 5210- B
Çözünmüş oksijen	mg/L	>8.0	6.0	3.0	<3.0	5.17	S.M. 4500 O_G
Florür	µg/L	<1000.0	1500.0	2000.0	>2000.0	98.4	S.M. 4110-B
İletkenlik	µS/cm	<400.0	1000.0	3000.0	>3000.0	1313.0	S.M. 2510_B
Kimyasal Oksijen İhtiyacı	mg/L	<25.0	50.0	70.0	>70.0	<3.00	SM 5220 B
Mangan	µg/L	<100.0	500.0	3000.0	>3000.0	<10.0	EPA 6020 B
Nitrat Azotu	mg/L	<3.0	10.0	20.0	>20.0	53.25	EPA Metot:352.1
Orto Fosfat Fosforu	mg/L	<0.05	0.16	0.65	>0.65	0.184	S.M. 4500-P B S.M. 4500 P-E
pH		6.0-9.0	6.0-9.0	6.0-9.0	6.0-9.0	7.21	S.M. 4500-H+B
Renk	m^{-1}	RES 436 nm ≤1.5 RES 525 nm ≤1.2 RES 620 nm ≤0.8	RES 436 nm 3.0 RES 525 nm 2.4 RES 620 nm 1.7	RES 436 nm 4.3 RES 525 nm 3.7 RES 620 nm 2.5	RES 436 nm >4.3 RES 525 nm >3.7 RES 620 nm >2.5	<0.40 <0.37 0.1	TS EN ISO 7887 B
Selenyum	µg/L	≤10.0	15.0	20.0	>20.0	<10.0	EPA 6020 B
Sülfür (S^{-2}) (**)	µg/L	<2.5	5.0	10.0	>10.0	<2.00	Journal of Chromatography A, 1023 (2004) 105-112
Toplam Azot	mg/L	<3.5	11.5	25.0	>25.0	54.85	EPA Metod.352.1 S.M. 4500-NO2-B S.M. 4500-Norg-B
Toplam Fosfor	mg/L	<0.03	0.2	0.8	>0.8	0.195	S.M. 4500-P B S.M 4500 P-E
Toplam Kjeldahl Azotu	mg/L	<0.5	1.5	5.0	>5.0	1.596	SM 4500-Norg B
Yağ Gres (**)	mg/l	<0.2	0.3	0.5	>0.5	<0.2	ALS Laboratory Method

KONTROL EDEN:
ADI / SOYADI: Hakan Yılmaz
İMZA: 27 Şubat 2017
TARİH:

ONAYLAYAN:
ADI / SOYADI: Hüseyin Tekin
İMZA / KAŞE: encon ENCON LABORATUVARI A.Ş. 27 Şubat 2017
TARİH:

Açıklamalar: Müşteri talebi üzerine özel tatbik numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan tıcarı ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (o) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Arlab Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş. (Dizer-Acmed) Çevre, Gıda ve Vet. Sağ. Hiz. Eğ. Dan. A.Ş.

Adres: Raşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
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ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI

ART.AL 17.01.0496
01.17
02.17

ANALİZ RAPORU

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Tel: 0216 499 0 249 (Pbx) Faks: 0216 499 28 68
www.artekcevre.com.tr

Rapor No / Tarihi	ART.AL.17.01.0496/17.02.2017		
Talep Eden	ENCON LABORATUVAR A.Ş.		
Talep Edenin Adresi	Reşit Galip Caddesi No:120 GOP/ANKARA		
Örnek Kayıt No	AL 17.01.0496		
Örnek / Durum	Atık Su / Sıvı	Örneğin Alındığı Yer	NUM.17.0155
Örneği Alan	Encon	Örnek Alınma Tarihi	25.01.2017 - 09.00
Örneğin Alınma Şekli	-	Örneğe Uyg.İşlemler	Soğuk Zincir-Kimyasal Koruma
Örneğin Getirilişi	Kargo İle Teslim	Lab.Kabul Tarihi	31.01.2017 - 15:25
Örnek Sayısı/Ambalajı	1 Adet / 1000 mL / Cam şişe	Analiz Tarihi	31.01.2017 - 10.02.2017

ENCON LABORATUVARI A.Ş. tarafından alınarak kargo ile laboratuvarımıza ulaştırılan NUM.17.0155 kodlu atık su numunesine ilişkin analiz sonuçları, analiz metotları ile birlikte aşağıda sunulmuştur.

Metot No: Tarih	Metot Adı
ALS Laboratory Method	ALS Laboratory Method

ARTEK MÜHENDİSLİK ÇEVRE ÖLÇÜM VE DAN. HİZ. TİC. A.Ş.

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI
ANALİZ RAPORU

ART.AL-17.01.0495
01.17
02.17

Firma Adı : ENCON LABORATUVARI A.Ş.
Rapor No/Tarihi : ART.AL.17.01.0495/17.02.2017

Yapılan Analizler	Analiz Sonucu	Analiz Metodu
Yağ ve Gres (mg/L)	<0.2	ALS Laboratory Method

Açıklamalar : Bu rapor 2 (iki) nüsha halinde hazırlanıp, müşteriye gönderilmiştir. Bu rapor laboratuvarımız tarafından elektronik ortamda arşivlenmektedir.
Tüm parametrelerin analizi ALS Laboratory Group tarafından gerçekleştirilmiştir.

Sorumlu İmzalar:

Özlem GÜLER
Laboratuvar Birim Yöneticisi

Melahat AYDIN
Laboratuvar Müdürü

ARTEK MÜHENDİSLİK
ÇEVRE ÖLÇÜM VE DAN. HİZ. TİC. A.Ş

DÜZEN NORWEST
ÇEVRE, GIDA VE VETERİNER SAĞLIK HİZMETLERİ EĞİTİM DANIŞMANLIK TİCARET A.Ş.
Büyükesat Mh. Kaplanpaşa Sk. No. 2/1-2 06700 G.O.P. - ANKARA
Tel: 0312. 447 29 99 Faks: 0312. 447 86 66 • www.duzennorwest.com.tr

TÜRKAK AB-0375-T DÇ-20047 26.01.2017

ANALİZ RAPORU

ÖRNEK : NUM.17.0155 KODLU SU NUMUNESİ (*) (KİMYASAL ANALİZ)

MÜŞTERİ BİLGİLERİ			
Rapor No :	DÇ-20047	Rapor Tarihi :	26.01.2017
Müşteri Adı :	ENCON LABORATUVARI A.Ş.	Müşteri Adresi :	REŞİT GALİP CADDESİ, NO:120 G.O.P. ÇANKAYA/ANKARA
İlgili Kişi :		Tel / Fax :	(0312) 447 71 22 / (0312) 447 69 88

NUMUNE BİLGİLERİ						
Kayıt No	Ambalaj	Alındığı Tarih	Alındığı Yer	Geliş Tarihi	Analiz Tarihi	Bitiş Tarihi
DÇ-20047	AMBER CAM ŞİŞE x 1	25.01.2017	-	25.01.2017	25.01.2017	26.01.2017

NUM.17.0155 KODLU SU NUMUNESİ ; ilgili kişi tarafından örneklendirilmiş ve KORUMASIZ olarak saat 15:35'de laboratuvara ulaştırılmıştır. Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır.

(*) Numune tanımı müşteri beyanı esas alınarak yapılmıştır.

PARAMETRE	BİRİM	ANALİZ SONUCU
Sülfür (S)	µg/L	< 2 (1)

(1) MDL, Metod Dedeksiyon Limiti

Sorumlu ve Teknik Yönetici Yrd.

KORAY TEMEL

DÜZEN NORWEST ÇEVRE GIDA VETERİNER SAĞLIK HİZM. EĞ. DAN. TİC. A.Ş. Büyükesat Mah. Kaplanpaşa Sk. No: 2/1-2 06700 G.O.P. ANKARA Cumhuriyet V.D. 323 015 8317 Tic. Sic. No: 151030 Mersis No: 0323015831700014

AB-0375-T
DÇ-20047
24.01.2017

ANALİZ RAPORU

ÖRNEK : NUM.17.0155 KODLU SU NUMUNESİ (*) (KİMYASAL ANALİZ)

RAPOR NO: DÇ-20047

Kullanılan Metodlar:

Parametre	Metod	Referans
Sülfür (S)	Ion Chromatography Method	Journal of Chromatography A, 1023 (2004) 105-112

NOT:	1. Test sonuçları sadece test edilen numuneler ile ilgilidir. 2. Rapor laboratuvarın izni olmadan kısmi olarak çoğaltılamaz, kullanılamaz.
Analizin Yapıldığı Yer:	Adres: Düzen Norwest Laboratuvarı, Büyükesat Mah. Kaptanpaşa Sok. No:2/2-4 Gaziosmanpaşa / ANKARA E-mail: duzennorwest@duzen.com.tr

Taşeron Laboratuvar:	Bu testler için taşeron laboratuvar kullanılmamıştır.

AIR QUALITY

(PM-10)

TÜRKAK
TS EN ISO/IEC 17025
AB 0168 T

AB 0168-T
No:M.17.0212
21.02.2017

ENCON LABORATUVARI A.Ş.
İMİSYON ÖLÇÜM RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİHİ / NUMARASI	21.02.2017 / LR.17.0212	NUMUNE TÜRÜ	PM10
NUMUNE KAYIT NUMARASI	NUM.17.0212	ÖLÇÜM YÖNTEMİ	Gravimetrik Metot
PROJE ADI / CİHAZ KURULUM NOKTASI	Kuzey Marmara Otoyol Projesi / Küçük Kılıçlı	ÖLÇÜM YAPILDIĞINDA ÇEVRE ŞARTLARI	Kapalı
ÖLÇÜMDE UYGULANACAK STANDART VE KAYNAKLAR	TS EN 12341	DOLU FİLTRENİN LABORATUVARA GELDİĞİ TARİH / SAAT	08.02.2017 12:00
BOŞ FİLTRENİN TARTILDIĞI TARİH	23.01.2017 12:00	DOLU FİLTRENİN TARTILDIĞI TARİH	15.02.2017 12:00
DENEYDE KULLANILACAK CİHAZLAR VE MALZEME BİLGİLERİ	**CİHAZ ADI**	**MARKA / MODEL**	**SERİ NO**
	GC Model Tartım Cihazı	Sartorius/GC	18805603
	PMQ200 Toz Örnekleme Sistemi (PM10)	BGI	2451
	Sıcaklık ve Nem Veri Toplayıcı Cihazı	CEM (DT-172 Model)	9115542

Ölçümün Yapıldığı Yerin Koordinatları	Filtrenin Boş Ağırlığı (g)	Filtrenin Dolu Ağırlığı (g)	Filtrenin Takılma Tarihi	Filtrenin Çıkarılma Tarihi	Geçen Hava Miktarı (m^3)	PM 10 Sonuç ($\mu g/m^3$)
601197-4553947	0.13164	0.13708	24.01.2017	25.01.2017	24.03	18.34

KONTROL EDEN:	**ONAYLAYAN:**
ADI / SOYADI: Hakan Yılmaz	ADI / SOYADI: Hüseyin Tekin
İMZA:	İMZA / KAŞE:
TARİH: 21 Şubat 2017	TARİH: 21 Şubat 2017

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Reşit Galip Cad. No:120 G.O.P. / ANKARA
Tel: (0312) 447 71 22 Fax: (0312) 447 69 88
Çankaya V.D. 336 004 ... Ticaret Sicil No:373057
Mersis No: ... www.enconlab.com.tr

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvar A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayımlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip .... tarafından yapılmıştır.

Adres: Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 **Fax: 0 312 447 69 88** www.enconlab.com.tr

TÜRKAK
TS EN ISO/IEC 17025
AB-0188-T
NUV 17.0204
21.02.2017

ENCON LABORATUVARI A.Ş.
İMİSYON ÖLÇÜM RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	21.02.2017 / LR.17.0204	**NUMUNE TÜRÜ**	PM10
NUMUNE KAYIT NUMARASI	NLM 17.0204	**ÖLÇÜM YÖNTEMİ**	Gravimetrik Metot
PROJE ADI / CİHAZ KURULUM NOKTASI	Kuzey Marmara Otoyol Projesi / Kadıköy	**ÖLÇÜM YAPILDIĞINDA ÇEVRE ŞARTLARI**	Kapalı
ÖLÇÜMDE UYGULANACAK STANDART VE KAYNAKLAR	TS EN 12341	**DOLU FİLTRENİN LABORATUVARA GELDİĞİ TARİH / SAAT**	07.02.2017 12.00
BOŞ FİLTRENİN TARTILDIĞI TARİH	23.01.2017 12.00	**DOLU FİLTRENİN TARTILDIĞI TARİH**	15.02.2017 12.00
DENEYDE KULLANILACAK CİHAZLAR VE MALZEME BİLGİLERİ	**CİHAZ ADI**	**MARKA / MODEL**	**SERİ NO**
	GC Model Tartım Cihazı	Sartorius/GC	18805803
	Sıcaklık ve Nem Veri Toplayıcı Cihaz	CEM (DT-172 Model)	9115542
	PM10 Örnekleme Cihazı	GmbH MVZ/LVS-1	1203-085

Ölçümün Yapıldığı Yerin Koordinatları	Filtrenin Boş Ağırlığı (g)	Filtrenin Dolu Ağırlığı (g)	Filtrenin Takılma Tarihi	Filtrenin Çıkarılma Tarihi	Geçen Hava Miktarı (m^3)	PM 10 Sonuç ($\mu g/m^3$)
614403 4555080	0.12973	0.13067	24.01.2017	25.01.2017	54.55	17.14

KONTROL EDEN:	**ONAYLAYAN:**
ADI / SOYADI: Hakan Yılmaz	**ADI / SOYADI:** Hüseyin Tekin
İMZA:	**İMZA / KAŞE:**
TARİH: 21 Şubat 2017	**TARİH:** 21 Şubat 2017

encon ENCON LABORATUVARI A.Ş.
Reşit Galip Cad. No:120 06700 G.O.P. ANKARA
Tel: (0312) 447 ... Fax: (0312) 447 98 80
www.enconlab.com.tr

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

-İmzasız ve kaşesiz analiz raporları geçersizdir.
-Rapordaki analiz sonuçlar, analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvar A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
-(*) İşaretli parametreler akredite olmayan parametrelerdir.
-(ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
-(**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip ... tarafından yapılmıştır.

Adres: Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 Fax: 0 312 447 98 80 www.enconlab.com.tr

TÜRKAK
AB-0166-T
NUM.17.0211
21.02.2017

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ENCON LABORATUVARI A.Ş.
İMİSYON ÖLÇÜM RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	21.02.2017 / LR.17.0211	NUMUNE TÜRÜ	PM10
NUMUNE KAYIT NUMARASI	NUM.17.0211	ÖLÇÜM YÖNTEMİ	Gravimetrik Metot
PROJE ADI / CİHAZ KURULUM NOKTASI	Kuzey Marmara Otoyol Projesi / Ercegöz	ÖLÇÜM YAPILDIĞINDA ÇEVRE ŞARTLARI	Kapalı
ÖLÇÜMDE UYGULANACAK STANDART VE KAYNAKLAR	TS EN 12341	DOLU FİLTRENİN LABORATUVARA GELDİĞİ TARİH / SAAT	08.02.2017 12.00
BOŞ FİLTRENİN TARTILDIĞI TARİH	23.01.2017 / 12:00	DOLU FİLTRENİN TARTILDIĞI TARİH	15.02.2017 12:00
DENEYDE KULLANILACAK CİHAZLAR VE MALZEME BİLGİLERİ	**CİHAZ ADI**	**MARKA / MODEL**	**SERİ NO**
	PM10 Örnekleme Cihazı	Leckel / LVS3	2798105
	GC Model Tartım Cihazı	Sartorius/GC	18805503
	Sıcaklık ve Nem Veri Toplayıcı Cihaz	CEM (DT-172 Model)	9115542

Ölçümün Yapıldığı Yerin Koordinatları	Filtrenin Boş Ağırlığı (g)	Filtrenin Dolu Ağırlığı (g)	Filtrenin Takılma Tarihi	Filtrenin Çıkarılma Tarihi	Geçen Hava Miktarı (m³)	PM 10 Sonuç (µg/m³)
617695-4559128	0.13042	0.13167	24.01.2017	25.01.2017	53.25	23.47

KONTROL EDEN:	**ONAYLAYAN:**
ADI / SOYADI: Hakan Yılmaz	**ADI / SOYADI:** Hüseyin Tekin
İMZA:	**İMZA / KAŞE:** ENCON LABORATUVARI A.Ş. Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA / ANKARA Tel: (0312) 447 71 22 Fax: (0312) 447 69 89 Cumhuriyet V.D. ... www.enconlab.com.tr
TARİH: 21 Şubat 2017	**TARİH:** 21 Şubat 2017

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

-İmzasız ve kaşesiz analiz raporları geçersizdir.
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvar A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
-(*) İşaretli parametreler akredite olmayan parametrelerdir.
-(ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip .... tarafından yapılmıştır.

TÜRKAK
TS EN ISO/IEC 17025
AB-0158-T
AB-0158-T
NUM.17.0206
21.02.2017

ENCON LABORATUVARI A.Ş.

İMİSYON ÖLÇÜM RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	21.02.2017 / LR.17.0206	NUMUNE TÜRÜ	PM10
NUMUNE KAYIT NUMARASI	NUM.17.0206	ÖLÇÜM YÖNTEMİ	Gravimetrik Metot
PROJE ADI / CİHAZ KURULUM NOKTASI	Kuzey Marmara Otoyol Projesi / İzzettin	ÖLÇÜM YAPILDIĞINDA ÇEVRE ŞARTLARI	Kapalı
ÖLÇÜMDE UYGULANACAK STANDART VE KAYNAKLAR	TS EN 12341	DOLU FİLTRENİN LABORATUVARA GELDİĞİ TARİH / SAAT	07.02.2017 12:00
BOŞ FİLTRENİN TARTILDIĞI TARİH	23.01.2017 12:00	DOLU FİLTRENİN TARTILDIĞI TARİH	15.02.2017 12:00
DENEYDE KULLANILACAK CİHAZLAR VE MALZEME BİLGİLERİ	**CİHAZ ADI**	**MARKA / MODEL**	**SERİ NO**
	GC Model Tartım Cihazı	Sartorius/GC	18805603
	PMG200 Toz Örnekleme Sistem (PM10)	BGI	2451
	Sıcaklık ve Nem Veri Toplayıcı Cihaz	CEM (DT-172 Model)	9115542

Ölçümün Yapıldığı Yerin Koordinatları	Filtrenin Boş Ağırlığı (g)	Filtrenin Dolu Ağırlığı (g)	Filtrenin Takılma Tarihi	Filtrenin Çıkarılma Tarihi	Geçen Hava Miktarı (m³)	PM 10 Sonuç (µg/m³)
625157-4559134	0.13121	0.13145	25.02.2017	26.01.2017	22.28	11.22

KONTROL EDEN:	ONAYLAYAN:
ADI / SOYADI: Hakan Yılmaz	ADI / SOYADI: Hüseyin Tekin
İMZA:	İMZA / KAŞE:
TARİH: 21 Şubat 2017	TARİH: 21 Şubat 2017

ENCON LABORATUVARI A.Ş. Reşit Galip Cad. No:120 G.O.P. / ANKARA Tel: (0312) 447 71 23 Fax: (0312) 447 69 58 Tic. Sic. No 373087 www.enconlab.com.tr

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvar A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip ...... tarafından yapılmıştır.

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İMİSYON ÖLÇÜM RAPORU

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0169-T

AB-0169-T
NUM 17.0210
21.02.2017

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No 120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	21.02.2017 / LR 17.0210	**NUMUNE TÜRÜ**	PM10
NUMUNE KAYIT NUMARASI	NUM.17.0210	**ÖLÇÜM YÖNTEMİ**	Gravimetrik Metot
PROJE ADI / CİHAZ KURULUM NOKTASI	Kuzey Marmara Otoyolu Projesi / Yassıören	**ÖLÇÜM YAPILDIĞINDA ÇEVRE ŞARTLARI**	Açık
ÖLÇÜMDE UYGULANACAK STANDART VE KAYNAKLAR	TS EN 12341	**DOLU FİLTRENİN LABORATUVARA GELDİĞİ TARİH / SAAT**	08.02.2017 12:00
BOŞ FİLTRENİN TARTILDIĞI TARİH	23.01.2017 12:00	**DOLU FİLTRENİN TARTILDIĞI TARİH**	15.02.2017 12:00
DENEYDE KULLANILACAK CİHAZLAR VE MALZEME BİLGİLERİ	**CİHAZ ADI**	**MARKA / MODEL**	**SERİ NO**
	PM10 Örnekleme Cihazı	Leckel / LVS3	2796105
	GC Model Tartım Cihazı	Sartorius/GC	18805803
	Sıcaklık ve Nem Veri Toplayıcı Cihazı	CEV (DT-172 Model)	9115542

Ölçümün Yapıldığı Yerin Koordinatları	Filtrenin Boş Ağırlığı (g)	Filtrenin Dolu Ağırlığı (g)	Filtrenin Takılma Tarihi	Filtrenin Çıkarılma Tarihi	Geçen Hava Miktarı (m^3)	PM 10 Sonuç ($\mu g/m^3$)
633925-4565406	0.13273	0.13344	25.01.2017	26.01.2017	52.90	13.42

KONTROL EDEN:	**ONAYLAYAN:**
ADI / SOYADI: Hakan Yılmaz	**ADI / SOYADI:** Hüseyin Tekin
İMZA:	**İMZA / KAŞE:**
TARİH: 21 Şubat 2017	**TARİH:** 21 Şubat 2017

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Reşit Galip Cad. No: 120 G.O.P. / ANKARA
Tel: (0312) 447 71 22 Fax: (0312) 447 69 58
Çankaya V.D. 334 034 3102 Tic.Sic.No: 277097
Mersis No: 0334-0340-3102-0017 www.enconlab.com.tr

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

-İmzasız ve kaşesiz analiz raporları geçersizdir.
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ilan ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
-(*) İşaretli parametreler akredite olmayan parametrelerdir.
-(ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip ... . tarafından yapılmıştır.

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0156-T
AB-0156-T
NUM 17.0203
30.03.2017

ENCON LABORATUVARI A.Ş.

İMİSYON ÖLÇÜM RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	30.03.2017 / LR 17.0203	NUMUNE TÜRÜ	PM10
NUMUNE KAYIT NUMARASI	NUM.17.0203	ÖLÇÜM YÖNTEMİ	Gravimetrik Metot
PROJE ADI / CİHAZ KURULUM NOKTASI	Kuzey Marmara Otoyol Projesi / Tayakadın	ÖLÇÜM YAPILDIĞINDA ÇEVRE ŞARTLARI	Kapalı
ÖLÇÜMDE UYGULANACAK STANDART VE KAYNAKLAR	TS EN 12341	DOLU FİLTRENİN LABORATUVARA GELDİĞİ TARİH / SAAT	07.02.2017 12:00
BOŞ FİLTRENİN TARTILDIĞI TARİH	23.01.2017 / 12:00	DOLU FİLTRENİN TARTILDIĞI TARİH	15.02.2017 12:00
DENEYDE KULLANILACAK CİHAZLAR VE MALZEME BİLGİLERİ	**CİHAZ ADI**	**MARKA / MODEL**	**SERİ NO**
	PM10 Örnekleme Cihazı	Leckel / LVS3	2735105
	GC Model Tartım Cihaz	Sartorius/GC	18825603
	Sıcaklık ve Nem Veri Toplayıcı Cihazı	CEM (DT 172 Model)	9115542

Ölçümün Yapıldığı Yerin Koordinatları	Filtrenin Boş Ağırlığı (g)	Filtrenin Dolu Ağırlığı (g)	Filtrenin Takılma Tarihi	Filtrenin Çıkarılma Tarihi	Geçen Hava Miktarı (m^3)	PM 10 Sonuç ($\mu g/m^3$)
640933-4568436	0.13120	0.13196	26.01.2017	27.01.2017	51.62	14.72

KONTROL EDEN:	**ONAYLAYAN:**
ADI / SOYADI: Hakan Yılmaz	**ADI / SOYADI:** Hüseyin Tekin
İMZA:	**İMZA / KAŞE:** ENCON LABORATUVARI A.Ş.
TARİH: 30.03.2017	**TARİH:** 30 Mar 2017

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

-İmzasız ve kaşesiz analiz raporları geçersizdir.
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvar A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
-(*) İşaretli parametreler akredite olmayan parametrelerdir.
-(ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip .... tesisinden yapılmıştır.

ENCON LABORATUVARI A.Ş.

İMİSYON ÖLÇÜM RAPORU

TÜRKAK Test TS EN ISO/IEC 17025 AB-0168-T

AB-0168-T
NUM.17.0205
21.02.2017

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	21.02.2017 / LR.17.0205	NUMUNE TÜRÜ	PM10
NUMUNE KAYIT NUMARASI	NUM.17.0205	ÖLÇÜM YÖNTEMİ	Gravimetrik Metot
PROJE ADI / CİHAZ KURULUM NOKTASI	Kuzey Marmara Otoyol Projesi / İhsaniye	ÖLÇÜM YAPILDIĞINDA ÇEVRE ŞARTLARI	Kapalı
ÖLÇÜMDE UYGULANACAK STANDART VE KAYNAKLAR	TS EN 12341	DOLU FİLTRENİN LABORATUVARA GELDİĞİ TARİH / SAAT	07.02.2017 12:00
BOŞ FİLTRENİN TARTILDIĞI TARİH	23.01.2017 12:00	DOLU FİLTRENİN TARTILDIĞI TARİH	15.02.2017 12:00
DENEYDE KULLANILACAK CİHAZLAR VE MALZEME BİLGİLERİ	**CİHAZ ADI**	**MARKA / MODEL**	**SERİ NO**
	GC Model Tartım Cihazı	Sartorius/GC	18805603
	Sıcaklık ve Nem Veri Toplayıcı Cihazı	CEM / DT-172 Model	9115542
	PM10 Örnekleme Cihazı	GmbH MCZ/LVS 1	1203-085

Ölçümün Yapıldığı Yerin Koordinatları	Filtrenin Boş Ağırlığı (g)	Filtrenin Dolu Ağırlığı (g)	Filtrenin Takılma Tarihi	Filtrenin Çıkarılma Tarihi	Geçen Hava Miktarı (m³)	PM 10 Sonuç (µg/m³)
651643-4567111	0.13102	0.13217	25.01.2017	27.01.2017	50.96	22.57

KONTROL EDEN:	ONAYLAYAN:
ADI / SOYADI: Hakan Yılmaz	ADI / SOYADI: Hüseyin Tekin
İMZA:	İMZA / KAŞE:
TARİH: 21 Şubat 2017	TARİH: 21 Şubat 2017

ENCON LABORATUVARI A.Ş. Reşit Galip Cad. No:120 G.O.P. ANKARA Tel: (0312) 447 71 22 Fax: (0312) 447 69 88 Çankaya V.D. ... Tic. Sic. No: 273387 Mersis No: ... www.enconlab.com.tr

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

-İmzasız ve kaşesiz analiz raporları geçersizdir.
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvar A.Ş.'nin izni olmadan ticari ve reklam amaçlı, tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
-(*) İşaretli parametreler akredite olmayan parametrelerdir.
-(ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip .... tarafından yapılmıştır.

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Tel: 0 312 447 71 22 **Fax: 0 312 447 69 88** www.enconlab.com.tr

ENCON LABORATUVARI A.Ş.

İMİSYON ÖLÇÜM RAPORU

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0168-T

AB-0168-T
NUM 17.0209
21.02.2017

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	21.02.2017 / LR.17.0209	NUMUNE TÜRÜ	PM10
NUMUNE KAYIT NUMARASI	NUM.17.0209	ÖLÇÜM YÖNTEMİ	Gravimetrik Metot
PROJE ADI / CİHAZ KURULUM NOKTASI	Kuzey Marmara Otoyolu Projesi / Sultangazi-Cebeci	ÖLÇÜM YAPILDIĞINDA ÇEVRE ŞARTLARI	Açık
ÖLÇÜMDE UYGULANACAK STANDART VE KAYNAKLAR	TS EN 12341	DOLU FİLTRENİN LABORATUVARA GELDİĞİ TARİH / SAAT	06.02.2017 12:00
BOŞ FİLTRENİN TARTILDIĞI TARİH	23.01.2017 12:00	DOLU FİLTRENİN TARTILDIĞI TARİH	15.02.2017 12:00
DENEYDE KULLANILACAK CİHAZLAR VE MALZEME BİLGİLERİ	**CİHAZ ADI**	**MARKA / MODEL**	**SERİ NO**
	GC Model Tartım Cihazı	Sartorius/GC	18805603
	Sıcaklık ve Nem Veri Toplayıcı Cihazı	CEM (DT-172 Model)	9115542
	PM10 Örnekleme Cihazı	GmbH MCZ/LVS-1	1203-085

Ölçümün Yapıldığı Yerin Koordinatları	Filtrenin Boş Ağırlığı (g)	Filtrenin Dolu Ağırlığı (g)	Filtrenin Takılma Tarihi	Filtrenin Çıkarılma Tarihi	Geçen Hava Miktarı (m^3)	PM 10 Sonuç ($\mu g/m^3$)
655465-4553549	0.13125	0.13326	27.01.2017	28.01.2017	48.82	41.19

KONTROL EDEN:	ONAYLAYAN:
ADI / SOYADI: Hakan Yılmaz	ADI / SOYADI: Hüseyin Işıkın
İMZA:	İMZA / KAŞE:
TARİH: 21 Şubat 2017	TARİH:

ENCON LABORATUVARI A.Ş.
Reşit Galip Cad. No:120 ÇANKAYA / ANKARA
Tel: (0312) 447 71 32 Fax: (0312) 447 69 68
Dumlupınar V.D. ... Ticaret Sicil No: ...
Mersis No: ... www.enconlab.com.tr

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

-İmzasız ve kaşesiz analiz raporları geçersizdir.
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvar A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
-(*) İşaretli parametreler akredite olmayan parametrelerdir.
-(ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
-(**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip .... tarafından yapılmıştır.

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TS EN ISO/IEC 17025
AB-0166-T
NUM.17.0202
21.02.2017

ENCON LABORATUVARI A.Ş.
İMİSYON ÖLÇÜM RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No.120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	21.02.2017 / LR.17.0202	NUMUNE TÜRÜ	PM10
NUMUNE KAYIT NUMARASI	NUM 17 0202	ÖLÇÜM YÖNTEMİ	Gravimetrik Metot
PROJE ADI / CİHAZ KURULUM NOKTASI	Kuzey Marmara Otoyolu Projesi / Sultangazi Gazi Mahallesi	ÖLÇÜM YAPILDIĞINDA ÇEVRE ŞARTLARI	Yağışlı
ÖLÇÜMDE UYGULANACAK STANDART VE KAYNAKLAR	TS EN 12341	DOLU FİLTRENİN LABORATUVARA GELDİĞİ TARİH / SAAT	07.02.2017 12:00
BOŞ FİLTRENİN TARTILDIĞI TARİH	28.01.2017 12:00	DOLU FİLTRENİN TARTILDIĞI TARİH	15.02.2017 12:00
DENEYDE KULLANILACAK CİHAZLAR VE MALZEME BİLGİLERİ	**CİHAZ ADI**	**MARKA / MODEL**	**SERİ NO**
	PM10 Örnekleme Cihazı	Leckel / LVS3	2796105
	GC Model Tartım Cihazı	Sartorius/GC	18805603
	Sıcaklık ve Nem Veri Toplayıcı Cihazı	CEM (DT 172 Model)	9115542

Ölçümün Yapıldığı Yerin Koordinatları	Filtrenin Boş Ağırlığı (g)	Filtrenin Dolu Ağırlığı (g)	Filtrenin Takılma Tarihi	Filtrenin Çıkarılma Tarihi	Geçen Hava Miktarı (m^3)	PM 10 Sonuç ($\mu g/m^3$)
660885 4551611	0,13032	0,13428	27.02.2017	28.01.2017	36,15	109,42

KONTROL EDEN:	ONAYLAYAN:
ADI / SOYADI: Hakan Yılmaz	ADI / SOYADI: Hüseyin Tekin
İMZA:	İMZA / KAŞE:
TARİH: 21 Şubat 2017	TARİH: 21.02.2017

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www.enconlab.com.tr

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

-İmzasız ve kaşesiz analiz raporları geçersizdir.
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvar A.Ş.'nin izni olmadan ilan ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
-(*) İşaretli parametreler akredite olmayan parametrelerdir.
-(ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip .... tarafından yapılmıştır.

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AIR QUALITY

(Settled Dust)

ENCON LABORATUVARI A.Ş.

ÇÖKEN TOZ RAPORU

TÜRKAK
TS EN ISO/IEC 17025
AB-0158-T
NUM.17.0288
06.03.2017

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No 120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	06.03.2017 / LR.17.0288	NUMUNE TÜRÜ	Çöken Toz
NUMUNE KAYIT NUMARASI	NUM 17.0288	ÖLÇÜM YÖNTEMİ	Gravimetrik Metot
PROJE ADI / CİHAZ KURULUM NOKTASI	Kuzey Marmara Otoyolu Projesi / Kestiköy	ÖLÇÜM YAPILDIĞINDA ÇEVRE ŞARTLARI	Açık
ÖLÇÜMDE UYGULANACAK STANDART VE KAYNAKLAR	**TS 2342**		
DENEYDE KULLANILACAK CİHAZLAR VE MALZEME BİLGİLERİ	**CİHAZ ADI**	**MARKA / MODEL**	**SERİ NO**
	Sıcaklık ve Nem Veri Toplayıcı Cihazı	CEM (DT 172 Model)	9115542
	Çöken Toz Cihazı		-

Ölçümün Yapıldığı Yerin Koordinatları	Ölçüm Başlangıç Tarihi	Ölçüm Bitiş Tarihi	Sonuç ($mg/m^2.gün$)
614395-4555073	24.01.2017	21.02.2017	14.2

KONTROL EDEN:	**ONAYLAYAN:**
ADI / SOYADI: Hakan Yılmaz	**ADI / SOYADI:** Hüseyin Tekin
İMZA: 06 Mart 2017	**İMZA / KAŞE:** 06 Mart 2017
TARİH:	**TARİH:**

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Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

-İmzasız ve kaşesiz analiz raporları geçersizdir.
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvar A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
-(*) İşaretli parametreler akredite olmayan parametrelerdir.
-(ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip .... tarafından yapılmıştır.

TÜRKAK
TS EN ISO IEC 17025
AB-0158-T
AB-0158-T
NUM.17.0259
06.03.2017

ENCON LABORATUVARI A.Ş.
ÇÖKEN TOZ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	06.03.2017 / LR.17.0259	**NUMUNE TÜRÜ**	Çöken Toz
NUMUNE KAYIT NUMARASI	NUM.17.0259	**ÖLÇÜM YÖNTEMİ**	Gravimetrik Metot
PROJE ADI / CİHAZ KURULUM NOKTASI	Kuzey Marmara Otoyolu Projesi / Teyakadın	**ÖLÇÜM YAPILDIĞINDA ÇEVRE ŞARTLARI**	Açık
ÖLÇÜMDE UYGULANACAK STANDART VE KAYNAKLAR	TS 2342		
DENEYDE KULLANILACAK CİHAZLAR VE MALZEME BİLGİLERİ	**CİHAZ ADI**	**MARKA / MODEL**	**SERİ NO**
	Sıcaklık ve Nem Veri Toplayıcı Cihaz	CEM (DT-172 Model)	9115542
	Çöken Toz Cihazı		-

Ölçümün Yapıldığı Yerin Koordinatları	Ölçüm Başlangıç Tarihi	Ölçüm Bitiş Tarihi	Sonuç (mg/m^2.gün)
640939-4569438	24.01.2017	21.02.2017	22.72

KONTROL EDEN:	**ONAYLAYAN:**
ADI / SOYADI: Hakan Yılmaz	**ADI / SOYADI:** Hüseyin Tekin
İMZA: 06 Mart 2017	**İMZA / KAŞE:** 06 Mart 2017
TARİH:	**TARİH:**

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Cumhuriyet V.D. 334 054 3437 Tic.Sic.No:373087
Mersis No: 0334054343700012 www.enconlab.com.tr

Açıklamalar: Musteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

-İmzasız ve kaşesiz analiz raporları geçersizdir.
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvar A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
-(*) İşaretli parametreler akredite olmayan parametrelerdir.
-(ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip .... tarafından yapılmıştır.

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TÜRKAK
TS EN ISO/IEC 17025
AB-0168-T
NUM 17.0290
06.03.2017

ENCON LABORATUVARI A.Ş.

ÇÖKEN TOZ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	06.03.2017 / LR 17.0290	**NUMUNE TURU**	Çöken Toz
NUMUNE KAYIT NUMARASI	NUM 17.0290	**ÖLÇÜM YÖNTEMİ**	Gravimetrik Metot
PROJE ADI / CİHAZ KURULUM NOKTASI	Kuzey Marmara Otoyolu Projesi / Gazi Mah.	**ÖLÇÜM YAPILDIĞINDA ÇEVRE ŞARTLARI**	Açık
ÖLÇÜMDE UYGULANACAK STANDART VE KAYNAKLAR	TS 2342		
DENEYDE KULLANILACAK CİHAZLAR VE MALZEME BİLGİLERİ	**CİHAZ ADI**	**MARKA / MODEL**	**SERİ NO**
	Sıcaklık ve Nem Veri Toplayıcı Cihazı	CEM (DT-172 Model)	9115542
	Çöken Toz Cihazı		-

Ölçümün Yapıldığı Yerin Koordinatları	Ölçüm Başlangıç Tarihi	Ölçüm Bitiş Tarihi	Sonuç (mg/m².gün)
660879 4551511	25.01.2017	21.02.2017	20.48

KONTROL EDEN:
ADI / SOYADI: Hakan Yılmaz
İMZA: 06 Mart 2017
TARİH:

ONAYLAYAN:
ADI / SOYADI: Hüseyin Tekin
İMZA / KAŞE: 06 Mart 2017
TARİH:

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Reşit Galip Cad. No:120 06700 G.O.P. / ANKARA
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Mersis No 0324064343700018 www.enconlab.com.tr

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvar A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip .... tarafından yapılmıştır.

AIR QUALITY

(Heavy Metals in PM-10)

ENCON LABORATUVARI A.Ş

ANALİZ SONUÇ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH/ NUMARASI	06.03.2017/LR.17.0204	**NUMUNE KAYIT NO**	LR.17.0204
NUMUNE ALINAN YER	Kuzey Marmara Otoyolu Projesi/Kadıköy	**NUMUNE TÜRÜ**	PM10
NUMUNE ALMA ŞEKLİ/YÖNTEMİ	**Kompozit** □ **Anlık** x	**NUMUNEYİ ALAN**	M.Eren SEVRAN
NUMUNEYE UYGULANAN İŞLEMLER	-	**NUMUNE ALMA TARİHİ**	24.01.2017
NUMUNENİN GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	-	**NUMUNE KABUL TARİHİ**	07.02.2017
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	**Yağışlı** □ **Kapalı** □ **Açık** x	**ANALİZLERİN YAPILDIĞI TARİH**	03.03.2017

PARAMETRE	BİRİM	ÖLÇÜM/ ANALİZ SONUCU	KULLANILAN METOT
Kurşun	µg/m³.gün	0,0041	TS EN 14902 EPA 6020 B
Kadmiyum	µg/m³.gün	0,0003	TS EN 14902 EPA 6020 B
Talyum	µg/m³.gün	0,0002	TS EN 14902 EPA 6020 B

KONTROL EDEN :	**ONAYLAYAN :**
ADI / SOYADI : Hakan YILMAZ	**ADI / SOYADI :** Hüseyin TEKİN
İMZA : 06 Mart 2017	**İMZA /KAŞE :**
Tarih :	**Tarih :**

encon ENCON LABORATUVARI A.Ş. Reşit Galip Cad. No:120 06700 G.O.P. / ANKARA Tel: (0312) 447 71 22 Fax: (0312) 447 69 88 Kavaklıdere V.D. 334 054 7432 Tic.Sic.No:173087 Mersis No: 0334-0547-4320-0015 www.enconlab.com.tr

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-İmzasız ve Kaşesiz Analiz Raporları geçersizdir.
-Rapordaki analiz sonuçları analiz yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
-(*) işaretli parametreler akredite olmayan parametrelerdir.
-(ç) işaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
-(**) işaretli parametreler ISO 17025 Akreditasyonuna sahip .... Laboratuvarı tarafından yapılmıştır.

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Doküman Adı	LABORATUVAR SONUÇ RAPORU FORMU
Doküman Kodu	ENC.P.14 F.67.C
Revizyon :	*Tarih :* 01.08.2014

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ENCON LABORATUVARI A.Ş
ANALİZ SONUÇ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH/ NUMARASI	06.03.2017/LR.17.0203	**NUMUNE KAYIT NO**	LR 17 0203
NUMUNE ALINAN YER	Kuzey Marmara Otoyolu Projesi/Teyakadın	**NUMUNE TÜRÜ**	PM10
NUMUNE ALMA ŞEKLİ/YÖNTEMİ	Kompozit □ Anlık x	**NUMUNEYİ ALAN**	M. Eren SEVRAN
NUMUNEYE UYGULANAN İŞLEMLER	-	**NUMUNE ALMA TARİHİ**	26.01.2017
NUMUNENİN GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	-	**NUMUNE KABUL TARİHİ**	07.02.2017
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	Yağışlı □ Kapalı Açık x	**ANALİZLERİN YAPILDIĞI TARİH**	03.03.2017

PARAMETRE	BİRİM	ÖLÇÜM/ ANALİZ SONUCU	KULLANILAN METOT
Kurşun	µg/m².gün	0,0023	TS EN 14902 EPA 6020 B
Kadmiyum	µg/m².gün	0,0002	TS EN 14902 EPA 6020 B
Talyum	µg/m².gün	0,0002	TS EN 14902 EPA 6020 B

KONTROL EDEN :	**ONAYLAYAN :**
ADI / SOYADI : Hakan YILMAZ	**ADI / SOYADI :** Hüseyin TEKİN
İMZA : 06 Mart 2017	**İMZA /KAŞE :**
Tarih :	**Tarih :**

encon ENCON LABORATUVARI A.Ş. Reşit Galip Cad. No:120 06700 G.O.P / ANKARA Tel: (0312) 447 71 22 Fax: (0312) 447 69 66 Gaziosmanpaşa V.D. 334 056 7636 Tic.Sic.No 373567 Mersis No: 4282 3556-6338 2579 www.enconlab.com.tr

Açıklamalar : Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

Sayfa 1/1

-İmzasız ve Kaşesiz Analiz Raporları geçersizdir.
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
(*) işaretli parametreler akredite olmayan parametrelerdir.
- (ç) işaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
-** işaretli parametreler ISO 17025 Akreditasyonuna sahip ....Laboratuvarı tarafından yapılmıştır.

Adres: Reşit Galip Caddesi No: 120 Gaziosmanpaşa/ANKARA
Tel. 0 312 447 71 22 Faks: 0 312 447 69 66 www.enconlab.com.tr

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ENCON LABORATUVARI A.Ş
ANALİZ SONUÇ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No 120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH/ NUMARASI	06.03.2017/LR.17.0202	NUMUNE KAYIT NO	LR 17 0202
NUMUNE ALINAN YER	Kuzey Marmara Otoyolu Projesi/Sultangazi Gazi Mahallesi	NUMUNE TÜRÜ	PM10
NUMUNE ALMA ŞEKLİ/YÖNTEMİ	Kompozit □ Anlık x	NUMUNEYİ ALAN	M.Eren SEVRAN
NUMUNEYE UYGULANAN İŞLEMLER	-	NUMUNE ALMA TARİHİ	27.01.2017
NUMUNENİN GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	-	NUMUNE KABUL TARİHİ	07.02.2017
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	Yağışlı □ Kapalı □ Açık x	ANALİZLERİN YAPILDIĞI TARİH	03.03.2017

PARAMETRE	BİRİM	ÖLÇÜM/ ANALİZ SONUCU	KULLANILAN METOT
Kurşun	µg/m².gün	0,0574	TS EN 14902 EPA 6020 B
Kadmiyum	µg/m².gün	0,0017	TS EN 14902 EPA 6020 B
Talyum	µg/m².gün	0,0004	TS EN 14902 EPA 6020 B

KONTROL EDEN : ADI / SOYADI : Hakan YILMAZ İMZA : Tarih : 06 Mart 2017	ONAYLAYAN : ADI / SOYADI : Hüseyin TEKİN İMZA /KAŞE: Tarih : 06 Mart 2017

encon ENCON LABORATUVARI A.Ş. Reşit Galip Cad. No 120 Gaziosmanpaşa G.O.P. / ANKARA Tel: (0312) 447 71 22 Fax: (0312) 447 69 88 Kavaklıdere V.D. 3364 Tic.Sic.No:372051 Mersis No: 0202-9635-3009-0575 www.enconlab.com.tr

Açıklamalar : Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

Adres: Reşit Galip Caddesi No: 120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 Faks: 0 312 447 69 88 www.enconlab.com.tr

Doküman Adı : LABORATUVAR SONUÇ RAPORU FORMU
Doküman Kodu : ENC.P.14.F.67.C
Revizyon : Tarih : 01.08.2014

AIR QUALITY

(Heavy Metals in Settled Dust)

ENCON LABORATUVARI A.Ş
ANALİZ SONUÇ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No.120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİHİ/ NUMARASI	06.03.2017/LR.17.0298/1	NUMUNE KAYIT NO	LR.17.0298/1
NUMUNE ALINAN YER	Kuzey Marmara Otoyolu Projesi/Kadıköy	NUMUNE TÜRÜ	Çöken Toz
NUMUNE ALMA ŞEKLİ/YÖNTEMİ	Kompozit □ Anlık x	NUMUNEYİ ALAN	Mehmet Eren SEVRAN
NUMUNEYE UYGULANAN İŞLEMLER	-	NUMUNE ALMA TARİHİ	24.01.2017
NUMUNENİN GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	-	NUMUNE KABUL TARİHİ	23.02.2017
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	Yağışlı □ Kapalı □ Açık x	ANALİZLERİN YAPILDIĞI TARİH	03.03.2017

PARAMETRE	BİRİM	ÖLÇÜM/ ANALİZ SONUCU	KULLANILAN METOT
Kadmiyum	$\mu g/m^2$.gün	2,4087	EPA 6020 B
Kurşun	$\mu g/m^2$.gün	5,7779	EPA 6020 B
Talyum	$\mu g/m^2$.gün	<0,5071	EPA 6020 B

KONTROL EDEN : ADI / SOYADI : Hakan YILMAZ İMZA : Tarih : 06 Mar 2017	ONAYLAYAN : ADI / SOYADI : Hüseyin TEKİN İMZA /KAŞE : ENCON LABORATUVARI A.Ş. Tarih : 06 Mar 2017

Açıklamalar : Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

-İmzasız ve Kaşesiz Analiz Raporları geçersizdir
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder
-Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) işaretli parametreler akredite olmayan parametrelerdir.
- (ç) işaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
-** işaretli parametreler ISO 17025 Akreditasyonuna sahip ....Laboratuvarı tarafından yapılmıştır.

Adres: Reşit Galip Caddesi No: 120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 Faks: 0 312 447 69 88 www.enconlab.com.tr

Doküman Adı :	LABORATUVAR SONUÇ RAPORU FORMU
Doküman Kodu :	ENC.P.14.F.67.C
Revizyon :	Tarih : 01.08.2014

ENCON LABORATUVARI A.Ş

ANALİZ SONUÇ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH/ NUMARASI	06.03.2017/LR 17 0289/1	**NUMUNE KAYIT NO**	LR 17.0289/1
NUMUNE ALINAN YER	Kuzey Marmara Otoyolu Projesi/Tayakadın	**NUMUNE TÜRÜ**	Çöken Toz
NUMUNE ALMA ŞEKLİ/YÖNTEMİ	**Kompozit** □ **Anlık** x	**NUMUNEYİ ALAN**	Mehmet Eren SEVRAN
NUMUNEYE UYGULANAN İŞLEMLER	-	**NUMUNE ALMA TARİHİ**	23.01.2017
NUMUNENİN GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	-	**NUMUNE KABUL TARİHİ**	23.02.2017
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	Yağışlı □ Kapalı □ Açık x	**ANALİZLERİN YAPILDIĞI TARİH**	03.03.2017

PARAMETRE	BİRİM	ÖLÇÜM/ ANALİZ SONUCU	KULLANILAN METOT
Kadmiyum	$\mu g/m^2$.gün	4,1034	EPA 6020 B
Kurşun	$\mu g/m^2$.gün	4,2109	EPA 6020 B
Talyum	$\mu g/m^2$.gün	<0,5071	EPA 6020 B

KONTROL EDEN :
ADI / SOYADI : Hakan YILMAZ
İMZA : 06 Mart 2017
Tarih :

ONAYLAYAN :
ADI / SOYADI : Hüseyin TEKİN
İMZA /KAŞE : ENCON LABORATUVARI A.Ş.
Tarih :

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

Sayfa 1/1

-İmzasız ve Kaşesiz Analiz Raporları geçersizdir.
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
-(*) işaretli parametreler akredite olunmayan parametrelerdir.
-(ç) işaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
-(**) işaretli parametreler ISO 17025 Akreditasyonuna sahip Laboratuvar tarafından yapılmıştır.

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ENCON LABORATUVARI A.Ş

ANALİZ SONUÇ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şt.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİHİ/ NUMARASI	06.03.2017/LR 17.0290/1	**NUMUNE KAYIT NO**	LR 17 0290/1
NUMUNE ALINAN YER	Kuzey Marmara Otoyolu Projesi/Gazi Mah	**NUMUNE TÜRÜ**	Çöken Toz
NUMUNE ALMA ŞEKLİ/YÖNTEMİ	Kompozit □ Anlık x	**NUMUNEYİ ALAN**	Mehmet Eren SEVRAN
NUMUNEYE UYGULANAN İŞLEMLER	-	**NUMUNE ALMA TARİHİ**	26.01.2017
NUMUNENİN GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	-	**NUMUNE KABUL TARİHİ**	23.02.2017
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	Yağışlı □ Kapalı □ Açık x	**ANALİZLERİN YAPILDIĞI TARİH**	03.03.2017

PARAMETRE	BİRİM	ÖLÇÜM/ ANALİZ SONUCU	KULLANILAN METOT
Kadmiyum	µg/m².gün	1,3453	EPA 6020 B
Kurşun	µg/m².gün	4,9128	EPA 6020 B
Talyum	µg/m².gün	0,5447	EPA 6020 B

KONTROL EDEN :	**ONAYLAYAN :**
ADI / SOYADI : Hakan YILMAZ	**ADI / SOYADI :** Hüseyin TEKİR
İMZA : 06 Mart 2017	**İMZA /KAŞE :** ENCON LABORATUVARI A.Ş. Reşit Galip Cad. No:120 G.O.P. ANKARA Tel: (0312) 447 71 22 Fax: (0312) 447 69 88 Çankaya V.D. Tic. Sic. No: 273087 Mersis No: 0336-0656-3028 www.enconlab.com.tr
Tarih :	**Tarih :**

Açıklamalar : Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

-İmzasız ve Kaşesiz Analiz Raporları geçersizdir.
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) işaretli parametreler akredite olmayan parametrelerdir.
- (ç) işaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
** işaretli parametreler ISO 17025 Akreditasyonuna sahip . . . . . Laboratuvarı tarafından yapılmıştır.

Adres: Reşit Galip Caddesi No: 120 Gaziosmanpaşa/ANKARA
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Doküman Adı : LABORATUVAR SONUÇ RAPORU FORMU
Doküman Kodu : ENC P.14 F 67 C
Revizyon : Tarih : 01.06.2014

AIR QUALITY

(Passive Measurements)

ENCON LABORATUVARI A.Ş

ANALİZ SONUÇ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH/ NUMARASI	20.03.2017/LPR.17.0001	**NUMUNE KAYIT NO**	LPR.17.0001
ÖLÇÜMÜN YAPILDIĞI YER	Kuzey Marmara Otoyolu Projesi/ Kadıköy (A1-2)	**NUMUNE TÜRÜ**	Difüzyon Tüpü
ÖLÇÜMÜN YAPILDIĞI YERİN KOORDİNATLARI	614403 4555080	**NUMUNEYİ ALAN**	Uğur ŞAHİN
TÜPLERİN TAKILMA TARİHİ	23.01.2017	**TÜPLERİN TOPLANMA TARİHİ**	20.02.2017

PARAMETRE		BİRİM	ÖLÇÜM/ ANALİZ SONUCU	KULLANILAN METOT
NO**		µg/m³	3,27	İşletme İçi Metod
NO_2**		µg/m³	12,30	
NO_x**		µg/m³	15,57	
SO_2**		µg/m³	5,09	
VOC	Benzene**	µg/m³	1,9	ISO 16000-6
	Toluene**	µg/m³	1,7	
	Ethylbenzene**	µg/m³	<0,4	
	m/p-Xylene**	µg/m³	0,6	
	o-Xylene**	µg/m³	<0,4	
TPH**	T.Alifatik Hidrokarbonlar EC5-EC6	ng	<5*	
	T.Alifatik Hidrokarbonlar EC6-EC8	ng	<5*	
	T.Alifatik Hidrokarbonlar EC8-EC10	µg/m³	0,5	
	T.Alifatik Hidrokarbonlar EC10-EC12	µg/m³	1,6	
	T.Alifatik Hidrokarbonlar EC12-EC16	µg/m³	7,0	
	T.Alifatik Hidrokarbonlar EC16-EC28	µg/m³	4,0	

Açıklamalar : Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

-İmzasız ve Kaşesiz Analiz Raporları geçersizdir.
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) işaretli parametreler akredite olmayan parametrelerdir.
- (ç) işaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
-** işaretli parametreler ISO 17025 Akreditasyonuna sahip Grodko International Ltd. Laboratuvarı tarafından yapılmıştır.

Adres: Reşit Galip Caddesi No: 120 Gaziosmanpaşa/ANKARA
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ENCON LABORATUVARI A.Ş

ANALİZ SONUÇ RAPORU

PARAMETRE		BİRİM	ÖLÇÜM/ ANALİZ SONUCU	KULLANILAN METOT
TPH**	T.Aromatik Hidrokarbonlar EC5-EC7	µg/m³	1,9	ISO 16000-6
	T.Aromatik Hidrokarbonlar EC7-EC8	µg/m³	1,7	
	T.Aromatik Hidrokarbonlar EC8-EC10	µg/m³	3,2	
	T.Aromatik Hidrokarbonlar EC10-EC12	µg/m³	1,6	
	T.Aromatik Hidrokarbonlar EC12-EC16	ng	<5*	

**Raporlama limiti altındadır.*

KONTROL EDEN :
ADI / SOYADI : Hakan YILMAZ
İMZA :
20 Mart
Tarih :

ONAYLAYAN :
ADI / SOYADI : [illegible] TEKİN
İMZA / KAŞE :
ENCON LABORATUVARI A.Ş.
Tel: (0312) 447 71 22
Cumhuriyet V.D.
Mersis No: 4202-
20 Mart 2014
Tarih :

Açıklamalar : Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

-İmzasız ve Kaşesiz Analiz Raporları geçersizdir.
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) işaretli parametreler akredite olmayan parametrelerdir.
- (ç) işaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
-** işaretli parametreler ISO 17025 Akreditasyonuna sahip Gradko International Ltd. Laboratuvarı tarafından yapılmıştır.

Adres: Reşit Galip Caddesi No: 120 Gaziosmanpaşa/ANKARA
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Doküman Adı : LABORATUVAR SONUÇ RAPORU FORMU
Doküman Kodu : ENC.P.14.F.67.C
Revizyon : *Tarih :* 01.08.2014

ENCON LABORATUVARI A.Ş

ANALİZ SONUÇ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİHİ/ NUMARASI	20.03.2017/LPR.17.0002	**NUMUNE KAYIT NO**	LPR.17.0002
ÖLÇÜMÜN YAPILDIĞI YER	Kuzey Marmara Otoyolu Projesi/ Tayakadın (A2-1)	**NUMUNE TÜRÜ**	Difüzyon Tüpü
ÖLÇÜMÜN YAPILDIĞI YERİN KOORDİNATLARI	640933-4559436	**NUMUNEYİ ALAN**	Uğur ŞAHİN
TÜPLERİN TAKILMA TARİHİ	23.01.2017	**TÜPLERİN TOPLANMA TARİHİ**	20.02.2017

PARAMETRE		BİRİM	ÖLÇÜM/ ANALİZ SONUCU	KULLANILAN METOT
NO**		µg/m³	-*	İşletme İçi Metod
NO_2**		µg/m³	19,85	
NO_x**		µg/m³	10,88	
SO_2**		µg/m³	2,72	
VOC	Benzene**	µg/m³	1,9	ISO 16000-6
	Toluene**	µg/m³	2,7	
	Ethybenzene**	µg/m³	<0,4	
	m/p-Xylene**	µg/m³	0,6	
	o-Xylene**	µg/m³	<0,4	
TPH**	T.Alifatik Hidrokarbonlar EC5-EC6	ng	<5*	
	T.Alifatik Hidrokarbonlar EC6-EC8	ng	<5*	
	T.Alifatik Hidrokarbonlar EC8-EC10	ng	<5*	
	T.Alifatik Hidrokarbonlar EC10-EC12	µg/m³	0,8	
	T.Alifatik Hidrokarbonlar EC12-EC16	µg/m³	1,7	
	T.Alifatik Hidrokarbonlar EC16-EC28	ng	<5*	

NO_2 değeri NO_x değerinden yüksek çıktığı için NO değeri hesaplanamamıştır.

Açıklamalar : Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

-İmzasız ve Kaşesiz Analiz Raporları geçersizdir.
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) işaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
-** İşaretli parametreler ISO 17025 Akreditasyonuna sahip Gradko International Ltd. Laboratuvarı tarafından yapılmıştır.

Adres: Reşit Galip Caddesi No: 120 Gaziosmanpaşa/ANKARA
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Döküman Adı :	LABORATUVAR SONUÇ RAPORU FORMU
Döküman Kodu :	ENC.P 14.F.67.C
Revizyon :	Tarih : 01.08.2014

ENCON LABORATUVARI A.Ş

ANALİZ SONUÇ RAPORU

PARAMETRE		BİRİM	ÖLÇÜM/ ANALİZ SONUCU	KULLANILAN METOT
TPH**	T.Aromatik Hidrokarbonlar EC5-EC7	µg/m³	1,9	ISO 16000-6
	T.Aromatik Hidrokarbonlar EC7-EC8	µg/m³	2,7	
	T.Aromatik Hidrokarbonlar EC8-EC10	µg/m³	1,8	
	T.Aromatik Hidrokarbonlar EC10-EC12	ng	<5*	
	T.Aromatik Hidrokarbonlar EC12-EC16	ng	<5*	

****Raporlama limiti altındadır.***

KONTROL EDEN :
ADI / SOYADI : Hakan YILMAZ
İMZA :
20.11.2017
Tarih :

ONAYLAYAN :
ADI / SOYADI : Hüseyin TEKİN
İMZA /KAŞE :
ENCON LABORATUVARI A.Ş.
Tarih :

Açıklamalar : Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

-İmzasız ve Kaşesiz Analiz Raporları geçersizdir
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) işaretli parametreler akredite olmayan parametrelerdir.
- (ç) işaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
-** işaretli parametreler ISO 17025 Akreditasyonuna sahip Gradko International Ltd. Laboratuvarı tarafından yapılmıştır.

Adres: Reşit Galip Caddesi No: 120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 Faks: 0 312 447 69 38 www.enconlab.com.tr

Doküman Adı : LABORATUVAR SONUÇ RAPORU FORMU
Doküman Kodu : ENC.P.14.F.57.C
Revizyon : Tarih : 01.08.2014

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ENCON LABORATUVARI A.Ş

ANALİZ SONUÇ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No 120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH/ NUMARASI	20.03.2017/LPR.17.0007	NUMUNE KAYIT NO	LPR.17.0007
ÖLÇÜMÜN YAPILDIĞI YER	Kuzey Marmara Otoyolu Projesi/ Sultangazi Gazi Mah (A7-2)	NUMUNE TÜRÜ	Difüzyon Tüpü
ÖLÇÜMÜN YAPILDIĞI YERİN KOORDİNATLARI	660865 4551611	NUMUNEYİ ALAN	Uğur ŞAHİN
TÜPLERİN TAKILMA TARİHİ	23.01.2017	TÜPLERİN TOPLANMA TARİHİ	20.02.2017

PARAMETRE		BİRİM	ÖLÇÜM/ ANALİZ SONUCU	KULLANILAN METOT
NO**		µg/m³	18,49	İşletme İçi Metod
NO_2**		µg/m³	40,52	
NO_x**		µg/m³	59,01	
SO_2**		µg/m³	9,12	
VOC	Benzene**	µg/m³	5,4	ISO 16000-6
	Toluene**	µg/m³	6,8	
	Ethybenzene**	µg/m³	0,6	
	m/p Xylene**	µg/m³	1,7	
	o-Xylene**	µg/m³	0,6	
TPH**	T.Alifatik Hidrokarbonlar EC5-EC6	µg/m³	0,3	
	T.Alifatik Hidrokarbonlar EC6-EC8	ng	<5*	
	T.Alifatik Hidrokarbonlar EC8-EC10	ng	<5*	
	T.Alifatik Hidrokarbonlar EC10-EC12	ng	<5*	
	T.Alifatik Hidrokarbonlar EC12-EC16	µg/m³	2,8	
	T.Alifatik Hidrokarbonlar EC16-EC28	ng	<5*	

Açıklamalar : Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

Adres: Reşit Galip Caddesi No: 120 Gaziosmanpaşa/ANKARA
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ENCON LABORATUVARI A.Ş

ANALİZ SONUÇ RAPORU

PARAMETRE		BİRİM	ÖLÇÜM/ ANALİZ SONUCU	KULLANILAN METOT
TPH**	T.Aromatik Hidrokarbonlar EC5-EC7	$\mu g/m^3$	5,4	ISO 16000-6
	T.Aromatik Hidrokarbonlar EC7-EC8	$\mu g/m^3$	6,8	
	T.Aromatik Hidrokarbonlar EC8-EC10	$\mu g/m^3$	4,2	
	T.Aromatik Hidrokarbonlar EC10-EC12	$\mu g/m^3$	2,0	
	T.Aromatik Hidrokarbonlar EC12-EC15	ng	<5*	

***Raporlama limiti altındadır.**

KONTROL EDEN :
ADI / SOYADI : Hakan YILMAZ
İMZA :
2 0 Mart 2017
Tarih :

ONAYLAYAN :
ADI / SOYADI : Hüseyin TEKİN
İMZA /KAŞE :
ENCON LABORATUVARI A.Ş
2 0 Mart 2017
Tarih :

Açıklamalar : Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

Adres: Reşit Galip Caddesi No: 120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 **Faks: 0 312 447 89 88** www.enconlab.com.tr

Döküman Adı : LABORATUVAR SONUÇ RAPORU FORMU
Döküman Kodu : ENC.P.14.F.67.C
Revizyon : *Tarih* 01.08.2014

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ENCON LABORATUVARI A.Ş.

GÜRÜLTÜ ÖLÇÜM RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH/ NUMARASI	08.03.2017/LGR17 018	**ÖLÇÜMÜ YAPAN**	M.Eren DEVRAN
ÖLÇÜM YAPILAN YER	Kuzey Marmara Otoyolu Projesi/Küçükkılıçlı	**ÖLÇÜMÜN YAPILDIĞI TARİH**	24-25/01/2017
ÖLÇÜM SIRASINDA ÇEVRE ŞARTLARI	Yağışlı ☐ Kapalı x Açık ☐	**ÖLÇÜM NOKTALARININ KOORDİNATLARI**	60''92-4553947

PARAMETRE	BİRİM	ÖLÇÜM/ ANALİZ SONUCU	KULLANILAN METOT
Eşdeğer Gürültü *L_{Eq} Gündüz (07:00-19:00)	dBA	57.0	TS ISO 1996-2
Eşdeğer Gürültü *L_{Eq} Akşam (19:00-23:00)	dBA	57.0	TS ISO 1996-2
Eşdeğer Gürültü *L_{Eq} Gece (23:00-07:00)	dBA	53.0	TS ISO 1996-2

KONTROL EDEN :
ADI / SOYADI : Hakan YILMAZ
İMZA :
0 8 Mart 2017
Tarih :

ONAYLAYAN :
ADI SOYADI :
İMZA / KAŞE :
ENCON LABORATUVARI A.Ş.
Reşit Galip Cad. No:120 06700 G.O.P. ANKARA
Tel: (0312) 447 71 22 Fax: (0312) 447 60 88
Çankaya V.D. 3350 ... Tic.Sic.No 273087
Mersis No: ... www.enconlab.com.tr
Tarih :

Açıklamalar : Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve Kaşesiz Analiz Raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) işaretli parametreler akredite olmayan parametrelerdir.
- (ç) işaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
- (**) işaretli parametreler ISO 17025 Akreditasyonuna sahip . . . tarafından yapılmıştır.

Adres: Reşit Galip Caddesi No: 120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 **Faks: 0 312 447 60 88** www.enconlab.com.tr

LABORATUVAR SONUÇ RAPORU FORMU			
Doküman No ENC.P 14.F.87.D	İlk Yayın Tarihi 04.05.2015	Revizyon No / Tarihi /	Sayfa No 1/1

ENCON LABORATUVARI A.Ş.

GÜRÜLTÜ ÖLÇÜM RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH/ NUMARASI	08.03.2017/ GR17.017	**ÖLÇÜMÜ YAPAN**	M.Eren DEVRAN
ÖLÇÜM YAPILAN YER	Kuzey Marmara Otoyolu Projesi/Kadıköy	**ÖLÇÜMÜN YAPILDIĞI TARİH**	17-18/01/2017
ÖLÇÜM SIRASINDA ÇEVRE ŞARTLARI	Yağışlı □ Kapalı x Açık □	**ÖLÇÜM NOKTALARININ KOORDİNATLARI**	814403-4555080

PARAMETRE	BİRİM	ÖLÇÜM/ ANALİZ SONUCU	KULLANILAN METOT
Eşdeğer Gürültü *L_{eq} Gündüz (07:00-19:00)	dBA	67.5	TS ISO 1996-2
Eşdeğer Gürültü *L_{eq} Akşam (19:00-23:00)	dBA	63.9	TS ISO 1996-2
Eşdeğer Gürültü *L_{eq} Gece (23:00-07:00)	dBA	57.5	TS ISO 1996-2

KONTROL EDEN :	ONAYLAYAN :
ADI / SOYADI : Hakan YILMAZ	ADI /SOYADI : Hüseyin TEKİN
İMZA :	İMZA /KAŞE :
Tarih : 08 Mart 2017	Tarih : 08 Mart 2017

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Reşit Galip Cad. No:120 06700 G.O.P. ANKARA
Tel: (0312) 447 71 22 Faks: (0312) 447 69 88
Cumhuriyet V.D. 334 ... 3437 Tic.Sic.No: 37...
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Açıklamalar : Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

-İmzasız ve Kaşesiz Analiz Raporları geçersizdir.
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) işaretli parametreler akredite olmayan parametrelerdir.
- (ç) işaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
-** işaretli parametreler ISO 17025 Akreditasyonuna sahip .... tarafından yapılmıştır.

Adres: Reşit Galip Caddesi No: 120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 Faks: 0 312 447 69 88 www.enconlab.com.tr

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GÜRÜLTÜ ÖLÇÜM RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No 120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH/ NUMARASI	06.03.2017/LGR17.016	ÖLÇÜMÜ YAPAN	Mehmet DEVRAN
ÖLÇÜM YAPILAN YER	Kuzey Marmara Otoyolu Projesi / Anadolu	ÖLÇÜMÜN YAPILDIĞI TARİH	24-25/01/2017
ÖLÇÜM SIRASINDA ÇEVRE ŞARTLARI	Yağışlı ☐ Kapalı x Açık ☐	ÖLÇÜM NOKTALARININ KOORDİNATLARI	617595 4559178

PARAMETRE	BİRİM	ÖLÇÜM/ ANALİZ SONUCU	KULLANILAN METOT
Eşdeğer Gürültü *L_{Eq} Gündüz (07:00-19:00)	dBA	56.8	TS ISO 1996-2
Eşdeğer Gürültü *L_{Eq} Akşam (19:00-23:00)	dBA	57.1	TS ISO 1996-2
Eşdeğer Gürültü *L_{Eq} Gece (23:00-07:00)	dBA	57.1	TS ISO 1996-2

KONTROL EDEN :	**ONAYLAYAN :**
ADI / SOYADI : Hakan YILMAZ	**ADI /SOYADI :** Hüseyin TEKİN
İMZA :	**İMZA /KAŞE :** ENCON LABORATUVARI A.Ş.
Tarih : 09 Mart 2017	**Tarih :** 09 Mart 2017

Açıklamalar : Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

-İmzasız ve Kaşesiz Analiz Raporları geçersizdir.
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) işaretli parametreler akredite olmayan parametrelerdir.
- (ç) işaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
-** işaretli parametreler ISO 17025 Akreditasyonuna sahip .... tarafından yapılmıştır.

Adres: Reşit Galip Caddesi No: 120 Gaziosmanpaşa/ANKARA
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ENCON LABORATUVARI A.Ş.

GÜRÜLTÜ ÖLÇÜM RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No 120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİHİ/ NUMARASI	06.03.2017/LGR17.018	ÖLÇÜMÜ YAPAN	M.Eren DEVRAN
ÖLÇÜM YAPILAN YER	Kuzey Marmara Otoyolu Projesi/İzzeltin	ÖLÇÜMÜN YAPILDIĞI TARİH	25-26/01/2017
ÖLÇÜM SIRASINDA ÇEVRE ŞARTLARI	Yağışlı □ Kapalı x Açık □	ÖLÇÜM NOKTALARININ KOORDİNATLARI	626157-4559134

PARAMETRE	BİRİM	ÖLÇÜM/ ANALİZ SONUCU	KULLANILAN METOT
Eşdeğer Gürültü *L_{Eq} Gündüz (07:00-19:00)	dBA	61.2	TS ISO 1996-2
Eşdeğer Gürültü *L_{Eq} Akşam (19:00-23.00)	dBA	59.6	TS ISO 1996-2
Eşdeğer Gürültü *L_{Eq} Gece (23:00-07:00)	dBA	53.7	TS ISO 1996-2

KONTROL EDEN :	ONAYLAYAN :
ADI / SOYADI : Hakan YILMAZ	ADI /SOYADI : Hüseyin TEKİN
İMZA :	İMZA/KAŞE :
Tarih : 06 Mart 2017	Tarih : 06 Mart 2017

ENCON LABORATUVARI A.Ş.

Açıklamalar : Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

-İmzasız ve Kaşesiz Analiz Raporları geçersizdir.
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) işaretli parametreler akredite olmayan parametrelerdir.
- (ç) işaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
-** işaretli parametreler ISO 17025 Akreditasyonuna sahip .... taraf ından yapılmıştır.

Adres: Reşit Galip Caddesi No: 120 Gaziosmanpaşa/ANKARA
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ENCON LABORATUVARI A.Ş.

GÜRÜLTÜ ÖLÇÜM RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No 120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH/ NUMARASI	06.03.2017/LGR17.020	ÖLÇÜMÜ YAPAN	M.Fırat DEVRAN
ÖLÇÜM YAPILAN YER	Kuzey Marmara Otoyolu Projesi/Yeşsiören	ÖLÇÜMÜN YAPILDIĞI TARİH	25-26/01/2017
ÖLÇÜM SIRASINDA ÇEVRE ŞARTLARI	Yağışlı ☐ Kapalı x Açık ☐	ÖLÇÜM NOKTALARININ KOORDİNATLARI	633929-4566406

PARAMETRE	BİRİM	ÖLÇÜM/ ANALİZ SONUCU	KULLANILAN METOT
Eşdeğer Gürültü *L_{Eq} Gündüz (07:00-19:00)	dBA	56.3	TS ISO 1996-2
Eşdeğer Gürültü *L_{Eq} Akşam (19:00-23:00)	dBA	47.3	TS ISO 1996-2
Eşdeğer Gürültü *L_{Eq} Gece (23:00-07:00)	dBA	45.3	TS ISO 1996-2

KONTROL EDEN :	ONAYLAYAN :
ADI / SOYADI : Hakan YILMAZ	ADI /SOYADI : Hüseyin TEKİN
İMZA :	İMZA/KAŞE :
Tarih : 06 Mart 2017	Tarih : 06 Mart 2017

ENCON LABORATUVARI A.Ş.

Açıklamalar : Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

-İmzasız ve Kaşesiz Analiz Raporları geçersizdir

-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.

-Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.

- (*) İşaretli parametreler akredite olmayan parametrelerdir.

- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır

-** işaretli parametreler ISO 17025 Akreditasyonuna sahip .. .. tarafından yapılmıştır.

Adres: Reşit Galip Caddesi No: 120 Gaziosmanpaşa/ANKARA

Tel: 0 312 447 71 22 **Faks: 0 312 447 69 66** www.enconlab.com.tr

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ENCON LABORATUVARI A.Ş.

GÜRÜLTÜ ÖLÇÜM RAPORU

MÜŞTERİ ADI	Encon Cevre Danismanlık Ltd. Sti.		
MÜŞTERİ ADRESİ	Resit Galip Cad. No:120 Gaziosmanpasa CANKAYA/ANKARA		
RAPOR TARİH/ NUMARASI	06.03.2017/ GR17.021	ÖLÇÜMÜ YAPAN	M.Eren DEVRAN
ÖLÇÜM YAPILAN YER	Kuzey Marmara Otoyolu Projesi/Tayakadın	ÖLÇÜMÜN YAPILDIĞI TARİH	26-27/01/2017
ÖLÇÜM SIRASINDA ÇEVRE ŞARTLARI	Yağışlı ☐ Kapalı x Açık ☐	ÖLÇÜM NOKTALARININ KOORDİNATLARI	640933-4569436

PARAMETRE	BİRİM	ÖLÇÜM/ ANALİZ SONUCU	KULLANILAN METOT
Eşdeğer Gürültü *L_{eq} Gündüz (07:00-19:00)	dBA	61.9	TS ISO 1996-2
Eşdeğer Gürültü *L_{eq} Akşam (19:00-23:00)	dBA	59.8	TS ISO 1996-2
Eşdeğer Gürültü *L_{eq} Gece (23:00-07:00)	dBA	60.5	TS ISO 1996-2

KONTROL EDEN :	**ONAYLAYAN :**
ADI / SOYADI : Hakan YILMAZ	**ADI /SOYADI :** Hüseyin TEKİN
İMZA :	**İMZA /KAŞE :**
Tarih : 06 Mart 2017	**Tarih :** 06 Mart 2017

ENCON LABORATUVARI

Açıklamalar : Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

-İmzasız ve Kaşesiz Analiz Raporları geçersizdir.
-Rapordaki analiz sonuçları analiz yapılan numuneyi temsil eder.
-Bu rapor ve sonuçlar, ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) işaretli parametreler akredite olmayan parametrelerdir.
- (ç) işaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
-** işaretli parametreler ISO 17025 Akreditasyonuna sahip .... tarafından yapılmıştır.

Adres: Reşit Galip Caddesi No: 120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 **Faks: 0 312 447 69 58** www.enconlab.com.tr

LABORATUVAR SONUÇ RAPORU FORMU			
Doküman No	İlk Yayın Tarihi	Revizyon No / Tarihi	Sayfa No
ENC-P-14-F.07.0	04.05.2015	-- / --	1/1

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ENCON LABORATUVARI A.Ş.

GÜRÜLTÜ ÖLÇÜM RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİHİ/ NUMARASI	06.03.2017/LGR17.022	**ÖLÇÜMÜ YAPAN**	M.Eren DEVRAN
ÖLÇÜM YAPILAN YER	Kuzey Marmara Otoyolu Projesi/İhsaniye	**ÖLÇÜMÜN YAPILDIĞI TARİH**	26-27/01/2017
ÖLÇÜM SIRASINDA ÇEVRE ŞARTLARI	Yağışlı □ Kapalı x Açık □	**ÖLÇÜM NOKTALARININ KOORDİNATLARI**	651643-4567111

PARAMETRE	BİRİM	ÖLÇÜM/ ANALİZ SONUCU	KULLANILAN METOT
Eşdeğer Gürültü *L_{eq} Gündüz (07:00-19:00)	dBA	70.2	TS ISO 1996-2
Eşdeğer Gürültü *L_{eq} Akşam (19:00-23:00)	dBA	70.0	TS ISO 1996-2
Eşdeğer Gürültü *L_{eq} Gece (23:00-07:00)	dBA	66.7	TS ISO 1996-2

KONTROL EDEN : **ADI / SOYADI :** Hakan YILMAZ **İMZA :** 0 6 Mart 2017 **Tarih :**	**ONAYLAYAN :** **ADI /SOYADI :** Hüseyin TEKİN **İMZA /KAŞE :** encon ENCON LABORATUVARI A.Ş. 0 6 Mart 2017 **Tarih :**

Açıklamalar : Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

- İmzasız ve Kaşesiz Analiz Raporları geçersizdir.
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) işaretli parametreler akredite olmayan parametrelerdir
- (¢) işaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
-** işaretli parametreler ISO 17025 Akreditasyonuna sahip .... tarafından yapılmıştır

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ENCON LABORATUVARI A.Ş.

GÜRÜLTÜ ÖLÇÜM RAPORU

MÜŞTERİ ADI	Encon Cevre Danismanlik Ltd. Sti.		
MÜŞTERİ ADRESİ	Resit Galip Cad. No:120 Gaziosmanpasa CANKAYA/ANKARA		
RAPOR TARİH/ NUMARASI	06.03.2017/LGR17.028	ÖLÇÜMÜ YAPAN	M. Eren DEVRAN
ÖLÇÜM YAPILAN YER	Kuzey Marmara Otoyolu Projesi Sultangazi Cebeci	ÖLÇÜMÜN YAPILDIĞI TARİH	27-28/01/2017
ÖLÇÜM SIRASINDA ÇEVRE ŞARTLARI	Yağışlı □ Kapalı x Açık □	ÖLÇÜM NOKTALARININ KOORDİNATLARI	655465-4553549

PARAMETRE	BİRİM	ÖLÇÜM/ ANALİZ SONUCU	KULLANILAN METOT
Eşdeğer Gürültü *L_{Eq} Gündüz (07:00-19:00)	dBA	68.3	TS ISO 1996-2
Eşdeğer Gürültü *L_{Eq} Akşam (19:00-23:00)	dBA	66.9	TS ISO 1996-2
Eşdeğer Gürültü *L_{Eq} Gece (23:00-07:00)	dBA	58.7	TS ISO 1996-2

KONTROL EDEN :
ADI / SOYADI : Hakan YILMAZ
İMZA : 06 Mart 2017
Tarih :

ONAYLAYAN :
ADI /SOYADI : Yasemin TEKİN
İMZA/KAŞE : 06 Mart 2017
ENCON LABORATUVARI A.Ş.
Tarih :

Açıklamalar : Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

-İmzasız ve Kaşesiz Analiz Raporları geçersizdir.
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
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- (ç) işaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
-** işaretli parametreler ISO 17025 Akreditasyonuna sahip ... tarafından yapılmıştır.

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LABORATUVAR SONUÇ RAPORU FORMU			
Doküman No	İlk Yayın Tarihi	Revizyon No / Tarihi	Sayfa No
ENC.P.14.F.67.0	04.05.2015	- / -	1/1

ENCON LABORATUVARI A.Ş.

GÜRÜLTÜ ÖLÇÜM RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİHİ/ NUMARASI	08.03.2017/LGR17-029	ÖLÇÜMÜ YAPAN	M.Eren DEVRAN
ÖLÇÜM YAPILAN YER	Kuzey Marmara Otoyol'u Projesi/Sultangazi Gazi Mah	ÖLÇÜMÜN YAPILDIĞI TARİH	27.28/01/2017
ÖLÇÜM SIRASINDA ÇEVRE ŞARTLARI	Yağışlı ☐ Kapalı x Açık ☐	ÖLÇÜM NOKTALARININ KOORDİNATLARI	660885-4551611

PARAMETRE	BİRİM	ÖLÇÜM/ ANALİZ SONUCU	KULLANILAN METOT
Eşdeğer Gürültü *L_{Eq} Gündüz (07:00-19:00)	dBA	57.7	TS ISO 1996-2
Eşdeğer Gürültü *L_{Eq} Akşam (19:00-23:00)	dBA	57.0	TS ISO 1996-2
Eşdeğer Gürültü *L_{Eq} Gece (23:00-07:00)	dBA	54.8	TS ISO 1996-2

KONTROL EDEN :
ADI / SOYADI : Hakan YILMAZ
İMZA :
06 Mart 2017
Tarih :

ONAYLAYAN :
ADI /SOYADI : Pınar TEKİN
İMZA /KAŞE :
ENCON LABORATUVARI A.Ş.
06 Mart 2017
Tarih :

Açıklamalar : Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.
-İmzasız ve Kaşesiz Analiz Raporları geçersizdir.
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) işaretli parametreler akreditasyon olmayan parametrelerdir.
- (ş) işaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
-** işaretli parametreler ISO 17025 Akreditasyonuna sahip .... tarafından yapılmıştır.
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LABORATUVAR SONUÇ RAPORU FORMU			
Doküman No	İlk Yayın Tarihi	Revizyon No / Tarihi	Sayfa No
ENC-P-14-F-57/0	04.05.2015	-- /	1/1

ANNEX-6

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN FOR THE NORTH MARMARA MOTORWAY PROJECT

A. ENVIRONMENTAL MANAGEMENT PLAN

A.1. AIR QUALITY AND EMISSIONS MANAGEMENT PROCEDURE

A.1.1. Purpose and Scope

This procedure is prepared in order to identify and present means of management of air emission sources. The procedure will provide mitigation alternatives and an impact monitoring schedule in accordance with Turkish and international regulations and standards. This procedure will cover the activities during construction and operation phases of the project.

The main emission sources on site could be listed as follows:

- Construction Site
- Borrow Sites and facilities (crushing, concrete batching, etc.)
- Administrative and social units (camp facilities)
- Construction machines and activities
- On site and off site access roads (i.e. roads used outside the construction site) construction and traffic on these roads (haulage of materials, etc.).
- Excavation material storage sites
- Operation of the motorway

A.1.2. References

- Turkish Environmental Legislation
- Environmental Law
- Regulation on Assessment and Management of Air Quality
- Regulation on the Control of the Air Pollution Sourced by the Industry
- Regulation on Control of Exhaust Gas
- International Finance Corporation (IFC) Environmental, Health, and Safety General Guidelines
- IFC Environmental, Health and Safety Guidelines – Toll Roads
- World Health Organization (WHO) Ambient Air Quality Guidelines

A.1.3. Air Quality and Emissions Management Approach

Main pollutants emitted from motorway projects are nitrogen oxides (NOx (NO2 and NO)), particulate matter (PM10), carbon monoxide (CO), hydrocarbons (HC) and carbon dioxide (CO2). PM10 is expected to be emitted mainly during operation phase of the project as a result of material extraction and supply; motorway construction cut and fill operations and storage of excavated material. Particles can vary according to size and composition. PM10 (particulate matter with aerodynamic diameter smaller than 10 μm) standard is set to define the particles that people are likely to inhale and PM10 has become the general measure of particulate matter. In this sense, generally limit values are defined for PM10.

Other potential pollutants are expected to arise from operation of construction machinery and equipments during construction and traffic flow during operation of the motorway.

- Project construction activities are expected to result in dust emissions during land preparation, cut-fill operations and activities of quarries operated in scope of the project. In addition, exhaust emissions such as PM_{10}, NOx, CO, SO_2, VOC, benzene, NH_3 and N_2O. During the construction phase of the project, fuel will be used for construction machinery, transport vehicles and power engines and for heating at the camp facilities. The type of fuel will directly affect the air pollutant emissions. Emissions from transportation and material transfer will emerge during working hours, mainly. Emissions for heating will increase during winter season. Asphalt plants and concrete plants are considered as other emission sources of construction activities.

- Main pollutants expected to be generated during the operation of the motorway will include NO_x, PM_{10}, CO, VOCs and SO_2.

- GHGs will be generated due to project activities during both construction and operation phases of the project.

Impacts of air emissions will be prevented or minimized by ensuring that emissions do not result in pollutant concentrations that reach or exceed ambient quality guidelines and standards by applying Turkish Regulation on Assessment and Management of Air Quality and the current World Health Organization Air Quality Guidelines.

A.1.3.1. Management of Air Emissions

Air quality emissions; sulphur dioxide, oxides of nitrogen, hydrocarbons, and particulate matter would be evaluated through the use of ambient air quality assessments/measurements and monitoring. Based on baseline and other measurements mitigation activities proposed in this procedure will be applied.

A.1.3.2. Management of Greenhouse Gases (GHG)

The six greenhouse gases of concern include carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluolorocarbons (PFCs), and sulphur hexafluoride (SF6). Afforestation activities will be carried out through the project in order to enhance carbon capture capacity.

A.1.4. Mitigation Measures for Impacts on Air Quality

The following measures will be implemented throughout the project sites to reduce air pollution due to construction activities:

- Dust will be minimized from material handling sources, such as conveyors and bins, by using covers and/or control equipment (water suppression, bag house filters or cyclones)
- Dust will be minimized from open area sources, including storage piles, by using control measures such as installing enclosures and covers, and increasing the moisture content
- Speed limitations will be defined and obeyed for construction vehicles.
- Well and adequate maintained vehicles will be used. Regular maintenance of machinery and equipments will be ensured.
- The drop height of potentially dust generating materials will be kept as low as possible.
- Construction vehicles will not be permitted to keep engines running while waiting to enter the site or waiting on-site.
- Dust suppression methods (i.e. watering with water trucks, applying non-toxic chemicals, speed limits for mobile vehicles, use of well-maintained vehicles/machinery) will be applied at road construction sites, service roads and quarry/material borrow/storage sites to mitigate Project-related dust emissions. In this respect, upper layers of the work sites/materials will be kept at a humidity level of about 10%. Watering will be applied at any time necessary including night time, weekends or off-days by using pressurized distribution or spraying systems that would ensure even distribution of water.
- If there is traffic flow on the existing roads near the work sites, dust suppression measures will be continuously applied to ensure traffic safety. If there is no traffic existing in the local roads, dust suppression measures will be applied only at local residential and business areas.
- All the dust-emitting components of the crushing-screening plants will be put in closed spaces and equipped with dust suppression systems.
- Loading and unloading operations will be performed without throwing/scattering.
- During transportation, excavated materials will be covered with nylon canvas or materials with grain size larger than 10 mm.
- In the supply of construction materials, local licensed quarries (existing or new) will be preferred to reduce transportation distance to minimize associated impacts and costs.
- Wind shields/barriers will be placed at work sites such as material storage areas to prevent dust dispersion where necessary.
- Relevant provisions of the Regulation on Air Pollution Control Sourced from Industry and Regulation on the Assessment and Management of Air Quality will be complied with to minimize air emissions sourced from construction machinery and trucks.
- Blasting operations will be conducted in line with the legislation in force and good industry practices/modern techniques.
- Roads to be used for access to quarry sites will be upgraded by the Project Sponsors to minimize dust emissions during transport. These roads will have sufficient width.
- Driving through settlements will be avoided wherever alternative roads are present.
- Any damage caused by insufficient or lack of dust suppression measures will be compensated.
- Best available techniques will be used for the storage of fuels.

The following measures will be implemented throughout the project sites to reduce air pollution due to operation activities:

- At the service areas, a green buffer strip will be formed between the outer lane of the Motorway and the facilities. This strip will be properly planted (e.g. with shrubs that start growing from the base and are resistant to dust and gaseous emissions) to form a barrier against dust to be sourced from the motorway traffic.
- The application of automatic toll systems along the motorway will contribute to an optimization of traffic flows and thus lower emissions.
- Tunnel ventilation system designed with the objective to remove/dilute vehicle emissions will be installed so that air quality within the tunnel complies with relevant air quality standards.
- In order to ensure appropriate air quality near tunnel portals, need, capacity and type of tunnel ventilation systems, dispersion techniques, air stacks and other technologies will be considered during the design of tunnels.

Above-mentioned measures will reduce emission and dust production considerably. The possible adverse effects on living organisms and their environment will be minimized and environmental pollution will be reduced.

Marmara Otoyolu Joint Venture (MOJV) will be responsible from implementing the mitigating measures against emission and dust production in accordance with the points specified in the Turkish Environment Law and relevant regulations.

This procedure will be implemented throughout the construction phase and it will be continued at the operation phase of the motorway. The on-site specification, implementation and supervision of measures will be under the responsibility of the Environmental Department.

A.1.5. Monitoring of Air Quality and Emissions Management

An independent monitoring program will be implemented for evaluating the efficiency of management strategies and mitigation measures. The proposed scope of the monitoring activities is as follows, which may be revised within the course of the Project as required:

- PM10 will be measured at selected settlements (quarterly or upon complaint) during construction phase and compared with legal limit values/Project standards.
- NOx levels will be monitored at selected settlements (annual) during operation and compared with legal limit values/Project standards.
- Number of water trucks used for dust suppression and frequency of road watering activities will be monitored.

- Grievances received on impacts related with dust/air emissions will be monitored and evaluated to develop corrective actions, as required throughput the Project.
- Presence and validity of environmental permits for concrete plants, asphalt plants, etc. will be checked.

In addition, daily general site overview would be done by the Environmental Department in order to provide basic information on construction progress, site organization, etc. Monthly coordination meetings with project management will also be held by the Environmental Department in order to provide feedback on environmental matters and present main findings of the monitoring processes.

In addition to the independent monitoring, the experts who work in various institutions including the Ministry of Environment and Urbanization, Ministry of Health, Ministry of Labor and Social Security and the provincial organizations of these ministries may inspect the activities. The timing and frequency of these inspections would be determined by the relevant institutions.

If non-compliance is found as a result of the monitoring and inspection activities, all the work that is required to eliminate the non-compliance will be carried out by the Project Sponsors.

A.2. WATER QUALITY, WASTEWATER AND STORMWATER MANAGEMENT PROCEDURE

A.2.1. Purpose and Scope

This procedure is developed in order to provide proper management of the wastewater generated by construction, maintenance, resting areas and toll booth area. The procedure will be based on Turkish and international regulations and standards.

A.2.2. References

- Turkish Environmental Legislation
- Environmental Law
- Regulation on Control of Water Pollution
- Regulation on Protection of Water Resources
- International Finance Corporation (IFC) Environmental, Health, and Safety General
- Guidelines
- IFC Environmental, Health and Safety Guidelines – Toll Roads

A.2.3. Water Quality, Wastewater and Stormwater Management Approach

Wastewater will be generated during land preparation and construction activities and also during operation phases of the project. The basic approach will be to reuse the wastewater generated by project activities in activity cycle during construction. This approach will not require any water discharge to environmental media. If reusing will not be an option due to water quality water is to be treated in order to reduce or eliminate the contaminants before being discharged to receiving media. Wastewater management will be carried out in compliance with national and international standards.

Water Quality Management

Treated wastewater and stormwater will be analyzed in order to ensure that the quality and quantity of the wastewater to be discharged will be in compliance with the limit values indicated in national and international regulations. In addition necessary permits will be obtained if required by regulating administrations.

Wastewater Management

Wastewater will be generated during land preparation and construction activities of the project from construction sites and accommodation facilities for workers (camp site, kitchen, cafeteria, etc.). In operation phase rest and maintenance areas and toll booth area will be the sources of wastewater generation. Generated wastewater may contain organic and inorganic pollutants, suspended solids, heavy metals or toxic materials, etc. Wastewater will be either discharged into the local/municipal sewage network or treated prior to discharge to the suitable receiving environment or collected onsite and transported by tanker for disposal at the local sewage treatment works.

Stormwater Management

Stormwater accumulated in construction sites may be contaminated due to run-offs. The water may drag certain pollutants such as; chemicals, debris, sediments, etc. Due to this fact, measures will be taken in order to avoid/minimize stormwater discharge to receiving bodies.

Final structure of a motorway will lead to an increase on impermeable surface area because of its nature. That situation leads increase on the rate of surface water runoff and high storm water flow rates can lead erosion and flooding. During flood times, bridges, culverts and diversion channels may impede flow. This situation cause increase at water level on upstream of relevant structures.

Surface water management

Maintenance activities like using de-icing agents may affect surface water quality but this impact can be classified as temporary.

During operation of the motorway, there may be spills during road accidents and also spillages / leakages from filling stations. These events may lead to high amount of water with hazardous substance discharge to a surface water body. The risk of water pollution is also high within all road sections close to surface water bodies. Even though, this impact can also be classified as temporary as accidents and/or spillages / leakages can be considered as one-time events.

Routine deposits (tyre and brake deposits, hydrocarbons from engines, liquid exhaust emissions etc.) of vehicles travelling on motorway and leakage of road body itself (tar soils) and road marking materials have possibility to impact surface water quality. As these events are continuous, impact can be considered as permanent.

Construction of viaducts, bridges and culverts is likely to change the hydrological regime with potential impacts on the beds and banks of rivers (scour, erosion, deposition etc.). A possible change on hydrological regime is temporary.

In case of an inappropriate design, physical interference of a stream by installation of temporary culverts and roadways has possibility to impact hydrological regime of a stream significantly.

Measures for surface water management will be taken in order to comply with national and international standards.

Groundwater management

Especially on areas with shallow overburden, accidental discharges of hazardous materials to the ground have possibility to contaminate aquifers.

Site clearance, earthwork, spillages/leakages from construction sites and refueling vehicles may contaminate bedrock aquifers.

All wastewater from construction activities (sanitary or industrial) poses a risk to the water environment if not treated before discharge.

Some deeper excavation works may require permanent dewatering of a groundwater component.

During earthworks and other soil-related activities; in sections cut into the bedrock or shallow overburden, any fissure permeability is at risk of blockage by infiltrating sediment/fines.

Drainage and Flooding Management

Final structure of a motorway will lead to an increase on impermeable surface area because of its nature. That situation leads increase on the rate of surface water runoff and high storm water flow rates can lead erosion and flooding.

During flood times, bridges, culverts and diversion channels may impede flow. This situation cause increase at water level on upstream of relevant structures.

A.2.4. Mitigation Measures for Impacts on Water Quality

As some of the impacts would be mitigated during design phase of the Project, the mitigation measures are divided into three phases namely; design, land preparation and construction and operation. This procedure will not involve the mitigation measures to be taken in design phase since it will be implemented starting with the construction activities.

Mitigation measures listed below will be implemented in order to reduce the amount of wastewater, manage stormwater and floods, and enhance the quality of the wastewater;

Land Preparation & Construction

<u>Mitigation Measures for Surface and Groundwater Quality</u>

- Fuelling of equipments and vehicles will not be conducted within excavated areas.
- In the selection of temporary storage sites for oil, fuel and chemicals, location of the water resources will be taken into consideration.
- Waste oils will be stored in tanks/containers located on impervious surfaces.
- Secondary containment will be provided (on concrete surfaces) for all the storage tanks/barrels containing chemicals including diesel fuels or hazardous liquid wastes. Absorbents will be kept available at storage sites, if necessary. Volume of containment structures allocated for the storage of fuel, oil or other chemicals will be sufficiently greater than the volume of contained liquid.
- Hazardous materials will not be stored within excavated areas. Supervision will be used during handling of all hazardous materials. Impervious bunds and other containment techniques will be used where hazardous materials are handled.

- All wastewater discharges from all components of the construction must comply with relevant legal requirements. Treated water will be reused where possible and feasible.
- Wastewater from all construction compounds and associated building will be either discharged into the local/municipal sewage network or treated prior to discharge to the suitable receiving environment or collected onsite and transported by tanker for disposal at the local sewage treatment works.
- Quarry pond dredging activities will be designed and implemented in material quarries to minimize drawdown with consideration of potential impacts to surface and groundwater resource flow and availability.
- When water quality criteria allow, stormwater also will be managed as a resource for meeting water needs of Project whenever feasible.
- Before discharging according to relevant legal requirements, drainage from excavations will be collected and treated to remove contaminants. Perimeter drains will be constructed around all working areas to collect potentially contaminated run-off and direct it to a system of settlement tanks before discharge in accordance with required permits.
- Direct discharge of contaminated run-off from work sites will not be allowed.
- In order to provide direct run-off to the collection system; channels, bunds and sandbag barriers will be used.
- In order to keep roads and other surfaces clear of dust, sweeping will be used rather than washing
- In order to remove asphalt residues, biodegradable cleaning agents will be used.
- In order to ensure proper and efficient construction process, maintenance and inspection of all facilities and structures will be done regularly; especially heavy rainfall. Sediment deposits will be regularly removed and disposed of at either by spreading on site (if uncontaminated) or at a suitably licensed facility.
- High sediment generating activities such as road paving will be avoided and exposed surfaces and stored materials covered if necessary to reduce erosion of sediments into surface waters.
- During construction, Emergency preparedness and Response Plan will be implemented.
- Exposure of areas of open ground will be kept minimum in size and duration.

<u>Mitigation Measures for Surface Water Bodies and Channels</u>

- Whenever and wherever possible; construction of bridges, viaducts, retaining walls and other structures will be carried out during lean water season months.
- Fencing will be used at sensitive areas of rivers and drains for protection.
- Isolation techniques such as beaming or diversion during construction to limit the exposure of disturbed sediments to moving water will be used during in-stream works.
- In order to protect small drains within the construction areas, they will be covered with metal plates which can be passed over by construction machines.
- For Stream crossings the work will be carried out from the banks above the channel and avoiding direct intervention in the watercourse unless the existing bank reinforcement needs to be replaced. The works will be undertook during periods of low flow. Duration of in-stream activities will also be restricted.

- Use of grass turf from adjacent areas to cover the soil surface, use of erosion control blankets or mats and other relevant soil erosion prevention measures will be implemented after the finalization of an earth work.
- Groundwater from dewatering will be drained to a near surface water course.
- The turbidity has to be monitored and if needed a settling tank would be established.

Operation Phase

Mitigation Measures for Surface and Groundwater Quality

- Sealed basement and bunds with a capacity of the 100% of the storage capacity of the largest tank will be used at fuel stores and other harmful substance stores.
- Through the motorway, absorbent materials within spill response kits will be handled. They will be held at secure and clearly signposted locations. Kits will have instructions and relevant personnel will be trained.
- In case of a spillage, hazardous material will be immediately removed from site, including the contaminated soil. It will be sent to suitable treatment and disposal.
- Sand layers as filters in seepage pits (detritus basins in the form of a shallow pit connected to drain trenches), allowing hardly any harmful substances to percolate into deeper soil layers or into the groundwater. However, these findings are not applicable to highly vulnerable ground water systems or alluvial aquifers with high water tables and thin soil coverage.
- Inspection and maintenance of permanent erosion and runoff control features will be done regularly.
- Oil separators will be installed at fuel stations.
- Motorway will be paved in dry weather to prevent runoff of asphalt or cement materials
- In need of deicing, mechanical deicing methods (sweepers and plows) will be used firstly, it will be complemented by chemical means if necessary. In addition to that, anti-icing and deicing agents will selectively applied based on expected pavement temperatures and the use of road weather information systems. Furthermore, employees in the application of anti-icing and deicing agents will be trained to use these at optimum rates and times. Anti-icing and deicing agents will be selected based on the location of environmentally sensitive areas and the potential impacts of the particular agent.

Mitigation Measures for Groundwater Flow Regime

- Measures will be developed to ensure that no indirect impacts on any important groundwater resources occur, where medium to long-term or permanent dewatering is required the water is to be drained to the Motorway drainage system but to a near surface water course.
- In order to supply water to groundwater wells during possible water depletion times, infiltration will be promoted.

Marmara Otoyolu Joint Venture (MOJV) will be deemed to be responsible for wastewater management in accordance with the matters indicated in the Environment Law and its relevant regulations.

Wastewater management measures will be implemented throughout the construction and operation phases. The on-site specification, implementation and supervision of measures will be under the responsibility of the Environmental Department.

The project will also be required to be in compliance with the national legal requirements relating to water management. The Environmental Department will be responsible during the operation phase for fulfilling this need.

A.2.5. Monitoring of Water Quality, Wastewater and Stormwater Management

An independent monitoring program will be implemented for evaluating the efficiency of management strategies and mitigation measures. The proposed scope of the monitoring activities is as follows, which may be revised within the course of the Project as required:

- Water quality in selected water resources will be monitored (by means of sampling and analyses to be done by accredited laboratories) at selected settlements (quarterly).
- Sources and amount of water supplied by the Project will be monitored and water supply permits will be checked.
- Environmental permits for package domestic wastewater treatment plant discharges, wastewater disposal agreements/channel connection permits to be done with municipalities and capacity of package domestic wastewater treatment plant will be checked/monitored.
- Discharge/disposal volumes will be monitored.
- Wastewater management practices at concrete plants will be monitored.

In addition, daily general site overview would be done by the Environmental Department in order to provide basic information on construction progress, site organization, etc.. Monthly coordination meetings with project management will also be held by the Environmental Department in order to provide feedback on environmental matters and present main findings of the monitoring processes.

In addition to the independent monitoring, the experts who work in various institutions including the Ministry of Environment and Urbanization, Ministry of Health, Ministry of Labor and Social Security and the provincial organizations of these ministries may inspect the activities. The timing and frequency of these inspections would be determined by the relevant institutions.

If non-compliance is found as a result of the monitoring and inspection activities, all the work that is required to eliminate the non-compliance will be carried out by the Project Sponsors.

A.3. SOLID WASTE MANAGEMENT PROCEDURE

A.3.1. Purpose and Scope

This procedure is prepared in order to address main solid waste sources and propose minimization or prevention measures for solid waste generation. Procedure sets out the general principles for reuse and recycle during the construction and operation phases of the project.

The main waste sources of the project are:

- Quarries and Material Borrow Sites: In the scope of the North Marmara Motorway Project, a limestone quarry will be used to supply the material requirements (temporary and permanent work site structures, etc.)
- Construction areas
- Administrative and social units (accommodation units, administrative buildings, social facilities, etc.)
- Security units (police stations, security points, etc.)
- Toll collection area and booths
- Rest/service areas
- Maintenance and operation areas
- Storm water drainage systems (including sediment traps and oil/water separation systems)
- Right-of-way maintenance
- Maintenance of bridges and motorway

Residential/domestic waste is the waste arising from the staff that will work at the construction and operation phases. Excavation waste will be created as a result of the excavation and similar activities that are performed during the land arrangement of the motorway structures such as; road base, shoulders, side slope arrangements, etc. and material borrow sites Construction waste will be created during construction of the motorway structures. Packaging waste will be created as a result of the consumption of the materials (construction materials, food, clothes, etc.) that will be used in the project.

A.3.2. References

- Turkish Environmental Legislation
- Environmental Law
- Solid Wastes Control Regulation
- Regulation on Controlling Package and Packaging Wastes
- Excavation, Construction and Demolition Wastes Control Regulation
- International Finance Corporation (IFC) Environmental, Health, and Safety General Guidelines
- IFC Environmental, Health and Safety Guidelines – Toll Roads

A.3.3. Solid Waste Management and Recycling Approach

Solid waste to be generated in the construction site will be available for categorization. During construction activities waste is expected to be generated due to material use for construction, accommodation of the workers in the area and daily use of paper/plastic/metal/glass containers, excavation, etc. Waste will be separated according to their types. During operation phase solid waste will be generated in the maintenance/rest areas and toll booth area.

For solid waste management the basic principle is to prevent waste generation and consider reduction/reuse/recycle options where waste generation is inevitable. The solid waste generated on site will be stored and disposed in compliance with the national and international regulations.

Reusing is also an alternative for waste types such as; wood/timber, metals, topsoil, excavation material etc. This alternative will create an opportunity to reduce the waste material to be disposed.

Recycling is another important alternative for solid waste management to for making disposed material useful. Recycling will be applied for paper/plastic/metal/glass materials that are not contaminated with any hazardous materials. Waste tires will also be recycled.

Separate recycling containers will be provided for each of the above group of solids, labeled according to the waste to be disposed, recyclable waste will be collected on a regular basis and taken to permitted/licensed facilities to be recovered/recycled and/or disposed in an environmentally sound manner.

It's important to create awareness on solid waste management. The Project Sponsors will inform workers on site through environmental trainings.

Domestic waste that is not suitable for reuse or recycling will be collected and disposed at a landfill in compliance with related Turkish legislation, which is in line with the European Union (EU) requirements.

A.3.4. Mitigation Measures for Impacts of Solid Waste

Although the main principle for solid waste management is to prevent waste generation; there will be mitigation measures for the solid waste generated during construction and operation activities. These measures are listed below:

- Cooperation will be made with the licensed local service providers (e.g. ISTAC A.S., other private licensed waste transportation/recycling/ recovery firms and written agreements/protocols will be made regarding the regular and sound management/disposal of Project-sourced wastes.
- Amount of wastes to be sent to off-site management will be minimized with the implementation of the Waste Management Plan that relies on the waste management hierarchy.

- Amount of excavated materials to be sent to disposal will be minimized by reusing as fill material in the construction of road base, shoulders, side slope arrangements, etc. to the extent the quality and quantity of materials allows.
- Relevant forestry permits will be obtained from the forestry authorities.
- Sites will not be located on dense forest areas with primary ecological functions.
- Proper temporary waste storage areas will be built.
- Excavated materials will be disposed of at designated storage sites only.
- Waste Management Plan will be implemented.
- Trainings will be provided to Project personnel regarding the proper implementation of waste management procedures in line with the requirements of national legislation and good site practices.

The measures that are taken for solid waste management will ensure the reduction of environmental pollution and the use of natural resources such as energy and raw materials with maximum efficiency by minimizing the negative effects of the created solid wastes on the environment.

Marmara Otoyolu Joint Venture (MOJV) will be deemed to be the "owner" of the solid waste that will be created and it will be responsible for the management of it in accordance with the matters indicated in the Environment Law and its relevant regulations.

The solid waste management measures will be implemented throughout the construction and operation phases. The on-site specification, implementation and supervision of measures will be under the responsibility of the Environmental Department.

The project will also be required to be in compliance with the national legal requirements relating to solid waste management. The Environmental Department will be responsible during the operation phase for fulfilling this need.

A.3.5. Monitoring of Solid Waste Management and Recycling

Solid waste management will be achieved through periodical monitoring activities to be carried out on site. National and international regulations will be applied for setting the basic principles for waste management. The proposed scope of the monitoring activities is as follows, which may be revised within the course of the Project as required:

- Type (i.e. municipal, packaging, waste oil, etc.) and amount of wastes produced/disposed of will be reviewed
- Waste management/disposal agreements done with licensed companies will be controlled
- Waste Management Plans will be reviewed
- Temporary Waste Storage Areas will be inspected.
- Site practices on waste management (e.g. general housekeeping rules, source separation practice, containers, containment structures, etc.) will be monitored.

In addition, daily general site overview would be done by the Environmental Department in order to provide basic information on construction progress, site organization, etc. Monthly coordination meetings with project management will also be held by the Environmental Department in order to provide feedback on environmental matters and present main findings of the monitoring processes.

In addition to the independent monitoring, the experts who work in various institutions including the Ministry of Environment and Urbanization, Ministry of Health, Ministry of Labor and Social Security and the provincial organizations of these ministries may inspect the activities. The timing and frequency of these inspections would be determined by the relevant institutions.

If non-compliance is found as a result of the monitoring and inspection activities, all the work that is required to eliminate the non-compliance will be carried out by the Project Sponsors.

A.4. HAZARDOUS WASTE MANAGEMENT PROCEDURE

A.4.1. Purpose and Scope

This procedure is drafted for setting the basic principles for hazardous waste management and disposal rules taking into account national and international regulations. The project will cause hazardous waste generation during both construction and operation phases. The main areas of concern for hazardous waste generation are:

- Construction areas
- Administrative and social units (accommodation units, administrative buildings, social facilities, etc.)
- Rest/service areas
- Maintenance and operation areas
- Storm water drainage systems (including sediment traps and oil/water separation systems)
- Right-of-way maintenance
- Maintenance of bridges and motorway

A.4.2. References

- Turkish Environmental Legislation
- Environmental Law
- Regulation on Hazardous Chemicals Hazardous Waste Control
- Regulation on Controlling Waste Oils
- Waste Battery and Accumulator Regulation
- Regulation on Transportation of Dangerous Substances on Highways
- Medical Waste Control Regulation
- International Finance Corporation (IFC) Environmental, Health, and Safety General Guidelines
- IFC Environmental, Health and Safety Guidelines – Toll Roads

A.4.3. Hazardous Waste Management Approach

For hazardous waste management the basic principle is to prevent waste generation and when it is unavoidable, hazardous waste will be managed in compliance with the national and international regulations. Hazardous waste shares the properties of a hazardous material (e.g. ignitability, corrosivity, reactivity, or toxicity), or other physical, chemical, or biological characteristics that may pose a potential risk to human health or the environment if improperly managed.

For North Marmara Motorway Project the main substances that will be considered as hazardous waste will contain at least the following:

- Chemical solutions used for construction and maintenance activities,
- Containers of chemicals,
- Explosives,
- Flammable materials,

- Waste oils; (petroleum derived or vegetable)
- Contaminated soils,
- Asphalt material used for construction of the motorway and also generated from scraping activities during operation phase,
- Any contaminated material used for construction and maintenance activities such as; clothes, personal protection equipment, etc.

Hazardous waste will be stored on site during construction and operation activities. The waste will be stored in such a manner in avoiding any contact of the waste with air, water and soil resources, fauna flora components, on-site personnel and also people who might potentially be affected. Hazardous wastes will be stored in properly labeled impermeable containers separately.

Transportation of the hazardous waste will be carried out preventing any leakages or spills and contact of the personnel handling the waste. Transportation will be done by licensed companies. Proper labeling is important for transportation as well. Transported waste will be disposed by licensed facilities/companies; the disposal methodology will based on waste type.

A procedure for hazardous waste storage, labeling, transportation and disposal will be developed taking into account national requirements and IFC standards.

A.4.4. Mitigation Measures for Impacts of Hazardous Waste

The following measures will be taken within the scope of the Hazardous Waste Management Procedure in order to properly handle, store, transport and dispose hazardous waste that would be generated:

- All necessary measures will be taken to prevent or reduce production of hazardous wastes and to minimize the quantity and environmental impacts of waste produced.
- Hazardous wastes will in no way be disposed of (incinerated, buried, etc.) at the site where they have been produced, and will not be discharged into surface or ground waters or in locations where they would have an adverse impact on the environment
- Oil and oily wastes will be disposed of in an appropriate manner such that they will be collected according to the measures described in this section and selling of these wastes to the facilities, which uses waste oil in their manufacturing processes, will be considered as appropriate. Waste oil for recycling will not be mixed with degreasers, solvents, antifreeze, or brake fluid.
- Proper regular inspection and maintenance of equipment and machinery will be conducted as required for different types of equipments and these actions will hinder pollution of water by these sources.
- Information including Material Safety Data Sheets (MSDS) of the manufacturer with regard to environmental, health and safety risk, safe handling, storage, transport, use and disposal of petroleum, chemical, harmful and hazardous substances and materials will be obtained.

- All relevant national Turkish legislation with regard to safe handling, storage, transport, use and disposal of petroleum, chemical, harmful and hazardous substances and materials will be complied with (in particular, Turkish Hazardous Waste Control Regulation (HWCR))
- For wastes in solid or liquid state, types of container and transport suitable for the nature of the waste will be identified and the type, source, quantity and storage date of the waste will be clearly written on the container.
- Hazardous wastes may be transferred to third parties for handling and disposal. Wastes will only be transferred to third parties who have suitably authorized/licensed facilities with the capabilities of management, handling, recovery, recycling and disposal in a safe, reliable manner for the environment.
- Hazardous products will be labeled as required by the national legislation.
- On the hazardous waste containers, there will be descriptive labels showing the content, quantity and storage date of the waste. Such labels will be affixed to a readily visible surface of the container and so as not to fall off. The warning signs and waste labels will be in conformity with the hazardous waste labeling system determined in the current Regulation for the Control of Hazardous Wastes.
- Labels will be secured to prevent falling off.
- During usage or coming into contact with hazardous material personal protective equipment will be used.
- Corrosive liquids will be stored and kept separate from flammable liquids.
- Information posters about the hazardous materials will be hanged on open, conspicuous, and accessible locations.
- Employees and subcontractors will be inspected by the Environmental Department regularly throughout the construction phase of the project to ensure that appropriate practices are being employed.
- The limited amounts of hospital type, medical wastes generated in the infirmary/medical facility will be handled, temporarily stored in sealed, labeled containers in a secured area of the infirmary facility until they are sent to disposal in compliance with Turkish Medical Waste Control Regulation.
- Solid or liquid materials that may contain hazardous substances will be properly handled and stored in a manner that minimizes or eliminates the discharge of these materials to watercourses and natural environment. Such substances can be summarized as; detergents; gypsum plaster; petroleum products such as fuel, oil, and grease; asphalt and concrete related compounds.

A.4.5. Monitoring of Hazardous Waste Management

Hazardous waste management will be achieved through periodical monitoring activities to be carried out on site. National and international regulations will be applied for setting the basic principles for waste management. The proposed scope of the monitoring activities is as follows, which may be revised within the course of the Project as required:

- List of hazardous materials/chemicals supplied, stored and used (inc. information on type and amount/volume) will be controlled.
- Hazardous waste management/disposal agreements done with licensed companies will be controlled
- Waste Management Plans will be reviewed
- Hazardous waste compartments of the Temporary Waste Storage Areas will be inspected.
- Site practices on hazardous waste management (e.g. general housekeeping rules, source separation practice, containers, containment structures, etc.) will be monitored.

In addition, daily general site overview would be done by the Environmental Department in order to provide basic information on construction progress, site organization, etc. Monthly coordination meetings with project management will also be held by the Environmental Department in order to provide feedback on environmental matters and present main findings of the monitoring processes.

In addition to the independent monitoring, the experts who work in various institutions including the Ministry of Environment and Urbanization, Ministry of Health, Ministry of Labor and Social Security and the provincial organizations of these ministries may inspect the activities. The timing and frequency of these inspections would be determined by the relevant institutions.

If non-compliance is found as a result of the monitoring and inspection activities, all the work that is required to eliminate the non-compliance will be carried out by the Project Sponsors.

The measures taken in hazardous waste management will minimize the adverse environmental impacts of wastes produced and thus ensure that environmental pollution is reduced and that natural resources such as energy and raw materials are used at maximum efficiency.

Marmara Otoyolu Joint Venture (MOJV) will be deemed to be the “owner” of the hazardous waste that will be created and it will be responsible for the management of it in accordance with the matters indicated in the Environment Law and its relevant regulations.

The hazardous waste management measures will be implemented throughout the construction and operation phases. The on-site specification, implementation and supervision of measures will be under the responsibility of the Environmental Department.

As mentioned above; hazardous waste management will be important for the operation phase as well. Administrative and social units (accommodation units, administrative buildings, social facilities, etc.), Rest/service areas, Maintenance and operation areas, Storm water drainage systems (including sediment traps and oil/water separation systems), Right-of-way maintenance, maintenance of bridges and motorway will require special attention in order to be in compliance with the national legal requirements relating to waste management. The Environmental Department will be responsible during the operation phase for fulfilling this need.

A.5. NOISE MANAGEMENT PROCEDURE

A.5.1. Purpose and Scope

"Noise Management Procedure" is developed to manage significant sources of noise and its impacts on the receiving environment (including humans and wildlife), as well as monitoring the noise levels generated by project activities. The overall aim is to keep the noise impacts below the accepted limits in accordance with Turkish and international regulations and standards.

A.5.2. References

- Turkish Environmental Legislation
- Environmental Law
- Regulation on Assessment and Management of Environmental Noise
- Regulation on Noise Emissions to the Environment by Equipments Used in Open Areas
- International Finance Corporation (IFC) Environmental, Health, and Safety General Guidelines
- IFC Environmental, Health and Safety Guidelines – Toll Roads
- World Health Organization (WHO) Ambient Air Quality Guidelines

A.5.3. Noise Management Approach

Land preparation and construction activities within construction phase and motorway operation will cause increases in noise levels in the vicinity of the motorway route. These effects will be temporary for construction phase where during operation the traffic noise will constitute a negative impact. Traffic noise levels are reduced by distance, terrain, vegetation, and natural and manmade obstacles

In this context, noise prevention and mitigation measures would be applied at construction sites during the construction phase and at relevant sections of the highway route for the operation phase to keep the noise levels below the acceptable national and international standards at the closest sensitive reception points to the source.

A.5.4. Mitigation Measures for Impacts of Noise

Marmara Otoyolu Joint Venture (MOJV) will be deemed to be responsible for noise and vibration management in accordance with the provisions indicated in the Environment Law and its relevant regulations.

Noise management measures will be implemented throughout the construction and operation phases. The on-site specification, implementation and supervision of measures will be under the responsibility of the Environmental Department.

The project will also be required to be in compliance with the national legal requirements relating to noise management. The Environmental Department will be responsible during the operation phase for fulfilling this need.

Land Preparation and Construction Phase

In order to keep noise levels below acceptable national standards at the closest sensitive receptors to the source of noise, the following mitigation measures will be applied:

- Equipments and machinery with lower sound power levels and sound reduced models will be preferred.
- New vehicles, machinery and equipments will be used.
- Maintenance of construction machinery and equipments will be carried out regularly.
- Silencers will be installed on exhausts of vehicles and other equipment such as mechanical plants
- Portable barriers and acoustic enclosures will be used where appropriate (such as around equipments like generators)
- Speed limitations will be defined and obeyed for construction vehicles, particularly near sensitive use areas
- Traffic through residential areas will be avoided wherever possible and dedicated site access roads will be used to approach camp sites, quarries and storage areas. New access roads will be constructed where required to avoid disturbance in residential areas.
- According to the environmental monitoring plan, noise monitoring will be conducted during the construction phase and the effect of noise in near neighborhoods will be controlled regularly. In case of any inconsistencies with regulation limits, measures will be immediately taken to diminish the noise levels and to satisfy the standards.
- Potentially affected buildings such as hospitals, which are sensitive to night time disturbance, will be identified prior to construction works in the vicinity and night construction works will be limited accordingly.
- Construction vehicles will not be permitted to keep engines running while waiting to enter the site or waiting on-site.
- Ancillary components in camp sites such as generators will be established by taking into account potential noise disturbances
- Motorway alignment will be used for transportation whenever possible
- Roads used during construction of the motorway will be well maintained.
- Site personnel will be trained to undertake construction activities using methods to reduce noise

Operation Phase

- At the service areas, a green buffer strip will be formed between the outer lane of the Motorway and the facilities. This strip will be properly planted (e.g. with shrubs that start growing from the base and are resistant to dust and gaseous emissions as well as noise) to form a barrier against noise to be sourced from the Motorway traffic.

- During design phase of the project advantage will be taken from natural topography as a noise buffer
- Route of motorway through residential areas will be prevented as much as possible
- Application of action plans near suggested locations as a result of noise modeling study will be evaluated during further stages of project development. In addition, noise barrier establishment will be considered according to results of noise monitoring at specified locations as detailed in Environmental and Social Monitoring Plan (see Chapter 20).
- Action plans in accordance with Technical Specifications of KGM will be applied where applicable.
- If any complaint related with noise is received through Project's Grievance and Comment Mechanism, the complaint will be evaluated and where necessary, corrective actions will be planned and implemented.
- Annual noise measurements will be done at critical receptors determined by noise modeling during the whole operation phase and the noise barriers would be provided in case the measurements would approach (2Dba) to the thresholds specified at IFC guidelines. If noise barriers are insufficient for reducing the noise level at those areas additional measures such as landscaping will be implemented. Therefore, noise modeling and critical receptors will be revised based on design changes or other mitigation measures applicable at critical locations.

A.5.5. Monitoring of Noise Management

An independent monitoring program will be implemented for evaluating the efficiency of management strategies and mitigation measures. The proposed scope of the monitoring activities is as follows, which may be revised within the course of the Project as required:

- Environmental noise level (dBA) will be measured at selected settlements during construction (quarterly or upon complaint) and operation (annual) phases and compared with legal limit values/Project standards.
- Number of water trucks used for dust suppression and frequency of road watering activities will be monitored.
- Presence and validity of environmental permits for concrete plants, asphalt plants, etc. will be checked.

In addition, daily general site overview would be done by the Environmental Department in order to provide basic information on construction progress, site organization, etc. Monthly coordination meetings with project management will also be held by the Environmental Department in order to provide feedback on environmental matters and present main findings of the monitoring processes.

In addition to the independent monitoring, the experts who work in various institutions including the Ministry of Environment and Urbanization, Ministry of Health, Ministry of Labor and Social Security and the provincial organizations of these ministries may inspect the activities. The timing and frequency of these inspections would be determined by the relevant institutions.

If non-compliance is found as a result of the monitoring and inspection activities, all the work that is required to eliminate the non-compliance will be carried out by the Project Sponsors.

A.6. HABITAT ALTERATION, FRAGMENTATION AND WILDLIFE MANAGEMENT PROCEDURE

A.6.1. Purpose and Scope

This procedure is developed to handle the project activities that are causing habitat alteration and fragmentation in a way that the impact on wildlife habitats and species are minimized in line with national and international standards/requirements.

A.6.2. References

- Turkish Environmental Legislation
- Environmental Law
- Law on National Parks
- Law on Protection of Cultural and Natural Heritage
- Law on Terrestrial Hunting
- Law on Forests
- Law on Fisheries
- By-law on Conservation of Wetlands
- Regulation on Protection and Development of Wildlife Areas
- International Finance Corporation (IFC) Environmental, Health, and Safety General
- Guidelines
- IFC Environmental, Health and Safety Guidelines – Toll Roads

A.6.3. Habitat Alteration, Fragmentation and Wildlife Management Approach

The construction and operation of the Motorway Project will involve a wide range of activities that have the potential to affect ecology. Impacts of project activities can be further divided into the target group of biological elements as terrestrial and aquatic. Important impacts of Motorway construction and operation activities on biological environment are mainly habitat fragmentation.

The ecological effects of transportation include disturbance in terms of noise and visual nuisance and pollution, which act to reduce the suitability of adjacent areas for wildlife. The infrastructure itself contributes significantly towards habitat fragmentation by creating barriers to animal movement. This may result in the isolation and extinction of vulnerable species.

The habitats and species of high importance will be identified before project initiation in order to provide habitat and ecology management.

Best practice dictates that project planning and design should aim to avoid ecological damage, especially to protected or sensitive habitats and/or species. The avoidance of fragmentation will be considered before resorting to mitigation measures. Following articles are general principles to consider against the habitat fragmentation:

- The fragmentation of natural habitats by transportation infrastructure is a problem, which can only be solved through acceptance of the issue at a policy level. Only an interdisciplinary approach involving planners, economists, engineers, ecologists and landscape architects etc., can provide the necessary tools for successfully addressing fragmentation. Public involvement is also essential to ensure the success of the chosen solutions.
- Habitat connectivity is a vital property of landscapes and is especially important for sustaining animal movement across the landscape. The preservation of habitat connectivity would be a strategic goal in the environmental policy of the transport sector.
- Avoiding and mitigation will be applied from the start of the planning process.

A.6.4. Mitigation Measures for Habitat Alteration, Fragmentation and Impacts on Wildlife

General mitigation measures will be implemented during the construction phase to protect ecological receptors as follows:

- Study areas will be clearly defined before vegetation clearance where construction activities will be taking place.
- Access roads will be clearly defined before the onset of construction activities in order not to harm flora elements that are outside the construction sites.
- Project construction sites and access roads will be separated from other areas with appropriate signboards, signs and fences. Therefore, staff and vehicle access to the area will be limited to the construction site.
- Vegetation clearance will take place gradually, so fauna elements will be allowed to leave construction sites.
- During vegetation clearance, equipment will be selected so as not to harm plant roots.
- Intrusion of any invasive flora species into the project area and its surroundings will be prevented. For this purpose, especially vehicles used for vegetation clearance and/or plant transfer will be checked beforehand.
- Construction waste generated due to project activities will first be stored at designated storage areas and then disposed. Solid waste will not be allowed to be left at natural habitats,
- Project workers will not be allowed to bring any live animals or plants into the construction site to avoid the risk of pest/invasive species establishing in the Project Area.
- The construction phase will be carried out with biologist to be taken mitigation measure and to interfere for some impacts from construction activities taken where necessary.
- In order to minimize of the critical species’ population losses, bulbs and seeds of the endemic plants will be collected and transported to areas that will not be affected by the activity or it will be used on the roadside for landscaping after the activity.
- Animals of interest will also be transported to suitable habitats before the initiation of construction activities.
- *Aquila heliaca* nest will be monitored within and close vicinity of the Project area monthly.
- Buyukcekmece Lake KBA, IBA where intersected with the Project area and potential reproductive bird species will monitored.

Mitigation measures for operation phase are listed below:

General structures for creating routes, passages will be built in order to minimize disturbance of animal habitats such as;

- Viaducts: Viaducts are particularly valuable to preserve ecosystems. They are favorable for invertebrates and small vertebrates, which are strongly linked to particular vegetation types and hardly use underpasses without plant cover. 9 viaducts will be established within the scope of the European part of the Motorway Project.
- Culverts: Culverts for animals are primarily constructed as safe crossing points for mammals. They are a suitable solution particularly in hilly areas or where the infrastructure is built on an embankment. Target species are usually mammals. Smaller mammals may readily use these culverts as well.
- Fences: Fences will be erected to prevent the access of animals onto roads only for high risk areas. They are mostly constructed to reduce accidents due to collisions between large mammals and cars, but also to reduce the number of smaller animals killed on the roads.
- Warning signs: Warning signs aim at influencing the behavior of drivers in order to reduce the number and severity of collisions between large mammals and cars.
- Adaptation of the habitat alongside the infrastructure: By avoiding animals moving onto the road or attracting them elsewhere
- Lights: In sensitive areas the need to establish road lights is to be balanced against the consequences for nature. To prevent collisions of insects the use of sodium lights is recommended.

A.6.5. Monitoring of Habitat Alteration, Fragmentation and Wildlife Management

In order to ensure that the Habitat Alteration, Fragmentation and Wildlife Management Procedure is being implemented successfully, key sites within surrounding habitats and species of higher sensitivity will be monitored throughout the construction phase of the project, and afterwards if necessary. Monitoring program will consider the following points:

- Monitoring studies will be carried out to examine the habitats and flora species affected by the operational phase and to examine adaptations determined critical species that will be collected and planted in alternative areas.
- In addition, monitoring studies will be carried out in order to examine adaptation of fauna species with mitigation measures that will be taken and whether mammals and bird species are affected from operation activities.
- The restoration of damaged habitats in the post-construction period will also contribute positively to the amphibian and reptile species in these habitats. In this respect, it will be carried out a monitoring study to obtain data on the population status of critical species.

A.7. QUARRY MANAGEMENT PROCEDURE

A.7.1. Purpose and Scope

This procedure is prepared in order to address necessary environmental compliance implementations in quarry areas. The procedure also identifies the basic rehabilitation implementation to be completed following the closure of the quarries.

A.7.2. References

- Turkish Environmental Legislation
- Environmental Law,
- Forestry Law
- Pasture Law,
- Pastures Regulation
- Regulation Concerning the Rehabilitation of the Lands Disturbed by Mining Activities
- International Finance Corporation (IFC) Environmental, Health, and Safety General Guidelines
- IFC Environmental, Health and Safety Guidelines – Toll Roads
- World Business Council for Sustainable Development (WBCSD), December 2011. Guidelines on Quarry Rehabilitation

A.7.3. Quarry Management Approach

Quarries and materials borrow sites will be used in the context of the project.

The main construction activities in quarry areas will be; isolation of the slope line on the terrain, stripping the topsoil material off the underlying rock as required, transportation to the storage area by trucks, drilling and blasting works. During this progress various impacts will be created. Environmental impacts of quarry operation will be involving; air pollution, noise, wastewater generation, risk of accidents, and change in the land use. All these impacts will be minimized by implementing the other environmental management procedures on quarry sites.

All the impacts except land use change will be minimized to a minimal level when the quarries are closed. Rehabilitation activities will be carried out in order to minimize the effects of change in land use pattern.

Management of Quarries

The implementation of quarry management plan will begin at the construction phase, and it will continue until the completion of the extraction of materials from the quarries and the restoration of the quarries to a state that is in harmony with the nature. The specification and supervision of the measures related to quarry operations would be under the responsibility of the Environmental Department.

Rehabilitation Works

The measures, which will be implemented during Quarry operation in order to prevent/reduce the negative effects on the environment, are provided below:

- The post-closure land use needs to be clearly assessed when initiating a quarry rehabilitation plan, even if this can evolve over the lifetime of the quarry. The quarry rehabilitation plan will be based on a clear set of objectives reflecting the legislative requirements (as the highest priority), and encompassing the local social, economic and environmental (including biodiversity) considerations for the future use of the site. The objectives will be technically and financially sustainable

- Legal compliance must be the minimum requirement when establishing each quarry rehabilitation plan. The rehabilitation guidelines will never be in conflict with, but would always complement and go beyond legal compliance

- The rehabilitation plan will ensure the site is left in a safe and stable condition. The safety of the rehabilitated quarry includes the stability of slopes, roads and raw materials piles. Safety will always be considered as paramount for the rehabilitation plan

- Stakeholders will be listened to, and relevant stakeholders will be involved at all stages. The quarry rehabilitation plan must address stakeholder expectations, and be aligned with, or leverage from, the stakeholder view, experience, culture and customs

- An assessment of the baseline conditions will enable identification of the impacts and measurement of the changes that may arise as a result of quarrying activity. The assessment of baseline conditions will include air and water, flora and fauna, site safety, landscape integration, human activities and cultural heritage

- The rehabilitation plan will be developed prior to the commencement of mining for new sites, but will also be developed for operating quarries, where such a plan does not already exist. It will be aligned with the mining plan. Depending on the objectives and priorities set, the development and monitoring of management plans for biodiversity would, at a minimum, be considered as a supplement to the quarry rehabilitation plan, and in other cases, as core parts of the plan

- A monitoring plan and appropriate corrective measures (if necessary) will be included in the rehabilitation plan, thereby ensuring the documentation and measurement of performance against the objectives

Marmara Otoyolu Joint Venture (MOJV) will be responsible for rehabilitation of the quarries in accordance with the points specified in the legislation stated above.

A.7.4. Monitoring of Quarry Management

An independent monitoring program will be implemented for evaluating the efficiency of management strategies and mitigation measures. The proposed scope of the monitoring activities is as follows, which may be revised within the course of the Project as required:

- Operation licenses will be controlled for the sites to be operated.
- Mining method applied, production amounts, slope stabilities, borders of work sites and management of waste rock will be monitored

In addition, daily general site overview would be done by the Environmental Department in order to provide basic information on construction progress, site organization, etc.. Monthly coordination meetings with project management will also be held by the Environmental Department in order to provide feedback on environmental matters and present main findings of the monitoring processes.

In addition to the independent monitoring, the experts who work in various institutions including the Ministry of Environment and Urbanization, Ministry of Health, Ministry of Labor and Social Security and the provincial organizations of these ministries may inspect the activities. The timing and frequency of these inspections would be determined by the relevant institutions.

If non-compliance is found as a result of the monitoring and inspection activities, all the work that is required to eliminate the non-compliance will be carried out by the Project Sponsors.

B. OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT PLAN

Procedures under the Occupational Health and Safety Management Plan define the main safety principles to be implemented for employees during the project construction and operation phases. Occupational Health and Safety Procedures are prepared in order to provide guidance on ensuring compliance of materials and equipment used in the context of the project to national and international requirements. The procedures will support creation of a safe working environment for the employees where possible accidents/incidents are reduced to a minimum level.

References

- Occupational Health and Safety Regulation
- Health and Safety Regulations in Construction Works
- Heavy and Dangerous Works Regulation
- Regulation on Measures to be Taken for Works with Flammable, Explosive, Hazardous and Harmful Substances
- Regulation for the Protection of the Workers Against Dangers of Explosive Environments
- Regulation on Labor Health and Work Safety Precautions for Mining and Rock
- Quarry Enterprises and Tunnel Construction
- Regulation on Grounding of Electrical Installations
- Regulation on Occupational Health and Safety for Temporary Works and Certain
- Period Works
- Noise Control Regulation
- Vibration Regulation
- Regulation on Health and Safety Measures for Working with Chemical Materials
- Regulation on Tasks, Authorities, Responsibilities of the Engineers and Technical Staff regarding Labor Safety and Manners and Essentials of Their Works
- Regulation on Health and Safety Conditions in Using Work Equipment
- Regulation on Handling of Personal Protective Equipment in Workplaces
- International Finance Corporation (IFC) Environmental, Health, and Safety General
- Guidelines
- IFC Environmental, Health and Safety Guidelines – Toll Roads

B.1. PHYSICAL HAZARDS MANAGEMENT PROCEDURE

B.1.1. Purpose and Scope

This procedure is prepared to define strategies in accordance with national and international regulations/standards to prevent and control potential physical hazards that project personnel may be exposed to.

B.1.2. Physical Hazards Management Approach

Physical hazards represent potential for accident or injury or illness due to repetitive exposure to mechanical action or work activity. Road construction and maintenance personnel may be exposed to physical hazards during the land preparation and construction phase of the Project. These hazards may be due to the operation of heavy construction vehicles during the earthworks, working at height for the construction of bridges, overpasses, viaducts, exposure to severe weather conditions, exposure to high noise levels caused by construction machinery and equipments, etc. Poorly trained or inexperienced drivers would increase risk of accident with other vehicles, pedestrians, and equipment. Additionally, heavy equipment operators have limited fields of view close to their equipment and may not see pedestrians close to the vehicle. These risks would be similar to any large scale infrastructure project and can be managed effectively with good management and implementation of occupational health and safety measures (IFC, April 2007).

Similar to the construction phase, operation, maintenance and landscaping personnel working on the Motorway may be subject to the chemical hazards due to exhaust emissions of the vehicles driving on the road or passing through the toll plazas and tunnels, or due to hazardous dust or asphalt fumes generated during activities such as pavement, painting, vegetation removal, etc.

The main approach in management of physical hazards is prevention. Measures will be taken especially in terms of moving machinery, elevated work places, and fall protection in order to prevent any physical hazard that on-site workers may be exposed to in order to avoid any injury that may occur due to physical hazards.

B.1.3. Mitigation Measures for Impacts of Physical Hazards

Following measures will be taken to ensure safety during the road maintenance or landscaping works:

- For the construction works to be conducted at location where traffic exists, safe work zones will be established by taking relevant measures (closure of roads, diversion of traffic, use of protective barriers, cones, warning lights, etc.)
- The area around which elevated work is taking place will be barricaded to prevent unauthorized access and working under personnel on elevated structures will be avoided.
- Hoisting and lifting equipment will be rated and properly maintained, and operators trained in their use. Elevating platforms will be maintained and operated according to established safety procedures including use of fall protection measures (e.g. railings), equipment movement protocols (e.g. movement only when the lift is in a retracted position), repair by qualified individuals, and installation of locks to avoid unauthorized use by untrained individuals.
- Ladders will be used according to pre-established safety procedures for proper placement, climbing, standing, as well as the use of extensions.
- When working at height, proper fall protection measures will be implemented. Fixtures will be installed on bridge components. Safety belts with proper thickness and of suitable materials ensuring sufficient strength will be used. Rope safety belts will be replaced before signs of aging or fraying of fibers become evident. When operating power tools at height, workers will use a second (backup) safety strap.
- Personnel exposed to high levels of noise will be required to use personal hearing protection devices/equipments that will be provided by the Project Sponsors at no cost.
- Where required for specific works, work rotation programs will be implemented to reduce cumulative exposure.
- Weather forecasts will be monitored for outdoor work to provide advance warning of extreme weather and schedule the work accordingly. Protective clothing will be used where required.
- Safe work zones will be established to separate workers on foot from the traffic by using proper methods/devices (e.g. use of protective barriers, traffic cones, barrels)
- When possible, traffic will be route to alternative roads.
- Proper land closure or traffic diversion measures will be taken in consideration of the width of the road.
- Protective barriers will be used to shield workers where required.
- Traffic flow will be primarily regulated by warning lights and use of flaggers will be avoided where possible.
- Maximum speed limits will be reduced in the work zones.
- Blind spots will be avoided to the maximum extent possible by means of proper design of the work space.

B.2. CHEMICAL HAZARDS MANAGEMENT PROCEDURE

B.2.1. Purpose and Scope

This procedure is prepared in order to prevent chemical hazards to employees within the project site in compliance with Turkish and international regulations/standards.

B.2.2. Chemical Hazards Management Approach

Significant volumes of earthworks and paving activities will be conducted within the long construction corridor of the Project. The dust to be emitted during earthworks, exhaust emissions from large number construction machinery, hazardous materials used for painting and paving operations are among main sources of chemical hazards for construction workforce. Prevention of chemical hazards to employees will require a sequence of steps:

- Proper storage and handling and of hazardous waste in order to avoid human contact, periodical disposal of the waste according to regulations.
- Foreseeing potential accidents in areas where chemicals are stored and handled,
- Setting up emergency response procedures for cases of accidents in order to avoid major injuries and exposure of large populations.
- Periodical trainings on chemical hazards management.

B.2.3. Mitigation Measures for Impacts of Chemical Hazards

Following measures will be enforced for prevention of chemical hazards:

- Identification of dangers posed by certain materials within the project site using MSDS sheets,
- Obtaining MSDS sheets in native language for site employees,
- Training of on-site personnel on the presence, handling, transport and disposal of these materials, and also on emergency response management,
- Pavers with exhaust ventilation systems will be used and proper maintenance of such systems will be ensured to maintain worker exposure to crystalline silica (millers and grinders) and asphalt fumes (pavers) below applicable occupational exposure levels.
- Correct asphalt product will be used for each specific application and application at the correct temperature will be ensured to reduce the fuming of bitumen during normal handling.
- Adequate ventilation will be provided in tunnels and other necessary areas with limited natural air circulation;
- Tollbooths will be equipped with proper ventilation and air filtration systems;
- Protective clothing will be used when working with cutbacks (a mixture of asphalt and solvents for the repair of pavement), diesel fuel, or other solvents.
- Appropriate respiratory protection will be used when removing paints.

B.3. NOISE MANAGEMENT PROCEDURE

B.3.1. Purpose and Scope

This procedure is prepared in order to intended to minimize the impacts of noise that will result from project activities and traffic during operation phase in compliance with national and international regulations/standards.

B.3.2. Noise Management Approach

Noise is considered as a serious physical hazard considering its impacts like hearing loss, stress and effects on performance and behavior. The main approach in noise management is preventing noise at its source. However, considering the nature of the project, it would, for the most part, not be possible to do so. Therefore, measures will be taken in order to control the level of noise and workers' exposure to it.

B.3.3. Mitigation Measures for Impacts of Noise

Measures to be taken in order to reduce and control noise can be listed as the following:

- Personnel exposed to high levels of noise will be required to use personal hearing protection devices/equipments that will be provided by the Project Sponsors at no cost. Where required for specific works, work rotation programs will be implemented to reduce cumulative exposure,
- Project-specific grievance mechanisms established,
- If the measurement results or the grievance mechanism indicate impacts on public's health and welfare at certain locations, effective and feasible corrective measures will be planned and implemented by the Project Sponsors.
- Arranging the construction site layout that processes of higher noise levels are located away from workers.
- Using portable barriers around equipment like generators.
- Medical exams to ensure workers" hearing is not impaired due to their working conditions and to take necessary medical measures to avoid further damage.

B.4. PERSONAL PROTECTIVE EQUIPMENT (PPE) MANAGEMENT PROCEDURE

B.4.1. Purpose and Scope

This procedure underlines how workers at the project site would be protected against hazards described above by using additional protective equipment.

B.4.2. PPE Management Approach

After taking all necessary measures for workers' safety PPE will be considered as an additional protection for workers, in order to avoid major injuries in case of accidents. Appropriate PPE will be determined based on the job to be performed and the kind of hazard that the workers are potentially exposed to.

Trainings on PPE usage will be given to all employees and the employees must be encouraged to use PPE where needed.

Various types and numbers of PPE are used at during construction and operation phases as found necessary in line with Turkish and international standards. IFC Environmental, Health, and Safety (EHS) General Guidelines provides a good summary of PPE according to the potential hazard that would be encountered during various project activities. This summary is provided in Table 1 below. The types of PPE to be used during the construction and operation of the project would include, but not limited to, these PPE provided in Table 1, as necessary.

Table 1. IFC Recommended PPE

Objective	Hazard	PPE
Eye and face protection	Flying particles, molten metal, liquid chemicals, gases or vapor	Safety glasses, protective shades.
Head protection	Falling objects, overhead power cords	Plastic helmets
Hearing protection	Noise	Hearing protectors (ear plugs, ear muffs, etc.)
Foot protection	Falling or rolling objects, pointed objects. Corrosive or hot liquids.	Safety shoes and boots for protection against moving & falling objects, liquids and chemicals.
Hand protection	Hazardous materials, cuts, and extreme temperatures.	Gloves made of rubber or synthetic materials, leather, steel, insulating materials, etc.
Respiratory protection	Dust, fogs, fumes, gases, smokes, and vapors.	Facemasks with appropriate filters for dust removal.
Body/leg protection	Extreme temperatures, hazardous materials, and cutting.	Insulating clothing, body suits, aprons, etc.

B.5. COMMUNICATION AND TRAINING MANAGEMENT PROCEDURE

B.5.1. Purpose and Scope

In addition to orientation trainings, all the direct and contracted workers will be provided with relevant trainings prior to commencement of new assignments (change of workplace/task, change of working machinery and equipments, introduction of new technologies, etc.). Workers with rescue and first-aid duties will be provided with dedicated training. Through appropriate contract specifications and monitoring, Project sponsors will ensure that service providers, as well as contracted and subcontracted labor, are trained adequately before assignments begin.

A visitor orientation and control program will be established to ensure visitors do not enter hazard areas unescorted. In this respect, relevant checkpoints and record keeping practices will be used for ensuring both safety of the works and the visitors.

This procedure is developed to manage Occupational Health and Safety (OHS) trainings of both the contracted or subcontracted employees and the site visitors, while at the same time it aims to manage on-site communication arrangements specific to North Marmara Motorway Project.

B.5.2. Communication and Training Management Approach

The rate of accidents is highly dependent on the consciousness and cautiousness of the personnel regarding the specific hazards of the construction work they are involved in.

Training of the Project workers and other personnel including the management, supervisors, and even occasional visitors is a key in reducing the number of accidents during the construction phase. Basic occupational health and safety orientation trainings will be provided to all new personnel including direct and contracted workers, management, supervisors and occasional visitors.

An OHS Training Program specific to North Marmara Motorway Project will be developed and implemented in accordance with a specified schedule. These trainings will include specific occupational health and safety subjects that include, but not limited to the following:

- Basic site rules and hazard awareness
- Hygiene requirements
- Potential risks to health
- Site-specific hazards
- Safe work practices
- Knowledge of materials, equipments and tools
- Wearing and use of protective equipment and clothing

- Hazards of working on foot around equipment and vehicles;
- Preventing injury to fellow workers
- Safe practice for work at night and in other low-visibility conditions (e.g. use of high-visibility safety apparel and proper illumination for the work space while controlling glare)
- Emergency procedures (e.g. during fires, natural disasters, etc.)

These trainings will be particularly given in the following situations:

- Prior to the start of work for all new project workers
- When the working place and/or task of a worker is changed
- When working machinery and equipments are changed
- When new technologies are applied at the workplace

As the OHS training aims to provide a safe and healthy work environment for employees, contractors and visitors, "a visitor orientation and control program" will be established to ensure visitors do not enter hazard areas unescorted. In this respect, relevant checkpoints and record keeping practices would be used for ensuring both safety of the works and the visitors.

Basic OHS trainings given both to the contracted and subcontracted employees and to site visitors will adequately cover:

- Knowledge of materials, equipments and tools.
- Known hazards in the operations and how they are controlled.
- Potential risks to health.
- Precautions to prevent exposure.
- Hygiene requirements.
- Wearing and use of protective equipment and clothing.
- Appropriate reasons to operation extremes, incidents and accidents.

Signs and labels, which will be used to mark hazardous areas and/or substances, will be in accordance with international standards and be well known to and easily understood by workers, visitors and the general public.

Copies of this hazard coding system will be posted outside the facility at emergency entrance doors and fire emergency connection systems where they are likely to come to the attention of personnel. Information regarding the types of hazardous materials stored, handled or used at the facility will be shared proactively with emergency services and security personnel to expedite emergency response when needed.

C. COMMUNITY HEALTH AND SAFETY PLAN

The procedures under the Community Health and Safety Plan are developed in order to address possible impacts of the project on human health and safety. The procedure aims to minimize the possible adverse effects on the community residing in close neighborhoods by offering mitigation measures.

References

- Regulation on Measures to be Taken for Works with Flammable, Explosive, Hazardous and Harmful Substances
- Decree on Safety Precautions Regarding Workplaces Which Involve Working with Flammable, Explosive, Dangerous and Harmful Substances
- Health and Safety Regulation in Construction Works
- Heavy and Dangerous Works Regulation
- Preparation, Completion, Cleaning Works Regulation
- Regulations on Indoors Electricity Installation
- Regulations on Grounding of Electrical Installation
- Regulation on Fire Protection For Buildings
- International Finance Corporation (IFC) Environmental, Health, and Safety General Guidelines
- IFC Environmental, Health and Safety Guidelines – Toll Roads

C.1. FIRE MANAGEMENT PROCEDURE

C.1.1. Purpose and Scope

This procedure is developed to prevent, minimize and control risks of fire which may occur due to the activities conducted during the construction phase of North Marmara Motorway Project to the facilities, employees and the environment. Fire prevention measures will also be taken into account in operation phase.

C.1.2. Fire Management Approach

The Project Sponsors will be providing fire prevention measures and foresee the risks of fire in order to ensure safety of employees and community. A Fire Management Plan will be prepared based on the national and international legal requirements and/or standards.

C.1.3. Mitigation Measures for Fire Prevention

Mitigation measures for fire prevention and principles to be applied in the event of fire are detailed below:

- Necessary trainings on fire management will be provided to all employees,
- Fire preparedness and response programs will be developed,
- Fire fighting equipments (i.e. water lagoons, ladders, ventilating devices, fire extinguishers, etc.) will be purchased and kept available, in good working order,
- Firefighting equipment will be labeled / marked according to the regulations and will be placed in locations easy to access.
- Fire extinguishers will be placed close to the areas that poses fire risk such as; welding, chemical handling, etc.
- Hot works will be carried out during the cooler periods of the day using appropriate guards,
- Employees will not be allowed to make interventions to electrical appliances; only responsible personnel will make changes in the electrical installation. When not used electrical appliances will be turned off and unplugged,
- Responsible personnel will be appointed and trained for handling flammable materials, storage, transportation and usage of these materials will be in compliance with national standards.
- Flammable liquid leaks and spills will be repaired and cleaned up immediately.
- Fire exits and exit gates will be built both in temporary and permanent structures the exit doors will not be locked and kept open all the times.
- A smoking area will be designated outside of facilities and a fire extinguisher will be provided for this area.
- Fire drills will be carried out periodically according to health and safety regulations.

C.1.4. Monitoring of Fire Management

Detection and alarm systems will be installed where appropriate to monitor any incidents of fire. These systems will involve all measures, including communication and public address systems needed to detect a fire and alert personnel, emergency response teams, public authorities and public as appropriate.

C.2. TRAFFIC MANAGEMENT PROCEDURE

C.2.1. Purpose and Scope

This procedure is developed to prevent, minimize and control risks and adverse impacts on community health and safety, natural environment, work and workers' safety from traffic accidents, which may occur due to the behavior of the driver or the quality of the vehicle and/or to the road design or construction and maintenance issues.

C.2.2. Traffic Management Approach

Traffic rules will minimize the risk of accidents, emissions and noise due to the traffic during the construction and operation phases. During the construction phase of North Marmara Motorway Project, safety aspects among the drivers and project workers will be emphasized and relevant measures regarding transportation of construction material and equipments will be taken.

During the operation phase, relevant national standards applicable to highways and toll roads would be implemented.

C.2.3. Mitigation Measures for Traffic Safety

Following measures will be taken in accordance with the KGM's Technical Specifications for Motorways and relevant international standards to ensure traffic safety at the construction sites and minimize the risk of accidents:

- Construction works on existing roads will not be started until relevant traffic safety measures (including traffic signing and placement of equipments) are taken on roads serving pedestrian and vehicle traffic. These measures will be designed to ensure the safety of life and property of the local people and the users of the roads.
- In the scope of better working organization, construction traffic routes will be strictly defined and road construction machinery will use only these routes.
- Passage of the routes through the settlements (i.e. neighborhoods) will be avoided where alternative routes are available. Dangerous routes that are to be avoided, if there is any, will be specified and informed. In this scope, construction contractors will construct service roads in order not the affect (such as increasing the heavy traffic load) the natural flow on the existing roads and for avoiding the passage of heavy vehicles through residential areas to the extent possible. In addition service roads will be constructed where the traffic will be temporarily diverted. Furthermore, service roads will be used for transportation of the construction machinery, equipments and materials used for Project.
- Pedestrian interaction with construction vehicles will be minimized by taking appropriate measures in and around the construction corridor.

- Valid licenses will be required for the drivers and operators.
- Drivers and operators will be provided with relevant trainings that emphasize the safety aspects.
- Working hours of the day for the drivers/operators will be specified and informed to relevant personnel.
- Limits will be defined for the working/trip duration for the drivers and operators to avoid overtiredness.
- Speed control devices will be used on trucks.
- All the construction machinery and equipments will be operated in alignment with the direction of the traffic flow.
- Rigid objects will not be used for the purpose of traffic diversion.
- Unused construction materials, equipments or machinery will not be left on the road in an uncontrolled way. They will be put in designated places.
- Construction-related traffic delays will be minimized. Flow of traffic will be allowed in every 30 minutes.
- Road signing for night traffic will be provided with reflectors and flashing signals of sufficient number.
- Relevant dust control measures will be taken at the road construction sites so that safe sight distances could be maintained on the existing roads under service.
- Upon the completion of works, signing equipments will be immediately removed and standard signing will be provided.
- To reduce transportation distances, services and materials required for construction works will be aimed to be primarily supplied from the local sources, wherever possible.

The following general safeguards will be taken during operation to prevent, minimize, and control risks to the community from traffic accidents:

- Horizontal (i.e. shoulder lines, traffic lines, parking lines, etc.) and vertical signing (i.e. traffic signs, plates, etc.) of the Motorway will be in accordance with KGM’s technical specifications.
- Rescue vehicles and tow trucks will be kept ready in adequate numbers to promptly respond to probable accidents and slippery vehicles that may cause the closure of the road.
- Pavement structure of the Motorway will be subject to routine maintenance works in order to remove any impairment on the road surface that may risk traffic safety, reduce driving comfort and decrease the structural strength. Large-scale repair and reconstruction works will also be conducted as required to maintain the functionality of the road.
- Wire fences will be installed along the expropriation border of the Motorway to minimize the risk of collisions between animals and vehicles and direct the animals towards crossing structures (i.e. culverts) to be built.
- Wire fences, welded wires, walls to be used to enclose the area to be allocated to the Motorway will be continuously checked to prevent any uncontrolled intrusion of wild animals to the Motorway corridor that may pose risk to traffic safety and damage the landscape components. Any damaged enclosure component will be immediately repaired/maintained.

- Intelligent Traffic System (ITS) will be installed in the scope of the Project. By means of the ITS, real-time warning systems with signage to warn drivers of congestion, accidents, adverse weather road conditions, and other potential hazards ahead will be used.
- Snow and ice removal works will be conducted within the Motorway corridor when the temperature is between 0^0C and -12^0C to ensure safe and secure driving conditions for the vehicles and users of the road (including interchanges, access roads, service areas) during severe winter conditions.
- If necessary, precautionary salt application will be done before the start of snowfall.
- Where required, road deicing will be done by application of a suitable agent in solid or solution forms such as salt (NaCl), calcium chloride ($CaCl_2$), magnesium chloride ($MgCl_2$), etc. directly or blended in proper ratios depending on road and weather temperature.
- In case of continuous snowfall periods, effectiveness of the chemicals applied may become insufficient in removing snow and ice. In such situations, mechanical snow and ice removal works will be conducted by using suitable and adequate vehicles and/or equipments.
- In case of oil spill or spill of other hazardous liquids, road surface will be washed with plenty of water.
- Measures will be taken to prevent parking vehicles at the entrance and exit roads of the services areas.
- Specific precautionary and response measures will be taken to ensure safety in the tunnels.

C.2.4. Monitoring of Traffic Management

Automated systems and communication links will be used for obtaining, recording and reporting for the traffic weather and road conditions, as well as traffic incidents. Any adverse conditions, accidents and/or illegitimate incident will be recorded and monitored by the personnel in charge of traffic management during the construction phase. For the operation phase relevant public authorities are responsible for the monitoring of traffic management.

ANNEX-7

SUPPLEMENTARY DOCUMENTS FOR ECOLOGY AND BIODOVERSITY STUDIES AND ASSESSMENTS

Annex-7/A. List of Flora and Fauna Species Identified in the Project Area

Legend for Flora and Fauna Tables

IUCN (International Union for Conservation of Nature) Red List of Threatened Species)	
2001 (ver. 3.1)	**2009 (ver. 2.0)**
EX: Extinct	**EX:** Extinct
EW: Extinct in the wild	**EW:** Extinct in the wild
CR: Critically endangered	**CR:** Critically endangered
EN: Endangered	**EN:** Endangered
VU: Vulnerable	**VU:** Vulnerable
LR: Lower risk	
cd: conservation dependent	**NT:** Near Threatened
nt: near threatened	**LC:** Least Concern
lc: least concern	
DD: Data deficient	**DD:** Data deficient
NE: Not evaluated	**NE:** Not evaluated

BERN CONVENTION (for flora and fauna species)	
Annex I	**:** Protected Flora Species
Annex II	**:** Strictly Protected Fauna Species
Annex III	**:** Protected Fauna Species
CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) (for flora and fauna species)	
Appendix I	**:** Species threatened with extinction. Trade in specimens of these species is permitted only in exceptional circumstances.
Appendix II	**:** Species not necessarily threatened with extinction, but their trade must be controlled to avoid utilization incompatible with their survival.
Appendix III	**:** Species protected in at least one country, and their trading is under control by CITES.

Turkish Red Data Book of Turkish Plants (TRDB; Appim et al., 2000) **Based on IUCN Red List Categories and Criteria (ver. 2.3)**
EX: Extinct
EW: Extinct in the wild
CR: Critically endangered
EN: Endangered
VU: Vulnerable
LR: Lower risk
cd: conservation dependent
nt: near threatened
lc: least concern
DD: Data deficient
NE: Not evaluated

NATIONAL HUNTING STATUS (According to Central Hunting Commission, 20015-2016) (for fauna species)	
APP I	**:** Includes game animals which are protected by the CHC
APP II	**:** Includes game animals which are allowed to be hunted in seasons predefined by CHC

Legend for Flora and Fauna Tables (Continued)

NATIONAL THREAT CATEGORIES (for bird species) (Kiziroğlu,İ., 2009. The Pocket Book for Birds of Türkiye, ISBN: 975-7460-01-X, Ankamat Matbaası, Ankara, 564 s.)Matbaası, Ankara, 564 s.)	
Category A:	
A.1.2.	**(CR)** Critically endangered and breeding species in Turkey
A.2.	**(EN)** Endangered and breeding species in Turkey
A.3.	**(VU)** Vulnerable and breeding species in Turkey
A.3.1.	**(D)** Declining, vulnerable and breeding species in Turkey
A.4.	**(NT)** Near threatened. Breeding species do not face to risk now but are likely to qualify for threatened category in the near future in Turkey
A.5.	**(LC)** Least Concern. Breeding species that are widespread in Turkey
A.6.	**(DD)** Not Evaluated. Breeding species which have not been evaluated in Turkey
A.7.	**(NE)** Critically endangered and non-breeding species in Turkey
Category B:	
B.1.2.	**(CR)** Critically endangered and non-breeding species in Turkey
B.2.	**(EN)** Endangered and non-breeding species in Turkey
B.3.	**(VU)** Vulnerable and non-breeding species in Turkey
B.3.1.	**(D)** Declining, vulnerable and non-breeding species in Turkey
B.4.	**(NT)** Near threatened, non-breeding species do not face to risk now but are likely to qualify for threatened category in the near future in Turkey
B.5.	**(LC)** Least Concern, non-breeding species that are widespread in Turkey
B.6.	**(DD)** Data Deficient, non-breeding species on which there is deficient information in Turkey
B.7.	**(NE)** Not Evaluated, non-breeding species which have not been evaluated in Turkey

SOURCES (for bird species)	**RELATIVE ABUNDANCE** (based on observation)
1: Observation	**1:** Very Rare
2: Trace and Sign	**2:** Rare
3: Literature	**3:** Moderate
4: Habitat suitability	**4:** Abundant
5:Questionnaire	**5:** Very Abundant

ENDEMİZM (for flora species)
R: Regional Endemic
W: Widespread Endemic

HABITATS				
Sec. 1	Sec. 2	Sec.7		
	1		C 3.2	Tall helophytes on waterfront
2	2		E 3.4	Moist or wet eutrophic and mesotrophic grassland
1			E 1.2	Perennial calcareous grassland and basic steppes
3	3		F 5.4	Spartium junceum fields
		1	F 6.4	The Black Sea garrigues (Frigana)
5	5	2	G 1.3	Mediterranean riparian woodland
6	6	3	G 3.F	Highly artificial coniferous plantations
4	4		G 1.A	Meso and Eutrophic Mixed Decidiuous Forests
7	7		I 1.2	Agricultural lands
			J 3.3	Inactive quarry sites
			J 4.2	Disused road, rail and other constructed hard-surfaced areas
			J 1.4	Urban and suburban industrial and commercial sites still in active use

Table 7.1.a. Flora Species List of Section-1

FAMILY	NO	SPECIES NAME	TURKISH NAME	PHYTOGEOGRAPHICAL REGION	ENDEMISM		T.S.	BERN	CITES			HABITAT							ABUNDANCE				
					R	W		Anx1	App1	App2	App3	1	2	3	4	5	6	7	1	2	3	4	5
PTERIDOPHYTA																							
EQUISETACEAE	1	*Equisetum telmateia* Ehrh.	_	Widespread											x		x			x			
HYPOLEPIDACEAE	2	*Pteridium aquilinum* (L.) Kuhn	Eğrelti	Widespread											x		x			x			
ASPLENIACEAE	3	*Asplenium adianthum-nigrum* L.		Widespread											x		x			x			
GYMNOSPERMAE																							
PINACEAE	4	*Pinus nigra* J.F. Arnold	Karaçam	Plantation													x				x		
CUPRESSACEAE	5	*Cupressus sempervirens L.*	Servi	Plantation													x				x		
	6	*Juniperus oxycedrus* L. subsp. *oxycedrus*	Ardıç	Widespread										x						x			
ANGIOSPERMAE																							
DICOTYLEDONES																							
RANUNCULACEAE	7	*Ranunculus arvensis* L..	Dugun cicegi	Mediterranean								x	x						x				
	8	*Ranunculus ficaria* L. subsp. *ficariiformis* Rouy & Fouc	Düğün çiçeği	Widespread										x	x		x			x			
	9	*Ranunculus constantinopoliatanus* (DC.) d'Urv.	Düğün çiçeği	Widespread									x		x	x				x			
	10	*Ranunculus repens* L.	_	Widespread									x		x					x			
	11	*Ranunculus muricatus* L.	_	Widespread									x		x					x			
	12	*Ceratocephalus falcatus* (L.) Pers.	–	Widespread								x					x			x			
	13	*Clematis vitalba* L.	Akasma	Widespread											x		x			x			
BERBERIDACEAE	14	*Epimedium pubigerum*(DC.) Moren & Decaisne	_	European-Siberian													x				x		
PAPAVERACEAE	15	*Hypecoum procumbens* L.	–	Mediterranean								x	x				x			x			
	16	*Papaver rhoeas* L.	Gelincik	Widespread									x							x			
CRUCIFERAE	17	*Thlaspi perfolatum* L.	Kulakçıklı akça çiçeği	Widespread								x	x						x				
	18	*Cardamine uliginosa* Bieb.	_	Widespread								x								x			
	19	*Arabis verna* (L.) DC.	–	Mediterranean								x								x			
	20	*Capsella bursa-pastoris* (L.) Medik.	Cobancantasi	Widespread								x	x				x			x			
	21	*Sisymbrium officinale* (L.) Scop.	Çalgıcı otu	Widespread								x	x							x			
	22	*Hirschfeldia incana* (L.) Lag.-Foss.	_	Widespread								x	x							x			
CISTACEAE	23	*Cistus creticus* L.	Laden	Widespread											x		x				x		
	24	*Cistus salviifolius* L.	Laden	Widespread													x				x		
VIOLACEAE	25	*Viola odorata* L.	kokulu menekşe	Widespread											x		x				x		
	26	*Viola sieheana* Becker	Menekşe	Widespread													x			x			
	27	*Polygala anatolica* Boiss. & Heldr	Süt otu	Widespread													x			x			
CARYOPHYLLACEAE	28	*Minuartia hamata* (Hausskn.) Mattf.	–	Widespread								x	x						x				
	29	*Cerastium gracile* Dufour	_	Widespread								x	x				x			x			
	30	*Holosteum umbellatum* L. var. *Umbellatum*	–	Widespread								x	x				x			x			
	31	*Silene vulgaris (Moenc) Garcke var. vulgaris*	Gıvışkan otu	Widespread								x			x					x			
	32	*Stellaria holostea* L.	_	European-Siberian								x					x			x			
ILLECEBRACEAE	33	*Herniaria incana* Lam.	Kirik otu	Widespread								x					x		x				
LINACEAE	34	*Linum bienne* Miller	_	Widespread								x					x			x			
RHAMNACEAE	35	*Paliurus spina-christi Miller*	Karaçalı	Widespread										x	x	x							
MALVACEAE	36	*Malva sylvestris* L.	Ebegümeci	Widespread								x	x							x			
SIMAROUBACEAE	37	*Ailanthus altissima* (Miller) Swingle		Widespread												x				x			
ACERACEAE	38	*Acer campestre* L. subsp. *campestre*	Akçaağaç	Widespread											x		x				x		
ANACARDIACEAE	39	Pistacia terebinthus L. subsp. terebinthus	Menengiç kahvesi	Mediterranean										x						x			

Table 7.1.a. Flora Species List of Section-1

FAMILY	NO	SPECIES NAME	TURKISH NAME	PHYTOGEOGRAPHICAL REGION	ENDEMISM		T.S.	BERN	CITES			HABITAT							ABUNDANCE				
GERANIACEAE	40	*Erodium cicutarium* (L.) L. Herit subsp. *cicutarium*	Turna gagası	Widespread								x	x						x				
	41	*Geranium asphodeloides* Burm. fil.. subsp. *asphodeloides* .	_	European-Siberian								x					x				x		
	42	*Geranium dissectum* L.	_	Widespread								x		x			x			x			
	43	*Geranium rotundifolium* L.	_	Widespread										x			x			x			
POLYGONACEAE	44	*Rumex tuberosus* L. subsp. *tuberosus*	Kuzukulağı	Widespread								x	x			x	x	x	x				
	45	*Rumex pulcher* L.	Labada	Widespread									x			x		x		x			
LEGUMINOSAE	46	*Medicago lupulina* L.	_	Widespread								x	x							x			
	47	*Medicago minima* L. var. *minima*	_	Widespread								x	x				x			x			
	48	*Medicago sativa* L.	Yonca	Widespread								x	x							x			
	49	*Chamaecytisus hirsutus* (L.) Link	_	Widespread													x				x		
	50	*Vicia cracca* L. subsp. *stenophylla* Vel.	Fiğ	Widespread													x			x			
	51	*Vicia sativa* L. subsp. *sativa*	Fiğ	Widespread										x						x			
	52	*Trifolium stellatum* L. var. *stellatum*	Ucgul	Widespread								x		x			x			x			
	53	*Trifolium campestre* Schreb.	Ucgul	Widespread								x					x			x			
	54	*Trifolium arvense* L. subsp. *arvense*	Üçgül	Widespread								x	x				x			x			
	55	*Trifolium repens* L. var. *repens*	Yonca	Widespread								x	x							x			
	56	*Coronilla varia* L. subsp. *varia*	Körigen	Widespread								x								x			
	57	*Dorycnium pentaphyllum* Scop. subsp. *herbaceum*(Vill.)Rouy.	_	Widespread													x			x			
	58	*Spartium junceum* L.	Katır tırnağı	Mediterranean										x	x					x			
	59	*Robinia pseudoacacia* L.	Akasya	Widespread													x						
	60	*Psoralea bituminosa* L.		Mediterranean											x				x				
ROSACEAE	61	*Pyrus elaeagnifolia* Pallas subsp. *elaeagnifolia*	Ahlat	Widespread											x		x			x			
	62	*Geum urbanum* L.	–	Widespread													x			x			
	63	*Mespilus germanica* L.	Döngel	European-Siberian													x				x		
	64	*Potentilla recta* L.	Dik parmak otu	Widespread								x					x		x				
	65	*Sanguisorba minor Scop. Subsp. muricata (Spach)Brig*	Çayırdüğmesi	Widespread								x					x		x				
	66	*Filipendula vulgaris* Moench.	_	European-Siberian													x			x			
	67	*Crataegus monogyna* Jacq. Subsp. *monogyna*	Alıç	Widespread											x		x			x			
	68	*Prunus divaricata* Ledeb. Subsp. *divaricata*	Yabani erik	Widespread													x			x			
	69	*Prunus spinosa* L. subsp. *dasyphylla* (Schur) Domin	Erik	European-Siberian												x	x			x			
	70	*Rubus sanctus* Schreber	Böğürtlen	Widespread									x	x	x	x	x				x		
	71	*Rubus hirtus* Waldst. & Kit.	_	European-Siberian													x			x			
	72	*Rosa canina* L.	Kusburnu	Widespread													x		x				
LYTHRACEAE	73	*Lythrum salicaria* L.	Aklar otu	European-Siberian									x		x	x				x			
UMBELLIFERAE	74	*Eryngium campestre* L. var. *virens* (Link) Weins	Şekerdikeni	Widespread								x							x				
	75	*Eryngium creticum* Lam.		Mediterranean								x											
	76	*Scandix iberica* Bieb.	–	Widespread								x					x		x				
	77	*Daucus carota* L.	Yabani havuc	Widespread								x	x	x			x			x			
	78	*Oenanthe pimpinelloides* L.	_	Widespread											x		x				x		
	79	*Oenanthe fistulosa* L.	_	Widespread									x								x		

Table 7.1.a. Flora Species List of Section-1

FAMILY	NO	SPECIES NAME	TURKISH NAME	PHYTOGEOGRAPHICAL REGION	ENDEMISM		T.S.	BERN	CITES			HABITAT							ABUNDANCE				
	80	*Conium maculatum L.*		Widespread									x			x					x		
	81	*Pastinaca sativa* L. subsp. *urens* (Req. ex Godron) Celak														x					x		
	82	*Ferulago confuse*	-	European-Siberian			VU						x							x			
	83	*Heptaptera triquetra*	-	European-Siberian			EN						x							x			
ARALIACEAE	84	*Hedera helix* L.	Duvar sarmaşığı	Widespread											x		x				x		
CAPRIFOLIACEAE	85	*Lonicera etrusca* Santi var. *etrusca*	_	Mediterranean											x					x			
CORNACEAE	86	*Cornus mas* L.	Kızılcık	European-Siberian											x					x			
DIPSACACEAE	87	*Scabiosa argentea* L.	–	Widespread								x								x			
	88	*Dipsacus laciniatus L.*		Widespread								x	x								x		
COMPOSITAE	89	*Senecio vernalis* Waldst. et Kit	–	Widespread								x	x							x			
	90	*Tussilago farfara* L.	Kabalak	European-Siberian																x			
	91	*Doronicum orientale* Hoffm.	–	Widespread													x			x			
	92	*Cichorium intybus L.*		Widespread								x		x				x		x			
	93	*Silybum marianum* (L.) Gaertner	Gengel	Mediterranean								x	x							x			
	94	*Cnicus benedictus* L.	Bostan otu	Widespread								x	x							x			
	95	*Carthamus dentatus Vahl*	–	Widespread								x	x							x			
	96	*Anthemis cretica* L. subsp. *pontica* (Willd.) Grierson	Papatya	Widespread								x								x			
	97	*Anthemis tinctoria* L.		Widespread								x		x						x			
	98	*Bellis perennis* L.	Yoğurt çiçeği	European-Siberian								x	x		x		x			x			
	99	*Carduus pycnocephalus* L. subsp. *albidus* (M.Bieb) Kazmi	Kenger	Widespread								x	x							x			
	100	*Carduus nutans* L. sensu lato	Kenger	Widespread								x	x							x			
	101	*Carlina corymbosa* L.		Mediterranean								x								x			
	102	*Hypochoeris radiata* L.	–	Widespread								x	x				x			x			
	103	*Logfia arvensis* (L.) Holub.	–	Widespread								x	x						x				
	104	*Lapsana communis* L. subsp. *intermedia* (Bieb.) Hayek	–	Widespread								x	x		x		x		x				
	105	*Cirsium hypoleucum* DC.	_	European-Siberian								x				x	x			x			
	106	*Cirsium polycephalum* DC.	_	Mediterranean	x		CR								x		x			x			
	107	*Chondrilla juncea* L . var. *juncea*	–	Widespread									x						x				
	108	*Lactuca serriola* L.	–	Widespread									x						x				
	109	*Sonchus asper* (L.) Hill subsp. *glaucescens* (Jordon) Ball	–	Widespread								x	x				x			x			
	110	*Crepis sancta* (L.) Babcock	–	Widespread								x	x						x				
	111	*Scorzonera cana* (C.A.Meyer) Hoffm. var. *cana*	Yemlik	Widespread								x								x			
	112	*Pulicaria dysenterica* (L.) Gaertn.	_	Widespread									x			x				x			
CAMPANULACEAE	113	*Campanula rapunculus* L. var. *rapunculus* L.	Çan çiçeği	European-Siberian													x			x			
ERICACEAE	114	*Arbutus unedo* L.	Kocayemiş	Widespread											x		x				x		
PRIMULACEAE	115	*Androsace maxima* L.	–	Widespread								x					x			x			
	116	*Primula vulgaris* Huds. Subsp. *sibthorpii* (Hoffmans) W.W.Sm & Forrest	Çuha çiçeği	European-Siberian											x		x				x		
	117	*Anagallis arvensis* L. var. *caerulea* (L.) Gouan	Farekulağı	Widespread								x			x					x			
OLEACEAE	118	*Jasminum fruticans* L.	Yasemin	Mediterranean										x			x			x			
	119	*Phillyrea latifolia* L.	Akkesme	Mediterranean											x		x			x			
	120	*Ligustrum vulgare* L.		European-Siberian											x					x			

Table 7.1.a. Flora Species List of Section-1

FAMILY	NO	SPECIES NAME	TURKISH NAME	PHYTOGEOGRAPHICAL REGION	ENDEMISM		T.S.	BERN	CITES			HABITAT							ABUNDANCE				
BORAGINACEAE	121	*Echium italicum L.*	–	Mediterranean								x		x						x			
	122	*Cynoglossum montanum* L.	_	European-Siberian								x								x			
	123	*Myosotis lithospermifolia* (Willd.) Hornem.		Widespread								x								x			
	124	*Buglossoides arvensis* (L.) Johnston	–	Mediterranean								x					x			x			
	125	*Trachystemon orientalis* (L.) G. Don		Euksin											x					x			
SCROPHULARIACEAE	126	*Parentucellia latifolia* (L.) Caruel subsp. *latifolia*	_	Mediterranean									x							x			
	127	*Bellardia trixago* (L.) All	_	Widespread									x							x			
	128	*Veronica chamaedrys* L.	_	European-Siberian								x					x			x			
CONVOLVULACEAE	129	*Convolvulus arvensis L.*	–	Widespread								x	x							x			
OROBANCHACEAE	130	*Orobanche anatolica* Boiss. & Reut.	Anadolu canavar otu	Widespread													x			x			
LABIATAE	131	*Lamium amplexicaule* L.	Ballibaba	Widespread									x				x			x			
	132	*Lamium purpureum* L. var. *purpureum*	–	Widespread													x			x			
	133	*Ajuga reptans* L.	_	European-Siberian								x					x			x			
	134	*Prunella laciniata* (L.) L.	_	European-Siberian								x	x				x			x			
	135	*Prunella vulgaris* L.	–	European-Siberian													x			x			
	136	*Clinopodium vulgare* L. subsp. *vulgare*	_	Widespread													x			x			
	137	*Salvia virgata* Jacq.	Adaçayı	Iran-Turan								x		x						x			
	138	*Stachys byzantina* C. Koch		European-Siberian								x		x						x			
	139	*Origanum vulgare* L. subsp. *vulgare*		European-Siberian										x						x			
PLANTAGINACEAE	140	*Plantago lanceolata* L.	Bağa	Widespread									x		x		x			x			
THYMELAEACEAE	141	*Daphne pontica* L.	Dafne	Euksin													x			x			
SANTALACEAE	142	*Osyris alba* L.	Süpürge çalısı	Mediterranean											x		x			x			
CORYLACEAE	143	*Corylus avellana* L.var. *avellana*	Fındık ağacı	European-Siberian											x					x			
	144	*Carpinus betulus* L.	Gürgen	European-Siberian											x		x				x		
SALICACEAE	145	*Salix alba* L.		European-Siberian									x			x				x			
	146	*Populus alba* L.		European-Siberian												x				x			
ULMACEAE	147	*Ulmus minor* Miller. subsp. *minor*	Kara ağaç	Doğu Mediterranean											x	x				x			
URTICACEAE	148	*Urtica dioica* L.	Isırgan	European-Siberian									x		x					x			
FAGACEAE	149	*Quercus frainetto* Ten.	Macar meşesi	European-Siberian											x		x					x	
	150	*Quercus cerris* L. var. *cerris*	Saçlımeşe	Widespread											x		x					x	
	151	*Quercus petraea* (Mattuschka) Liebl. Var. *iberica* (Steven ex Bieb.) Krassiln	Sapsız meşe	Widespread											x		x					x	
LORANTHACEAE	152	*Viscum album* L. subsp. album	Ökse otu	Widespread																x			
RUBIACEAE	153	*Galium verum* L. subsp. *verum*	_	European-Siberian								x	x		x					x			
	154	*Rubia peregrina* L.	_	Mediterranean								x			x					x			
PAEONIACEAE	155	*Paeonia peregrina*	Sakayık	Mediterranean																			
MONOCOTYLEDONES															x					x			
LILIACEAE	156	*Ruscus hypoglossum* L.	Dere kirazı	European-Siberian											x		x			x			
	157	*Ruscus aculeatus* L. subsp. *angustifolius* Boiss.	Tavşanmemesi	Widespread											x		x			x			
	158	*Smilax aspera* L.	Silcan	Widespread													x			x			
	159	*Muscari armeniacum* Leichtlin ex Baker	_	Widespread								x								x			
	160	*Asparagus acutifolius* L.	Kuşkonmaz	Mediterranean										x	x		x			x			
	161	*Ornithogalum wiedemannii* Boiss. var. *wiedemannii*	_	Widespread								x	x							x			

Table 7.1.a. Flora Species List of Section-1

FAMILY	NO	SPECIES NAME	TURKISH NAME	PHYTOGEOGRAPHICAL REGION	ENDEMISM		T.S.	BERN	CITES			HABITAT							ABUNDANCE				
	162	*Ornithogalum orthophyllum* Ten.	_	Widespread								x	x							x			
	163	*Scilla bifolia* L.	_	Mediterranean								x	x							x			
AMARYLLIDACEAE	164	*Leucojum aestivum L.*	Çan çiçeği	European-Siberian			VU			Cıtes II			x							x			
	165	*Galanthus x valentinei* Beck	_	European-Siberian	x		VU						x	x	x	x	x				x		
IRIDACEAE	166	*Crocus olivieri* Gay subsp. *olivieri*		Widespread									x		x					x			
	167	*Crocus biflorus* Miller subsp. *biflorus*		Mediterranean											x					x			
TYPHACEAE	168	*Typha latifolia* L.	Kamış	Widespread									x			x					x		
JUNCACEAE	169	*Juncus heldreichianus* Marsson ex Parl. subsp. *heldreichianus*	_	Doğu Mediterranean												x					x		
	170	*Juncus inflexus* L.		Widespread												x				x			
CYPERACEAE	171	*Carex distachya* Desf. var. *distachya*	–	Mediterranean									x				x			x			
	172	*Carex pendula* Hudson	_	European-Siberian									x		x					x			
GRAMINEAE	173	*Poa bulbosa* L.	–	Widespread								x					x			x			
	174	*Poa trivialis* L.	_	Widespread								x	x							x			
	175	*Poa pratensis* L.		Widespread									x							x			
	176	*Bromus japonicus* Thunb. subsp. *japonicus*	–	Widespread								x					x			x			
	177	*Aegilops biuncialis* Vis.	–	Iran-Turan								x					x			x			
	178	*Dactylis glomerata* L. subsp. *hispanica* (Roth) Nyman	Parmak otu	Mediterranean								x					x			x			
	179	*Briza minor* L.	–	Mediterranean								x					x			x			
	180	*Hordeum bulbosum* L.	Arpa	Widespread								x					x			x			
	181	*Hordeum murinum* L.	Yabani arpa	Widespread									x							x			
	182	*Brachypodium sylvaticum* (Hudson) P. Beauv.	_	Widespread											x						x		
	183	*Cynodon dactylon* (L.) Pers. var. *dactylon*	Domuz ayrığı	Widespread								x	x			x				x			
	184	*Phragmites australis* (Cav.) Trin. ex Steudel	Kamış	European-Siberian												x					x		
	185	*Elymus hispidus* (Opiz) Melderis subsp. *hispidus*		Widespread								x								x			

Table 7.1.b. Flora Species List of Section-2

FAMILY	NO	SPECIES NAME	TURKISH NAME	PHYTOGEOGRAPHICAL REGİON	ENDEMISM		T.S.	BERN	CITES			HABITAT							RELATIVE ABUNDANCE				
					R	W		Anx1	App1	App2	App3	1	2	3	4	5	6	7	1	2	3	4	5
PTERIDOPHYTA																							
EQUISETACEAE	1	*Equisetum telmateia* Ehrh.	_	Widespread											x		x			x			
HYPOLEPIDACEAE	2	*Pteridium aquilinum* (L.) Kuhn	Eğrelti	Widespread											x					x			
GYMNOSPERMAE																							
PINACEAE	3	*Pinus pinea* L.	Fıstık çamı	Plantation													**x**					**x**	
	4	*Pinus pinaster* Ait.	Sahil çamı	Plantation													**x**					**x**	
ANGIOSPERMAE																							
DICOTYLEDONES																							
RANUNCULACEAE	5	*Ranunculus arvensis* L..	Düğün çiçeği	Mediterranean									x						x				
	6	*Ranunculus ficaria* L. subsp. *ficariiformis* Rouy & Fouc	Düğün çiçeği	Widespread									x	x	x		x			x			
	7	*Ranunculus constantinopoliatanus* (DC.) d'Urv.	Düğün çiçeği	Widespread									x				x			x			

Table 7.1.b. Flora Species List of Section-2

FAMILY	NO	SPECIES NAME	TURKISH NAME	PHYTOGEOGRAPHICAL REGİON	ENDEMISM		T.S.	BERN	CITES			HABITAT							RELATIVE ABUNDANCE				
					R	W		Anx1	App1	App2	App3	1	2	3	4	5	6	7	1	2	3	4	5
	8	*Ceratocephalus falcatus* (L.) Pers.	–	Widespread													x			x			
	9	*Clematis vitalba* L.	Akasma	Widespread											x		x			x			
BERBERIDACEAE	10	*Epimedium pubigerum*(DC.) Moren & Decaisne	_	European-Siberian											x						x		
PAPAVERACEAE	11	*Papaver rhoeas* L.	Gelincik	Widespread					F				x		x					x			
CRUCIFERAE	12	*Thlaspi perfolatum* L.	Kulakçıklı akça çiçeği	Widespread									x						x				
	13	*Arabis verna* (L.) DC.	–	Mediterranean									x							x			
	14	*Capsella bursa-pastoris* (L.) Medik.	Cobancantasi	Widespread									x				x			x			
CISTACEAE	15	*Cistus creticus* L.	Laden	Widespread											x						x		
	16	*Cistus salviifolius* L.	Laden	Widespread											x		x				x		
VIOLACEAE	17	*Viola odorata* L.	kokulu menekşe	Widespread											x		x				x		
	18	*Viola sieheana* Becker	Menekşe	Widespread													x			x			
	19	*Polygala anatolica* Boiss. & Heldr	Süt otu	Widespread													x			x			
CARYOPHYLLACEAE	20	*Minuartia hamata* (Hausskn.) Mattf.	–	Widespread									x						x				
	21	*Cerastium gracile* Dufour	_	Widespread									x				x			x			
	22	*Holosteum umbellatum* L. var. *Umbellatum*	–	Widespread									x				x			x			
	23	*Stellaria holostea* L.	_	European-Siberian													x			x			
GUTTIFERAE	24	*Hypericum calycinum* L.	Binbirdelik otu	European-Siberian											x		x				x		
LINACEAE	25	*Linum bienne* Miller	_	Widespread									x				x			x			
RHAMNACEAE	26	*Paliurus spina-christi Miller*	Karaçalı	Widespread										x	x		x			x			
MALVACEAE	27	*Malva sylvestris* L.	Ebegümeci	Widespread									x							x			
ANACARDIACEAE	28	*Pistacia terebinthus* L. subsp. *terebinthus*	Menengiç kahvesi	Mediterranean										x						x			
GERANIACEAE	29	*Erodium cicutarium* (L.) L. Herit subsp. *cicutarium*	Turna gagası	Widespread									x						x				
	30	*Geranium dissectum* L.	_	Widespread									x	x			x			x			
POLYGONACEAE	31	*Rumex tuberosus* L. subsp. *tuberosus*	Kuzukulağı	Widespread									x			x	x	x	x				
	32	*Rumex pulcher* L.	Labada	Widespread									x			x		x		x			
LEGUMINOSAE	33	*Medicago lupulina* L.	_	Widespread									x							x			
	34	*Medicago minima* L. var. *minima*	_	Widespread									x				x			x			
	35	*Chamaecytisus hirsutus* (L.) Link	_	Widespread													x				x		
	36	*Vicia cracca* L. subsp. *stenophylla* Vel.	Fiğ	Widespread													x			x			
	37	*Vicia sativa* L. subsp. *sativa*	Fiğ	Widespread										x						x			
	38	*Trifolium campestre* Schreb.	Ucgul	Widespread													x			x			
	39	*Trifolium arvense* L. subsp. *arvense*	Üçgül	Widespread									x				x			x			
	40	*Trifolium repens* L. var. *repens*	Yonca	Widespread									x							x			
	41	*Coronilla varia* L. subsp. *varia*	Körigen	Widespread									x							x			
	42	*Dorycnium pentaphyllum* Scop. subsp. *herbaceum*(Vill.)Rouy.	_	Widespread													x			x			
	43	*Spartium junceum* L.	Katır tırnağı	Mediterranean										x						x			
	44	*Robinia pseudoacacia* L.	Akasya	Widespread								x					x			x			
	45	*Psoralea bituminosa* L.		Mediterranean											x				x				
ROSACEAE	46	*Pyrus elaeagnifolia* Pallas subsp. *elaeagnifolia*	Ahlat	Widespread											x		x			x			
	47	*Geum urbanum* L.	–	Widespread													x			x			
	48	*Mespilus germanica* L.	Döngel	European-Siberian													x				x		
	49	*Potentilla recta* L.	Dik parmak otu	Widespread									x				x		x				

Table 7.1.b. Flora Species List of Section-2

FAMILY	NO	SPECIES NAME	TURKISH NAME	PHYTOGEOGRAPHICAL REGİON	ENDEMISM		T.S.	BERN	CITES			HABITAT							RELATIVE ABUNDANCE				
					R	W		Anx1	App1	App2	App3	1	2	3	4	5	6	7	1	2	3	4	5
	50	*Sanguisorba minor Scop. Subsp. muricata (Spach)Brig*	Çayırdüğmesi	Widespread									x				x		x				
	51	*Filipendula vulgaris* Moench.	_	European-Siberian													x			x			
	52	*Pyracantha coccinea* Roemer		Widespread											x		x			x			
	53	*Crataegus monogyna* Jacq. Subsp. *monogyna*	Alıç	Widespread											x		x			x			
	54	*Prunus divaricata* Ledeb. Subsp. *divaricata*	Yabani erik	Widespread													x			x			
	55	*Prunus spinosa* L. subsp. *dasyphylla* (Schur) Domin	Erik	European-Siberian											x					x			
	56	*Rubus sanctus* Schreber	Böğürtlen	Widespread									x	x	x	x	x				x		
	57	*Rosa canina* L.	Kusburnu	Widespread													x		x				
LYTHRACEAE	58	*Lythrum salicaria* L.	Aklar otu	European-Siberian									x		x	x				x			
UMBELLIFERAE	59	*Eryngium campestre* L. var. *virens* (Link) Weins	Şekerdikeni	Widespread								x							x				
	60	*Eryngium creticum* Lam.		Mediterranean								x								x			
	61	*Berula erecta* (Huds.) Coville		Widespread									x							x			
	62	*Scandix iberica* Bieb.	–	Widespread													x		x				
	63	*Daucus carota* L.	Yabani havuc	Widespread									x	x			x			x			
	64	*Oenanthe pimpinelloides* L.	_	Widespread											x						x		
	65	*Oenanthe silaifolia* Bieb.	_	Widespread									x								x		
	66	*Ferulago confusa* Velen	_	European-Siberian			VU								x					x			
	67	*Conium maculatum L.*		Widespread									x			x				x			
ARALIACEAE	68	*Hedera helix* L.	Duvar sarmaşığı	Widespread											x		x				x		
CAPRIFOLIACEAE	69	*Lonicera etrusca* Santi var. *etrusca*	_	Mediterranean											x					x			
CORNACEAE	70	*Cornus mas* L.	Kızılcık	European-Siberian											x					x			
DIPSACACEAE	71	*Dipsacus laciniatus L.*		Widespread									x	x			x			x			
COMPOSITAE	72	*Senecio vernalis* Waldst. et Kit	–	Widespread								x	x							x			
	73	*Tussilago farfara* L.	Kabalak	European-Siberian									x		x		x	x		x			
	74	*Doronicum orientale* Hoffm.	–	Widespread													x			x			
	75	*Cichorium intybus L.*		Widespread										x			x	x		x			
	76	*Silybum marianum* (L.) Gaertner	Gengel	Mediterranean									x							x			
	77	*Cnicus benedictus* L.	Bostan otu	Widespread									x							x			
	78	*Carthamus dentatus Vahl*	–	Widespread									x							x			
	79	*Anthemis cretica* L. subsp. *pontica* (Willd.) Grierson	Papatya	Widespread									x							x			
	80	*Anthemis tinctoria* L.		Widespread									x		x					x			
	81	*Bellis perennis* L.	Yoğurt çiçeği	European-Siberian									x		x		x			x			
	82	*Carduus pycnocephalus* L. subsp. *albidus* (M.Bieb) Kazmi	Kenger	Widespread									x							x			
	83	*Carduus nutans* L. sensu lato	Kenger	Widespread								x	x							x			
	84	*Carlina corymbosa* L.		Mediterranean									x							x			
	85	*Hypochoeris radiata* L.	–	Widespread									x				x			x			
	86	*Cirsium polycephalum* DC.	_	Mediterranean	x		CR								x					x			
	87	*Chondrilla juncea* L . var. *juncea*	–	Widespread									x						x				
	88	*Lactuca serriola* L.	–	Widespread									x						x				
	89	*Crepis sancta* (L.) Babcock	–	Widespread									x						x				

Table 7.1.b. Flora Species List of Section-2

FAMILY	NO	SPECIES NAME	TURKISH NAME	PHYTOGEOGRAPHICAL REGİON	ENDEMISM		T.S.	BERN	CITES			HABITAT							RELATIVE ABUNDANCE				
					R	W		Anx1	App1	App2	App3	1	2	3	4	5	6	7	1	2	3	4	5
	90	*Scorzonera cana* (C.A.Meyer) Hoffm. var. *cana*	Yemlik	Widespread									x							x			
	91	*Pulicaria dysenterica* (L.) Gaertn.	_	Widespread									x			x				x			
CAMPANULACEAE	92	*Campanula rapunculus* L. var. *rapunculus* L.	Çan çiçeği	European-Siberian											x		x			x			
ERICACEAE	93	*Arbutus unedo* L.	Kocayemiş	Widespread											x		x				x		
	94	*Erica arborea* L.	Funda	Widespread											x		x				x		
PRIMULACEAE	95	*Androsace maxima* L.	–	Widespread									x				x			x			
	96	*Primula vulgaris* Huds. Subsp. *sibthorpii* (Hoffmans) W.W.Sm & Forrest	Çuha çiçeği	European-Siberian											x	x	x				x		
	97	*Anagallis arvensis* L. var. *caerulea* (L.) Gouan	Farekulağı	Widespread									x		x					x			
OLEACEAE	98	*Jasminum fruticans* L.	Yasemin	Mediterranean										x			x			x			
	99	*Fraxinus angustifolia* Vahl subsp. *syriaca* (Boiss.) Yalt.	_	Iran-Turan											x		x				x		
	100	*Phillyrea latifolia* L.	Akkesme	Mediterranean											x		x			x			
	101	*Ligustrum vulgare* L.		European-Siberian											x					x			
ASCLEPIADACEAE	102	*Periploca graeca* L. var. *graeca*		Mediterranean													x		x				
BORAGINACEAE	103	*Echium italicum L.*	–	Mediterranean										x						x			
	104	*Cynoglossum montanum* L.	_	European-Siberian									x							x			
	105	*Buglossoides arvensis* (L.) Johnston	–	Mediterranean									x				x			x			
	106	*Anchusa azurea* Miller var. *azurea*											x							x			
	107	*Trachystemon orientalis* (L.) G. Don		Euksin											x					x			
SCROPHULARIACEAE	108	*Parentucellia latifolia* (L.) Caruel subsp. *latifolia*	_	Mediterranean									x							x			
	109	*Bellardia trixago* (L.) All	_	Widespread									x							x			
	110	*Veronica chamaedrys* L.	_	European-Siberian									x				x			x			
CONVOLVULACEAE	111	*Convolvulus arvensis L.*	–	Widespread									x							x			
OROBANCHACEAE	112	*Orobanche anatolica* Boiss. & Reut.	Anadolu canavar otu	Widespread													x			x			
LABIATAE	113	*Lamium amplexicaule* L.	Ballibaba	Widespread									x				x			x			
	114	*Lamium purpureum* L. var. *purpureum*	–	Widespread									x	x			x	x		x			
	115	*Ajuga reptans* L.	_	European-Siberian											x		x			x			
	116	*Prunella laciniata* (L.) L.	_	European-Siberian								x	x				x			x			
	117	*Prunella vulgaris* L.	–	European-Siberian													x			x			
	118	*Salvia virgata* Jacq.	Adaçayı	Iran-Turan								x		x						x			
PLANTAGINACEAE	119	*Plantago lanceolata* L.	Bağa	Widespread									x		x		x			x			
THYMELAEACEAE	120	*Daphne pontica* L.	Dafne	Euksin													x			x			
SANTALACEAE	121	*Osyris alba* L.	Süpürge çalısı	Mediterranean											x		x			x			
CORYLACEAE	122	*Corylus avellana* L.var. *avellana*	Fındık ağacı	European-Siberian											x		x			x			
	123	*Carpinus betulus* L.	Gürgen	European-Siberian											x		x				x		
SALICACEAE	124	*Salix alba* L.		European-Siberian								x			x	x	x			x			
ULMACEAE	125	*Ulmus minor* Miller. subsp. *minor*	Kara ağaç	Doğu Mediterranean												x				x			
URTICACEAE	126	*Urtica dioica* L.	Isırgan	European-Siberian									x		x					x			
FAGACEAE	127	*Quercus frainetto* Ten.	Macar meşesi	European-Siberian											x		x					x	
	128	*Quercus cerris* L. var. *cerris*	Saçlımeşe	Widespread											x							x	
	129	*Quercus petraea* (Mattuschka) Liebl. Var. *iberica* (Steven ex Bieb.) Krassiln	Sapsız meşe	Widespread											x		x					x	

Table 7.1.b. Flora Species List of Section-2

FAMILY	NO	SPECIES NAME	TURKISH NAME	PHYTOGEOGRAPHICAL REGİON	ENDEMISM		T.S.	BERN	CITES			HABITAT							RELATIVE ABUNDANCE				
					R	W		Anx1	App1	App2	App3	1	2	3	4	5	6	7	1	2	3	4	5
LORANTHACEAE	130	*Viscum album* L. subsp. album	Ökse otu	Widespread																x			
RUBIACEAE	131	*Galium verum* L. subsp. *verum*	_	European-Siberian								x	x		x					x			
	132	*Rubia peregrina* L.	_	Mediterranean									x		x					x			
MONOCOTYLEDONES																							
ARACEAE	133	*Arum italicum* Miller		Widespread									x		x			x		x			
LILIACEAE	134	*Ruscus aculeatus* L. subsp. *angustifolius* Boiss.	Tavşanmemesi	Widespread											x		x					x	
	135	*Smilax aspera* L.	Silcan	Widespread								x			x		x			x			
	136	*Muscari armeniacum* Leichtlin ex Baker	_	Widespread									x							x			
	137	*Ornithogalum wiedemannii* Boiss. var. *wiedemannii*	_	Widespread								x	x							x			
	138	*Ornithogalum orthophyllum* Ten.	_	Widespread								x	x							x			
	139	*Lilium martagon* L.	Zambak	European-Siberian			VU										x			x			
	140	*Scilla bifolia* L.	_	Mediterranean									x		x		x			x			
AMARYLLIDACEAE	141	*Galanthus x valentinei* Beck	_	European-Siberian	x		VU						x		x		x				x		
IRIDACEAE	142	*Crocus biflorus* Miller subsp. *biflorus*		Mediterranean									x		x		x	x		x			
TYPHACEAE	143	*Typha latifolia* L.	Kamış	Widespread								x	x			x					x		
JUNCACEAE	144	*Juncus heldreichianus* Marsson ex Parl. subsp. *heldreichianus*	_	Doğu Mediterranean								x	x			x					x		
	145	*Juncus effusus* L.		Widespread									x								x		
	146	*Juncus inflexus* L.		Widespread												x							
CYPERACEAE	147	*Carex distachya* Desf. var. *distachya*	–	Mediterranean											x		x			x			
	148	*Carex pendula* Hudson	_	European-Siberian									x		x					x			
GRAMINEAE	149	*Poa bulbosa* L.	–	Widespread									x				x			x			
	150	*Poa trivialis* L.	_	Widespread									x							x			
	151	*Poa pratensis* L.		Widespread									x										
	152	*Bromus japonicus* Thunb. subsp. *japonicus*	–	Widespread													x			x			
	153	*Aegilops biuncialis* Vis.	–	Iran-Turan													x			x			
	154	*Dactylis glomerata* L. subsp. *hispanica* (Roth) Nyman	Parmak otu	Mediterranean											x		x			x			
	155	*Briza minor* L.	–	Mediterranean											x		x			x			
	156	*Hordeum bulbosum* L.	Arpa	Widespread									x				x			x			
	157	*Brachypodium sylvaticum* (Hudson) P. Beauv.	_	Widespread											x		x	x			x		
	158	*Cynodon dactylon* (L.) Pers. var. *dactylon*	Domuz ayrığı	Widespread									x			x				x			
	159	*Phragmites australis* (Cav.) Trin. ex Steudel	Kamış	European-Siberian									x								x		
	160	*Elymus hispidus* (Opiz) Melderis subsp. *hispidus*		Widespread									x							x			

Table 7.1.c. Flora Species List of Section-7

FAMILY	NO	SPECIES NAME	TURKISH NAME	PHYTOGEOGRAPHICAL REGİON	ENDEMISM		T.S.	BERN	CITES			HABITAT			RELATIVE ABUNDANCE				
					B	Y		Anx1	App1	App2	App3	1	2	3	1	2	3	4	5
PTERIDOPHYTA																			
HYPOLEPIDACEAE	1	*Pteridium aquilinum* (L.) Kuhn	Eğrelti	Widespread								x	x			x			
GYMNOSPERMAE																			
PINACEAE	2	*Pinus pinaster* Ait.	Sahil çamı	Plantation														x	
CUPRESSACEAE	3	*Juniperus oxycedrus* L. subsp. *oxycedrus*	Ardıç	Widespread								x				x			
ANGIOSPERMAE																			
DICOTYLEDONES																			
RANUNCULACEAE	4	*Ranunculus arvensis* L..	Düğün çiçeği	Mediterranean									x		x				
	5	*Ranunculus ficaria* L. subsp. *ficariiformis* Rouy & Fouc	Düğün çiçeği	Widespread									x	x		x			
	6	*Ranunculus constantinopoliatanus* (DC.) d'Urv.	Düğün çiçeği	Widespread									x			x			
	7	*Clematis vitalba* L.	Akasma	Widespread												x			
BERBERIDACEAE	8	*Epimedium pubigerum*(DC.) Moren & Decaisne	_	European-Siberian													x		
PAPAVERACEAE	9	*Papaver rhoeas* L.	Gelincik	Widespread									x			x			
CRUCIFERAE	10	*Thlaspi perfolatum* L.	Kulakçıklı akça çiçeği	Widespread									x		x				
	11	*Capsella bursa-pastoris* (L.) Medik.	Cobancantasi	Widespread									x			x			
CISTACEAE	12	*Cistus creticus* L.	Laden	Widespread								x	x				x		
CARYOPHYLLACEAE	13	*Holosteum umbellatum* L. var. *Umbellatum*	–	Widespread									x			x			
	14	*Stellaria holostea* L.	_	European-Siberian												x			
MALVACEAE	15	*Malva sylvestris* L.	Ebegümeci	Widespread									x			x			
SIMAROUBACEAE	16	*Ailanthus altissima* (Miller) Swingle		Widespread									x			x			
GERANIACEAE	17	*Erodium cicutarium* (L.) L. Herit subsp. *cicutarium*	Turna gagası	Widespread									x		x				
LEGUMINOSAE	18	*Medicago minima* L. var. *minima*	_	Widespread									x			x			
	19	*Vicia cracca* L. subsp. *stenophylla* Vel.	Fiğ	Widespread												x			
	20	*Trifolium campestre* Schreb.	Ucgul	Widespread												x			
	21	*Coronilla varia* L. subsp. *varia*	Körigen	Widespread									x			x			
	22	*Spartium junceum* L.	Katır tırnağı	Mediterranean								x					x		
ROSACEAE	23	*Potentilla recta* L.	Dik parmak otu	Widespread									x		x				
	24	*Sanguisorba minor Scop. Subsp. muricata (Spach)Brig*	Çayırdüğmesi	Widespread								x		x	x				
	25	*Crataegus monogyna* Jacq. Subsp. *monogyna*	Alıç	Widespread								x				x			
	26	*Rubus sanctus* Schreber	Böğürtlen	Widespread								x	x	x			x		
	27	*Rosa canina* L.	Kusburnu	Widespread								x				x			
UMBELLIFERAE	28	*Eryngium campestre* L. var. *virens* (Link) Weins	Şekerdikeni	Widespread								x			x				
	29	*Scandix iberica* Bieb.	–	Widespread											x				
	30	*Daucus carota* L.	Yabani havuc	Widespread								x		x		x			
	31	*Conium maculatum L.*		Widespread									x						
ARALIACEAE	32	*Hedera helix* L.	Duvar sarmaşığı	Widespread									x	x			x		
DIPSACACEAE	33	*Scabiosa argentea* L.	–	Widespread								x				x			
COMPOSITAE	34	*Senecio vernalis* Waldst. et Kit	–	Widespread								x	x			x			
	35	*Cichorium intybus L.*		Widespread								x		x		x			
	36	*Cnicus benedictus* L.	Bostan otu	Widespread									x			x			

Table 7.1.c. Flora Species List of Section-7

FAMILY	NO	SPECIES NAME	TURKISH NAME	PHYTOGEOGRAPHICAL REGİON	ENDEMISM		T.S.	BERN	CITES			HABITAT				RELATIVE ABUNDANCE			
	37	*Anthemis tinctoria* L.		Widespread								x		x		x			
	38	*Bellis perennis* L.	Yoğurt çiçeği	European-Siberian									x			x			
	39	*Carduus nutans* L. sensu lato	Kenger	Widespread								x	x			x			
	40	*Carlina corymbosa* L.		Mediterranean									x						
	41	*Cirsium polycephalum* DC.	_	Mediterranean	x		CR					x		x		x			
	42	*Chondrilla juncea* L . var. *juncea*	–	Widespread									x		x				
ERICACEAE	43	*Erica arborea* L.	Funda	Widespread								x		x		x			
	44	*Erica manipuliflora* Salisb.	Funda	Mediterranean								x				x			
PRIMULACEAE	45	*Androsace maxima* L.	–	Widespread									x			x			
OLEACEAE	46	*Phillyrea latifolia* L.	Akkesme	Mediterranean										x		x			
BORAGINACEAE	47	*Echium italicum L.*	–	Mediterranean										x		x			
SCROPHULARIACEAE	48	*Veronica chamaedrys* L.	_	European-Siberian									x			x			
	49	*Verbascum sinuatum* L.		Mediterranean								x		x	x				
CONVOLVULACEAE	50	*Convolvulus arvensis L.*	–	Widespread									x			x			
LABIATAE	51	*Lamium amplexicaule* L.	Ballibaba	Widespread									x			x			
	52	*Salvia virgata* Jacq.	Adaçayı	Iran-Turan								x		x		x			
PLANTAGINACEAE	53	*Plantago lanceolata* L.	Bağa	Widespread									x			x			
SANTALACEAE	54	*Osyris alba* L.	Süpürge çalısı	Mediterranean								x				x			
CORYLACEAE	55	*Carpinus betulus* L.	Gürgen	European-Siberian									x				x		
URTICACEAE	56	*Urtica dioica* L.	Isırgan	European-Siberian									x			x			
PLATANACEAE	57	*Platanus orientalis* L.		Widespread									x			x			
MONOCOTYLEDONES																			
LILIACEAE	58	*Ornithogalum orthophyllum* Ten.	_	Widespread								x	x			x			
GRAMINEAE	59	*Poa bulbosa* L.	–	Widespread									x			x			
	60	*Poa trivialis* L.	_	Widespread									x			x			
	61	*Poa pratensis* L.		Widespread									x						
	62	*Bromus japonicus* Thunb. subsp. *japonicus*	–	Widespread												x			
	63	*Aegilops biuncialis* Vis.	–	Iran-Turan												x			
	64	*Dactylis glomerata* L. subsp. *hispanica* (Roth) Nyman	Parmak otu	Mediterranean								x		x		x			

Table 7.2.a. Amphibians and Reptiles Species List of Section-1

ORDER	FAMILY	TAXON	ENGLISH NAME	END.	T.S.			EUNIS HABITAT CLASS	RELATIVE ABUNDANCE
					IUCN	BERN	CITES		
Anura	Bufonidae	*Bufotes variabilis*	Green Toad		DD	App 2	-	G1.3;I1.2;E1.2;E3.4;G1.A;G3.F;F5.4	Abundant
Anura	Bufonidae	*Bufo bufo*	Common Toad		LC	App 2	-	G1.A;G3.F	Rare
Anura	Hylidae	*Hyla orientalis*	The European tree frog		LC	App 2	-	G1.A;G3.F	Rare
Anura	Ranidae	*Pelophylax ridibundus*	The marsh frog		LC	App 3	-	G1.3;I1.2;E3.4;G1.A;G3.F	Abundant
Anura	Ranidae	*Rana dalmatina*	The agile frog		LC	App 2		G1.A;G3.F; E3.4;F5.4; I1.2; G1.3	Moderately
Testudines	Testudinidae	*Testudo graeca*	The spur-thighed tortoise		VU	App 2	App 2	G1.3;I1.2;E3.4;G1.A;G3.F;F5.4	Abundant
Testudines	Geoemydidae	*Mauremys rivulata*	Western Caspian Turtle		-	-	-	G1.A;G3.F	Rare
Squamata	Lacertidae	*Lacerta trilineata*	The Balkan green lizard		LC	App 2	-	G1.3;I1.2;E3.4;G1.A;F5.4	Moderately
Squamata	Lacertidae	*Lacerta viridis*	The green lizard		LC	App 2	-	G1.3;I1.2;E3.4;G1.A;F5.4;G3.F	Abundant
Squamata	Lacertidae	*Podarcis muralis*	Common wall lizard		LC	App 2	-	F5.4	Rare
Squamata	Lacertidae	*Ophisops elegans*	Snake-eyed lizard		LC	App 2	-	G1.3;I1.2;E1.2;E3.4;F5.4	Moderately
Squamata	Anguidae	*Pseudopus apodus*	The European legless lizard		LC	App 2	-	G1.3;I1.2; G1.A E1.2;E3.4;F5.4	Moderately
Squamata	Anguidae	*Anguis fragilis*	The slow-worm		LC	App 3	-	G1.A;F5.4;G3.F; I1.2; E3.4	Moderately
Squamata	Scincidae	*Ablepharus kitaibelii*	The European copper skink		LC	App 2	-	G1.A;G3.F	Rare
Squamata	Colubridae	*Natrix natrix*	Grass snake		LC	App 3		G1.3;I1.2;E1.2;E3.4	Moderately
Squamata	Colubridae	*Natrix tessellata*	The dice snake		LC	App 2		G1.A;F5.4;G3.F; I1.2; E3.4	Moderately
Squamata	Colubridae	*Elaphe sauromates*	East-Four-lined Ratsnake		LC	App 2	-	G1.A;G3.F	Rare
Squamata	Colubridae	*Dolichophis caspius*	The Caspian whipsnake		LC	App 2	-	G1.A; G1.3;G3.F; I1.2;E1.2; E3.4	Moderately
Squamata	Colubridae	*Zamenis longissimus*	Aesculapian Ratsnake		LC	App 2	-	G1.3;I1.2;F5.4	Rare

Table 7.2.b. Amphibians and Reptiles Species List of Section-2

ORDER	FAMILY	TAXON	ENGLISH NAME	END.	T.S.			EUNIS HABITAT CLASS	RELATIVE ABUNDANCE
					IUCN	BERN	CITES		
Anura	Bufonidae	*Bufotes variabilis*	Green Toad		DD	App 2	-	G1.3;I1.2;E3.4;G1.A;G3.F;F5.4	Abundant
Anura	Bufonidae	*Bufo bufo*	Common Toad		LC	App 2	-	G1.A; G1.3; I1.2;E3.4; F5.4;G3.F;C3.2	Moderately
Anura	Hylidae	*Hyla orientalis*	The European tree frog		LC	App 2	-	G1.A; G1.3; I1.2;E3.4; F5.4;G3.F	Moderately
Anura	Ranidae	*Pelophylax ridibundus*	The marsh frog		LC	App 3	-	G1.A; G1.3; I1.2;E3.4; F5.4;G3.F	Very abundant
Anura	Ranidae	*Rana dalmatina*	The agile frog		LC	App 2		G1.A;G3.F; E3.4;F5.4; I1.2; G1.3; C3.2	Moderately
Urodela	Salamandridae	*Lissotriton vulgaris*	Smooth newt		LC	App 3		G1.3;E3.4;G3.F	Rare
Testudines	Testudinidae	*Testudo graeca*	The spur-thighed tortoise		VU	App 2	App 2	G1.3;I1.2;E3.4;G1.A;G3.F;F5.4	Abundant
Testudines	Geoemydidae	*Mauremys rivulata*	Western Caspian Turtle		-	-	-	G1.A;G1.3;E3.4;I1.2	Moderately
Squamata	Lacertidae	*Lacerta trilineata*	The Balkan green lizard		LC	App 2	-	G1.3; G3.F;I1.2;E3.4;G1.A	Abundant
Squamata	Lacertidae	*Lacerta viridis*	The green lizard		LC	App 2	-	G1.3;I1.2;E3.4;G1.A;F5.4;G3.F; C3.2	Abundant
Squamata	Lacertidae	*Podarcis tauricus*	Balkan wall lizard		LC	App 2	-	G1.3; G3.F;G1.A	Rare
Squamata	Lacertidae	*Ophisops elegans*	Snake-eyed lizard		LC	App 2	-	G1.A;G1.3;G3.F	Moderately
Squamata	Anguidae	*Pseudopus apodus*	The European legless lizard		LC	App 2	-	G1.A	Rare
Squamata	Anguidae	*Anguis fragilis*	The slow-worm		LC	App 3	-	G1.A;G1.3;G3.F;E3.4;C3.2	Moderately
Squamata	Scincidae	*Ablepharus kitaibelii*	The European copper skink		LC	App 2	-	G1.A; G1.3;G3.F;E3.4;C3.2	Rare
Squamata	Colubridae	*Natrix natrix*	Grass snake		LC	App 3		G1.3;I1.2;E3.4	Moderately
Squamata	Colubridae	*Natrix tessellata*	The dice snake		LC	App 2		G1.A;G1.3;I1.2;E3.4	Moderately
Squamata	Colubridae	*Elaphe sauromates*	East-Four-lined Ratsnake		LC	App 2	-	G3.F	Very rare
Squamata	Colubridae	*Dolichophis caspius*	The Caspian whipsnake		LC	App 2	-	G1.A;G1.3;G3.F;I1.2	Rare
Squamata	Colubridae	*Zamenis longissimus*	Aesculapian Ratsnake		LC	App 2	-	G1.3;G1.A;G3.F	Rare
Squamata	Colubridae	*Coronella austriaca*	Smooth snake		LC	App 2		G1.3;G1.A;G3.F	Rare

Table 7.2.c. Amphibians and Reptiles Species List of Section-7

ORDER	FAMILY	TAXON	ENGLISH NAME	END.	T.S.			EUNIS HABITAT CLASS	RELATIVE ABUNDANCE
					IUCN	BERN	CITES		
Anura	Bufonidae	*Bufotes variabilis*	Green Toad		DD	App 2	-	G1.3;G3.F;F6.4	Moderately
Anura	Hylidae	*Hyla orientalis*	The European tree frog		LC	App 2	-	G1.3	Rare
Anura	Ranidae	*Pelophylax ridibundus*	The marsh frog		LC	App 3	-	G1.3	Moderately
Anura	Ranidae	*Rana dalmatina*	The agile frog		LC	App 2		G3.F;G1.3	Rare
Testudines	Testudinidae	*Testudo graeca*	The spur-thighed tortoise		VU	App 2	App 2	G1.3;G3.F;F6.4	Abundant
Testudines	Geoemydidae	*Mauremys rivulata*	Western Caspian Turtle		-	-	-	G1.3	Rare
Squamata	Lacertidae	*Lacerta viridis*	The green lizard		LC	App 2	-	G1.3;G3.F;F6.4	Moderately
Squamata	Lacertidae	*Podarcis tauricus*	Balkan wall lizard		LC	App 2	-	F6.4	Rare
Squamata	Anguidae	*Anguis fragilis*	The slow-worm		LC	App 3	-	G3.F;G1.3	Rare
Squamata	Scincidae	*Ablepharus kitaibelii*	The European copper skink		LC	App 2	-	G1.3;G3.F;F6.4	Moderately
Squamata	Colubridae	*Natrix tessellata*	The dice snake		LC	App 2		G1.3	Rare
Squamata	Colubridae	*Dolichophis caspius*	The Caspian whipsnake		LC	App 2	-	G1.3;G3.F	Rare

Table 7.3.a. Bird Species List of Section-1

ORDO	FAMILY	SPECIES	TURKISH NAME	ENGLISH NAME	RECORDİNG METHOD	EUNIS HABITAT TYPES									THREATENED CATEGORIES				
															International				National
						I1.2 G1.3	I1.2 G1.3	E1.2 E3.4	G1.A G3.F	I1.2 G1.3	G1.A I1.2 E3.4 F5-4	I1.2 G1.3	F5.4.	I1.2 G1.3	IUCN	BERN	CITES	Kiziroglu	CHC
CICONIIFORMES	CICONIIDAE	*Ciconia ciconia* (Linnaeus, 1758)	Leylek	White Stork	5		x								LC	App-II		A.3.1	APP-I
ACCIPITRIFORMES	ACCIPITRIDAE	*Accipiter nisus* (Linnaeus, 1758)	Atmaca	Eurasian Sparrowhawk	1			1		1		1			LC	APP-III	APP-2	A.3	APP-I
ACCIPITRIFORMES	ACCIPITRIDAE	*Buteo buteo* (Linnaeus, 1758)	Şahin	Eurasian Buzzard	1	1	2		2		1				LC	APP-III	APP-2	A.3	APP-I
ACCIPITRIFORMES	ACCIPITRIDAE	*Buteo rufinus* (Cretzschmar, 1827)	Kızıl Şahin	Long-legged Buzzard	1				1				1		LC	APP-III	APP-2	A.3	APP-I
ACCIPITRIFORMES	ACCIPITRIDAE	*Aquila heliaca*	Şah kartalı	Eastern Imperial Eagle	3			x	x						VU	APP-III	APP-1	A.1.2	-
ACCIPITRIFORMES	ACCIPITRIDAE	*Circaetus gallius*	Yılan Kartalı	Short-toed snake eagle	3	x	x	x	x	x	x	x	x	x	LC	APP-III	APP-2	A.4	-
FALCONIFORMES	FALCONIDAE	*Falco tinnunculus* Linnaeus, 1758	Kerkenez	Common Kestrel	1							1	1		LC	APP-II	APP-2	A.2	APP-I
GALLIFORMES	PHASIANIDAE	*Alectoris chukar* (Gray, 1830)	Kınalı Keklik	Chukar	5			3	survey						LC	APP-III		A.2	APP-III
COLUMBIFORMES	COLUMBIDAE	*Columba livia* Gmelin, 1789	Kaya Güvercini	Rock Dove	1				5		5	9		4	LC	APP-III		A.5	APP-III
CUCULIFORMES	CUCULIDAE	*Cuculus canorus* Linnaeus, 1758	Guguk	Common Cuckoo	2				sound-1						LC	APP-III		A.2	APP-I
STRIGIFORMES	STRIGIDAE	*Athene noctua* (Scopoli, 1769)	Kukumav	Little Owl	1-5	1	1	1			survey				LC	APP-II	APP-2	A.2	APP-I
PICIFORMES	PICIDAE	*Dendrocopos syriacus* (Ehrenberg, 1833)	Alaca ağaçkakan	Syrian woodpecker	1				1		2				LC	APP-II		A.2	APP-I
PASSERIFORMES	MOTACILLIDAE	*Anthus pratensis* (Linnaeus, 1758)	Çayır incir kuşu	Meadow pipit	1			2	2		1	1	1		LC	APP-II		A.3	APP-I
PASSERIFORMES	MOTACILLIDAE	*Motacilla alba alba* Linnaeus, 1758	Ak Kuyruksallayan	White Wagtail	1	1	3		3		2	2			LC	APP-II		A.3.1	APP-I
PASSERIFORMES	TROGLODYTIDAE	*Troglodytes troglodytes* (Linnaeus, 1758)	Çitkuşu	Winter Wren	1				1		1				LC	APP-II		A.3.1	APP-I
PASSERIFORMES	TURDIDAE	*Erithacus rubecula* (Linnaeus, 1758)	Kızılgerdan	Robin	1	2	2		2			2	2		LC	APP-II		A.1.2	APP-I
PASSERIFORMES	TURDIDAE	*Oenanthe isabellina* (Temminck, 1829)	Boz Kuyrukkakan	Isabelline Wheatear	1			2		2				1	LC	APP-II		A.3	APP-I
PASSERIFORMES	TURDIDAE	*Turdus merula* Linnaeus, 1758	Karatavuk	Blackbird	1	3	1		5		2	1	1		LC	APP-II		A.3	APP-I
PASSERIFORMES	SYLVIIDAE	*Phylloscopus collybita* (Vieillot, 1817)	Çıvgın	Common Chiffchaff	1	2	4		4		2	3			LC	APP-II		A.3	APP-I
PASSERIFORMES	SYLVIIDAE	*Regulus ignicapilla* (Temminck, 1820)	sürmeli çalı kuşu	Coomon firecrest	1				1						LC	APP-II		A.3.1	APP-I
PASSERIFORMES	AEGITHALIDAE	*Aegithalos caudatus* (Linnaeus, 1758)	Uzun Kuyruklu Baştankara	Long-tailed Tit	1				15						LC	APP-II		A.3	APP-I
PASSERIFORMES	PARIDAE	*Parus ater* Linnaeus, 1758	Çam Baştankarası	Coal Tit	1				2						LC	APP-II		A.2	APP-II
PASSERIFORMES	PARIDAE	*Parus caeruleus* Linnaeus, 1758	Mavi Baştankara	Blue Tit	1				5						LC	APP-II		A.3	APP-I
PASSERIFORMES	PARIDAE	*Parus major* Linnaeus, 1758	Büyük Baştankara	Great Tit	1				3		2				LC	APP-II		A.2	APP-I
PASSERIFORMES	CORVIDAE	*Garrulus glandarius* (Linnaeus, 1758)	Alakarga	Eurasian Jay	1	1			2		2	2	3		LC	APP-III		A.1.2	APP-I
PASSERIFORMES	CORVIDAE	*Pica pica* (Linnaeus, 1758)	Saksağan	Magpie	1			4		3	2	5	5	6	LC	-		A.3.1	APP-III
PASSERIFORMES	CORVIDAE	*Corvus monedula* Linnaeus, 1758	Küçük Karga	Jackdaw	1	7	17							7	LC	-		A.5	APP-III
PASSERIFORMES	CORVIDAE	*Corvus frugilegus* Linnaeus, 1758	Ekin Kargası	Rook	1							21			LC	-		A.5	APP-III
PASSERIFORMES	CORVIDAE	*Corvus corone cornix*Linnaeus, 1758	Gri Leş Kargası	Carrion Crow	1	11	9	17		17	7	> 100			LC	-		A.5	APP-III
PASSERIFORMES	CORVIDAE	*Corvus corax* Linnaeus, 1758	Kuzgun	Raven	1			1							LC	-		A.5	APP-III
PASSERIFORMES	STURNIDAE	*Sturnus vulgaris* Linnaeus, 1758	Sığırcık	Starling	1	8	25						>50		LC	APP-III		A.5	APP-II
PASSERIFORMES	PASSERIDAE	*Fringilla coelebs* Linnaeus, 1758	İspinoz	Common Finch	1	2	5		7		3		2	2	LC	APP-III		A.3	APP-II
PASSERIFORMES	FRINGILLIDAE	*Carduelis chloris* (Linnaeus,	Florya	Greenfinch	1				2						LC	APP-II		A.3	APP-I

Table 7.3.a. Bird Species List of Section-1

ORDO	FAMILY	SPECIES	TURKISH NAME	ENGLISH NAME	RECORDİNG METHOD	EUNIS HABITAT TYPES									THREATENED CATEGORIES				
															International				National
						I1.2 G1.3	I1.2 G1.3	E1.2 E3.4	G1.A G3.F	I1.2 G1.3	G1.A I1.2 E3.4 F5-4	I1.2 G1.3	F5.4.	I1.2 G1.3	IUCN	BERN	CITES	Kiziroglu	CHC
		1758)																	
PASSERIFORMES	FRINGILLIDAE	*Carduelis cannabina* (Linnaeus, 1758)	Ketenkuşu	Linnet	1			27	5	15					LC	APP-II		A.3	APP-I
PASSERIFORMES	FRINGILLIDAE	*Loxia curvirostra* Linnaeus, 1758	Çaprazgaga	Red Crossbill	1				1						LC	APP-II		A.3	APP-I
PASSERIFORMES	FRINGILLIDAE	*Coccothraustes coccothraustes* (Linnaeus, 1758)	Kocabaş	Hawfinch	1				1						LC	APP-II		A.3	APP-I
PASSERIFORMES	EMBERIZIDAE	*Miliaria calandra* Linnaeus, 1758	Tarla kiraz kuşu	Corn Bunting	1						2	1			LC	APP-II		A.4	APP-I

Table 7.3.b. Bird Species List of Section-2

ORDO	FAMILY	SPECIES	TURKISH NAME	ENGLISH NAME	RECORDİNG METHOD	EUNIS HABITAT TYPES												THREATENED CATEGORIES				
																		Internationally				National
						I1.2 G1.3	I1.2 E3.4 G1.A	I1.2 E3.4 G1.A F5.4 G1.3	I1.2 E3.4 G1.3 G3.F	G3.F	G1.A	G1.A	G1.3 G3.F	G3.F	G3.F C3.2	G1.A	G3.F					
						2-1	2-2	2-3	2-4	2-5	2-6	2-7	2-Storage area-1	2- Storage area -2	2- Storage area -3	2- Storage area -4	2-Camp site	IUCN	BERN	CITES	Kiziroglu	CHC
PELECANIFORMES	PHALACROCORACIDAE	*Phalacrocorax carbo* (Linnaeus, 1758)	Karabatak	Cormorant	1						3		3	1	1	2		LC	APP - III		A.3	APP -2
CICONIIFORMES	ARDEIDAE	*Egretta garzetta* (Linnaeus, 1766)	Küçük Ak Balıkçıl	Little Egret	1	1					1							LC	APP -II		A.3.1	APP -1
CICONIIFORMES	ARDEIDAE	*Ardea cinerea* Linnaeus, 1758	Gri Balıkçıl	Grey Heron	1								1	1	1	1		LC	APP -II		A.3	APP -1
ACCIPITRIFORMES	ACCIPITRIDAE	*Accipiter nisus* (Linnaeus, 1758)	Atmaca	Eurasian Sparrowhawk	1		1			1								LC	APP - III	APP -2	A.3	APP -1
ACCIPITRIFORMES	ACCIPITRIDAE	*Buteo buteo* (Linnaeus, 1758)	Şahin	Eurasian Buzzard	1	1							1	1	1	1		LC	APP - III	APP -2	A.3	APP -1
ACCIPITRIFORMES	ACCIPITRIDAE	*Circaetus gallius*	Yılan Kartalı	Short-toed snake eagle	3	x	x	x	x	x	x	x	x	x	x	x		LC	APP-III	APP -2	A.4	-
FALCONIFORMES	FALCONIDAE	*Falco tinnunculus* Linnaeus, 1758	Kerkenez	Common Kestrel	1		1	1										LC	APP -II	EK-2	A.2	APP -1
GALLIFORMES	PHASIANIDAE	*Coturnix coturnix* (Linnaeus, 1758)	Bıldırcın	Common Quail	5	9	x											LC	APP - III		A.3	APP -3
GRUIFORMES	RALLIDAE	*Gallinula chloropus* (Linnaeus, 1758)	Sutavuğu	Moorhen	1								2	2	2	1		LC	APP - III		A.3.1	APP -2
GRUIFORMES	RALLIDAE	*Fulica atra* Linnaeus, 1758	Sakarmeke	Coot	1								2	8	5	7		LC	APP - III		A.5	APP -3
CHARADRIIFORMES	SCOLOPACIDAE	*Actitis hypoleucos* Linnaeus, 1758	Dere Düdükçünü	Common Sandpiper	1		1											LC	APP -II		A.3	APP -1
CHARADRIIFORMES	LARIDAE	*Larus michahellis* J. F. Naumann, 1840	Gümüş Martı	Yellow-legged Gull	1	1				>50	13	>100	18	15	20		21	LC	APP - III		A.4	APP -1
CHARADRIIFORMES	SCOLOPACIDAE	*Gallinago gallinago* (Linnaeus, 1758)	Suçulluğu	Common Snipe	1-5	2	1	x	1	survey								LC	APP - III		A.3	
COLUMBIFORMES	COLUMBIDAE	*Columba livia* Gmelin, 1789	Kaya Güvercini	Rock Dove	1						2		5	2	1	5	8	LC	APP - III		A.5	APP -3
COLUMBIFORMES	COLUMBIDAE	*Streptopelia decaocto* Frivaldszky 1838	Kumru	Eurasian Collared-dove	1	2					2	1	2	2	1	1		LC	APP - III		A.5	APP -2
PICIFORMES	PICIDAE	*Dendrocopos syriacus* (Ehrenberg, 1833)	Alaca ağaçkakan	Syrian Woodpecker	1			1	1	1	1							LC	APP -II		A.2	APP -1
PASSERIFORMES	MOTACILLIDAE	*Anthus pratensis* (Linnaeus, 1758)	Çayır İncirkuşu	Meadow Pipit	1	1	1											LC	APP -II		A.3	APP -1
PASSERIFORMES	MOTACILLIDAE	*Motacilla alba alba* Linnaeus, 1758	Ak Kuyruksallayan	White Wagtail	1	3	2	2	2	3	2	2	1	1	2	2	2	LC	APP -II		A.3.1	APP -1
PASSERIFORMES	TROGLODYTIDAE	*Troglodytes troglodytes* (Linnaeus, 1758)	Çitkuşu	Winter Wren	1			1	1	1	1							LC	APP -II		A.3.1	APP -1
PASSERIFORMES	TURDIDAE	*Erithacus rubecula* (Linnaeus, 1758)	Kızılgerdan	European Robin	1		2	2				1						LC	APP -II		A.1.2	APP -1
PASSERIFORMES	TURDIDAE	*Turdus merula* Linnaeus, 1758	Karatavuk	Eurasian Blackbird	1		3	1	2	3	2	2	2	1	2	1	2	LC	APP -II		A.3	APP -1
PASSERIFORMES	TURDIDAE	*Turdus pilaris* Linnaeus, 1758	Tarla ardıcı	Field fare	1		13	15	>20	>20	15	15	7	9	20	8		LC	APP -II		A.3	APP -3
PASSERIFORMES	SYLVIIDAE	*Phylloscopus collybita* (Vieillot, 1817)	Çıvgın	Common Chiffchaff	1		2	2	2	2		2	2	2	2	2		LC	APP -II		A.3	APP -1
PASSERIFORMES	PARIDAE	*Parus major* Linnaeus, 1758	Büyük baştankara	Great Tit	1	2						2						LC	APP -II		A.2	APP -1
PASSERIFORMES	CORVIDAE	*Garrulus glandarius* (Linnaeus, 1758)	Alakarga	Eurasian Jay	1	5	2	1	2	2	3	2	2	1	1	2		LC	APP - III		A.1.2	APP -1
PASSERIFORMES	CORVIDAE	*Pica pica* (Linnaeus, 1758)	Saksağan	Magpie	1		4	4	2	5	7	3	3	2	2	2	3	LC	-		A.3.1	APP -3
PASSERIFORMES	CORVIDAE	*Corvus frugilegus* Linnaeus, 1758	Ekin Kargası	Rook	1	21	50	14	>50									LC	-		A.5	APP -3
PASSERIFORMES	CORVIDAE	*Corvus corone cornix*Linnaeus, 1758	Gri Leş Kargası	Carrion Crow	1	> 100				3	12	5	7	11	13	3	5	LC	-		A.5	APP -3
PASSERIFORMES	STURNIDAE	*Sturnus vulgaris* Linnaeus, 1758	Sığırcık	Starling	1		50	>50	>100								20	LC	APP -		A.5	APP -2

Table 7.3.b. Bird Species List of Section-2

ORDO	FAMILY	SPECIES	TURKISH NAME	ENGLISH NAME	RECORDİNG METHOD	EUNIS HABITAT TYPES												THREATENED CATEGORIES				
																		Internationally				National
						I1.2 G1.3	I1.2 E3.4 G1.A	I1.2 E3.4 G1.A F5.4 G1.3	I1.2 E3.4 G1.3 G3.F	G3.F	G1.A	G1.A	G1.3 G3.F	G3.F	G3.F C3.2	G1.A	G3.F					
						2-1	2-2	2-3	2-4	2-5	2-6	2-7	2-Storage area-1	2- Storage area -2	2- Storage area -3	2- Storage area -4	2-Camp site	IUCN	BERN	CITES	Kiziroglu	CHC
																			III			
PASSERIFORMES	PASSERIDAE	*Fringilla coelebs* Linnaeus, 1758	İspinoz	Common Finch	1							2	2	2	2	5	3	LC	APP - III		A.3	APP -2
PASSERIFORMES	FRINGILLIDAE	*Carduelis spinus* (Linnaeus, 1758)	Kara Başlı İskete	Siskin	1		10	3	4									LC	APP -II		A.3.1	APP -1

Table 7.3.c. Bird Species List of Section-7

ORDO	FAMILY	SPECIES	TURKISH NAME	ENGLISH NAME	RECORDİNG METHOD	EUNIS HABITAT TYPES		THREATENED CATEGORIES				
						F-6.4	G-3.F G-1.3	Internationally			Nationally	
						7-1	7-2	IUCN	BERN	CITES	Kiziroglu	CHC
FALCONIFORMES	FALCONIDAE	*Falco tinnunculus* Linnaeus, 1758	Kerkenez	Common Kestrel	1	1		LC	APP -II	APP -2	A.2	APP -1
CHARADRIIFORMES	LARIDAE	*Larus michahellis* J. F. Naumann, 1840	Gümüş Martı	Yellow-legged Gull	1	8	18	LC	APP -III		A.4	APP -1
COLUMBIFORMES	COLUMBIDAE	*Columba livia* Gmelin, 1789	Kaya Güvercini	Rock Dove	1	5	2	LC	APP -III		A.5	APP -3
COLUMBIFORMES	COLUMBIDAE	*Streptopelia decaocto* Frivaldszky 1838	Kumru	Eurasian Collared-dove	1	2	2	LC	APP -III		A.5	APP -2
PICIFORMES	PICIDAE	*Dendrocopos syriacus* (Ehrenberg, 1833)	Alaca ağaçkakan	Syrian Woodpecker	1		1	LC	APP -II		A.2	APP -1
PASSERIFORMES	MOTACILLIDAE	*Anthus pratensis* (Linnaeus, 1758)	Çayır İncirkuşu	Meadow Pipit	1		1	LC	APP -II		A.3	APP -1
PASSERIFORMES	MOTACILLIDAE	*Motacilla alba alba* Linnaeus, 1758	Ak Kuyruksallayan	White Wagtail	1	1	2	LC	APP -II		A.3.1	APP -1
PASSERIFORMES	TROGLODYTIDAE	*Troglodytes troglodytes* (Linnaeus, 1758)	Çitkuşu	Winter Wren	1		1	LC	APP -II		A.3.1	APP -1
PASSERIFORMES	TURDIDAE	*Erithacus rubecula* (Linnaeus, 1758)	Kızılgerdan	European Robin	1	1	1	LC	APP -II		A.1.2	APP -1
PASSERIFORMES	SYLVIIDAE	*Regulus ignicapilla* (Temminck, 1820)	sürmeli çalı kuşu	Coomon firecrest	1		1	LC	APP -II		A.3.1	APP -1
PASSERIFORMES	AEGITHALIDAE	*Aegithalos caudatus* (Linnaeus, 1758)	Uzun Kuyruklu Baştankara	Long-tailed Tit	1		8	LC	APP -II		A.3	APP -1
PASSERIFORMES	PARIDAE	*Parus major* Linnaeus, 1758	Büyük baştankara	Great Tit	1		2	LC	APP -II		A.2	APP -1
PASSERIFORMES	CORVIDAE	*Garrulus glandarius* (Linnaeus, 1758)	Alakarga	Eurasian Jay	1		1	LC	APP -III		A.1.2	APP -1
PASSERIFORMES	CORVIDAE	*Corvus corone cornix*Linnaeus, 1758	Gri Leş Kargası	Carrion Crow	1	7		LC	-		A.5	APP -3
PASSERIFORMES	FRINGILLIDAE	*Passer domesticus* (Linnaeus, 1758)	Ev Serçesi	House Sparrow	1		2	LC	-		A.5	APP -2

Table 7.4. Mammal Species List of Section-1,2,7

					THREATENED CATEGORIES				Section 1								Section 2												Section7	
					International			National																						
ORDER	FAMILY	SPECIES NAME	TURKISH NAME	ENGLISH NAME	IUCN	BERN	CITES	CHC	1_1	1_2	1_3	1_4	1_5	1_6	1_Stone Quarry	1_Camp site	2_1	2_2	2_3	2_4	2_5	2_6	2_7	2_Storage area_1	2_Storage area_2	2_Storage area_3	2_Storage area_4	2_Camp site	7_1	7_2
ERINACEOMORPHA	ERINACEIDAE	*Erinaceus roumanicus* Barrett-Hamilton, 1900	Balkan Kirpisi	Northern White-breasted Hedgehog	LC	-	-	-	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x
SORICOMORPHA	SORICIDAE	*Neomys anomalus* Cabrera, 1907	Bataklık Böcekçili	Southern Water Shrew	LC	App-III	-	-				x								x										
SORICOMORPHA	SORICIDAE	*Crocidura suaveolens* (Pallas, 1811)	Küçük Beyazdişli Böcekçil	Lesser Shrew	LC	App-II	-	-	x	x		x	x	x			x	x	x	x				x						x
SORICOMORPHA	TALPIDAE	*Talpa europaea* Linnaeus, 1758	Avrupa Köstebeği	European Mole	LC	-	-	-				x						x	x	x		x	x	x	x		x			
CHIROPTERA	RHINOLOPHIDAE	*Rhinolophus ferrumequinum* (Schreber, 1774)	Büyük Nalburunlu Yarasa	Greater Horseshoe Bat	LC	App -II	-	-	x		x	x		x			x	x	x	x				x	x					
CHIROPTERA	RHINOLOPHIDAE	*Rhinolophus hipposideros* (Bechstein, 1800)	Küçük Nalburunlu Yarasa	Lesser Horseshoe Bat	LC	App -II	-	-				x						x		x					x					
CHIROPTERA	RHINOLOPHIDAE	*Rhinolophus euryale* Blasius, 1853	Akdeniz Nalburunlu Yarasası	Mediterranean Horseshoe Bat	NT	App -II	-	-				x																		
CHIROPTERA	VESPERTILIONIDAE	*Myotis myotis* (Borkhausen, 1797)	Farekulaklı Büyük Yarasa	Greater Mouse-eared Myotis	LC	App -II	-	-				x					x	x	x	x										
CHIROPTERA	VESPERTILIONIDAE	*Myotis blythii* (Tomes, 1857)	Farekulaklı Küçük Yarasa	Lesser Mouse-eared Myotis	LC	App -II	-	-												x										
CHIROPTERA	VESPERTILIONIDAE	*Pipistrellus pipistrellus* (Schreber, 1774)	Adi Yarasa	Common Pipistrelle	LC	App -III	-	-	x	x			x	x	x	x				x	x		x	x	x	x		x	x	x
CHIROPTERA	MINIOPTERIDAE	*Miniopterus schreibersii* (Kuhl, 1817)	Uzunkanatlı Yarasa	Schreiber's Bent-winged Bat	NT	App -II	-	-			x																			
LAGOMORPHA	LEPORIDAE	*Lepus europaeus* Pallas, 1778	Yaban Tavşanı	European Hare	LC	-	-	App -II			x	x		x	x			x	x	x			x	x	x					
RODENTIA	SCIURIDAE	*Sciurus vulgaris* Linnaeus, 1758	Kızıl Sincap	Eurasian Red Squirrel	LC	App -III	-	-				x								x					x					
RODENTIA	CRICETIDAE	*Myodes glareolus* (Schreber, 1780)	Kızılsırtı Fare	Bank Vole	LC	-	-	-				x								x							x			
RODENTIA	CRICETIDAE	*Arvicola amphibius* (Linnaeus, 1758)	Su Sıçanı	European Water Vole	LC	-	-	-											x											
RODENTIA	CRICETIDAE	*Microtus levis* Miller, 1908	Tarlafaresi	East European Vole	LC	-	-	-	x	x							x	x	x	x										
RODENTIA	CRICETIDAE	*Microtus guentheri* (Danford & Alston, 1880)	Akdeniz Tarlafaresi	Günther's Vole	LC	-	-	-		x	x		x		x	x	x	x	x	x										
RODENTIA	SPALACIDAE	*Nannospalax leucodon* Nordmann, 1840	Körfare	Lesser Mole Rat	DD	-	-	-	x	x	x		x	x	x	x	x	x	x	x		x		x	x	x				
RODENTIA	MURIDAE	*Apodemus flavicollis* (Melchior, 1834)	Sarı Boyunlu Ormanfaresi	Yellow-necked Field Mouse	LC	-	-	-	x	x		x	x	x	x		x	x	x	x	x	x	x	x	x	x	x			x
RODENTIA	MURIDAE	*Rattus rattus* (Linnaeus, 1758)	Ev Sıçanı	Black-House Rat	LC	-	-	-													x								x	x
RODENTIA	MURIDAE	*Rattus norvegicus* (Berkenhout, 1769)	Göçmen Sıçan	Brown Rat	LC	-	-	-	x	x				x		x	x									x				
RODENTIA	MURIDAE	*Mus macedonicus* Petrov & Ruzic, 1983	Sarı Evfaresi	Macedonian Mouse	LC			-	x	x	x		x	x		x		x	x	x	x	x	x	x	x	x			x	
RODENTIA	MURIDAE	*Mus (musculus) domesticus* Linnaeus, 1758	Ev Faresi	House Mouse	LC	-	-	-																				x		x
RODENTIA	GLIRIDAE	*Dryomys nitedula* (Pallas, 1778)	Orman Yediuyuru	Forest Dormouse	LC	App -III	-	-				x							x	x										
CARNIVORA	CANIDAE	*Canis aureus* Linnaeus, 1758	Çakal	Golden Jackal	LC	-	App -III	App -II				x		x				x	x	x										
CARNIVORA	CANIDAE	*Vulpes vulpes*	Kızıl Tilki	Red Fox	LC	-	App -III	App -II	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			

Table 7.4. Mammal Species List of Section-1,2,7

ORDER	FAMILY	SPECIES NAME	TURKISH NAME	ENGLISH NAME	THREATENED CATEGORIES				Section 1								Section 2												Section7	
					International			National																						
					IUCN	BERN	CITES	CHC	1_1	1_2	1_3	1_4	1_5	1_6	1_Stone Quarry	1_Camp site	2_1	2_2	2_3	2_4	2_5	2_6	2_7	2_Storage area_1	2_Storage area_2	2_Storage area_3	2_Storage area_4	2_Camp site	7_1	7_2
		(Linnaeus, 1758)																												
CARNIVORA	MUSTELIDAE	*Mustela nivalis* Linnaeus, 1766	Gelincik	Least Weasel	LC	App -III	-	App -I	x	x	x	x	x		x			x	x	x	x			x	x				x	
CARNIVORA	MUSTELIDAE	*Martes foina* (Erxleben, 1777)	Kaya Sansarı	Stone Marten	LC	App -III	App -III	App -II	x	x	x	x	x	x	x		x	x	x	x			x	x	x		x			x
CARNIVORA	MUSTELIDAE	*Meles meles* (Linnaeus, 1758)	Porsuk	Eurasian Badger	LC	App -III	-	App-I				x		x						x										
CARNIVORA	FELIDAE	*Felis slivestris* Schreber, 1777	Yaban Kedisi	Wild Cat	LC	App -II	App -II	-				x								x										
ARTIODACTYLA	SUIDAE	*Sus scrofa* Linnaeus, 1758	Yaban Domuzu	Wild Boar	LC	App -III	-	App -II	x	x	x	x		x	x			x	x	x			x	x	x	x	x			
ARTIODACTYLA	CERVIDAE	*Capreolus capreolus* (Linnaeus, 1758)	Karaca	European Roe Deer	LC	App -III	-	-				x								x										

Table 7.5.a. Fish Species List of Section-1

NO	FAMILY	SPECIES	TURKISH NAME	ENGLISH NAME	ENDEMISM	IUCN	HABITAT
1	Cyprinidae	*Alburnus albunrus*	İnci Balığı	Bleak	-	LC	From small streams that have low flow rate reach up to large river systems, lakes that linked with streams, habitats that have graveled, rocky and stony bottom structures
2		*Barbus sp.*	Bıyıklı Balık	Barbel	-	-	The species which belonging to this genus and found in the Barbus zone of rivers reach from high flow rate streams to small streams, oxygen level is high, bottom structure stony, rocky habitats.
3		*Carassius gibelio*	İsrail Sazanı	Crusian Carp	-	LC	It is an invasive species. Lakes, large river systems, estuarine and water system around lagoons. Coastal zone that cover with vegetation.
4		*Cyprinus carpio*	Sazan (Pullu-Aynalı)	Carp	-	VU (Tuna population)	Lakes, large river systems, estuarine and water system around lagoons. Coastal zone that cover with vegetation. It has been put into many ponds and dam lakes for fishing purposes.
5		*Gobio sp.*	Yağlıca, Dere Kayası	Gudgeon	-	-	From low flow rate streams reach up to large river systems, lakes that linked with streams, habitats that have graveled and sandy bottom structures.
6		*Petroleuciscus borysthenicus*	Tatlısu Kefali	Blacksea Chub	-	LC	From small streams of low flow rate reach up to large river systems, lakes that linked with streams, habitats that have graveled, stony and rocky bottom structures.
7		*Squalius cephalus*	Tatlısu kefali	Chub	-	LC	From small streams of low flow rate reach up to large river systems, lakes that linked with streams, habitats that have graveled, stony and rocky bottom structures.
8		*Rhodeus amarus*	Acı Balık	Bitterling	-	LC	From small streams of low flow rate reach up to large river systems, brackish-marine and lakes that linked with marine, coastal zone that cover with vegetation.

Table 7.5.b. Fish Species List of Section-2

NO	FAMILY	SPECIES	TURKISH NAME	ENGLISH NAME	ENDEMISM	IUCN	HABITAT
1	Cyprinidae	*Gobio sp.*	Yağlıca, Dere Kayası	Gudgeon	-	-	From small streams of low flow rate reach up to large river systems, lakes that linked with streams, habitats that have graveled and sandy bottom structures.
2		*Petroleuciscus borysthenicus*	Tatlısu Kefali	Blacksea Chub	-	LC	From small streams of low flow rate reach up to large river systems, lakes that linked with streams, habitats that have graveled, stony and rocky bottom structures.
3		*Rutilus frisii*	Levgit	Blacksea Roach	-	LC	It lives generally freshwaters but also it distirubed lakes and ponds. It sometimes lives in transit waters where the sea is connected.
4	Cobitdae	*Cobitis vardarensis*	Kum Yiyen; Kobit	Spine-Loach	-	LC	It lives in clay zones of freashwater, lakes and ponds bottom structures. It is a nocturnal species.
5	Poecilidae	*Ganbusia holbrooki*	Sivrisinek Balığı	Eastern Mosquitofish	-	LC	It is invasive species. It is distributed in lakes, large river systems, estuarine and water systems around lagoons. It is put into ponds, etc. to tackle with mosquitoes

Annex 7/B. Terrestrial Flora and Fauna Survey Forms

Flora Survey Form

Survey Point	Longitude E 35T 613689	GPS Elevation	Date	Project
Section 1; Camp site	Latitude N 4555551	217	24.2.2017	**North Marmara Motorway Project (Section 1)**

Field Assessment:
Moderate sensitive habitat

Reason for assessment:
The area was used as an agricultural area.

Habitat Description:
Construction works related to the construction site started in the project area and lost the naturalness of the area.

Characteristic flora:
<u>*Trees*</u>
Salix alba
Robinia pseudoacacia

Flora species of interest:
None

Ecosystems Services comments:
None

Other Comments:

Camp site

Camp site

Flora Survey Form

Survey Point Section 1; Quarry site	Longitude E 35T 617118	GPS Elevation	Date	Project
	Latitude N 4558314	210	24.2.2017	**North Marmara Motorway Project (Section 1)**

Field Assessment:
Moderate sensitive habitat

Reason for assessment:
Spartium junceum communities are seen in the North Marmara region. No damage has been observed in habitat since construction activities have not started yet.

Habitat Description:
Within *Spartium junceum* habitats some shrubs such as *Spartium junceum, Paliurus spina-christii, Rubus sanctus* and *Juniperus oxycedrus* are found. Sub flora is rich in terms of herbaceous species.

Characteristic flora:
<u>*Trees*</u>
Ficus carica
<u>*Shrubs*</u>
Spartium junceum
Paliurus spina-christii
Rubus sanctus
Juniperus oxycedrus
Pistacia terebinthus
Jasminum fruticans
<u>*Herbs*</u>
Cichorium inthybus
Asparagus acutifolius
Stachys byzantina
Echium italicum
Ranunculus ficaria subsp. *ficariiformis*
Salvia virgata
Sanguisorba minor
Anthemis tinctoria
Origanum vulgare subsp. *vulgare*
Galanthus x valentinei

Flora species of interest:
Galanthus x valentinei which is regional endemic species has a very limited distribution area in Turkey. For this reason, according to IUCN it is

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Spartium junceum communities

Spartium junceum communities

<table>
<tr><td rowspan="2">Survey Point
Section 1; Quarry site</td><td>Longitude E
35T 617118</td><td>GPS
Elevation</td><td>Date</td><td>Project</td></tr>
<tr><td>Latitude N
4558314</td><td>210</td><td>24.2.2017</td><td>North Marmara Motorway Project (Section 1)</td></tr>
<tr><td colspan="2">categorized as “VU: Vulnerable”.

Ecosystems Services comments:
Rubus sanctus’s fruits, which are distributed in the area, are eaten by local people. Habitat provides both feeding and breeding areas for many species of birds, reptiles and mammals.

Other Comments:
The project area consists of the main rock calcareous. It is a suitable habitat for stone quarry. The area was not very important in terms of flora.</td><td colspan="3">
Galanthus x valentinei</td></tr>
</table>

Flora Survey Form

Survey Point Section 1; Sampling Point 1_1	Longitude E 35T 606435	GPS Elevation	Date	Project
	Latitude N 4555691	44	24.2.2017	**North Marmara Motorway Project (Section 1)**

Field Assessment:
Moderate sensitive habitat

Reason for assessment:
There are dry agricultural areas and riparian habitat types. Riparian habitat is represented at the waterfront which has high bottom water. Other areas consist of dry agricultural areas. Wheat farming is generally carried out in agricultural areas.

Habitat Description:
Dominant species of the riparian areas is *Salix alba*. *Juncus inflexus, Pulicaria dysenterica* and *Conium maculatum* which are wide spread species have high water demand

Characteristic flora:
Trees
Salix alba
Shrubs
Rubus sanctus
Herbs
Juncus heldreichianus subsp. *heldreichianus*
Juncus inflexus
Dipsacus laciniatus
Cynodon dactylon
Conium maculatum
Pulicaria dysenterica
Rumex pulcher

Flora species of interest:
None

Ecosystems Services comments:
The riparian habitats between farms are of great importance for the continuation of the water regime. In addition, these habitats constitute the feeding and sheltering habitats of wild animals. Agricultural areas are the areas where wheat which is the most important food source is


Riparian


Agricultural areas

Survey Point Section 1; Sampling Point 1_1	Longitude E 35T 606435	GPS Elevation	Date	Project
	Latitude N 4555691	44	24.2.2017	**North Marmara Motorway Project (Section 1)**
produced. **Other Comments:** Agricultural areas and riparian vegetation will be partially affected due to motorway constructions. However, the impacts will remain minimal since similar habitats exist in the close environment.				

Flora Survey Form

Survey Point Section 1; Sampling Point 1_2	Longitude E 35T 609627	GPS Elevation	Date	Project
	Latitude N 4555225	113	24.2.2017	**North Marmara Motorway Project (Section 1)**

Field Assessment:
Moderate sensitive habitat

Reason for assessment:
There are dry agricultural areas and riparian habitat types. Riparian habitat is represented at the waterfront which has high bottom water. Other areas consist of dry agricultural areas. Wheat farming is generally carried out in agricultural areas.

Habitat Description:
Dominant species of the riparian areas is *Salix alba*. *Juncus inflexus, Pulicaria dysenterica* and *Conium maculatum* which are wide spread species have high water demand.

Characteristic flora:
<u>*Trees*</u>
Salix alba
Cuprsessus sempervirens(plantation)
<u>*Shrubs*</u>
Prunus spinosa
Rubus sanctus
<u>*Herbs*</u>
Lythrum salicaria
Juncus heldreichianus subsp. *heldreichianus*
Pastinaca sativa subsp. *urens*
Ranunculus constantinopoliatanus
Conium maculatum
Pulicaria dysenterica
Cirsium hypoleucum

Flora species of interest:
None

Ecosystems Services comments:
The riparian habitats between farms are of great importance for the continuation of the water regime. In addition, these habitats constitute the feeding and sheltering habitats of wild animals. Agricultural areas are

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Riparian

Riparian and agricultural areas

Agricultural areas

<table>
<tr><td rowspan="2">Survey Point
Section 1; Sampling Point 1_2</td><td>Longitude E
35T 609627</td><td>GPS Elevation</td><td>Date</td><td>Project</td></tr>
<tr><td>Latitude N
4555225</td><td>113</td><td>24.2.2017</td><td>North Marmara Motorway Project (Section 1)</td></tr>
<tr><td colspan="2">the areas where wheat which is the most important food source is produced.

Other Comments:
Agricultural areas and riparian vegetation will be partially affected due to motorway constructions. However, the impacts will remain minimal since similar habitats exist in the close environment.</td><td colspan="3"></td></tr>
</table>

Flora Survey Form

Survey Point Section 1; Sampling Point 1_3	Longitude E 35T 610717	GPS Elevation	Date	Project
	Latitude N 4555765	182	24.2.2017	**North Marmara Motorway Project (Section 1)**

Field Assessment:
Moderate sensitive habitat

Reason for assessment:
There are perennial calcareous meadows and marsh habitats. Calcareous meadow habitat has been severely damaged due to overgrazing. The marsh habitat grows around the pond with the effect of artificial pond. In both habitats, grazing also occurs.

Habitat Description:
Perennial calcareous step habitat is widespread in the Thrace region in Turkey. It is found in the hills that remain between uncultivated areas. Characteristic species are members of the perennial Gramineae family. The marsh habitat develops in high bottom water. The dominant species are *Juncus heldreichianus, Juncus inflexus, Salix alba* and *Plantago lanceolata.*

Characteristic flora:
<u>*Trees*</u>
Salix alba (The marsh)
<u>*Steppe*</u>
Cynodun dactylon
Elymus hispidus
Eryngium creticum
Carlina corymbosa
<u>*Marsh*</u>
Juncus heldreichianus subsp. *heldreichianus*
Plantago lanceolata
Juncus inflexus

Flora species of interest:
None

Ecosystems Services comments:
Both habitats provide support for the grazing of animals. In addition, the pond relieves the need for water for many wildlife and pets and supports

Steppe

Marsh

Survey Point Section 1; Sampling Point 1_3	Longitude E 35T 610717	GPS Elevation	Date	Project
	Latitude N 4555765	182	24.2.2017	**North Marmara Motorway Project (Section 1)**
the water regime. **Other Comments:** The area was destroyed due to garbage and grazing. For this reason, no critical plant species have been identified in the field.				

Flora Survey Form

Survey Point Section 1; Sampling Point 1_4	Longitude E 35T 619184	GPS Elevation	Date	Project
	Latitude N 4559011	68	24.2.2017	**North Marmara Motorway Project (Section 1)**

Field Assessment:
High sensitive habitat

Reason for assessment:
There are deciduous mixed forest habitat and *Pinus nigra* plantation. Deciduous mixed forests form the characteristic climaxial habitat of the North Marmara region. It is also quite healthy in the project area. However, *Pinus nigra* plantation was also consisted in this forest habitat.

Habitat Description:
The dominant species of the deciduous mixed forests habitas are *Quercus petraea* subsp. *iberica, Quercus frainetto, Quercus cerris* ile *Carpinus betulus*. Sub flora is rich in terms of shrubs and herbs species.

Characteristic flora:
<u>*Trees*</u>
Quercus petraea subsp. *iberica*
Quercus frainetto
Quercus cerris
Acer campestre
Carpinus betulus
Pyrus elaeagnifolia subsp. elaeagnifolia
<u>*Shrubs*</u>
Phillyrea latifolia
Cistus creticus
Spartium junceum
Ruscus aculeatus
Paliurus spina-christii
Rosa canina
Osyris alba
Cornus mas
Arbutus unedo
Coryllus avellana var. avellana
Ligustrum vulgare
Lonicera etrusca var. etrusca
Hedera helix
<u>*Herbs*</u>
Asplenium sp.
Primula vulgaris

Pinus nigra plantasyon alanı ve yaprak döken karışık orman

Yaprak döken karışık orman

Survey Point	Longitude E 35T 619184	GPS Elevation	Date	Project
Section 1; Sampling Point 1_4	Latitude N 4559011	68	24.2.2017	**North Marmara Motorway Project (Section 1)**

Galanthus x valentinei
Asparagus acutifolius
Cirsium polycephalum
Oenanthe pimpinelloides
Viola odorata
Ranunculus constantinopoliatanus

Flora species of interest:
Cirsium polycephalum which is regional endemic species has a very limited distribution area in Turkey. For this reason, according to IUCN it is categorized as “CR: Critically Endangered”.
Galanthus x valentinei which is regional endemic species has a very limited distribution area in Turkey. For this reason, according to IUCN it is categorized as “VU: Vulnerable”.

Ecosystems Services comments:
Arbutus unedo, Cornus mas and *Coryllus avellana*'s fruits, which are distributed in the area, are eaten by local people. In addition, the rhizomes of *Ruscus aculeatus* are used medically, and their bodies are used as ornamental plants. Habitat provides both feeding and breeding areas for many species of birds, reptiles and mammals. The stream that passes through the area also plays an important role in the wild animals' desire for water.

Other Comments:
Although this area is a sensitive area, the negative impact of the habitat will be kept to a minimum since it is planned as a closed tunnel.

Galanthus x valentinei

Cirsium polycephalum

Ruscus aculeatus

Flora Survey Form

Survey Point Section 1; Sampling Point 1_5	Longitude E 35T 626549	GPS Elevation	Date	Project
	Latitude N 4558038		23.2.2017	**North Marmara Motorway Project (Section 1)**

Field Assessment:
Moderate sensitive habitat

Reason for assessment:
There are dry agricultural areas and riparian habitat types. Riparian habitat is represented at the waterfront which has high bottom water. Other areas consist of dry agricultural areas. Wheat farming is generally carried out in agricultural areas.

Habitat Description:
Dominant species of the riparian areas is *Populus alba, Salix alba* and *Ulmus minor*.

Characteristic flora:
Trees
Populus alba
Salix alba
Ulmus minor
Herbs
Galanthus x valentinei
Phragmites australis

Flora species of interest:
Galanthus x valentinei which is regional endemic species has a very limited distribution area in Turkey. For this reason, according to IUCN it is categorized as “VU: Vulnerable”.

Ecosystems Services comments:
The riparian habitats between farms are of great importance for the continuation of the water regime. In addition, these habitats constitute the feeding and sheltering habitats of wild animals. Agricultural areas are the areas where wheat which is the most important food source is produced.

Other Comments:
Agricultural areas and riparian


Riparian


Riparian


Riparian

<table>
<tr><td rowspan="2">Survey Point
Section 1; Sampling Point 1_5</td><td>Longitude E
35T 626549</td><td>GPS
Elevation</td><td>Date</td><td>Project</td></tr>
<tr><td>Latitude N
4558038</td><td></td><td>23.2.2017</td><td>North Marmara Motorway Project (Section 1)</td></tr>
<tr><td colspan="2">vegetation will be partially affected due to motorway constructions. However, the impacts will remain minimal since similar habitats exist in the close environment.</td><td colspan="3">
Agricultural area

Galanthus x valentinei</td></tr>
</table>

Flora Survey Form

Survey Point Section 1; Sampling Point 1_6	Longitude E 35T 631386	GPS Elevation	Date	Project
	Latitude N 4558250	44	23.2.2017	**North Marmara Motorway Project (Section 1)**

Field Assessment:
Moderate sensitive habitat

Reason for assessment:
There are deciduous mixed forests, *Spartium junceum* communities and marsh habitats in the Project area. These habitat types which disturbed in North Marmara region are generally healthy. Additionally, there are dry agricultural areas which uses as wheat farms are existed.

Habitat Description:
The dominant species of deciduous mixed forest habitat is *Coryllus avellana*. *Spartium junceum* communities are also spreading. Both habitats are rich in floristic composition. The marsh habitat also develops along the stream. Along with *Salix alba, Carex pendula* and *Pulicaria dysenterica* dominate in the marsh.

Characteristic flora:
<u>*Trees*</u>
Salix alba (Marsh)
Coryllus avellana (Deciduous mixed forests)
<u>*Shrubs*</u>
Spartium junceum
Rubus sanctus (Marsh)
<u>*Herbs*</u>
Galanthus x valentinei
Crocus olivieri subsp. olivieri
Cirsium polycephalum
Crocus biflorus subsp. biflorus
Dipsacus laciniatus
Conium maculatum
Psorolea bituminosa
Paeonia sp.

Flora species of interest:
Cirsium polycephalum which is regional endemic species has a very limited distribution area in Turkey. For this reason, according to IUCN it is


Coryllus avellana communities


Spartium junceum communities


Marsh

Survey Point Section 1; Sampling Point 1_6	Longitude E 35T 631386	GPS Elevation	Date	Project
	Latitude N 4558250	44	23.2.2017	**North Marmara Motorway Project (Section 1)**

categorized as "CR: Critically Endangered".
Galanthus x valentinei which is regional endemic species has a very limited distribution area in Turkey. For this reason, according to IUCN it is categorized as "VU: Vulnarable".

Ecosystems Services comments:
Coryllus avellana's fruits, which are distributed in the area, are eaten by local people. Habitat provides both feeding and breeding areas for many species of birds, reptiles and mammals. The stream that passes through the area also plays an important role in the wild animals' desire for water.

Other Comments:
Two endemic species (*Cirsium polycephalum* and *Galanthus x valentinei*) are identified in this sampling point. These species also were identified in a lot of sampling points in the Project area.

Galanthus x valentinei

Cirsium polycephalum

<table>
<tr><td rowspan="2">Survey Point
Section 1; Sampling Point 1_6</td><td>Longitude E
35T 631386</td><td>GPS
Elevation</td><td>Date</td><td>Project</td></tr>
<tr><td>Latitude N
4558250</td><td>44</td><td>23.2.2017</td><td>North Marmara Motorway Project (Section 1)</td></tr>
<tr><td colspan="2"></td><td colspan="3">
Crocus olivieri subsp. olivieri</td></tr>
</table>

Flora Survey Form

Survey Point Section 1; Sampling Point 2_1	Longitude E 35T 633503	GPS Elevation	Date	Project
	Latitude N 4563993	130	23.2.2017	**North Marmara Motorway Project (Section 2)**

Field Assessment:
Moderate sensitive habitat

Reason for assessment:
There are riparian, meadow habitats and agricultural areas in this sampling points. These type of habitats are generally healty within the North Marmara regiaon.

Habitat Description:
Dominant species of riparian habitats are *Ulmus minor, Salix alba, Prunus spinosa* and *Ailanthus altissima*. Dominant species of meadow habitats are *Juncus heldreichianus* subsp. *heldreichianus, Leucojum aestivum, Poa pratensis* and *Pulicaria dysentericaç*

Characteristic flora:
<u>*Trees*</u>
Ulmus minor
Salix alba
Ailanthus altissima
<u>*Shrubs*</u>
Rubus sanctus
Paliurus spina-christii
Prunus spinosa
<u>*Herbs*</u>
Galanthus x valentinei
Conium maculatum
Poa pratensis
Ranunculus muricatus
Leucojum aestivum
Typha latifolia
Crocus olivieri subsp. *olivieri*
Pulicaria dysenterica

Flora species of interest:
Galanthus x valentinei which is regional endemic species has a very limited distribution area in Turkey. For this reason, according to IUCN it is categorized as “VU: Vulnerable”.


Riparian


Meadows


Agricultural area

Survey Point Section 1; Sampling Point 2_1	Longitude E 35T 633503	GPS Elevation	Date	Project
	Latitude N 4563993	130	23.2.2017	**North Marmara Motorway Project (Section 2)**

Leucojum aestivum 's bulbs are on the CITES list for export and the IUCN category is "VU: Vulnerable".

Ecosystems Services comments:
Galanthus x valentinei and *Leucojum aestivum* are used as ornamental plants. The bulbs of *Leucojum aestivum* are exported abroad and provide important foreign exchange input to Turkey

Other Comments:
Although the two species with economic potential have been identified, similar habitats are common around the area, so the construction of the motorway does not result in very serious consequences for the future of these species.

Crocus olivieri subsp. *olivieri*

Galanthus x valentinei

<table>
<tr><td rowspan="2">Survey Point
Section 1; Sampling Point 2_1</td><td>Longitude E
35T 633503</td><td>GPS
Elevation</td><td>Date</td><td>Project</td></tr>
<tr><td>Latitude N
4563993</td><td>130</td><td>23.2.2017</td><td>North Marmara Motorway Project (Section 2)</td></tr>
<tr><td colspan="2"></td><td colspan="3">
Leucojum aestivum</td></tr>
</table>

Flora Survey Form

Survey Point Section 2; Sampling Point 2_2	Longitude E 35T 635335	GPS Elevation	Date	Project
	Latitude N 4565873	65	23.2.2017	**North Marmara Motorway Project (Section 2)**

Field Assessment:
Moderate sensitive habitat

Reason for assessment:
There are deciduous *Coryllus avellana* forests, wet meadows and dry agricultural areas in this sampling point.
The *Corylus avellana* forests which are distributed in the field are generally healthy. Since the construction activities in the project area have not started yet, no deterioration has been observed in the habitat.
Wet meadow vegetation is seen in the flat valley bases. In winter and early spring, these habitats which are wet due to rain water, drift towards summer. The dominant plant parts of the habitat belong to Cyperaceae, Juncaceae and Graminea families.

Habitat Description:
Coryllus and *Prunus spinosa* are spread within north fortune of Coryllus avellana habitats. These habitats rich in organic matter are suitable for the development of herbaceous species.
Although wetland habitats are poor in terms of floristic composition, the degree of coverage is quite high. During winter and early spring, these habitats are wet and moist. Dry agricultural areas in the region are also quite common.

Characteristic flora:
<u>*Trees*</u>
Coryllus avellana
Salix alba
<u>*Shrubs*</u>
Rubus sanctus
Smilax aspera
Prunus spinosa
<u>*Herbs*</u>
Cirsium polycephalum
Galanthus x valentinei
Scilla bifolia
Primula vulgaris


Coryllus avellana forest


Coryllus avellana forest and wet meadows


Meadows

<table>
<tr><td rowspan="2">Survey Point
Section 2; Sampling Point 2_2</td><td>Longitude E
35T 635335</td><td>GPS Elevation</td><td>Date</td><td>Project</td></tr>
<tr><td>Latitude N
4565873</td><td>65</td><td>23.2.2017</td><td>North Marmara Motorway Project (Section 2)</td></tr>
</table>

Arum sp.

Flora species of interest:
Cirsium polycephalum which is regional endemic species has a very limited distribution area in Turkey. For this reason, according to IUCN it is categorized as “CR: Critically Endangered”.
Galanthus x valentinei which is regional endemic species has a very limited distribution area in Turkey. For this reason, according to IUCN it is categorized as “VU: Vulnerable”.

Ecosystems Services comments:
Coryllus avellana and *Rubus sanctus's* fruits, which are distributed in the area, are eaten by local people. In addition, both deciduous forests and wet meadows are uses as feeding and breeding areas by birds, mammals and reptiles.

Other Comments:
After the motorway construction is completed, the habitats lost are compensated if the afforestation is done from the local species since deciduous forest habitats are found as the local communities.

Meadows and dry agricultural areas

Galanthus x valentinei

Cirsium polycephalum

Flora Survey Form

Survey Point Section 2; Sampling Point 2_3	Longitude E 35T 636743	GPS Elevation	Date	Project
	Latitude N 4566709	50	23.2.2017	**North Marmara Motorway Project (Section 2)**

Field Assessment:
Moderate sensitive habitat

Reason for assessment:
There are deciduous *Coryllus avellana* forests, riparian, wet meadows, *Spartium junceum* shrubs and dry agrıcultural areas in the sampling point. The *Corylus avellana* forests which are distributed in the field are generally healthy. Since the construction activities in the project area have not started yet, no deterioration has been observed in the habitat.
Wet meadow vegetation is seen in the flat valley bases. The dominant species of the riparian habitat is *Ulmus minor*. In winter and early spring, these habitats which are wet due to rain water, drift towards summer. The dominant plant parts of the habitat belong to Cyperaceae, Juncaceae and Graminea families.

Habitat Description:
Coryllus and *Prunus spinosa* are spread within north fortune of Coryllus avellana habitats. These habitats rich in organic matter are suitable for the development of herbaceous species.
Although wetland habitats are poor in terms of floristic composition, the degree of coverage is quite high. During winter and early spring, these habitats are wet and moist. Dry agricultural areas in the region are also quite common. The small *Spartium Junceum* communities are found among dry farming areas

Characteristic flora:
<u>*Trees*</u>
Coryllus avellana
Salix alba
Ulmus minor
<u>*Shrubs*</u>
Rubus sanctus
Smilax aspera
Prunus spinose


Riparian


Riparian


Meadow

Survey Point Section 2; Sampling Point 2_3	Longitude E 35T 636743	GPS Elevation	Date	Project
	Latitude N 4566709	50	23.2.2017	**North Marmara Motorway Project (Section 2)**

Spartium junceum
Ruscus aculeatus
<u>*Herbs*</u>
Ranunculus constantinopoliatnus
Ranunculus ficaria
Galanthus x valentinei
Scilla bifolia
Primula vulgaris
Arum italicum
,Berula erecta
Oenanthe silaifolia
Juncus effuses
Carex pendula
Lamium purpureum
Crocus biflorus

Flora species of interest:
Galanthus x valentinei which is regional endemic species has a very limited distribution area in Turkey. For this reason, according to IUCN it is categorized as "VU: Vulnerable".

Ecosystems Services comments:
Coryllus avellana and *Rubus sanctus's* fruits which are distributed in the area, are eaten by local people. In addition, both deciduous forests and wet meadows are uses as feeding and breeding areas by birds, mammals and reptiles.

Other Comments:
After the motorway construction is completed, the habitats lost are compensated if the afforestation is done from the local species since deciduous forest habitats are found as the local communities.


Agricultural areas


Crocus biflorus subsp. *biflorus*

<table>
<tr><td rowspan="2">Survey Point
Section 2; Sampling Point 2_3</td><td>Longitude E
35T 636743</td><td>GPS
Elevation</td><td>Date</td><td>Project</td></tr>
<tr><td>Latitude N
4566709</td><td>50</td><td>23.2.2017</td><td>North Marmara Motorway Project (Section 2)</td></tr>
<tr><td colspan="2"></td><td colspan="3">
Galanthus x valentinei</td></tr>
</table>

Flora Survey Form

Survey Point	Longitude E	GPS	Date	Project
Section 2; Sampling Point 2_4	35T 639552	Elevation		
	Latitude N 4567863	70	22.2.2017	**North Marmara Motorway Project (Section 2)**

Field Assessment:
Moderate sensitive habitat

Reason for assessment:
There are *Pinus pinea* plantation forest, riparian, meadow habitats and agricultural aras within the sampaling point. These types of habitats are generally wide spread in the North of the Marmara region.

Habitat Description:
Plantation areas are represented with *Pinus pinea* forests which is between 15-20 ages. In addition some herbaceous species such as *Fraxinus angustifolia* subsp. *syriaca, Quercus petraea* are found. Riparian vegetations are seen alond stream. The dominant species are mainly *Ulmus minor, Prunus spinosa*. Both plantation and riparian habitats are rich in terms of sub flora, shrubs and herbaceous species.
The dominant species of the meadow habitats are *Cynodon dactylon, Ranunculus constantinopoliatanus, Juncus heldreichianus* subsp. *heldreichianus Trifolium repens.*

Characteristic flora:
<u>*Trees*</u>
Pinus pinea (Plantation)
Quercus petraea subsp. *iberca*
Ulmus minor
Prunus spinosa
<u>*Shrubs*</u>
Phillyrea latifolia
Rubus sanctus
Ruscus aculeatus
Paliurus spina-christii
Osyris alba
Periploca graeca
Spartium junceum
Smilax aspera


Pinus pinea plantation area


Riparian


Meadow

<table>
<tr><td rowspan="2">Survey Point
Section 2; Sampling Point 2_4</td><td>Longitude E
35T 639552</td><td>GPS Elevation</td><td>Date</td><td>Project</td></tr>
<tr><td>Latitude N
4567863</td><td>70</td><td>22.2.2017</td><td>North Marmara Motorway Project (Section 2)</td></tr>
</table>

<u>*Herbs*</u>
Galanthus x valentinei
Crocus biflorus subsp. *biflorus*
Ranunculus constantinopoliatanus
Ranunculus ficaria subsp. *ficariiformis*
Cichorium intybus
Dipsacus lanatus
Primula vulgaris
Hedera helix
Brachypodium sylvaticum

Flora species of interest:
Galanthus x valentinei which is regional endemic species has a very limited distribution area in Turkey. For this reason, according to IUCN it is categorized as “VU: Vulnerable”.

Ecosystems Services comments:
Pinus pinea seeds are collected for nutrient. *Rubus sanctus's* fruits, which are distributed in the area, are eaten by local people. In addition, the rhizomes of *Ruscus aculeatus* are used medically, and their bodies are used as ornamental plants. Habitats of this sampling point support various fauna elements.

Other Comments:
The area is destroyed partly because of construction activities. However, same habitats which will not be affected for motorway activities are wide spread close vicinity of the Project area.

Crocus biflorus subsp. *biflorus*

Galanthus x valentinei

Flora Survey Form

Survey Point Section 2; Sampling Point 2_5	Longitude E 35T 642030	GPS Elevation	Date	Project
	Latitude N 4567527	159	22.2.2017	**North Marmara Motorway Project (Section 2)**

Field Assessment:
Moderate sensitive habitat

Reason for assessment:
There are *Pinus pinaster* plantation area within the sampling point. There are many tree cutting because of the construction activities of Motorway Project. The deciduous *Quercus petraea* and *Carpinus betulus* trees are seen in forest openings. However, the area is destroyed due to construction activities of Motorway in the project area and the construction of the Istanbul Grand Airport and habitat fragmentation has occurred.

Habitat Description:
Pinus pinea plantation forests in the region are quite common. However, these forest were cut down because of activities. The deciduous *Quercus farinetto*, *Quercus petraea* subsp. *iberica* and *Carpinus betulus* trees are seen in forest openings. Sub flora is rich in terms of shrubs and herbs species.

Characteristic flora:
<u>*Trees*</u>
Pinus pinaster (Plantation)
Carpinus betulus
Quercus petraea
Quercus frainetto
<u>*Shrubs*</u>
Mespilus germanica
Ruscus aculeatus
Corylus avellana var. *avellana*
<u>*Herbs*</u>
Primula vulgaris
Lilium martagon
Lamium purpureum var. *purpureum*
Galanthus x valentinei
Viola odorata

Flora species of interest:
Lilium martagon which is endemic species has a very limited distribution

Plantasyon alanı ve tahribat

The plantation area and the destruction

The plantation area and the destruction

Survey Point Section 2; Sampling Point 2_5	Longitude E 35T 642030	GPS Elevation	Date	Project
	Latitude N 4567527	159	22.2.2017	**North Marmara Motorway Project (Section 2)**

area in Turkey. For this reason, according to IUCN it is categorized as “VU: Vulnerable”.
Galanthus x valentinei which is regional endemic is categorized as “VU: Vulnerable” according to IUCN.

Ecosystems Services comments:
Mespilus germanica and *Corylus avellana* fruits, which are distributed in the area, are eaten by local people. In addition, the rhizomes of *Ruscus aculeatus* are used medically, and their bodies are used as ornamental plants.

Other Comments:
The area is destroyed partly because of construction activities. However, same habitats which will not be affected for motorway activities are wide spread close vicinity of the Project area.

Galanthus x valentinei

Lilium martagon

Flora Survey Form

Survey Point Section 2; Sampling Point 2_6	Longitude E 35T 646885	GPS Elevation	Date	Project
	Latitude N 4567477	140	23.2.2017	**North Marmara Motorway Project (Section 2)**

Field Assessment:
Moderate sensitive habitat

Reason for assessment:
The deciduous mixed forest habitats are generally fairly healthy in the North Marmara region. However, the project area has been severely damaged due to Motorway construction.

Habitat Description:
The dominant species of the deciduous mixed forest are mainly *Quercus farinetto*, *Quercus petraea* subsp. *iberica* and *Quercus cerris*. Sub flora is rich especially in term of shrubs species.

Characteristic flora:
<u>*Trees*</u>
Quercus farinetto
Quercus petraea subsp. *iberica*
Quercus cerris
<u>*Shrubs*</u>
Erica arborea
Hypericum calycinum
Ruscus aculeatus
Phillyrea latifolia
Cistus creticus
Daphne pontica
Osyris alba
<u>*Herbs*</u>
Oenanthe pimpinelloides

Flora species of interest:
None

Ecosystems Services comments:
Because it is a small residue in the activity area, it has the potential of creating a shelter in terms of fauna elements.
It has the potential to form a shelter in terms of fauna elements since the habitat is a small residue within the construction activity area

The mixed forest and destruction

The destruction

<table>
<tr><td rowspan="2">Survey Point
Section 2; Sampling Point 2_6</td><td>Longitude E
35T 646885</td><td>GPS Elevation</td><td>Date</td><td>Project</td></tr>
<tr><td>Latitude N
4567477</td><td>140</td><td>23.2.2017</td><td>North Marmara Motorway Project (Section 2)</td></tr>
<tr><td colspan="2">Other Comments:
The area has been completely destroyed due to the Motorway and Istanbul Grand Airport constructions. However, similar habitats not affected by the motorway and the Istanbul Grand Airport are quite common around the area.</td><td colspan="3">
Construction activities</td></tr>
</table>

Flora Survey Form

Survey Point	Longitude E	GPS	Date	Project
Section 2; Sampling Point 2_7	35T 650162	Elevation		
	Latitude N 4566502	121	22.2.2017	**North Marmara Motorway Project (Section 2)**

Field Assessment:
Moderate sensitive habitat

Reason for assessment:
The deciduous mixed forest habitats are generally fairly healthy in the North Marmara region. However, the project area has been severely damaged due to Motorway and Istanbul Grand Airport constructions.

Habitat Description:
The dominant species of the deciduous mixed forest are mainly *Quercus farinetto*, *Quercus petraea* subsp. *iberica*. Sub flora is rich especially in term of shrubs and herb species

Characteristic flora:
<u>*Trees*</u>
Quercus frainetto
Quercus petraea subsp. *iberca*
<u>*Shrubs*</u>
Erica arborea
Hypericum calycinum
Epimedium pubigerum
Ruscus aculeatus
Crataegus monogyna
Phillyrea latifolia
<u>*Herbs*</u>
Primula vulgaris
Feulago confuse
Pteridium aquilinum
Anthemis tinctoria

Flora species of interest:
Ferulago confusa which is not endemic species has a very limited distribution area in Turkey. For this reason, according to IUCN it is categorized as "VU: Vulnerable".

Ecosystems Services comments:
Arbutus unedo and *Fragaria vesca's* fruits, which are distributed in the area, are eaten by local people. In addition, the rhizomes of *Ruscus aculeatus* are used

The deciduous mixed forest

The deciduous mixed forest

The mixed forest and destruction

<table>
<tr><td rowspan="2">Survey Point
Section 2; Sampling Point 2_7</td><td>Longitude E
35T 650162</td><td>GPS
Elevation</td><td>Date</td><td>Project</td></tr>
<tr><td>Latitude N
4566502</td><td>121</td><td>22.2.2017</td><td>North Marmara Motorway Project (Section 2)</td></tr>
<tr><td colspan="2">medically, and their bodies are used as ornamental plants. Habitat provides both feeding and breeding areas for many species of birds, reptiles and mammals

Other Comments:
The area has been completely destroyed due to the Motorway and Istanbul Grand Airport constructions. However, similar habitats not affected by the motorway and the Istanbul Grand Airport are quite common around the area.</td><td colspan="3">
Ferulago confusa</td></tr>
</table>

Flora Survey Form

Survey Point Section 2; Storage yard 1	Longitude E 35T 644276	GPS Elevation	Date	Project
	Latitude N 4567298	85	22.2.2017	**North Marmara Motorway Project (Section 2)**

Field Assessment:
High sensitive habitats where have mixed riparian marsh forests

Reason for assessment:
The mixed riparian marsh forests have limited distribution in Turkey. The continuity of this habitat depends on the height of the groundwater. When groundwater level is down, habitat is destroyed itself. This riparian habitat has also been destroyed. *Pinus pinea* plantations are wide spread in Thrace Region. Peanut pines are not sensitive habitats because they are not natural.

Habitat Description:
Fraxinus angustifolia subsp. Syriac's dominant in riparian forests have been severely damaged as a result of various interventions and a decrease in groundwater. Although the sub flora is enriched in terms of both bush and herbaceous species.
Pinus pinea plantations are wide spread within the region and flora of habitats which are located in *Pinus pinea* plantations are poor.

Characteristic flora:
<u>Trees</u>
Fraxinus angustifolia subsp. *syriaca*
Pinus pinea (Plantation)
<u>Shrubs</u>
Pyracantha coccinea
Ruscus aculeatus
<u>Herbs</u>
Primula vulgaris
Scilla bifolia
Ajuga reptans
Viola odorata
Tussilago farfara
Galanthus x valentinei
Juncus heldreichianus subsp. *heldreichianus*

Flora species of interest:

Mixed riparian marsh forests

Mixed riparian marsh forests and the destroyed areas

Mixed forests and *Pinus pinea* plantation areas

<table>
<tr><td rowspan="2">Survey Point
Section 2;
Storage yard 1</td><td>Longitude E
35T 644276</td><td>GPS
Elevation</td><td>Date</td><td>Project</td></tr>
<tr><td>Latitude N
4567298</td><td>85</td><td>22.2.2017</td><td>North Marmara Motorway Project (Section 2)</td></tr>
<tr><td colspan="2">Galanthus x valentinei which endemic species for Thrace region prefers moist deciduous forest habitats. Sub flora of riparian forests have quite good population.

Ecosystems Services comments:
The rhizomes of Ruscus aculeatus are used medically, and their bodies are used as ornamental plants. Galanthus x valentinei has the potential to become an ornamental plant. Mixed riparian marsh forests also form both sheltering and breeding grounds for many bird species. It is very important for the continuity of the water regime.

Other Comments:
The study area is under heavy pressure due to the impact of motorway construction and Istanbul Grand Airport. However, similar habitats that are not affected by the motorway and the Istanbul Grand Airport are available at least in the vicinity of the area.</td><td colspan="3">
Galanthus x valentinei</td></tr>
</table>

Flora Survey Form

Survey Point	Longitude E 35T 645862	GPS Elevation	Date	Project
Section 2; Storage yard 2	Latitude N 4567114	110	22.2.2017	**North Marmara Motorway Project (Section 2)**

Field Assessment:
Lowly sensitive habitat

Reason for assessment:
Pinus pinaster plantation areas are found in the North of Marmara region. However, due to the motorway construction and the construction of the Istanbul Grand Airport, damage to the area and habitat fragmentation have been realized.

Habitat Description:
Some tree and shrub species are found in the plantation areas as well as *Pinus pinaster* such as *Quercus farinetto* and *Arbutus unedo, Coryllus avellana*, *Crataegus monogyna, Daphne pontica.*
Sub flora is rich in terms of herb species.

Characteristic flora:
<u>*Trees*</u>
Pinus pinaster (Plantasyon)
Quercus farinetto
Salix alba
<u>*Shrubs*</u>
Erica arborea
Hypericum calycinum
Ruscus aculeatus
Crataegus monogyna
Cistus salviifolius
<u>*Herbs*</u>
Primula vulgaris
Carex distachya var. *distachya*
Viola odorata
Campanula rapunculus var. *rapunculus*
Brachypodium sylvaticum

Flora species of interest:
None

Ecosystems Services comments:
Arbutus unedo's fruits, which are distributed in the area, are eaten by local people. The rhizomes of *Ruscus*

Pinus pinaster plantation area

Pinus pinaster plantation area

The destroyed areas

<table>
<tr><td rowspan="2">Survey Point
Section 2;
Storage yard 2</td><td>Longitude E
35T 645862</td><td>GPS
Elevation</td><td>Date</td><td>Project</td></tr>
<tr><td>Latitude N
4567114</td><td>110</td><td>22.2.2017</td><td>North Marmara Motorway Project (Section 2)</td></tr>
<tr><td colspan="2">aculeatus are used medically, and their bodies are used as ornamental plants. Such forest habitats provide feeding and sheltering areas for birds, reptiles and mammals.

Other Comments:
The study area is under heavy pressure due to the impact of motorway construction and the construction of the Istanbul Grand Airport. However, similar plantation areas that are not affected by the highway and the new air port are widespread around the area.</td><td colspan="3"></td></tr>
</table>

Flora Survey Form

Survey Point	Longitude E	GPS	Date	Project
Section 2; Storage yard 3	35T 647317	Elevation		
	Latitude N 4566944	109	22.2.2017	**North Marmara Motorway Project (Section 2)**

Field Assessment:
Moderate sensitive habitat

Reason for assessment:
Pinus pinea plantation forests and marsh areas in this area are not natural habitats. They are the habitats that have been formed in the region for a long time, consisting of coal mines and sand with draw activity. However, these non-natural habitats will also be adversely affected due to motorway activities and construction of Istanbul Grand Airport.

Habitat Description:
There are marsh habitat and *Pinus pinea* plantation in this area. The dominat species of the marsh habitat are *Phragmites australis, Juncus heldreichianus* subsp. *heldreichianus* and *Typha latifolia.* In addition, *Salix alba*, *Robinia pseudoacacia*, *Corylus avellana* var. *avellana* and *Phillyrea latifolia* are spread in the area. *The* dominant species of the *Pinus pinea* plantation is *Pinus pinea.* This habitat which is not natural is not rich in terms of herb species.

Characteristic flora:
Trees
Pinus pinea (Plantation)
Robinia pseudoacacia
Salix alba
Marsh
Smilax aspera
Phillyrea latifolia
Corylus avellana var. *avellana*
Rubus sanctus
Plantation
Mespilus germanica
Pyracantha coccinea
Herbs
Pteridium aquilinum
Arabis verna
Tussilago farfara
Bellis perennis


Marsh areas


Marsh areas


Marsh areas

Survey Point Section 2; Storage yard 3	Longitude E 35T 647317	GPS Elevation	Date	Project
	Latitude N 4566944	109	22.2.2017	**North Marmara Motorway Project (Section 2)**

Anchusa azurea var. *azurea*
Anthemis tinctoria

Flora species of interest:
None

Ecosystems Services comments:
The fruit of *Mespilus germanica* and *Coryllus avellana* species which are spread around the plantation area and the marsh area, are consumed by the local people for food purposes. In addition, marsh habitat is used as both breeding and feeding area, especially in terms of birds. Marsh areas are also important in terms of water regime control.

Other Comments:
The trees in the plantation area are about 10-15 years old. This area has lost its naturalness due to the filling area.

Pinus pinea plantation area

Tussilago farfara

Flora Survey Form

Survey Point	Longitude E 35T 650472	GPS Elevation	Date	Project
Section 2; Storage yard 4	Latitude N 4566442	135	22.2.2017	**North Marmara Motorway Project (Section 2)**

Field Assessment:
Moderate sensitive habitat

Reason for assessment:
The deciduous mixed forest habitats are generally healthy in the North of Marmara region. However, due to motorway activities on the project area and the construction of the Istanbul Grand Airport, the habitat fragmentation has been damaged.

Habitat Description:
The dominant species of this area are *Quercus farinetto* and *Quercus petraea* subsp. *iberica*. Sub flora is rich in terms of shrubs and herbs.

Characteristic flora:
<u>Trees</u>
Quercus frainetto
Quercus petraea subsp. *iberca*
<u>Shrubs</u>
Erica arborea
Hypericum calycinum
Epimedium pubigerum
Daphne pontica
Ruscus aculeatus
Crataegus monogyna
Arbutus unedo
Cistus salviifolius
<u>Herbs</u>
Primula vulgaris
Feulago confuse
Pteridium aquilinum
Anthemis tinctoria

Flora species of interest:
Ferulago confuse which is not endemic species is wide spread species in Turkey. It categorized as “VU: Vulnerable” according to IUCN.

Ecosystems Services comments:
Arbutus unedo ve *Fragaria vesca*’s fruits which are distributed in the area are eaten by local people. In addition, the


The deciduous mixed forest


The deciduous mixed forest


Ruscus aculeatus

<table>
<tr><td rowspan="2">Survey Point
Section 2;
Storage yard 4</td><td>Longitude E
35T 650472</td><td>GPS
Elevation</td><td>Date</td><td>Project</td></tr>
<tr><td>Latitude N
4566442</td><td>135</td><td>22.2.2017</td><td>North Marmara Motorway Project (Section 2)</td></tr>
<tr><td colspan="2">rhizomes of Ruscus aculeatus are used medically, and their bodies are used as ornamental plants. Habitat provides both feeding and breeding areas for many species of birds, reptiles and mammals

Other Comments:
The study area is under heavy pressure due to the impact of motorway construction and Istanbul Grand Airport. However, similar habitats that are not affected by the motorway and the Istanbul Grand Airport are available at least in the vicinity of the area.</td><td colspan="3">
Ferulago confusa</td></tr>
</table>

Flora Survey Form

Survey Point Section 7; Sampling point 7_1	Longitude E 35T 654445	GPS Elevation	Date	Project
	Latitude N 4554334	180	24.2.2017	**North Marmara Motorway Project (Section 7)**

Field Assessment:
Moderate sensitive habitat

Reason for assessment:
Frigana habitats are not very common in the North of Marmara region. This habitat was formed during the decline of mixed forest habitat.

Habitat Description:
The main species of the Frigana habitat are *Spartium junceum, Erica arborea, Erica manipuliflora, Juniperus oxycedrus*. Sun flora is rich in terms of herb species.

Characteristic flora:
<u>Shrubs</u>
Spartium junceum,
Erica arborea,
Erica manipuliflora,
Juniperus oxycedrus
Cistus creticus
Rosa canina
Rubus sanctus
Crataegus monogyna
Osyris alba
<u>Herbs</u>
Pteridium aquilinum
Anthemis tinctoria
Cichorium inthybus
Daucus carota
Dactylis glomerata
Cirsium polycephalum
Verbascum sinuatum
Salvia virgata
Sanguisorba minor
Knautia sp.
Stachys sp.
Scabiosa sp.

Flora species of interest:
Cirsium polycephalum which is regional endemic species have limited distribution in Turkey. Therefore it is evaluated as "CR: Critically Endangered" for IUCN.

Frigana

Frigana

<table>
<tr><td rowspan="2">Survey Point
Section 7; Sampling point 7_1</td><td>Longitude E
35T 654445</td><td>GPS Elevation</td><td>Date</td><td>Project</td></tr>
<tr><td>Latitude N
4554334</td><td>180</td><td>24.2.2017</td><td>North Marmara Motorway Project (Section 7)</td></tr>
<tr><td colspan="2">Ecosystems Services comments:
Rubus sanctus and Crataegus monogyna's fruits are eaten by local people.

Other Comments:
This habitat is the most suitable habitat for Cirsium polycephalum which is the regional endemic species of Marmara Region. For this reason, such habitats are important for flora.</td><td colspan="3">
Cirsium polycephalum</td></tr>
</table>

Flora Survey Form

Survey Point Section 7; Sampling point 7_2	Longitude E 35T 661831	GPS Elevation	Date	Project
	Latitude N 4551270	29	24.2.2017	**North Marmara Motorway Project (Section 7)**

Field Assessment:
Moderate sensitive habitat

Reason for assessment:
Pinus pinaster plantation and Riparian vegetation habitats. The area is not very healthy in both habitats because it is located within settlements.

Habitat Description:
Pinus pinaster is dominantly found in the plantation area, while sub flora is distributed in shrub and herbaceous species. In the stream, some water-bound species such as *Platanus orientalis*, *Carpinus betulus* and *Ailanthus altissima* form riparian vegetation.

Characteristic flora:
<u>*Trees*</u>
Pinus pinaster (Plantasyon)
Platanus orientalis
Carpinus betulus
Ailanthus altissima
<u>*Shrubs*</u>
Erica arborea
Rubus sanctus
Phillyrea latifolia
Cistus creticus
Hedera helix
<u>*Herbs*</u>
Pteridium aquilinum
Anthemis tinctoria
Cichorium inthybus
Daucus carota
Dactylis glomerata
Cirsium polycephalum
Verbascum sinuatum
Salvia virgata
Sanguisorba minor

Flora species of interest:
None

Ecosystems Services comments:
Such habitats within the city are used asa both feeding and sheltering areas

Pinus pinaster plantation area

Pinus pinaster plantation area

<table>
<tr><td rowspan="2">Survey Point
Section 7; Sampling point 7_2</td><td>Longitude E
35T 661831</td><td>GPS Elevation</td><td>Date</td><td>Project</td></tr>
<tr><td>Latitude N
4551270</td><td>29</td><td>24.2.2017</td><td>North Marmara Motorway Project (Section 7)</td></tr>
<tr><td colspan="2">for birds, reptiles and mammals. It is also an oxygen source

Other Comments:
Since activity in this area will be limited, habitat will be less affected by activity.</td><td colspan="3"></td></tr>
</table>

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 22.02.2017 **Starting Time:** 12:00 **End Time:** 12:30 **Station Number:** 2/7
GPS Coordinate / Location: Longitude E 35T 650107; Latitude N 4566419 **Elevation**: 132
Type of Habitat: G1.A

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Lacerta viridis*	5	4	1	1		
2	*Ablepharus kitaibelii*	2	1	1	1		
3	*Anguis fragilis*	5	2	1	1		
4	*Lacerta trilineata*	6	2	1	1		
5	*Ophisops elegans*	4	2	1	1		
6	*Podarcis tauricus*	2	4	1	1		
7							
8							
9							
10							
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 22.02.2017 **Starting Time:** 13:00 **End Time:** 13:30 **Station Number:** 2/ Depo-4
GPS Coordinate / Location: Longitude E 35T 650468; Latitude N 4566445 **Elevation**: 135
Type of Habitat: G1.A

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Rana dalmatina*	4	5	1	1		
2	*Bufo bufo*	4	5	1	1		
3	*Bufotes variabilis*	6	5	1	1		
4	*Testudo graeca*	6	2	1	1		
5	*Lacerta viridis*	6	4	1	1		
6	*Ablepharus kitaibelii*	3	1	1	1		
7	*Pseudopus apodus*	1	2	1	1		
8	*Coronella austriaca*	1	1	1	1		
9	*Zamenis longissimus*	1	1	1	3		
10							
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 22.02.2017 **Starting Time:** 14:00 **End Time:** 14:30 **Station Number:** 2/ Depo-3
GPS Coordinate / Location: Longitude E 35T 647024; Latitude N 4566538 **Elevation**: 119
Type of Habitat: G3.F, C3.2

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Rana dalmatina*	3	5	1	1		
2	*Bufo bufo*	3	2	1	1		
3	*Lacerta viridis*	5	2	1	1		
4	*Ablepharus kitaibelii*	2	1	1	1		
5	*Anguis fragilis*	3	1	1	1		
6	*Podarcis tauricus*	2	4	1	1		
7	*Elaphe sauromates*	1	1	1	3		
8							
9							
10							
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 22.02.2017 **Starting Time:** 15:00 **End Time:** 15:30 **Station Number:** 2/ Depo-2
GPS Coordinate / Location: Longitude E 35T 645750; Latitude N 4566968 **Elevation**: 104
Type of Habitat: G3.F

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Rana dalmatina*	3	5	1	1		
2	*Pelophylax ridibundus*	8	6	1	2		
3	*Bufo bufo*	3	5	1	1		
4	*Bufotes variabilis*	5	6	1	2		
5	*Hyla orientalis*	5	5	1	1		
6	*Testudo graeca*	5	2	1	1		
7	*Lacerta viridis*	6	2	1	1		
8	*Ablepharus kitaibelii*	2	1	1	1		
9	*Anguis fragilis*	4	1	1	1		
10	*Zamenis longissimus*	1	1	1	1		
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 22.02.2017 **Starting Time:** 16:00 **End Time:** 16:30 **Station Number:** 2/ Depo-1
GPS Coordinate / Location: Longitude E 35T 644058; Latitude N 4566865 **Elevation**: 102
Type of Habitat: G3.F, G1.3

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Rana dalmatina*	5	6	1	2		
2	*Pelophylax ridibundus*	9	6	1	2		
3	*Bufo bufo*	4	6	1	2		
4	*Hyla orientalis*	3	5	1	1		
5	*Testudo graeca*	6	2	1	1		
6	*Lacerta viridis*	6	4	1	1		
7	*Ablepharus kitaibelii*	1	1	1	1		
8	*Anguis fragilis*	3	1	1	1		
9	*Podarcis tauricus*	1	1	1	1		
10	*Zamenis longissimus*	1	1	1	1		
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 22.02.2017 **Starting Time:** 17:00 **End Time:** 17:30 **Station Number:** 2/6
GPS Coordinate / Location: Longitude E 35T 642036; Latitude N 4467454 **Elevation**: 167
Type of Habitat: G3.F

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Rana dalmatina*	4	6	1	2		
2	*Bufo bufo*	4	5	1	1		
3	*Bufotes variabilis*	7	5	1	1		
4	*Testudo graeca*	5	2	1	1		
5	*Lacerta viridis*	7	2	1	1		
6	*Ablepharus kitaibelii*	1	1	1	1		
7	*Anguis fragilis*	3	1	1	1		
8	*Coronella austriaca*	1	4	1	1		
9	*Zamenis longissimus*	1	2	1	3		
10							
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 22.02.2017 **Starting Time:** 18:00 **End Time:** 18:30 **Station Number:** 2/ 5
GPS Coordinate / Location: Longitude E 35T 646885; Latitude N 4567477 **Elevation**: 140
Type of Habitat: G1.A

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Bufotes variabilis*	5	6	1	2		
2	*Testudo graeca*	5	2	1	1		
3	*Lacerta trilineata*	6	2	1	1		
4	*Ophisops elegans*	4	2	1	1		
5	*Dolichophis caspius*	1	2	1	3		
6							
7							
8							
9							
10							
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 23.02.2017 **Starting Time:** 9:00 **End Time:** 9:30 **Station Number:** 2/ Şantiye
GPS Coordinate / Location: Longitude E 35T 644847; Latitude N 4567317 **Elevation**: 99
Type of Habitat: G3.F

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Bufotes variabilis*	5	5	1	1		
2	*Testudo graeca*	5	2	1	1		
3	*Lacerta trilineata*	6	2	1	1		
4	*Ophisops elegans*	3	2	1	1		
5	*Dolichophis caspius*	1	1	1	1		
6							
7							
8							
9							
10							
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 23.02.2017 **Starting Time:** 10:00 **End Time:** 10:30 **Station Number:** 2/4
GPS Coordinate / Location: Longitude E 35T 639550; Latitude N 4567861 **Elevation**: 76
Type of Habitat: G1.3, G3.F, E3.4, I1.2

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Lissotriton vulgaris*	2	6	1	2		
2	*Pelophylax ridibundus*	8	6	1	2		
3	*Bufo bufo*	4	5	1	1		
4	*Bufotes variabilis*	5	6	1	2		
5	*Testudo graeca*	5	2	1	1		
6	*Lacerta viridis*	6	4	1	1		
7	*Lacerta trilineata*	5	2	1	1		
8	*Natrix natrix*	4	5	1	1		
9	*Dolichophis caspius*	1	2	1	1		
10							
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 23.02.2017 **Starting Time:** 11:00 **End Time:** 11:30 **Station Number:** 2/3
GPS Coordinate / Location: Longitude E 35T 636746; Latitude N 4566710 **Elevation**: 45
Type of Habitat: G1.3, G1.A, E3.4, F5.4, I1.2

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Rana dalmatina*	4	5	1	1		
2	*Pelophylax ridibundus*	6	5	1	1		
3	*Bufo bufo*	3	5	1	1		
4	*Bufotes variabilis*	5	6	1	2		
5	*Hyla orientalis*	4	5	1	1		
6	*Mauremys rivulata*	5	5	1	1		
7	*Testudo graeca*	5	2	1	1		
8	*Lacerta viridis*	6	2	1	1		
9	*Natrix tessellata*	4	5	1	1		
10							
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 23.02.2017 **Starting Time:** 12:00 **End Time:** 12:30 **Station Number:** 2/2
GPS Coordinate / Location: Longitude E 35T 635337; Latitude N 4565872 **Elevation**: 70
Type of Habitat: G1.A, E3.4, I1.2

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Rana dalmatina*	4	5	1	1		
2	*Pelophylax ridibundus*	8	6	1	2		
3	*Mauremys rivulata*	4	6	1	1		
4	*Testudo graeca*	5	2	1	1		
5	*Lacerta viridis*	7	4	1	1		
6	*Ablepharus kitaibelii*	2	1	1	1		
7	*Anguis fragilis*	3	1	1	1		
8							
9							
10							
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 23.02.2017 **Starting Time:** 13:00 **End Time:** 13:30 **Station Number:** 2/1
GPS Coordinate / Location: Longitude E 35T 633506; Latitude N 4563991 **Elevation**: 131
Type of Habitat: G1.3, E3.4, I1.2

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Rana dalmatina*	4	5	1	1		
2	*Pelophylax ridibundus*	6	5	1	1		
3	*Testudo graeca*	5	2	1	1		
4	*Lacerta viridis*	5	2	1	1		
5	*Ophisops elegans*	5	2	1	1		
6	*Natrix natrix*	3	6	1	2		
7							
8							
9							
10							
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 23.02.2017 **Starting Time:** 14:00 **End Time:** 14:30 **Station Number:** 1/6
GPS Coordinate / Location: Longitude E 35T 631387; Latitude N 4558247 **Elevation**: 43
Type of Habitat: G1.A, E3.4, F5.4, I1.2

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Rana dalmatina*	4	5	1	1		
2	*Bufotes variabilis*	7	6	1	2		
3	*Lacerta viridis*	6	4	1	1		
4	*Lacerta trilineata*	5	2	1	1		
5	*Anguis fragilis*	4	1	1	1		
6	*Pseudopus apodus*	3	2	1	1		
7	*Natrix tessellata*	4	5	1	1		
8							
9							
10							
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 23.02.2017 **Starting Time:** 15:00 **End Time:** 15:30 **Station Number:** 1/5
GPS Coordinate / Location: Longitude E 35T 626549; Latitude N 4558038 **Elevation**: 18
Type of Habitat: G1.3, I1.2

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Pelophylax ridibundus*	7	6	1	2		
2	*Lacerta trilineata*	5	2	1	1		
3	*Ophisops elegans*	4	2	1	1		
4	*Natrix natrix*	4	5	1	1		
5							
6							
7							
8							
9							
10							
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 23.02.2017 **Starting Time:** 16:00 **End Time:** 16:30 **Station Number:** 1/4
GPS Coordinate / Location: Longitude E 35T 619183; Latitude N 4559013 **Elevation**: 69
Type of Habitat: G3.F, G1.A

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Rana dalmatina*	4	6	1	2		
2	*Pelophylax ridibundus*	7	5	1	1		
3	*Bufo bufo*	2	6	1	2		
4	*Bufotes variabilis*	6	6	1	2		
5	*Hyla orientalis*	2	5	1	1		
6	*Mauremys rivulata*	2	6	1	1		
7	*Testudo graeca*	6	2	1	1		
8	*Lacerta viridis*	6	2	1	1		
9	*Ablepharus kitaibelii*	2	1	1	1		
10	*Anguis fragilis*	4	1	1	1		
11	*Dolichophis caspius*	3	2	1	1		
12	*Natrix tessellata*	4	5	1	1		
13	*Elaphe sauromates*	2	5	1	1		
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 23.02.2017 **Starting Time:** 17:00 **End Time:** 17:30 **Station Number:** 1/Taş Ocağı
GPS Coordinate / Location: Longitude E 35T 617205; Latitude N 4558333 **Elevation**: 215
Type of Habitat: F5.4

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Bufotes variabilis*	5	5	1	1		
2	*Testudo graeca*	4	2	1	1		
3	*Pseudopus apodus*	4	2	1	1		
4	*Podarcis muralis*	2	4	1	1		
5	*Ophisops elegans*	5	2	1	1		
6	*Zamenis longissimus*	2	1	1	1		
7							
8							
9							
10							
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 24.02.2017 **Starting Time:** 9:00 **End Time:** 9:30 **Station Number:** 7/2
GPS Coordinate / Location: Longitude E 35T 661833; Latitude N 4551282 **Elevation**: 28
Type of Habitat: G1.3, G3.F

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Rana dalmatina*	2	6	1	2		
2	*Pelophylax ridibundus*	5	6	1	2		
3	*Bufotes variabilis*	5	6	1	2		
4	*Hyla orientalis*	2	6	1	2		
5	*Mauremys rivulata*	2	6	1	1		
6	*Testudo graeca*	6	2	1	1		
7	*Lacerta viridis*	5	2	1	1		
8	*Ablepharus kitaibelii*	4	1	1	1		
9	*Anguis fragilis*	2	1	1	1		
10	*Dolichophis caspius*	2	2	1	1		
11	*Natrix tessellata*	2	5	1	1		
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 24.02.2017 **Starting Time:** 10:00 **End Time:** 10:30 **Station Number:** 7/1
GPS Coordinate / Location: Longitude E 35T 654445; Latitude N 4554334 **Elevation**: 180
Type of Habitat:, F6.4

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Bufotes variabilis*	4	5	1	1		
2	*Testudo graeca*	6	2	1	1		
3	*Lacerta viridis*	5	2	1	1		
4	*Ablepharus kitaibelii*	4	1	1	1		
5	*Podarcis tauricus*	2	4	1	1		
6							
7							
8							
9							
10							
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 24.02.2017 **Starting Time:** 11:00 **End Time:** 11:30 **Station Number:** 1/3
GPS Coordinate / Location: Longitude E 35T 610678; Latitude N 4555635 **Elevation**: 188
Type of Habitat: E1.2, E3.4

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Bufotes variabilis*	7	6	1	2		
2	*Ophisops elegans*	5	2	1	1		
3	*Dolichophis caspius*	5	1	1	1		
4	*Natrix natrix*	5	5	1	1		
5							
6							
7							
8							
9							
10							
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 24.02.2017 **Starting Time:** 12:00 **End Time:** 12:30 **Station Number:** 1/2
GPS Coordinate / Location: Longitude E 35T 609631; Latitude N 4555214 **Elevation**: 116
Type of Habitat: G1.3, I1.2

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Bufotes variabilis*	7	5	1	1		
2	*Ophisops elegans*	7	2	1	1		
3	*Lacerta trilineata*	5	2	1	1		
4	*Pseudopus apodus*	5	2	1	1		
5	*Zamenis longissimus*	1	2	1	1		
6							
7							
8							
9							
10							
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 24.02.2017 **Starting Time:** 13:00 **End Time:** 13:30 **Station Number:** 1/1
GPS Coordinate / Location: Longitude E 35T 606435; Latitude N 4555685 **Elevation**: 52
Type of Habitat: G1.3, I1.2

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Bufotes variabilis*	7	6	1	2		
2	*Ophisops elegans*	5	2	1	1		
3	*Lacerta trilineata*	5	2	1	1		
4	*Dolichophis caspius*	4	1	1	1		
5							
6							
7							
8							
9							
10							
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 24/02/2017 Starting Time: 13:05 End Time: 13:35 Station Number: 1/1

GPS Coordinate / Location: 35T 608228/4556651 Elevation: 170 m

Type of Habitat: I1.2 / G1.3

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Buteo buteo	1	1	4	~ 200 m	wintering
2	Athene noctua	1	1	1	~ 50 m	resident
3	Motacilla alba alba	1	1	2	"	"
4	Erithacus rubecula	2	1	2	"	wintering
5	Turdus merula	3	1	1	"	resident
6	Phylloscopus collybita	2	1	1	"	"
7	Garrulus glandarius	1	1	"	"	"
8	Corvus monedula	7	1	2	"	"
9	Corvus corone cornix	11	1	1-2	~ 200 m	"
10	Sturnus vulgaris	8	1	1-2	"	wintering
11	Fringilla coelebs	1				
12						
13						
Potential Risks:	Yangın – kerestecilik					
Information About Ecosystem Services:	Turizm					

* Recording Method: 1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire

**Substrate: 1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 24/02/2017 Starting Time: 11:55 End Time: 12:25 Station Number: 1/2

GPS Coordinate / Location: 35T 69863/4555521 Elevation: 150 m

Type of Habitat: I1.2 / G1.3

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Ciconia ciconia	—	2	5	> 200	breeding
2	Buteo buteo	2	1	1	> 100	Resident
3	Athene noctua	1	1-4-5	1	> 50	"
4	Motacilla alba	3	1	2	"	"
5	Erithacus rubecula	2	1	2	"	wintering
6	Turdus merula	1	1	1	"	Resident
7	Phyllos. collyb.	4	1	1-2	"	"
8	Corvus monedula	17	1	1-2	"	"
9	Garrulus glandarius	2	1	1	"	"
10	Corvus corone cornix	9	1	1-2-4	"	"
11	Sturnus vulgaris	25	1	1	~ 200	wintering
12	Fringilla coelebs	5	1	1-2	~ 50	Resident
13						

Potential Risks:	Yangın – kuraklık
Information About Ecosystem Services:	Tarım

* *Recording Method:* 1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire

***Substrate:* 1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 24/02/2017 Starting Time: 11:00 End Time: 11:30 Station Number: 1/3

GPS Coordinate / Location: 35T 640780/4558569 Elevation: 185 m

Type of Habitat: E.1.2 / E 3.4

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Accipiter nisus	1	1	1	~ 100	wintering
2	Alectoris chukar	3	1	1	~ 300	Resident
3	Athene noctua	1	1	1-4-5	~ 200	"
4				1-2		
5	Anthus pratensis	1	1	1	~ 50	wintering
6	Oenanthe isabellina	2	1	1-2	"	"
7	Pica pica	4	1	1-2	~ 100	Resident
8	Corvus corone cornix	17	1	1-2-4	"	"
9	Corvus corax	1	1	1	"	"
10	Carduelis cannabina	27	1	1-2-4	"	wintering
11						
12						
13						

Potential Risks: [illegible]

Information About Ecosystem Services: Tarım

* Recording Method: 1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire

**Substrate: 1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating

7

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 23/02/2017 Starting Time: 16:00 End Time: 16:40 Station Number: 1/4

GPS Coordinate / Location: 35T 0418666/4558826 Elevation: 1460m

Type of Habitat: G1A / G3F

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Buteo buteo	2	1	1	~200	wintering
2	Buteo rufinus	1	1	1	"	Resident
3	Alectoris chukar	–	2	2	~50	"
4	Columba livia	5	1	1	~100	"
5	Corvus corax	1	2	2	~50	"
6	Dendrocopos syriacus	1	1	1	"	"
7	Galerida cristata	1	1	2	"	"
8	Anthus pratensis	2	1	1-2	"	wintering
9	Motacilla alba alba	3	1	1-2	"	"
10	Troglodytes troglodytes	1	1	1	"	resident
11	Erithacus rubecula	2	1	1	"	"
12	Turdus merula	5	1	1-2	"	"
13	Phylloscopus collybita	4	1	1-2	"	"

Potential Risks: Yangın

Information About Ecosystem Services: Koruluk – Mera alanı

* Recording Method: 1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire

** Substrate: 1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 23/02/2017 Starting Time: 15:00 End Time: 15-20 Station Number: 1/5

GPS Coordinate / Location: 35T 626593 / 4558060 Elevation: 20m

Type of Habitat: I1.2 / G1.3

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Accipiter nisus	1	1	1	~100	wintering
2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	Oenanthe isabellina	2	1	1	–	–
4	Pica pica	3	1	1	–	–
5	Corvus corone cornix	12	1	1-2	–	–
6	Carduelis cannabina	25	1	1-2	–	–
7						
8						
9						
10						
11						
12						
13						
Potential Risks:	[illegible]					
Information About Ecosystem Services:	[illegible]					

*Recording Method: 1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire

**Substrate: 1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating

Form 1: Fauna (Aves=Birds) Field Study Form

①

Date: 23/02/2017 Starting Time: 14:00 End Time: 15:35 Station Number: 1/6

GPS Coordinate / Location: 35T 631342/4558430 Elevation: 72 m

Type of Habitat: G1A / J12 / E5.4 / E36

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Buteo buteo	2	1	1	~200	Resident
2	Columba livia	5	1	1	〃	〃
3	Athene noctua	—	1-5	2	〃	〃
4	Dendrocopos syriacus	2	1	1	[illegible]	〃
5						
6	Anthus pratensis	7	1	1	〃	wintering
7	Motacilla alba alba	2	1	1	〃	〃
8	Troglodytes troglodytes	1	1	1	〃	Resident
9	Turdus merula	2	1	1	—	—
10						
11	Phylloscopus collybita	2	1	1	—	Resident
12	Parus major	2	1	1	—	—
13	Carduelis [illegible]	2	1	1	〃	〃
Potential Risks:	[illegible]					
Information About Ecosystem Services:	[illegible]					

* Recording Method: 1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire

**Substrate: 1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 23/02/2017 Starting Time: 16:50 End Time 17.30 Station Number: 1 / Taş Ocağı

GPS Coordinate / Location: 35T 617202/4558046 Elevation: 220m

Type of Habitat: F5-4

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Garrulus glandarius	3	1	1-2	~100	Resident
2	Pica pica	5	1	1-2	〃	〃
3	Sturnus vulgaris	>50	1	1	〃	wintering
4	Fringilla coelebs	2	1	1-2	〃	Resident
5	Buteo rufinus	2	1	1	〃	–
6	Falco tinnunculus	1	1	1	〃	–
7	[illegible]	[illegible]		1		–
8	Anthus pratensis	1	1	1	〃	–
9	Erithacus rubecula	2	1	1	〃	–
10	Turdus merula	1	1	1	〃	–
11						
12						
13						

Potential Risks: Yapılaşma

Information About Ecosystem Services: [illegible]

* Recording Method: 1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire

**Substrate: 1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 23/07/2017 Starting Time: 17:50 End Time: 18:25 Station Number: 1/Şantiye

GPS Coordinate / Location: 35T 683514/4555443 Elevation: 217

Type of Habitat:

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Columba livia	4	1	1	~50	Resident
2	Fringilla coelebs	2	1	1-2	~	~
3	Oenanthe isabellina	1	1	1	~	~
4	Pica pica	6	1	1-2	"	~
5	Corvus monedula	7	1	1-2	"	~
6						
7						
8						
9						
10						
11						
12						
13						

Potential Risks: Yangın

Information About Ecosystem Services: Üreme alanı olabilir

* *Recording Method:* *1. Observation* *2. Trace and Sign* *3. Literature* *4. Habitat Suitability* *5. Questionnaire*

***Substrate:* *1. Flying* *2. Feeding* *3. Swimming* *4. Roosting* *5. Breeding* *6. Migrating*

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 23/02/2017 Starting Time: 13:00 End Time: 13:30 Station Number 2/1

GPS Coordinate / Location: 35T 633501/4568873 Elevation: 160 m

Type of Habitat E1.2 / G1.3

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Ardea cinerea	1	1	1-2	~ 100	Resident
2	Accipiter nisus	1	1	1	~	wintering
3	Falco tinnunculus	1	1	1	~	Resident
4	Columba livia	9	1	1	~	~
5	Anthus pratensis	1	1	1	~	wintering
6	Motacilla alba alba	2	1	1-2	~	~
7	Erithacus rubecula	2	1	1-2	~	~
8	Turdus merula	1	1	1	~	Resident
9	Phylloscopus collybita	3	1	1	~	~
10	Garrulus glandarius	2	1	1	~	~
11	Pica pica	5	1	1	~	~
12	Corvus frugilegus	21	1	1	~	~
13	Sturnus vulgaris	> 100	1	1	~	winter
Potential Risks:	Huntability					
Information About Ecosystem Services:	Farm					

* Recording Method: 1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire
**Substrate: 1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating

14. Melanocorypha calandra 1 1 1 ~ ~

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 23/02/2017 Starting Time 12:00 End Time 12:30 Station Number 2/2

GPS Coordinate / Location: 35T 675 368 / 4 565 825 Elevation 75 m

Type of Habitat: E1.2 / E3.4 / G1.A

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Accipiter nisus	1	1	1	~ 400	Resident
2	Falco tinnunculus	1	1	1	〃	〃
3	Coturnix coturnix	7	4-5	–	–	–
4	Actitis hypoleucos	1	1	1-2	〃	〃
5	Gallinago gallinago	1	1	1	〃	–
6	Anthus pratensis	1	1	1	–	–
7	Motacilla alba alba	2	1	1	〃	–
8	Erithacus rubecula	2	1	1	–	wintering
9	Turdus merula	3	1	1-2	〃	Resident
10	Turdus pilaris	13	1	1	–	migrating
11	Phylloscopus collybita	2	1	1	–	Resident
12	Garrulus glandarius	2	1	1	–	–
13	Pica pica	4	1	1	–	–
14.	Corvus frugilegus	~50	1	1	〃	Resident
15.	Sturnus vulgaris	~50	1	1	〃	wintering
16.	Carduelis spinus	~10	1	1-2	〃	〃

Potential Risks: Kirlilik

Information About Ecosystem Services: Tarım

* Recording Method: 1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire

**Substrate: 1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 23/02/2017 Starting Time. 11:00 End Time. 11:30 Station Number 2/3

GPS Coordinate / Location: 35T 686418/4566433 Elevation. 75m

Type of Habitat: I1.2 / E-3.4 / G1.A / F5.4 / G1.3

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Falco tinnunculus	1	1	1	~100	Resident
2	Gallinago gallinago	—	5	2	—	—
3	Dendrocopos syriacus	1	1	1	~50	-
4	Motacilla alba alba	2	1	1-2	-	-
5	Troglodytes troglodytes	1	1	1	-	-
6	Erithacus rubecula	2	1	1	-	wintering
7	Turdus merula	1	1	1-2	-	Resident
8	Turdus pilaris	25	1	1	-	migrating
9	Phylloscopus collybita	2	1	1	-	Resident
10	Carduelis chloris	1	1	1	-	-
11	Pica pica	4	1	1-2	-	-
12	Corvus frugilegus	44	1	1-2	-	-
13	Sturnus vulgaris	>50	1	1	-	wintering
Potential Risks:	Yes					
Information About Ecosystem Services:	Tourism					

* Recording Method: 1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire

**Substrate: 1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating

14. Carduelis spinus 3 1 1-2 - -

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 23/01/2017 Starting Time. 10:00 End Time. 10:30 Station Number: 2/4

GPS Coordinate / Location: 35T 634 600 / 4867817 Elevation: 90m

Type of Habitat: I.1.2 / E.3.4 / G.1.3 / G.3.F

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Gallinago gallinago	1	1	1	~ 20m	Resident
2	Dendrocopos syriacus	1	1	1	"	"
3	Motacilla alba alba	2	1	1-2	"	"
4	Troglodytes troglodytes	1	1	1	"	"
5	Turdus merula	2	1	1-2	"	"
6	Turdus pilaris	~ 20	1	1	~ 50	Wintering-Migrating
7	Phylloscopus collybita	2	1	1-2	~ 20	Resident
8	Carduelis chloris	2	1	1-2	"	"
9	Pica pica	7	1	1-2	"	"
10	Larus fuscus	~ 50	1	1	"	"
11	Sturnus vulgaris	~ 100	1	1	"	"
12	Carduelis spinus	4	1	1-2	"	Wintering
13						

Potential Risks:	Yangın
Information About Ecosystem Services:	Tarım

* Recording Method: 1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire

**Substrate: 1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 12/02/2017 Starting Time: 17:00 End Time: 17:30 Station Number: 2/5

GPS Coordinate / Location: 35T 421400/4567582 Elevation: 160

Type of Habitat: G,3-F

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Accipiter nisus	1	1	1	~100	migrating
2	Larus michahellis	~50	1	1	~200	Resident
3	Gallinago gallinago	–	5	1	–	–
4	Dendrocopos syriacus	1	1	1	~50	–
5	Motacilla alba alba	3	1	1-2	–	–
6	Troglodytes troglodytes	1	1	1	–	–
7	Turdus merula	3	1	1-2	–	–
8	Turdus pilaris	~20	1	1-2	–	Migrating
9	Phylloscopus collybita	2	1	1-2	–	–
10	Garrulus glandarius	2	1	1-2	–	–
11	Pica pica	5	1	1-2	–	–
12	Corvus corone cornix	3	1	1	–	–
13						

Potential Risks: Yerleşim – [illegible]

Information About Ecosystem Services: Mesire yeri?

* Recording Method: 1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire

**Substrate: 1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 22/02/2017 Starting Time: 17:50 End Time: 18:25 Station Number: 2/6

GPS Coordinate / Location: 35T 647137/4567355 Elevation: 125 m

Type of Habitat: G1.A

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Garrulus glandarius	3	1	1-2	~50	Resident
2	Pica pica	7	1	"	–	–
3	Corvus corone cornix	12	1	1"	–	–
4	Phalacrocorax carbo	3	1	1	–	–
5	Egretta garzetta	1	1	1-2	–	wintering
6	Larus michahellis	19	1	1	~100	Resident
7	Columba livia	3	1	1-2	–	–
8	Streptopelia decaocto	2	1	1	~20	–
9	Dendrocopos syriacus	1	1	1	–	–
10	Motacilla alba alba	2	1	1-2	–	–
11	Troglodytes troglodytes	1	1	1	–	–
12	Turdus merula	2	1	1-2	–	–
13	Turdus pilaris	~15	1	1	–	migrating
Potential Risks:	Kireçbükü - Yangın					
Information About Ecosystem Services:	Ormanlık - Mesire					

* Recording Method: 1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire

**Substrate: 1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating

14. Phylloscopus collybita 2 1 1-2 – Resident

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 22/02/2017 Starting Time: 12:00 End Time: 12:30 Station Number: 2/7

GPS Coordinate / Location: 35T 456108/4561462 Elevation:

Type of Habitat: G1-A

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Larus michahellis	~100	1	1	~100	Resident
2	Streptopelia decaocto	1	1	1	~50	-
3	Motacilla alba alba	2	1	1-2	-	-
4	Erithacus rubecula	1	1	1	-	-
5	Turdus merula	2	1	1-2	-	-
5	Turdus pilaris	~25	1	1	~100	Migrating
7	Phylloscopus collybita	2	1	1-2	~20	Resident
8	Parus major	2	1	1-2	-	-
9	Garrulus glandarius	2	1	-	-	-
10	Pica pica	3	1	-	-	-
11	Corvus corone cornix	5	1	-	-	-
12	Fringilla coelebs	2	1	-	-	-
13						

Potential Risks:	[illegible]
Information About Ecosystem Services:	[illegible]

* Recording Method: 1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire

**Substrate: 1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 22/02/2017 Starting Time: 16:00 End Time: 16:30 Station Number 2/Depo-1

GPS Coordinate / Location. 35T 643995/4566828 Elevation. 100 m

Type of Habitat. G.1.3/G.1.F

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Phalacrocorax carbo	3	1	1	~50	Resident
2	Ardea cinerea	1	1	2	~20	-
3	Buteo buteo	1	1	1	~50	-
4	Gallinula chloropus	2	1	3	~50	-
5	Fulica atra	2	1	3	~20	-
6	Larus michahellis	18	1	1	~200	-
7	Columba livia	5	1	1	~50	-
8	Streptopelia decaocto	2	1	1	-	-
9	Motacilla alba alba	1	1	7	-	-
10	Turdus merula	2	1	1-2	-	-
11	Turdus pilaris	7	1	1	-	Migratory
12	Phylloscopus collybita	2	1	2	-	Resident
13	Pica pica	3	1	1-2	-	-
Potential Risks:	Yangın, Kirlilik					
Information About Ecosystem Services:	Yok					

* Recording Method: 1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire

**Substrate: 1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating

14.	Garrulus glandarius	2	1	-	-	-
15.	Corvus corone cornix	7	-	-	-	-
16.	Fringilla coelebs	2	1	-	-	-

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 22/02/2017 Starting Time: 15:00 End Time: 15:30 Station Number: 2/Sepo-2

GPS Coordinate / Location: 35T 664738/4567707 Elevation: 105

Type of Habitat: G3F

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Corvus frugilegus	1	1	1	~ 20	Resident
2	Pica pica	2	1	2	"	"
3	Corvus corone cornix	11	1	1	~ 50	"
4	Fringilla coelebs	2	"	"	~ 20	"
5	Phalacrocorax carbo	1	1	1	"	"
6	Ardea cinerea	1	1	2	"	"
7	Buteo buteo	1	1	1	"	"
8	Gallinula chloropus	2	1	3	~ 20	Wintering
9	Fulica atra	8	1	3	"	Wintering
10	Larus michahellis	15	1	1	"	Resident
11	Columba livia	2	1	1	"	"
12	Streptopelia decaocto	2	1	1	"	"
13	Motacilla alba alba	1	1	2	"	"

Potential Risks: Yangın – Kirlilik

Information About Ecosystem Services: Orman – Mesire

* Recording Method: 1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire

**Substrate: 1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating

14.	Turdus merula	2	1	1-2	"	" migratory
15.	Turdus pilaris	3	1	1	"	resident
16.	Phylloscopus collybita	2	1	1	"	

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 22/02/2017 Starting Time: 14:00 End Time: 14:30 Station Number: 2 / Depo-3

GPS Coordinate / Location: 35T 646478 / 4566619 Elevation: 120m

Type of Habitat: G3F / C3.2

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Garrulus glandarius	1	1	2	~20	Resident
2	Pica pica	5	1	1-2	–	–
3	Corvus corone cornix	13	1	1-2	~50	–
4	Fringilla coelebs	2	1	2	~20	–
5	Phalacrocorax carbo	1	1	1	~50	wintering
6	Ardea cinerea	1	1	3	–	Resident
7	Buteo buteo	1	1	3	–	wintering
8	Gallinula chloropus	2	1	3	–	Resident
9	Fulica atra	5	1	3	–	wintering
10	Larus michahellis	~20	1	1	–	Resident
11	Columba livia	1	1	1	–	–
12	Streptopelia decaocto	1	1	1	–	–
13	Motacilla alba alba	2	1	2	–	–
Potential Risks:	[illegible]					
Information About Ecosystem Services:	[illegible]					

* Recording Method: 1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire

**Substrate: 1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating

14. Turdus merula 2 1 2 – migrating
15. Turdus pilaris ~20 1 1 –
16. Phylloscopus collybita 2 1 2 – resident

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 22/02/2017 Starting Time: 13:00 End Time: 13:30 Station Number: 2/Bg-20-4

GPS Coordinate / Location: 35 T 651255/4566477 Elevation: 115

Type of Habitat: G1A

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Garrulus glandarius	2	1	2	~20	Resident
2	Pica pica	2	1	2	〃	–
3	Corvus corone cornix	3	1	1–2	~50	–
4	Fringilla coelebs	5	1	〃	〃	〃
5	Phalacrocorax carbo	2	1	1	〃	–
6	Ardea cinerea	1	1	2	〃	–
7	Buteo buteo	1	1	1	–	–
8	Carduelis chloris	~~1~~	1	3	〃	〃
9	Fulica atra	7	1	3	〃	wintering
10	Columba livia	5	1	1	〃	Resident
11	Streptopelia decaocto	1	1	1	–	–
12	Motacilla alba alba	2	1	1–2	〃	–
13	Turdus merula	7	1	1	〃	–
14.	Turdus pilaris	8	1	1	〃	migrating
15.	Phylloscopus collybita	2	1	2	〃	Resident

Potential Risks: Kurelatta – Yargın

Information About Ecosystem Services: Orman içi – Mesire

*Recording Method: 1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire

**Substrate: 1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 23/02/2017 Starting Time: 9:00 End Time 9:30 Station Number: 2/Santyx

GPS Coordinate / Location 35T 644656/4567292 Elevation: 700

Type of Habitat: G3.F

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Pica pica	3	1	1-2	~20	Resident
2	Corvus corone cornix	5	1	"	–	"
3	Sturnus vulgaris	~20	1	1	~50	Migrating
4	Passer domesticus	6	1	1-2	~20	Resident
5	Fringilla coelebs	3	1	–	"	–
6	Larus michahellis	21	1	1	~200	"
7	Columba livia	8	1	1-2	~50	–
8	Motacilla alba alba	2	1	1-2	"	"
9	Turdus merula	2	1	"	–	"
10						
11						
12						
13						

Potential Risks:	[illegible]
Information About Ecosystem Services:	[illegible]

* *Recording Method:* *1. Observation* *2. Trace and Sign* *3. Literature* *4. Habitat Suitability* *5. Questionnaire*

***Substrate:* *1. Flying* *2. Feeding* *3. Swimming* *4. Roosting* *5. Breeding* *6. Migrating*

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 24/02/2017 Starting Time: 10:00 End Time: 10:30 Station Number: 7/1

GPS Coordinate / Location: 35 T 654650/4554400 Elevation: 160

Type of Habitat: F6.4

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Falco tinnunculus	1	1	1	~ 100	Resident
2	Larus michahellis	8	1	1	~ 200	"
3	Columba livia	5	1	1	10	"
4	Streptopelia decaocto	2	1	4	~ 50	"
5	Motacilla alba	1	1	1	"	"
6	Emberiza cirlus	1	1	2	"	wintering
7	Corvus corone cornix	2	1	1	"	Resident
8						
9						
10						
11						
12						
13						

Potential Risks:	Yangın, Erozyon
Information About Ecosystem Services:	Park

* *Recording Method:* *1. Observation* *2. Trace and Sign* *3. Literature* *4. Habitat Suitability* *5. Questionnaire*

***Substrate:* *1. Flying* *2. Feeding* *3. Swimming* *4. Roosting* *5. Breeding* *6. Migrating*

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 24/02/2017 Starting Time: 9:00 End Time: 9:30 Station Number: 7/2

GPS Coordinate / Location: 35T 662102/4551876 Elevation: 60m

Type of Habitat: G3.F / G1.3

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Larus michahellis	18	1	1	~ 200	Resident
2	Columba livia	2	1	1	~ 50	–
3	Streptopelia decaocto	2	1	1	–	–
4	Dendrocopos syriacus	1	1	1	–	–
5	Anthus pratensis	1	1	2	–	–
6	Motacilla alba alba	2	1	1-2	–	–
7	Troglodytes troglodytes	1	1	2	–	–
8	Erithacus rubecula	1	1	2	–	–
9	Regulus ignicapilla	1	1	2	–	–
10	Aegithalos caudatus	8	1	1-2	–	–
11	Parus major	2	1	1	–	–
12	Garrulus glandarius	1	1	2	–	–
13	Passer domesticus	2	1	2	–	–
Potential Risks:	[illegible]					
Information About Ecosystem Services:	Yok					

* *Recording Method:* 1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire

***Substrate:* 1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating

Form 1: Fauna (Mammalia) Field Study Form

Date: 24.07.2017 Starting Time: 13:00 End Time: 13:30 Station Number: 1-1
GPS Coordinate / Location: 35T 606435E - 4559685N Elevation: 52 m
Type of Habitat: G1.7 - F1.2

No	Observed Taxa (Species)	Number of Observed individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Pip pip			6			
2	Nyc lei			2			
3	Rat nor			5			
4	Mus mac			4			
5	Nan leu			2			
6	Apo fla			4			
7	Vul vul			2			
8	Mus niv			5			
9	Sus scr			5			
10	Mar foi			5			
11	Cro suu			6			
12	Eri rou			5			
13							
14							
15							
16							

Potential Risks:

Information About Ecosystem Services:

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

Form 1: Fauna (Mammalia) Field Study Form

Date: 24.02.2017 Starting Time: 12:00 End Time: 12:30 Station Number: 1-2

GPS Coordinate / Location: 37T 609632 E - 4555211 N Elevation: 116 m

Type of Habitat: G1.3 - F1.2

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Mic lev			2			
2	Mic pin			2			
3	Ner Ueu			2			
4	Apo fla			4			
5	Vul vul			2			
6	Sus scr			2			
7	Mar foi			2			
8	Mus niv			2			
9	Rat rat			5-6			
10	Rat nor			5-6			
11	Mus mac			4			
12	Cro sau			6			
13	Eri rou			2			
14							
15							
16							

Potential Risks:

Information About Ecosystem Services:

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

Form 1: Fauna (Mammalia) Field Study Form

Date: 24.01.2017 Starting Time: 11:00 End Time: 11:30 Station Number: 1-3
GPS Coordinate / Location: 35T 610628 E – 4555635 N Elevation: 188 m
Type of Habitat: E1.2 – E3.4

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Sus scr			2			
2	Mus mac			4			
3	Nan leu			2			
4	Mic gue			2			
5	Vul vul			2			
6	Mus ab			2			
7	Mar foi			2			
8	Eri rou			2			
9	Lep eur			2			
10							
11							
12							
13							
14							
15							
16							

Potential Risks:

Information About Ecosystem Services:

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

Form 1: Fauna (Mammalia) Field Study Form

Date: 10.02.2017 Starting Time: 16:00 End Time: 16:30 Station Number: 1-4

GPS Coordinate / Location: 35T 619133 E - 4553213 N Elevation: 69 m

Type of Habitat: G3.F - G1.A

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Cap cap			2			
2	Sus scr			2			
3	Dry nit			6			
4	Apo fla			4			
5	Myo gla			2			
6	Sci vul			6			
7	Lep eur			1			
8	Cron qur			2			
9	Vul vul			2			
10	Mus niv			5			
11	Mar foi			5			
12	Mel mel			5			
13	Fel syl			2			
14	Tal eur			2			
15	Cro suv			6			
16	Neo ano			6			

Potential Risks:

Information About Ecosystem Services:

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera Trap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

Form 1: Fauna (Mammalia) Field Study Form

Date: 23.07.2017 Starting Time: 15:00 End Time: 15:30 Staton Number: 1-5
GPS Coordinate / Location: 35T 626569 E - 4558008 N Elevation: 10 m
Type of Habitat: G1.7 - I1.2

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Eri rou			2			
2	Cro sua			6			
3	Mic arv			2			
4	Mar foi			2			
5	Mus niv			1			
6	Vul vul			5			
7	Mus mac			4			
8	Apo fla			4			
9	Nan leu			2			
10	Pip pip			6			
11							
12							
13							
14							
15							
16							

Potential Risks:

Information About Ecosystem Services:

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera trap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

Form 1: Fauna (Mammalia) Field Study Form

Date: 23.07.2017 Starting Time: 14:00 End Time: 14:30 Station Number: 1-6
GPS Coordinate / Location: 35T 621787E - 4558727N Elevation: 42 m
Type of Habitat: G1.A - E5.4 - E5.4-E1.2

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Sus scr			2			
2	Mar foi			2			
3	Mel mel			6			
4	Eri rou			2			
5	Cro suv			6			
6	Nan leu			2			
7	Apo fla			4			
8	Rat nor			2			
9	Mus mac			4			
10	Can aur			5			
11	Vul vul			5			
12							
13							
14							
15							
16							
	Potential Risks:						
	Information About Ecosystem Services:						

*Recording and Capturing Method. 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

Form 1: Fauna (Mammalia) Field Study Form

Date: 20.02.2017 Starting Time: 17:00 End Time: 12:20 Station Number: 1-[illegible]

GPS Coordinate / Location: 35T 617105 4558233 N Elevation: 215 m

Type of Habitat: F5.4

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Eri rou			2			
2	Pip pip			6			
3	Lep eur			2			
4	Sus scr			2			
5	Vul vul			2			
6	Mus mu			6			
7	Mar foi			5			
8	Apo fla			4			
9	Nan leu			2			
10	Mic [illegible]			2			
11							
12							
13							
14							
15							
16							

Potential Risks:

Information About Ecosystem Services:

*Recording and Capturing Method 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

Form 1: Fauna (Mammalia) Field Study Form

Date: 23.02.2017 Starting Time: 12:00 End Time: 13:30 Station Number: 2-1
GPS Coordinate / Location: 35T 633506 E - 4562991 N Elevation: 131 m
Type of Habitat: G1Q - E3-4 - F1.2

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Mus lev			2			
2	Mic fog			2			
3	Mes lev			2			
4	Apo fla			4			
5	Vol vul			2			
6	Mer pol			2			
7	Tal Tou			2			
8	Can Qur			2			
9							
10							
11							
12							
13							
14							
15							
16							

Potential Risks:

Information About Ecosystem Services:

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

Form 1; Fauna (Mammalia) Field Study Form

Date: 23.02.20[illegible] Starting Time: 12:00 End Time: 17:30 Station Number: 2-2
GPS Coordinate / Location: 35T 635297 E - 4565322 N Elevation: 70 m
Type of Habitat: G1A - E3.4 - I1.2

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Sus scr			2			
2	Mel Dol			2			
3	Mus [illegible]			5			
4	Mus mac			2			
5	Rat rat			5			
6	Apo fla			2			
7	Mic arv			2			
8	Mic lev			2			
9	Cro suu			6			
10	Tal eur			2			
11	Can aur			1			
12							
13							
14							
15							
16							

Potential Risks:

Information About Ecosystem Services:

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

Form 1: Fauna (Mammalia) Field Study Form

Date: 23.02.2017 Starting Time: 11:00 End Time: 11:20 Station Number 2-3

GPS Coordinate / Location: 35T 676746 E - 4566210 N Elevation: 45 m

Type of Habitat: G1.3 - G1.A - F3.4 - F5.4 - I1.2

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Sus scr			5			
2	Mar fo			5			
3	Mus mac			2			
4	Rat raf			5			
5	Apo fla			2			
6	Mic gun			2			
7	Mic lev			2			
8	Aru amp			6			
9	Lep eur			5			
10	Eri rou			5			
11	Ca sun			6			
12	Tal eur			2			
13							
14							
15							
16							

Potential Risks:

Information About Ecosystem Services:

*Recording and Capturing Method 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

Form 1: Fauna (Mammalia) Field Study Form

Date: 23.07.2017 Starting Time: 10:00 End Time: 10:10 Station Number: 2-4
GPS Coordinate / Location: 35 T 619550 E - 4567861 N Elevation: 26 m
Type of Habitat: G1.1 - G3.F - E2.4 - I1.2

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Cap cap			2			
2	Sus scr			2			
3	Dry nit			6			
4	Cah aur			2			
5	Vul vul			2			
6	Apo fla			1			
7	Mon luc			2			
8	Mic gen			2			
9	Pip pip			6			
10	Myo bly			6			
11	Myo myo			6			
12	Tal eur			2			
13	Neo ano			6			
14	Cro suo			6			
15	Mar foi			6			
16							

Potential Risks:

Information About Ecosystem Services:

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera trap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

Form 1: Fauna (Mammalia) Field Study Form

Date: 22.07.2017 Starting Time: 10:00 End Time: 18:30 Station Number: 2-5
GPS Coordinate / Location: 35T 666885 E - 4567477 N Elevation: 140 m
Type of Habitat: 61A

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Rat rat			5-6			
2	Mus mac			2			
3	Vul vul			2			
4	Mus abl			2			
5	Apo fla			2			
6	Pip pip			6			
7	Eri rou			2			
8							
9							
10							
11							
12							
13							
14							
15							
16							

Potential Risks:

Information About Ecosystem Services:

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

Form 1: Fauna (Mammalia) Field Study Form

Date: 22.02.2017 Starting Time: 17:00 End Time: 17:20 Station Number: 2-6
GPS Coordinate / Location: 35T 642206 E - 4462454 N Elevation: 1462 m
Type of Habitat: G3.F

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Tal eur			2			
2	Rat nor			5			
3	Vul vul			2			
4	Nan leu			2			
5	Apo fla			2			
6	Eri rou			2			
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
		Potential Risks:					
		Information About Ecosystem Services:					

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

Form 1: Fauna (Mammalia) Field Study Form

Date: 22.02.2017 Starting Time: 11:00 End Time: 12:00 Station Number: 2-7
GPS Coordinate / Location: 35T 650127E – 4566419N Elevation: 132 m
Type of Habitat: G1A

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Eri rou			2			
2	Tad eur			2			
3	Pip pip			6			
4	Lep eur			4			
5	Apo flo			4			
6	Mus mac			6			
7	Vul vul			2			
8	Mar foi			6			
9	Sus scr			5			
10							
11							
12							
13							
14							
15							
16							

Potential Risks:

Information About Ecosystem Services:

*Recording and Capturing Method. 1. Observation 2. Trace and Sign 3. Camera trap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

Form 1: Fauna (Mammalia) Field Study Form

Date: 22.03.2012 Starting Time: 9:00 End Time: 9:30 Station Number: 2-Santiye
GPS Coordinate / Location: 37 T 644847 E - 4567317 N Elevation: 99 m
Type of Habitat: G1.F

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Pip pip			6			
2	Mus dom			6			
3	Eri rou			6			
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
	Potential Risks:						
	Information About Ecosystem Services:						

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera trap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

Form 1: **Fauna (Mammalia) Field Study Form**

Date: 22-07-2019 Starting Time: 16:00 End Time: 16:30 Station Number: 2-Depo-1

GPS Coordinate / Location: 35 T 644058 E – 4566865 N Elevation: 102 m

Type of Habitat: G3F + G1.3

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Tal eur			2			
2	Pip pip			6			
3	Apo fla			6			
4	Nar fli			4			
5	Sus scr			2-5			
6	Mus mac			6			
7	Rhi fer			6			
8	Min sch			6			
9	Vul vul			1-3			
10							
11							
12							
13							
14							
15							
16							
	Potential Risks:						
	Information About Ecosystem Services:						

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

Form 1: Fauna (Mammalia) Field Study Form

Date: 22.07.2017 Starting Time: 15:00 End Time: 15:30 Station Number: 2-Dep-2
GPS Coordinate / Location: 35T 645750 E - 4566968 N Elevation: 104 m
Type of Habitat: Caj F

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Eri rou		1	1			
2	Vul vul			2-3			
3	Sus scr			2			
4	Nan lev			2			
5	Lep eur			1			
6	Rhi hip			6			
7	Tal eur			2			
8	Mus mac			1			
9							
10							
11							
12							
13							
14							
15							
16							

Potential Risks:

Information About Ecosystem Services:

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

Form 1: **Fauna (Mammalia) Field Study Form**

Date: 22.04.2017 Starting Time: 16:00 End Time: 16:30 Station Number: 2-Apo-3
GPS Coordinate / Location: 356A024 E - 4564578 N Elevation: 119 m
Type of Habitat: G3.F - G3.2

No	**Observed Taxa (Species)**	**Number of Observed Individuals**	***Substrate**	****Recording Method**	*****Capturing Method**	**Expanding Range (m)**	**Comments**
1	Eri rou			5			
2	Pip pip			6			
3	Nyn lev			2			
4	Apo fla			4			
5	Rat rat			5			
6	Mus mac			4			
7	Sus scr			2			
8							
9							
10							
11							
12							
13							
14							
15							
16							
	Potential Risks:						
	Information About Ecosystem Services:						

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera trap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

Form 1: Fauna (Mammalia) Field Study Form

Date: 21.07.2017 Starting Time: 12:00 End Time: 12:30 Station Number: 2 - Depo - 4
GPS Coordinate / Location: 35 T 650468 E - 4566445 N Elevation: 135 m
Type of Habitat: Çalı Ar

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Eri eur			2			
2	Pip pip			6			
3	Apo fla			1 - 4			
4	Rat rat			6			
5	Mus mac			4			
6	Vul vul			1 - 2			
7	Mus avl			1			
8							
9							
10							
11							
12							
13							
14							
15							
16							

Potential Risks:

Information About Ecosystem Services:

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

Form 1: Fauna (Mammalia) Field Study Form

Date: 24.07.2017 Starting Time: 10:00 End Time: 10:30 Station Number: 7-1

GPS Coordinate / Location: 35T 654445E - 4554224N Elevation: 130 m

Type of Habitat: F6-4

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Pip pip			6			
2	Rhi fer			6			
3	Myo mac			6			
4	Myo alc			6			
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							

Potential Risks:

Information About Ecosystem Services:

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera Tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

Form 1: Fauna (Mammalia) Field Study Form

Date: 24.01.2017 Starting Time: 9:00 End Time: 9:30 Station Number: 7-2
GPS Coordinate / Location: 35T 661933 E – 4551782 N Elevation: 28 m
Type of Habitat: G1.3 – G3.F

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Mar foi			2			
2	Mus dom			4			
3	Rat rat			5			
4	Apo fla			4			
5	Tal eur			2			
6	Eri rou			2			
7	Pip pip			6			
8							
9							
10							
11							
12							
13							
14							
15							
16							

Potential Risks:

Information About Ecosystem Services:

*Recording and Capturing Method 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

Annex-7/C. Flora and Fauna Species Detected Within the Project Area

Mediterranean riparian woodland (G 1.3)

Highly artificial coniferous plantations (G 3.F)

Highly artificial coniferous plantations (G 3.F)

Meso and Eutrophic Mixed Decidiuous Forests (G 1.A)

Meso and Eutrophic Mixed Decidiuous Forests (G 1.A)

Moist or wet eutrophic and mesotrophic grassland (E 3.4)

Perennial calcareous grassland and basic steppes (E 1.2)

The Black Sea garrigues (F 6.4)

Spartium junceum fields (F 5.4)

Tall helophytes on waterfront (C 3.2)

Agricultural lands (I 1.2)

Crocus biflorus subsp. biflorus

Cirsium polycephalum (endemic)

Cirsium polycephalum (endemic)

Ferulago confusa

Galanthus x valentinei (endemic)

Galanthus x valentinei community

Leucojum aestivum

Primula vulgaris

Lilium martagon (Rare)

Pseudopus apodus

Dolichophis caspius

Pelophylax ridibundus

Natrix natrix

Testudo graeca

Anguis fragilis

Lissotriton vulgaris

Lacerta trilineata

Natrix tessellata

Elaphe sauromates

Bufotes variabilis

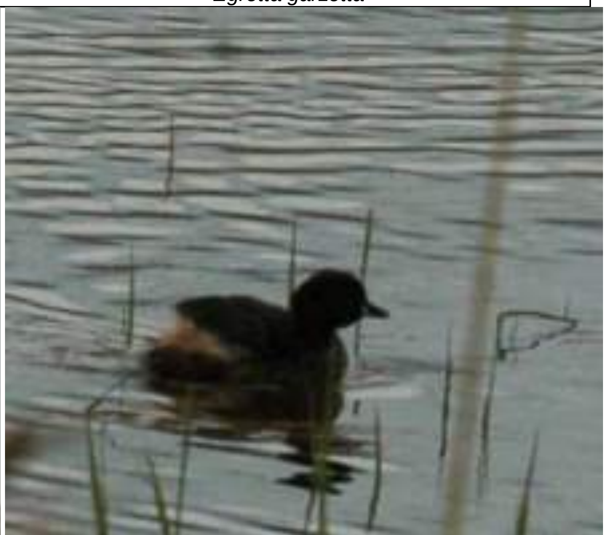
Ablepharus kitaibelii

Podarcis tauricus

Lacerta viridis

Rana dalmatina

Hyla orientalis

	
Buteo rufinus	*Buteo buteo*
	
Phalacrocorax carbo	*Egretta garzetta*
	
Ardea cinerea	*Tachybaptus ruficollis*

	
Larus michahellis	*Galerida cristata*
	
Phylloscopus collybita	*Garrulus glandarius*
	
Coccothraustes coccothraustes	*Fringilla coelebs*

	
Streptopelia decaocto	*Motacilla alba alba*
	
Erithacus rubecula	*Parus major*
	
Corvus corenecornix	*Turdus merula*

Sus sucrofa feeding traces

Erinaceus roumanicus feces

Lepus europaeus feces

Vulpes vulpes nest

Felis silvestris trace

Nannospalax leucodon nest

Microtus guentheri nest

Apodemus sp. nest

Canis aureus feces

Canis familaris (domestic dog) feces

Vulpes vulpes ayak izi

Vulpes vulpes trace

Talpa levantis nest

Martes foina trace

Apodemus sp. feeding trace

Apodemus flavicollis

Crocidura suaveolens

Myodes glareolus

Rattus sp.

Erinaceus roumanicus

Vulpes vulpes

Meles meles

Capreolus capreolus

AQ1/01

AQ1/02

AQ1/04

AQ1/05

AQ1/06

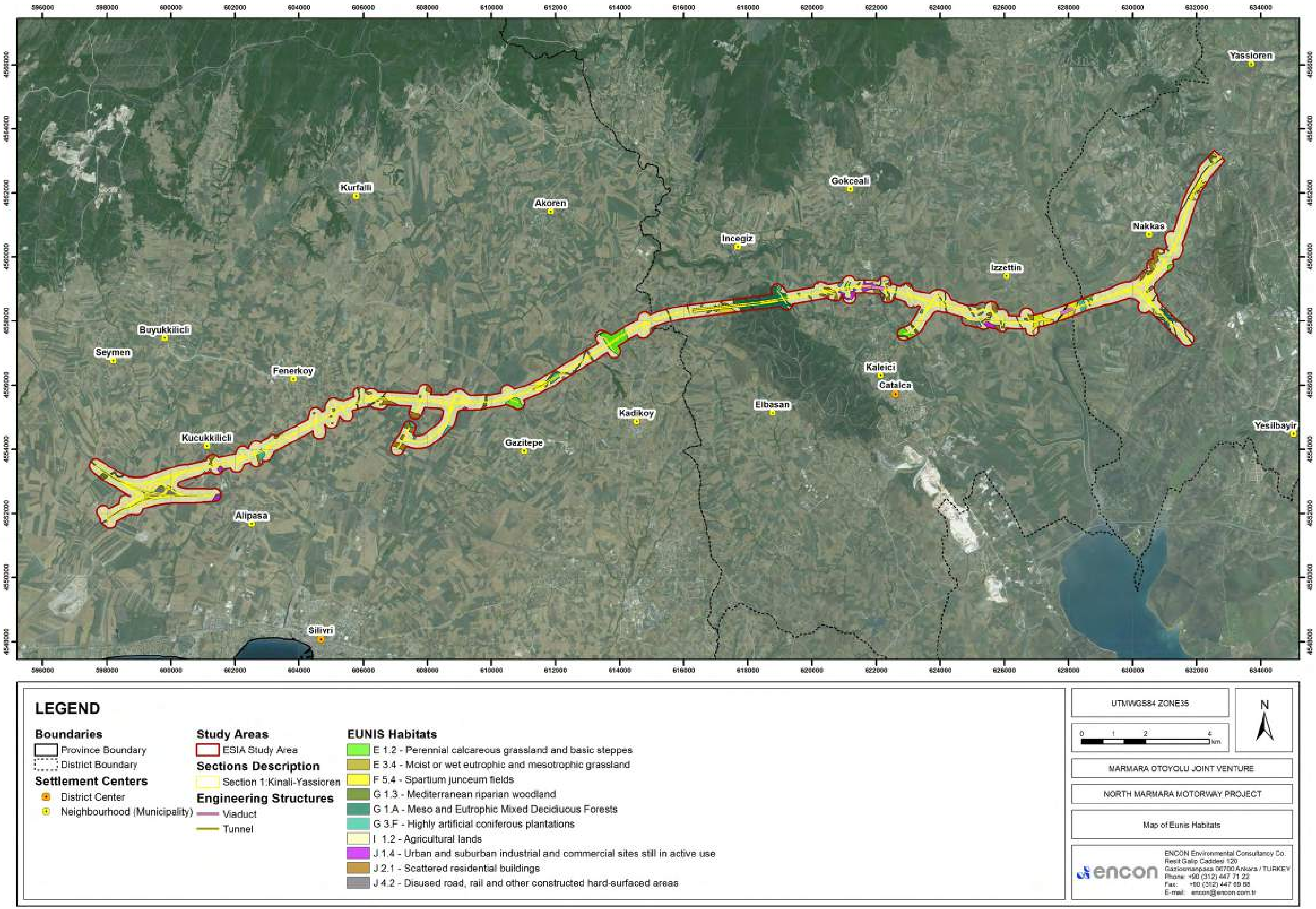
AQ2/01

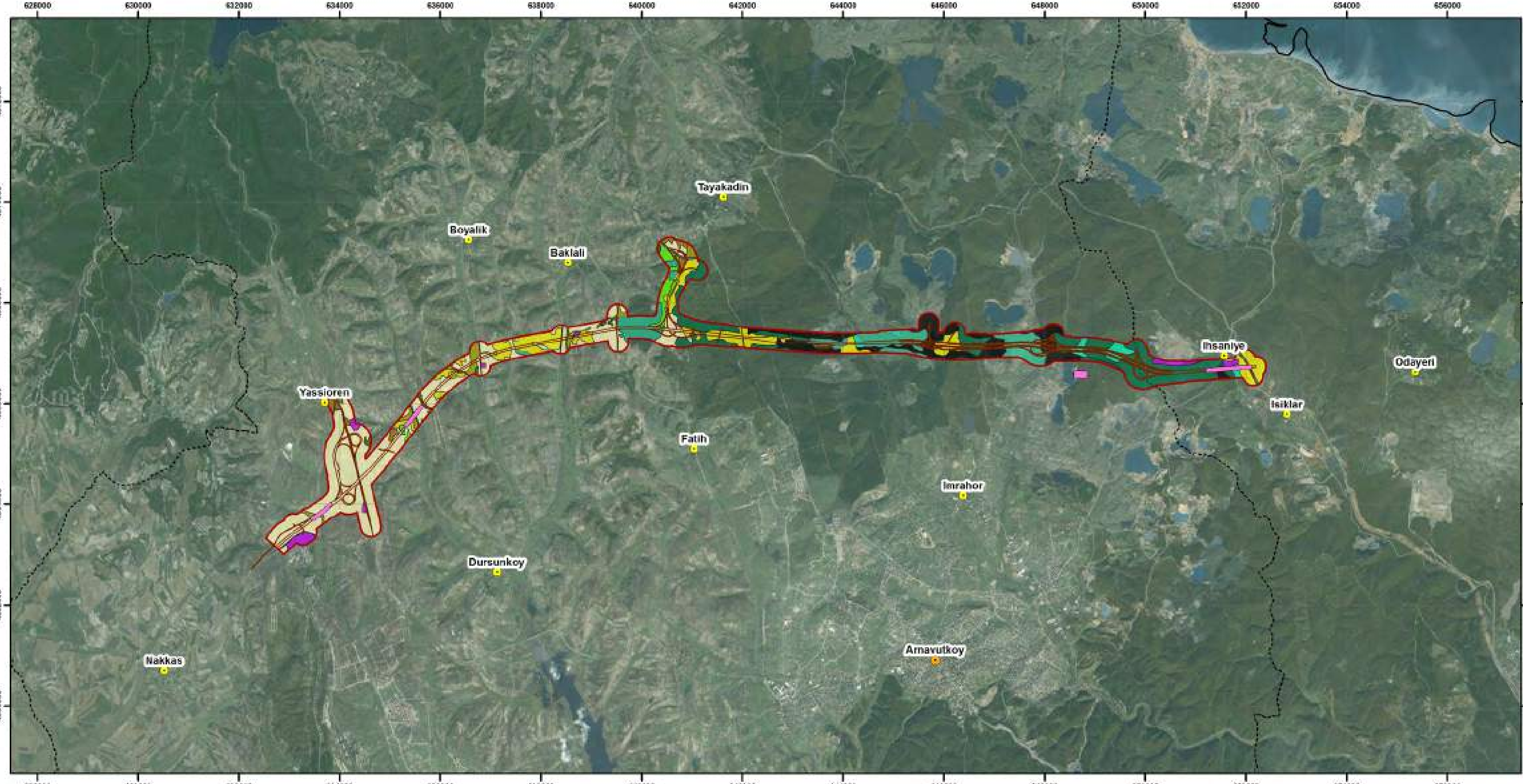
AQ2/02

AQ2/03

AQ2/04

Annex 7/D. EUNIS Habitat Types within the Project Area


Yassioren
Kurfalli
Akoren
Gokceali
Incegiz
Nakkas
Izzettin
Buyukkilicli
Seymen
Fenerkoy
Kaleici
Catalca
Elbasan
Kadikoy
Yesilbayir
Kucukkilicli
Gazitepe
Alipasa
Silivri
LEGEND
Boundaries
Province Boundary
District Boundary
Settlement Centers
District Center
Neighbourhood (Municipality)
Study Areas
ESIA Study Area
Sections Description
Section 1:Kinali-Yassioren
Engineering Structures
Viaduct
Tunnel
EUNIS Habitats
E 1.2 - Perennial calcareous grassland and basic steppes
E 3.4 - Moist or wet eutrophic and mesotrophic grassland
F 5.4 - Spartium junceum fields
G 1.3 - Mediterranean riparian woodland
G 1.A - Meso and Eutrophic Mixed Deciduous Forests
G 3.F - Highly artificial coniferous plantations
I 1.2 - Agricultural lands
J 1.4 - Urban and suburban industrial and commercial sites still in active use
J 2.1 - Scattered residential buildings
J 4.2 - Disused road, rail and other constructed hard-surfaced areas
UTMWGS84 ZONE35
N
0 1 2 4 km
MARMARA OTOYOLU JOINT VENTURE
NORTH MARMARA MOTORWAY PROJECT
Map of Eunis Habitats
encon
ENCON Environmental Consultancy Co.
Resit Galip Caddesi 120
Gaziosmanpasa 06700 Ankara / TURKEY
Phone: +90 (312) 447 71 22
Fax: +90 (312) 447 69 68
E-mail: encon@encon.com.tr



LEGEND

Boundaries
- Province Boundary
- District Boundary

Settlement Centers
- District Center
- Neighbourhood (Municipality)

Study Areas
- ESIA Study Area

Sections Description
- Section 2: Yassioren-Odayeri

Engineering Structures
- Viaduct

EUNIS Habitats
- C 3.2 - Tall helophytes on waterfront
- E 1.2 - Perennial calcareous grassland and basic steppes
- E 3.4 - Moist or wet eutrophic and mesotrophic grassland
- F 5.4 - Spartium junceum fields
- G 1.3 - Mediterranean riparian woodland
- G 1.A - Meso and Eutrophic Mixed Decidiuous Forests
- G 3.F - Highly artificial coniferous plantations
- I 1.2 - Agricultural lands
- J 1.4 - Urban and suburban industrial and commercial sites still in active use
- J 2.1 - Scattered residential buildings
- J 3.3 - Inactive quarry sites
- J 4.2 - Disused road, rail and other constructed hard-surfaced areas

UTMWGS84 ZONE35

0 750 1.500 3.000 m

N

MARMARA OTOYOLU JOINT VENTURE

NORTH MARMARA MOTORWAY PROJECT

Map of Eunis Habitats

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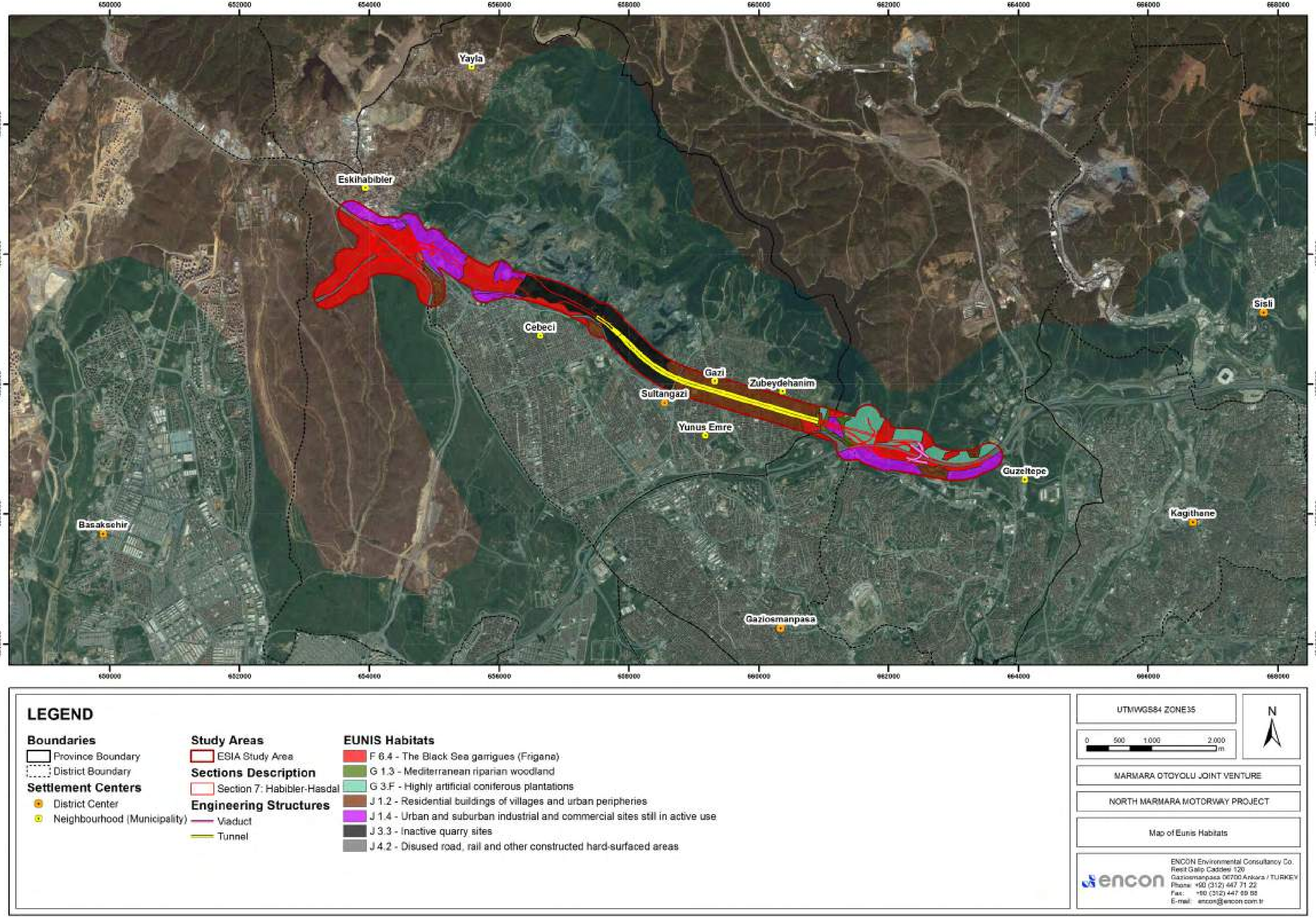

Yayla
Eskihabibler
Cebeci
Gazi
Zubeydehanim
Sultangazi
Yunus Emre
Guzeltepe
Sisli
Kagithane
Basaksehir
Gaziosmanpasa
LEGEND
Boundaries
Province Boundary
District Boundary
Settlement Centers
District Center
Neighbourhood (Municipality)
Study Areas
ESIA Study Area
Sections Description
Section 7: Habibler-Hasdal
Engineering Structures
Viaduct
Tunnel
EUNIS Habitats
F 6.4 - The Black Sea garrigues (Frigana)
G 1.3 - Mediterranean riparian woodland
G 3.F - Highly artificial coniferous plantations
J 1.2 - Residential buildings of villages and urban peripheries
J 1.4 - Urban and suburban industrial and commercial sites still in active use
J 3.3 - Inactive quarry sites
J 4.2 - Disused road, rail and other constructed hard-surfaced areas
UTM WGS84 ZONE35
0 500 1.000 2.000 m
N
MARMARA OTOYOLU JOINT VENTURE
NORTH MARMARA MOTORWAY PROJECT
Map of Eunis Habitats
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Fax: +90 (312) 447 69 88
E-mail: encon@encon.com.tr

ANNEX-8

NOISE MODELING AND ASSESSMENT REPORT

Noise Assessment for North Marmara Motorway

November 2017

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CONTENT

1 NORTH MARMARA MOTORWAY NOISE ASSESSMENT

1.1 Introduction

Sound/noise that can be perceived by the human ear is a mechanical wave generated by the vibrations on the medium in which they can pass through. Sound waves has two characteristic properties of frequency and amplitude. Noise is generally defined as unwanted sound or noise pollution. Noise sources such as constructions, woofers/vibrating loudspeakers, construction equipment etc. are major causes of noise pollution.

Despite of the subjective aspect of the noise, short or long exposure above a certain threshold is proven to affect human health negatively. These effects can be classified as physiological, psychological effects or disorders. The noise exposure depending on the level of the exposure, can cause short term or permanent effects on human health or disorders. Reducing the noise levels transmitted to the receiver in order to prevent these problems is a major importance. Increased or constant noise levels can have major compromises on human helath and quality of life.

"Ambient noise" is generally defined as sum of the total noise of the noise sources such as external sources of the constructions which results no health issues on short term yet various health issues on the long term exposure. Most common and most disturbing source of noise is motor transportation vehicle traffic.

Within the scope of this report, studies on the determination of the effects of possible noises that may arise from the construction and operation of the planned North Marmara Motorway and action plans carried out in accordance with the regulation in the routes exceeding the limit values stated in TNR are explained.

The subjects related to noise pollution, preventation and control of this pollution is controlled as described by the **official gazette** print 29536 released in 18 November 2015 under the Environmental law by Regulation on the Assessment and Management of Environmental Noise – CGDYY.

Within the scope of this project, noise level evaluation, noise modelling studies are conducted by Hidrotek Architecture and Engineering Ltd. Şti.

1.2 Aim of the Project

Potential noise effects on the North Marmara Motorway is reviewed within the scope of this project. Noise modelling is performed by generating noise maps. In accordance with the calculations acquired by modeling, the results are obtained and evaluated according to TNR

In this section, noise assessments caused by construction and operation of North Marmara Motorway Project are evaluated.

To estimate a more comprehensive scenerio a working area was created for all project fields (see Figure 3.1 - Figure 5.116). The impact reducing precautions fort he transportation noise caused by the North Marmara Motorway Project are analyzed in with regard to the operation conditions. Noise effects are reviewed in accordance to TNR. In this section, the present noise levels of the planned highway region is also presented.

The computed noise modelling analysis provides future predictions of potential effects for the highway and nearby regions of the project.

Purpose of this study is to predict and model the noise generated by construction and highway operation along with the following special purposes:

- Create action plans to reduce noise levels to acceptable levels at determined locations
- Modelling of the noise levels emitted by the vehicles during the operation stage of the highway and generation of noise maps.
- Evaluating whether the noise levels in the region exceed the criteria specified in related regulations and manuals.
- Define mitigation measures to be used to decrease noise levels under acceptable values at specified locations.

2 NOISE REGULATIONS

2.1 National Noise Regulations

In this section, evaluation of the ambient noise generated by the construction and operation of the Project according to the national noise regulation.

Matters concerning noise pollution in Turkey and control of this pollution is regulated under by Envoronmental law in Official Gazette print 18 November 2015 under page 29536 by TNR.

TNR aims to take the preventive measures for people who are exposed to environmental noise in order to maintain their mental and physical health and determine the environmental noise exposure levels, the targeted noise levels, acoustic reports and determining by environmental noise level evaluation reports, informing the public on environmental noise and its effects, establishing the course of action to prevent and reduce the noise in regions where environmental noise can have detrimental effects on human health and determining the procedures and principles based

Noise model is developed with a commercial software called SoundPLAN v7.4 (64 Bit). The calculations for motorways, bridges, viaduct and tunnels are performed by using the emission values given by the XPS31-133 French Standard "Guide du bruit des transports terrestres, fascicule prevision des niveaux sonores CETUR 1980" which is recommended by National Noise Directive and European Comission for the Assessment of environmental noise.

Noise Criteria for New Roads

The noise emissions generated by road transport is regulated by TNR. The threshold values for road transportation noise is given at Annex VII - Table 1 in aforementioned regulation. Noise levels mentioned in Table 2.1 should be achieved using by noise reduction precautions.

Table 2.1 Environmental Noise Limit values for highway, Turkey (Leq dB(A)

Land Use Type	New Road			Upgrading of Existing Road		
	Day (07-19)	Evening (19-22)	Night (22-07)	Day (07-19)	Evening (19-22)	Night (22-07)
Industrial Area (Heavy Industries)	67	62	57	72	67	62
Commercial area with noise sensitive area where workplaces are predominant (commercial area)	63	58	53	68	63	58
Commercial area with noise sensitive area where residential buildings are predominant (mixed commercial / residential area)	65	60	55	70	65	60
Noise-sensitive areas where educational, cultural, health institutes, or summer residential and camping areas are predominant (residential areas for recreational purpose,educational, hospitals)	60	55	50	65	60	55

Noise Criteria for Construction Area

The noise emissions generated by construction area is regulated by TNR. The threshold values for road construction area is given at TNR's 18th item.

"ISO 9613-2:Acoustics -- Attenuation of sound during propagation outdoors -- Part 2: General method of calculation" was used in the calculations of construction area. Environmental noise limit values for construction area is given in Table 2.2.

Table 2.2 Environmental noise limit values for construction area

Type of Action (building, demolition and repairment)	L_{day} (dBA)
Building	70
Motorway	75
Other Sources	70

3 THE STUDY AREA

The project study area is North Marmara Motorway and it is shown in Figure 3.1 and Figure 3.2. The Project area located in the northern part of İstanbul;

- Starting from Kınalı to Odayeri on the European side is usually agricultural land,

- The region that starts from Habipler and passes through the tunnel in a large part of the section extending to Hasdal

- Starting from Kurtköy to Liman on the Asian side is usually agricultural and forest land,

- Starting from Liman to İzmit is usually agricultural and forest land,

- Starting from İzmit to Akyazı is usually agricultural and forest land.

During the noise evaluation stage, 2 km wide calculation area is defined on the project route. Virtual receivers are defined for the points where noise measurement is made.

European Side of project area has,

Küçük Kılıçlı, İzzettin, Nakkaş İhsaniye,

Asian side of project area has,

Kurna, Akfırat, Kadıllı, Demirciler, Kutuca, Sipahiler, Çayırköy, Durhasan, Eseler, Bayraktar, Karaabdülbaki, Sapakpınar, Süleymaniye, Korucuk, Evrenköy, Karaman, Çamyolu, Çelebiler, Budaklar, Osmanbey, Topağaç sites.

Project field is divided into subsections to simplify the designing, planning and evaluation of the noise calculation field in question as shown in Table 3.1 and Table 3.2. First, second and seventh sections of the projects are located in European side while the rest are located in Asian side. The general view of the motorway is shown in Figure 3.1 and Figure 3.2.

The number of vehicles indicated on Table 3.1 and Table 3.2 is estimated traffic data for 2027 and modeled according to this data. According to the statistics, it is estimated that the average increase of the percentage of the traffic data will be as in Table 3.3, and this percentage is modeled with the increase data.

- Section 1 – *Kınalı - Yassıören*
- Section 2 – *Yassıören – Odayeri*
- Section 7 – *Habibler - Hasdal*

Table 3.1 Sub sections of the European Side with 2027 traffic data estimation

Sections	Explanation	Automobile	Bus	Truck	Truck+Treiler, Tow Truck+Semi-Trailer	Total	Heavy Vehicle Percentage
Section 1	Kınalı-Yassioren	48.212	1.586	6.591	3.884	60.274	25
Section 2	Yassıoren-Odayeri	74.099	3.595	13.438	8.801	99.932	35
Section 7	Habibler-Hasdal	79.340	1.506	7.706	3.686	92.238	16

Table 3.2 Sub sections of the Asian Side with 2027 traffic data estimation

Sections	Explanation	Automobile	Bus	Truck	Truck+Treiler, Tow Truck+Semi-Trailer	Total	Heavy Vehicle Percentage
Section 4	Kurtkoy-Liman	69.852	1.688	11.589	4.132	87.261	25
Section 5	Liman-İzmit	51.163	1.178	8.430	2.884	63.655	24
Section 6	İzmit-Akyazi	16.006	383	1.933	937	19.259	20

- Section 4 – *Kurtköy - Liman*
- Section 5 – *Liman - İzmit*
- Section 6 – *İzmit - Akyazı*

Table 3.3 Percentage of daily vehicle distribution

	Day(%)	Evening (%)	Night (%)
Light Vehicle	70	15	15
Heavy Vehicle	50	25	25

Table 3.4 Velocities of vehicles (km/h)

	Day	Evening	Night
Light Vehicle	120	120	120
Heavy Vehicle	100	100	100

The building heights in the study region differ since the project route passes through different regions. The buildings in the project area are mostly 1 - 2 floor height structures, but the structure height rises up to 5 floor-height at some regions in the project area (Korucuk-Karaman zone).

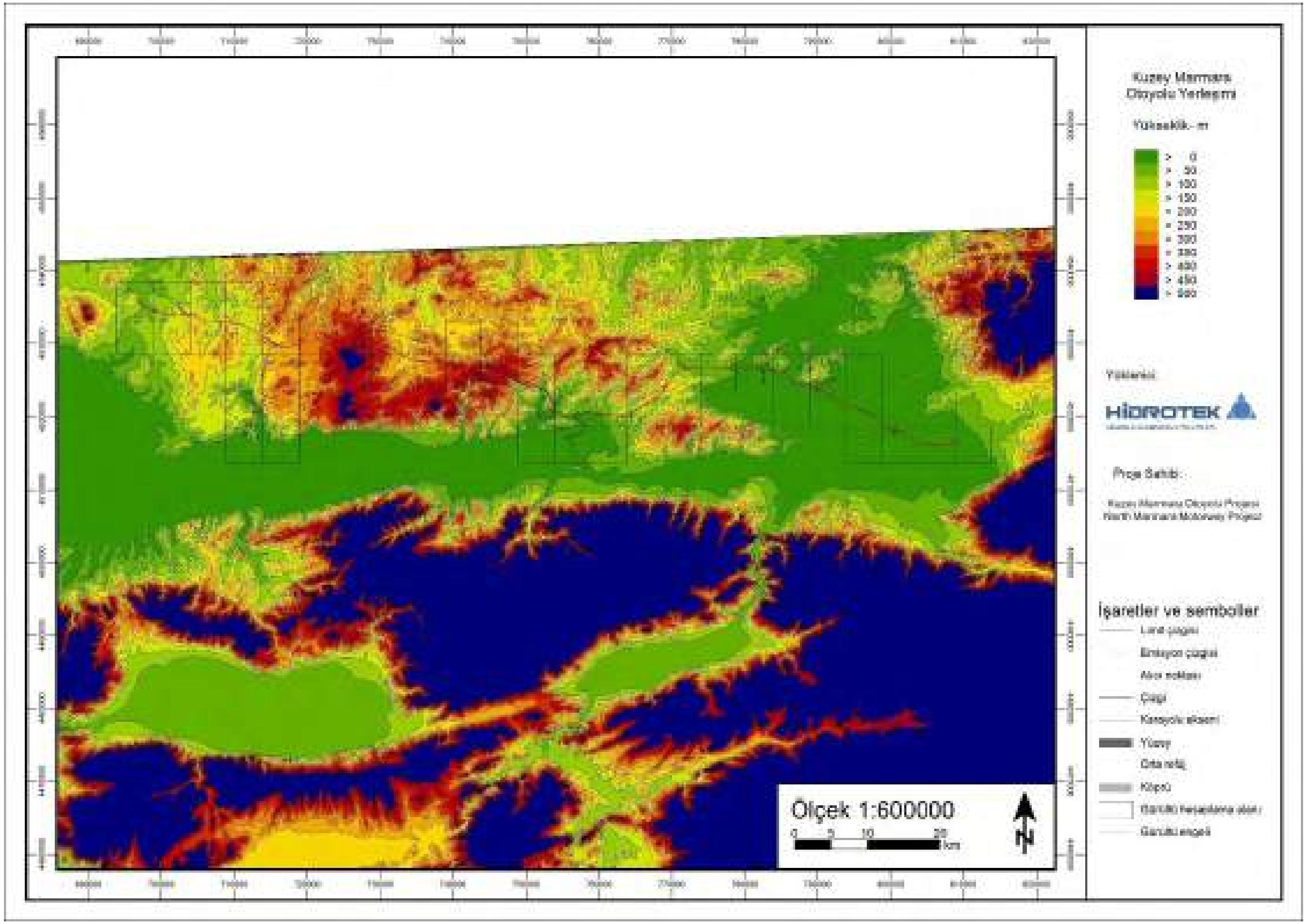

Figure 3.1 General view of North Marmara Motorway Asian side

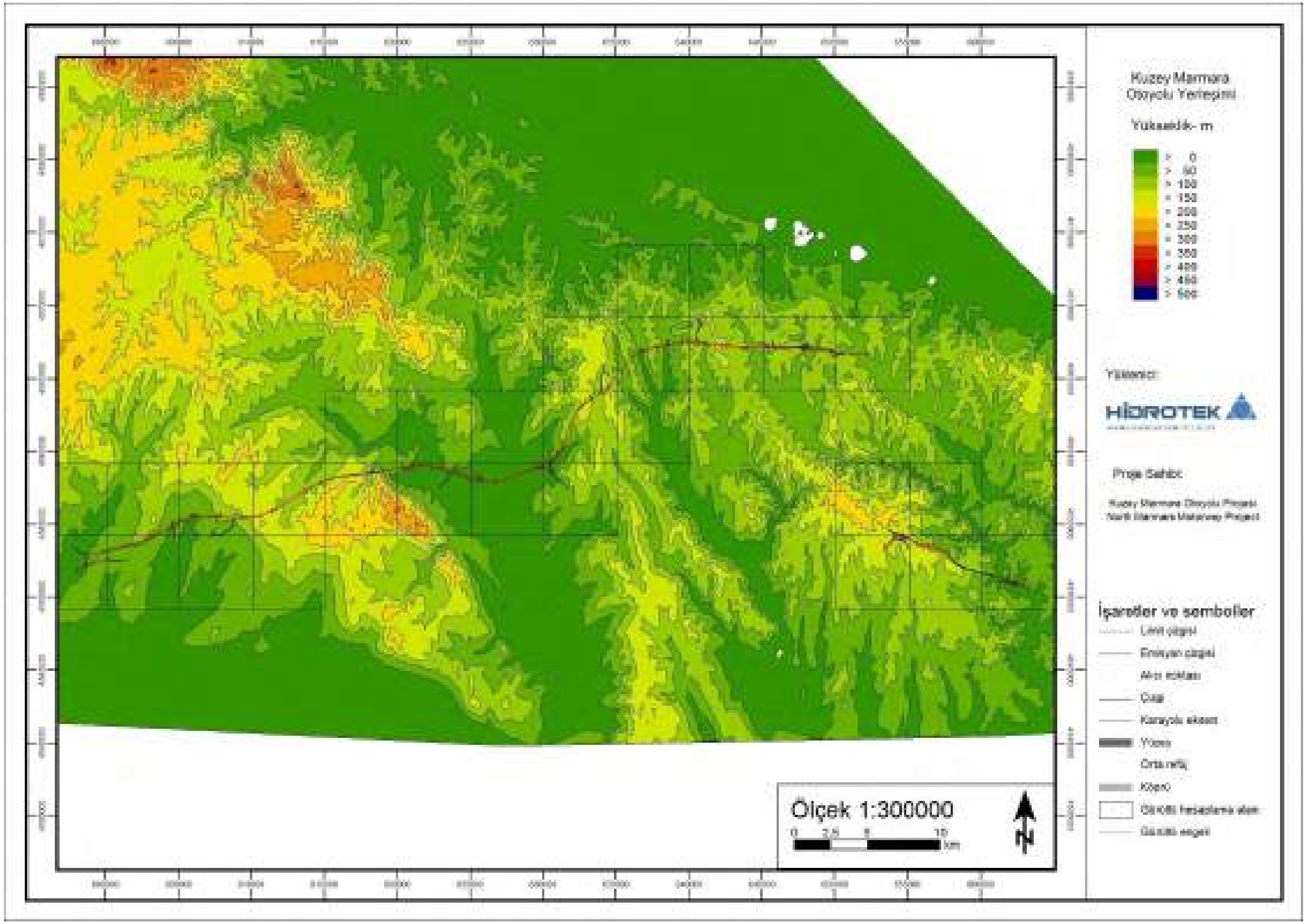

Figure 3.2 General view of North Marmara Motorway European side general view

4 NOISE EVALUATIONS AND METODOLOGIES

Traffic noise is the major noise pollution source in urban areas. Sounds generated by exhausts systems and aerodynamic system of automobiles, trucks, buses, motorcycles are major causes of noise pollution.

It is critical to follow criteria of regulations in order to maintain quiet environment, protect mental and physicial health of people. Primary aim of this study is described in the first item of the regulation: “This Regulation takes preventive measures for the negative effects of noise pollution on the peace, comfort, physical and mental health of the society. The regulation further contains topics such as; informing the public about the negative effects of environmental noise, building up an action plan to prevent and reduce high level of noise and to determinate degrees of exposure according to the reports and noise maps".

4.1 Traffıc Noise Evaluation

All the predictions are performed by noise modelling software SoundPLAN V7.4 (64 Bit) based on the recommended XPS31-133 French Standard based which is recommended in EU and Turrey noise directives.

Table 4.1 Environmental noise limit values, Turkey (Leq dB(A))

Land Usage Type	**New Roads**			**Current Road Improvements**		
	Day (07-19)	**Evening (19-22)**	**Night (22-07)**	**Day (07-19)**	**Evening (19-22)**	**Night (22-07)**
Areas where commercial buildings and noise sensitive uses exist together that residential buildings are concentrated (commercial / residential mixed areas)	65	60	55	70	65	60

Maximum threshold values in Turkish Traffic Regulations are considered for the annual avarage velocity values.

Terrain elevation, city plan, road layout data are registered into modeling system.

The treshold values for new roads are shown in TNR Annex-VII Table 1 and specified individually for distinctive times of day; day (07:00-19:00), evening (19:00-23:00) and night (23:00-07:00). Therefore computation results are given as Lday, Levening and Lnight.

Individual computations and noise maps for each time range are given within the scope of the porject.

The highway traffic methodology requires data on hourly light and heavy vehicle traffic data, road surface coverage, and average speeds of vehicles

Velocity of light and heavy vehicle are respectively accepted as 120 km/h and 100 km/h.

Ground attenuation factor (G) value is 0.6 and all factors of screening, topography, distance propagation are considered in modeling process.

The road surface was assessed as mastic asphalt. The topography of the project field is given in Figure 3.1 and Figure 3.2.

Traffic flow data are given in Table 3.1 and Table 3.2. Automobiles represent the light vehicles; buses, trucks, trailers, tractors and semi-trailers represent heavy vehicles in this table. This data is calculated from the average daily traffic flow forecast of “Environmental and Social Impact Assessment (ESIA) of the Third Bosphorus Bridge and Connected Motorways” report. The total values of traffic flow data used in noise modelling software are presented in Table 3.1 and Table 3.2.

The total values of traffic flow data used in noise modelling software are converted into day, evening and night (vehicle/hour) values which presented in Table 3.1 and Table 3.2 by using the data stated in Table 3.3. The calculations are modeled for the worst case based on the year 2027.

4.2 Evaluation of the Noise Levels

Traffic noise evaluations are evaluated by considering the noise regulations of Turkey and European union. Noise map calculations are made according to the Strategic Noise Maping Guideline that T.C. Ministry of Environmen and Urbanization. According to NMPB Road 96 (Highway noise mapping method) and ISO 9613-2 (Industrial noise mapping method) noise mappings are computed with 10 mx10 m grids 4 meters above the ground. Traffic noise modelling is performed with SoundPlan V 7.4 (64 Bit). Traffic noise levels are computed by using the vehicle counts given in Table 3.1 and Table 3.2. Noise maps presenting the noise levels due to the construction and operation of the project are given in the scope of the report. Presented noise maps reflect the situation after the North Marmara Motorway has been in operation

4.3 Evaluation of Construction Noise

In this section, parameters used for noise modelling caused by construction activities are described. Noise levels may differ as the Project duration is 3 years and it involves different construction activities which can result in different noise levels. Therefore, noise modelling of the project is computed for various receiver points which are sensitive to noise such as residential areas, schools etc. The number of equipments used in construction process are given in Table 4.2. Machinery and equipment noise levels were taken from the SoundPLAN noise modeling software database. The sound power levels of the equipments in the SoundPLAN software library are given in Table 4.4.

Table 4.2 Equipment Pool

Type of Machinery	European Side			Asian Side		
	Section 1	Section 2	Section 7	Section 4	Section 5	Section 6
Crawler excavator	18	45	21	35	16	30
Wheeled excavator				3	1	5
Grader				10	2	3
Dozer	9	9	5	12	3	6
Wheeled loader	15	19	6	10	5	8
Backhoe loader				3	2	2
Crawler loader					5	1
Roller	7	7	4	20	7	3

Type of Machinery	European Side			Asian Side		
	Section 1	**Section 2**	**Section 7**	**Section 4**	**Section 5**	**Section 6**
Truck	126	265	102	130	65	200
Rock Driller				8		4
Water Truck				4	5	6
Light tower				15		4
Trailer					1	4
Crane					2	3
Fueloil Tanker					2	4
Maintenance Vehicle					1	3
Concrete Pump					2	6
Others (ROC)					4	-
Total	**175**	**345**	**138**	**250**	**123**	**292**

Table 4.3 Sound power levels of plants

Type of Machinery	European Side			Asian Side		
	Section 1	**Section 2**	**Section 7**	**Section 4**	**Section 5**	**Section 6**
Crawler excavator	117	121	117	119	116	119
Wheeled excavator				105	100	107
Grader				115	108	110
Dozer	115	115	112	116	110	113
Wheeled loader	112	113	108	110	107	109
Backhoe loader				105	103	103
Crawler loader					107	100
Roller	109	109	107	114	109	106
Truck	125	128	124	125	122	127
Rock Driller				124		121
Water Truck				110	111	112
Light tower				97		91
Trailer					104	110
Crane					88	90
Fueloil Tanker					107	110
Maintenance Vehicle					98	103
Concrete Pump					102	107
Others (ROC)					6	
Total	**126**	**129**	**125**	**129**	**124**	**129**

Table 4.4 Sound power levels of machinery at Sound PLAN library, (dB(A))

Crawler excavator	104
Wheeled excavator	100
Grader	105
Dozer	105
Backhoe loader	100
Crawler loader	100
Roller	101
Truck	104
Rock Driller	115
Water Truck	104
Light tower	85
Trailer	104
Crane	85
Fueloil Tanker	104
Maintenance Vehicle	98
Concrete Pump	99

The worst case assessment was made based on the assumption that noise levels for construction activities were the same for all machinery at 50% efficiency.

The construction noise evaluation is performed using guidance specified in TNR. Noise maps are calculated at 4 meter elevation from ground level with 10mx10m grid size.

4.4 Impact Evaluation

During the potential noise evaluation stage, computed daytime, evening and night traffic noise levels are compared to the TNR threshold values depending on the building usage type. Construction noise levels are also compared with the threshold levels given by the regulation

Noise levels are compared with present background noise levels to decide the required effect reducing precautions to reduce noise levels

5 RESULTS OF MODELLING COMPUTATIONS

5.1 Modelling Results for Highway of Year 2027

Residential districts and sensitive areas are considered in the process of noise modelling. The effect levels are determined by comparing the threshold levels between modelling results and the threshold levels determined in TNR. Assessments for the potential scenerios for the year 2027 are evaluated by studies conducted by modelling and computation processes. The noise maps demonstrating the analyses for the motorways which are conducted by modelling processes are shown in Figure 5.1 – Figure 5.90

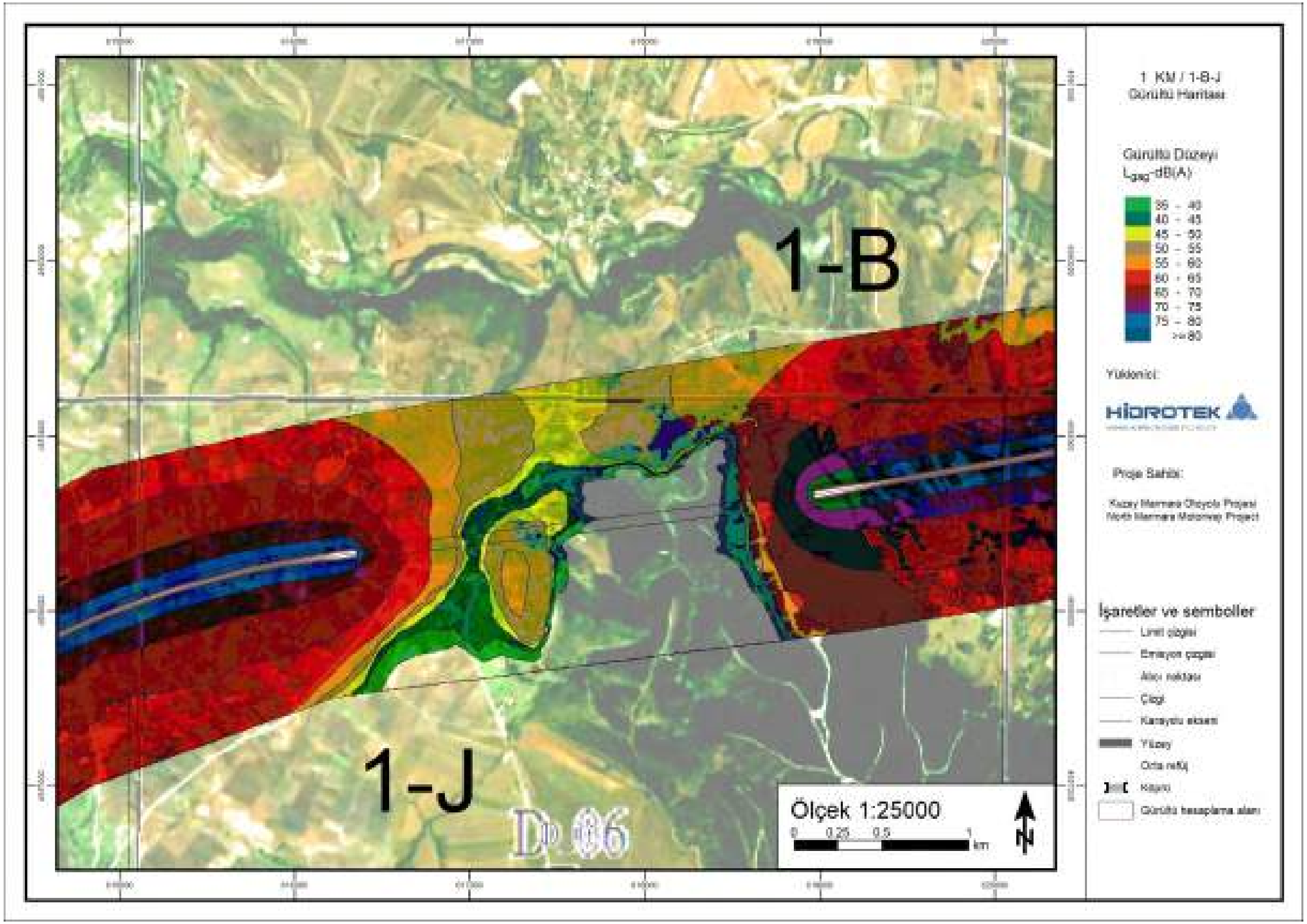

Figure 5.1 Lden noise map for part 1B of year 2027

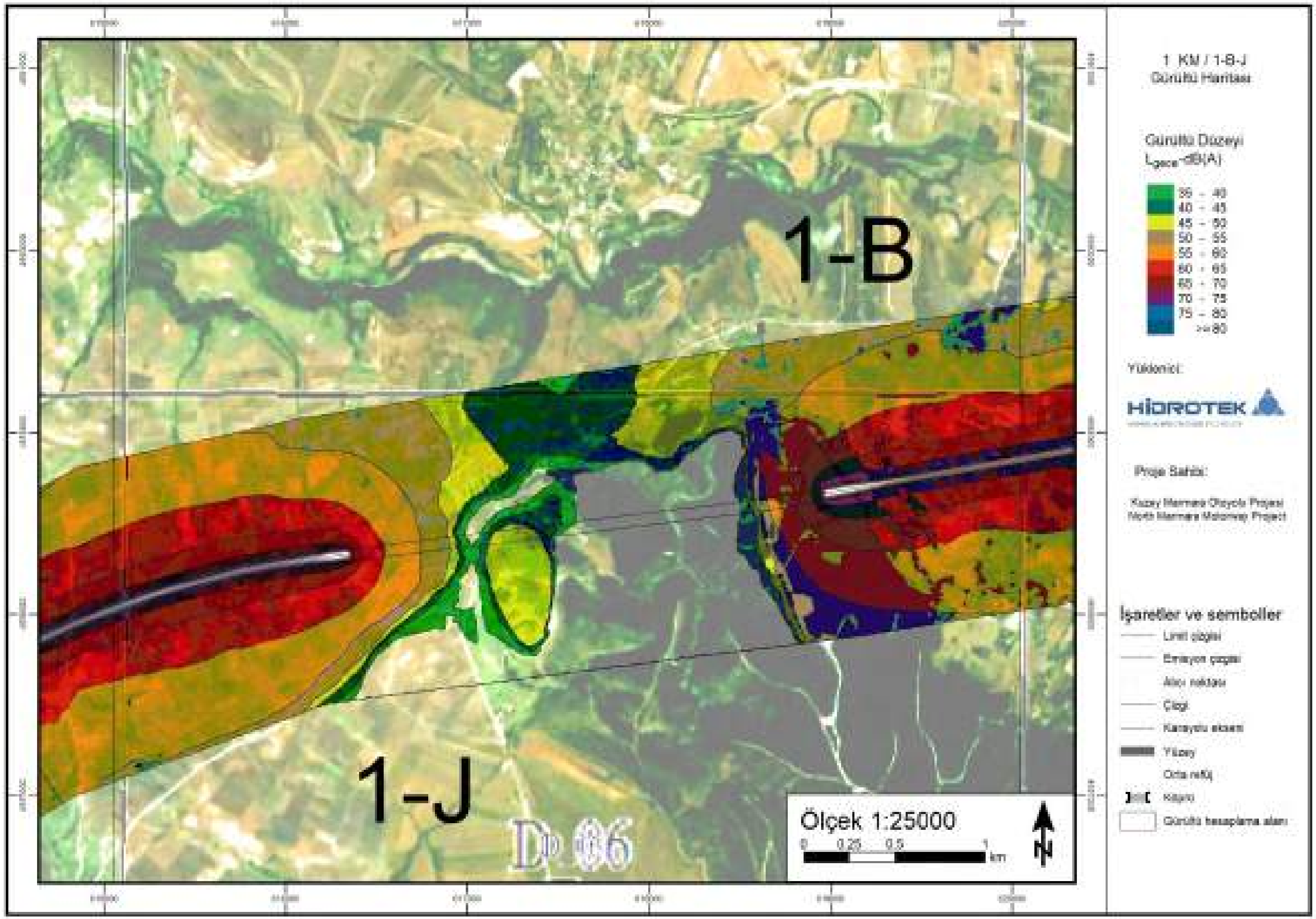

Figure 5.2 Ln noise map for part 1B of year 2027

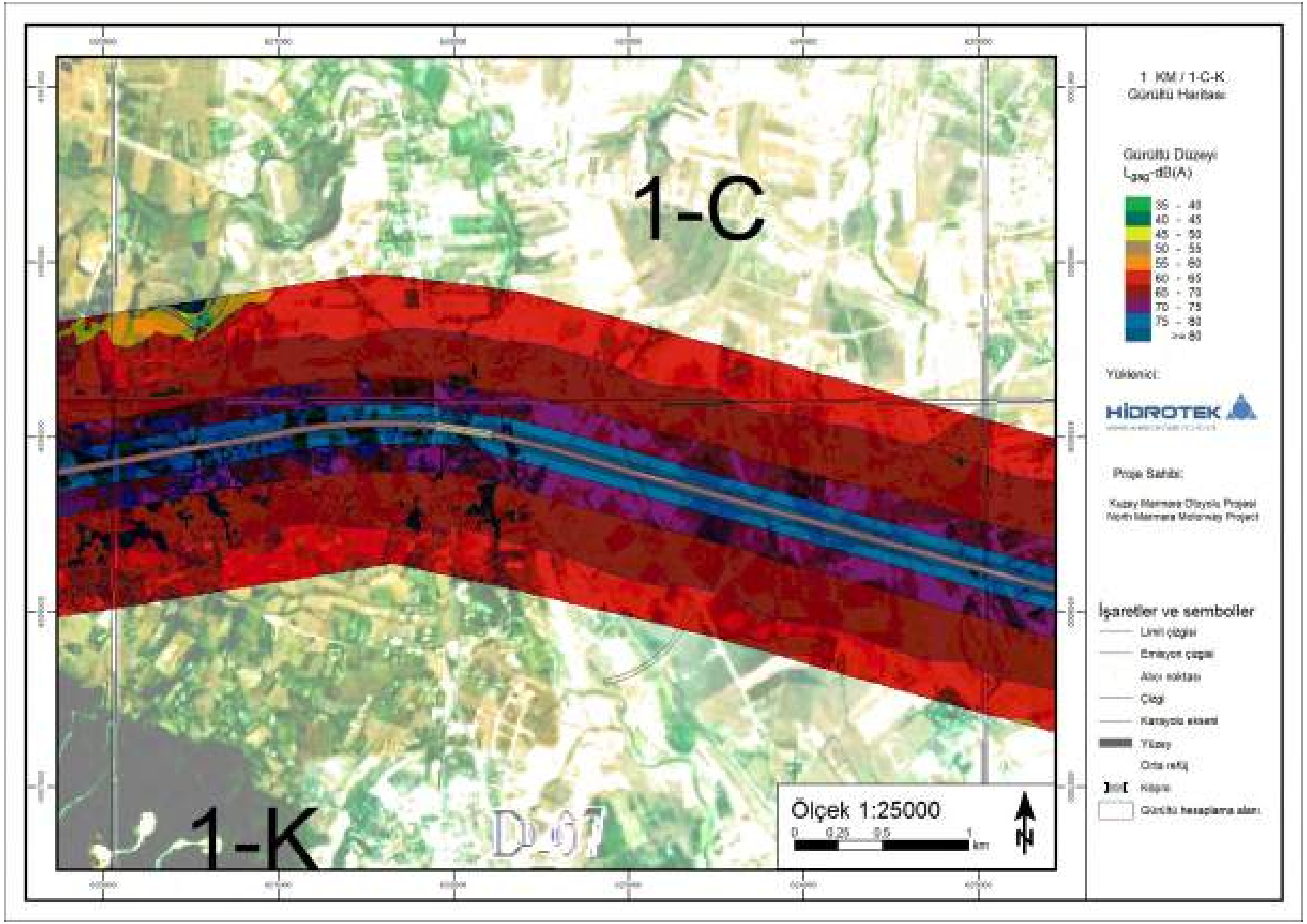

Figure 5.3 Lden noise map for part 1B of year 2027

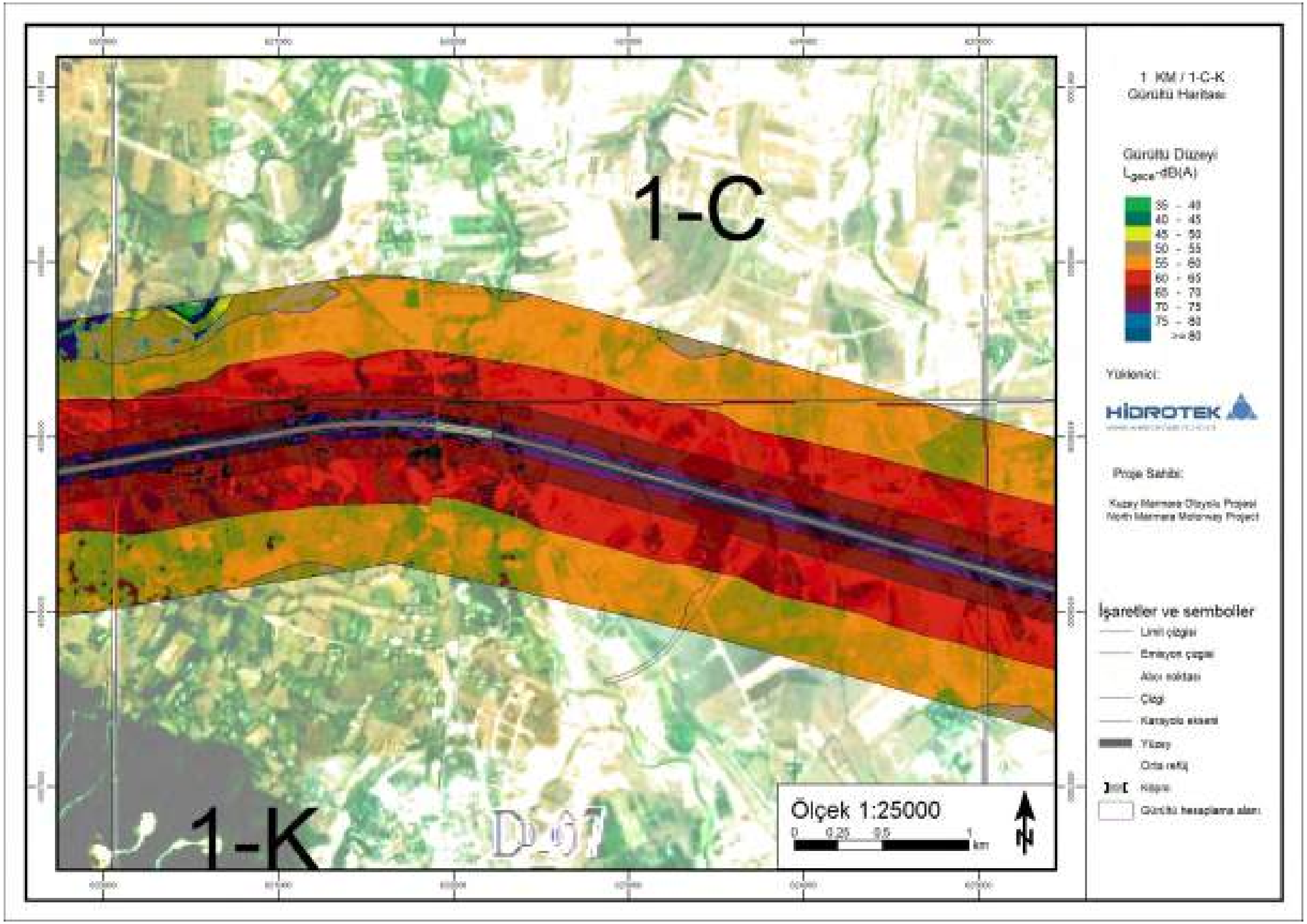

Figure 5.4 Ln noise map for part 1C of year 2027

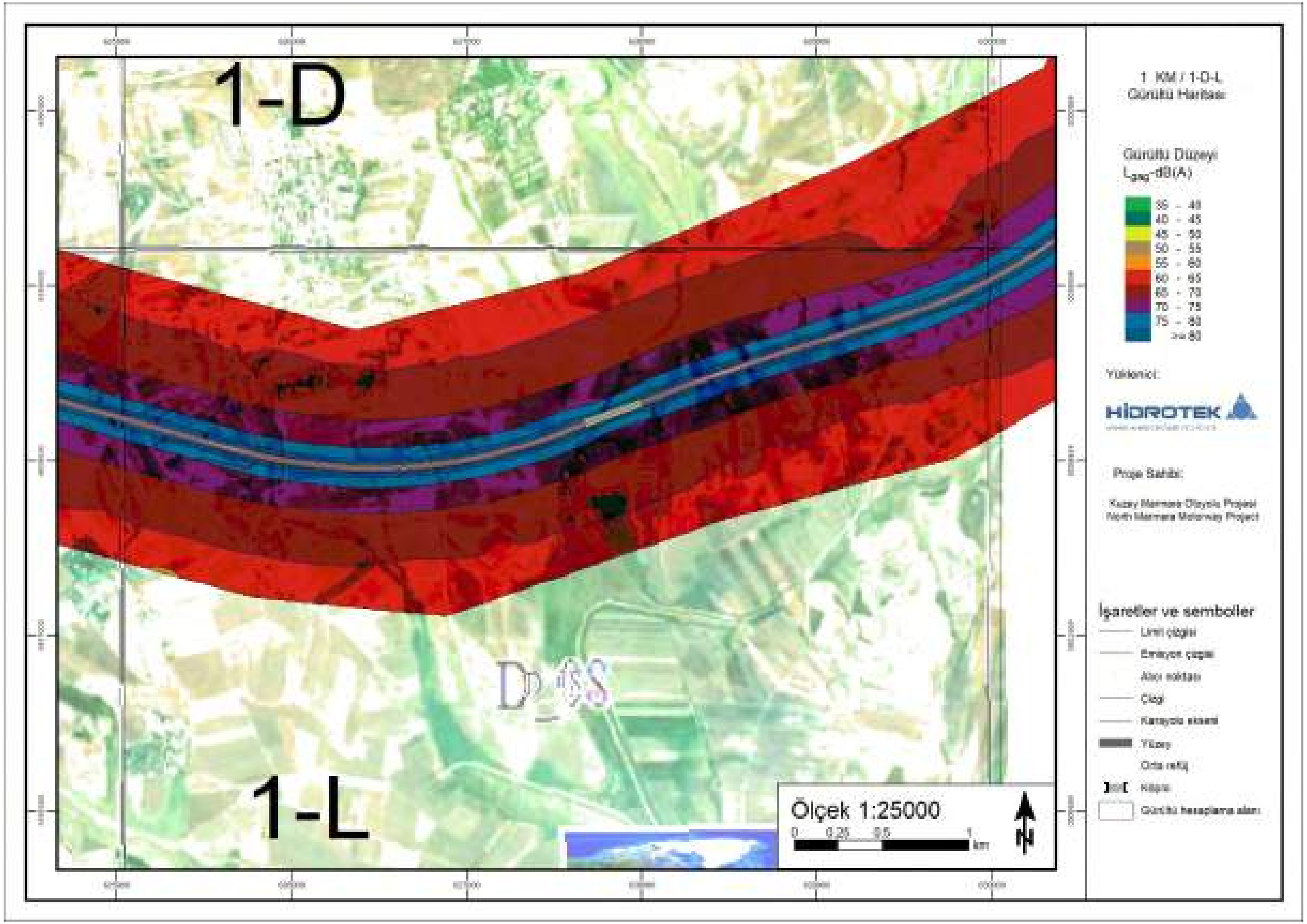

Figure 5.5 Lden noise map for part 1D of year 2027

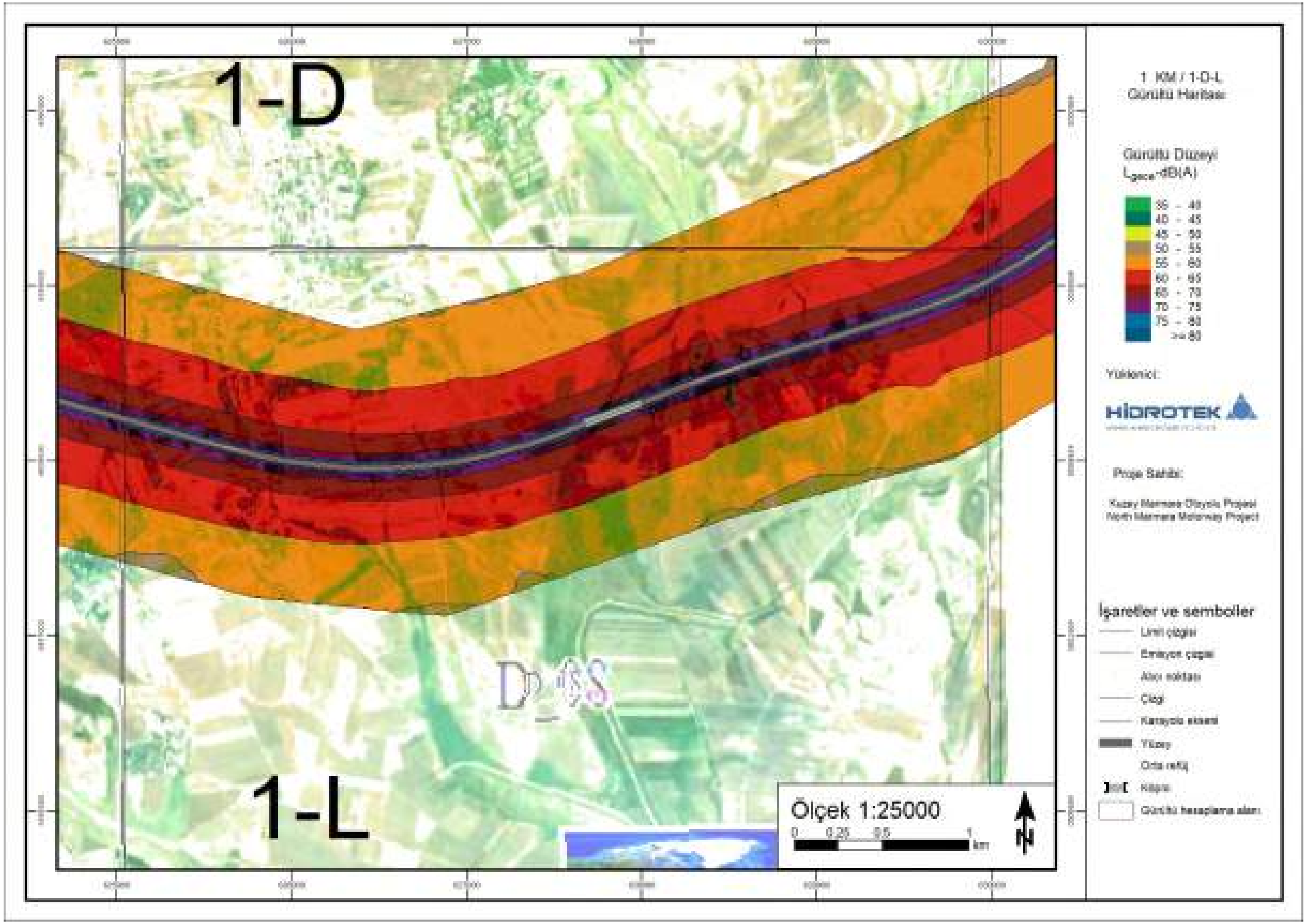

Figure 5.6 Ln noise map for part 1D of year 2027

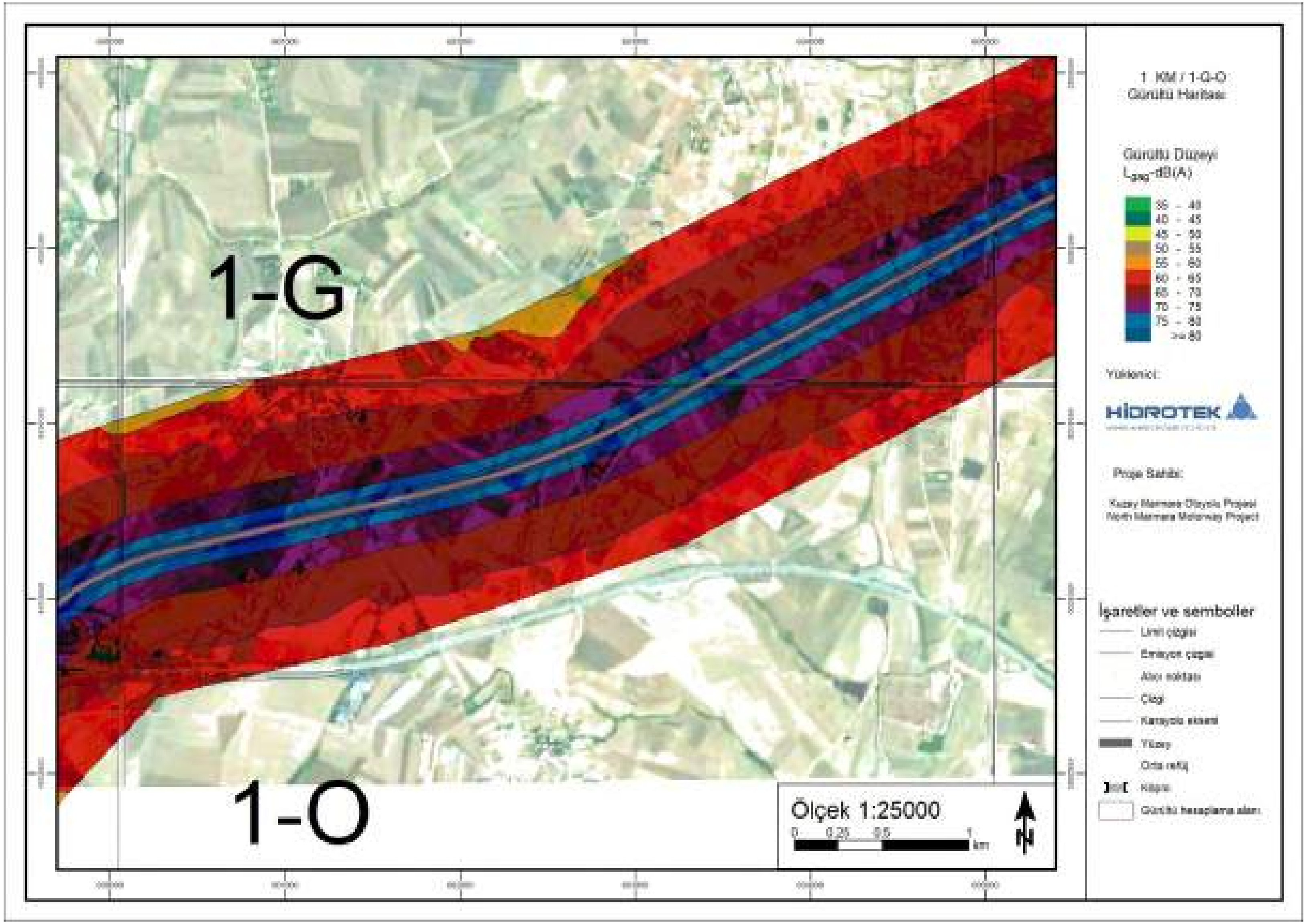

Figure 5.7 Lden noise map for part 1G of year 2027

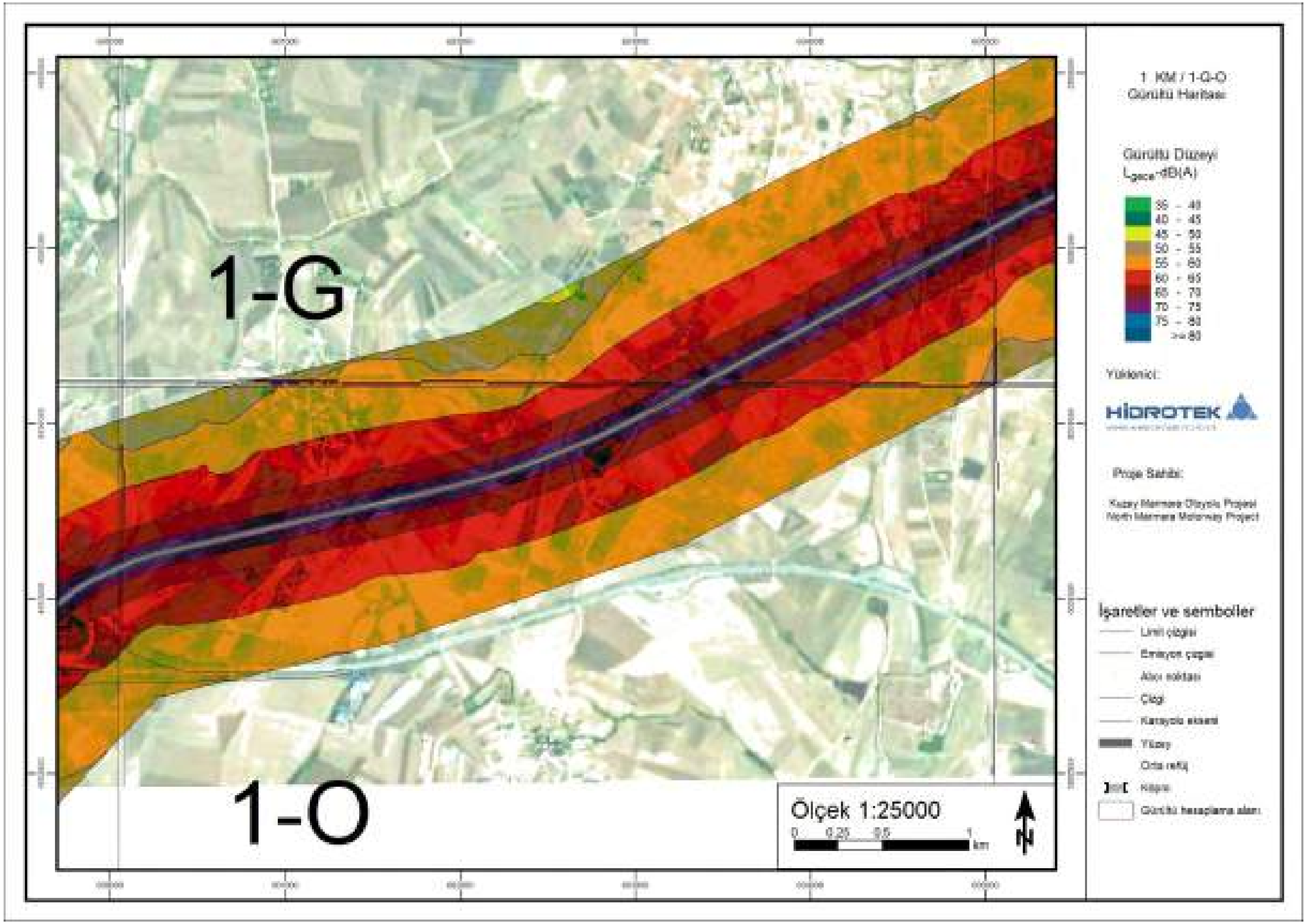

Figure 5.8 Ln noise map for part 1G of year 2027

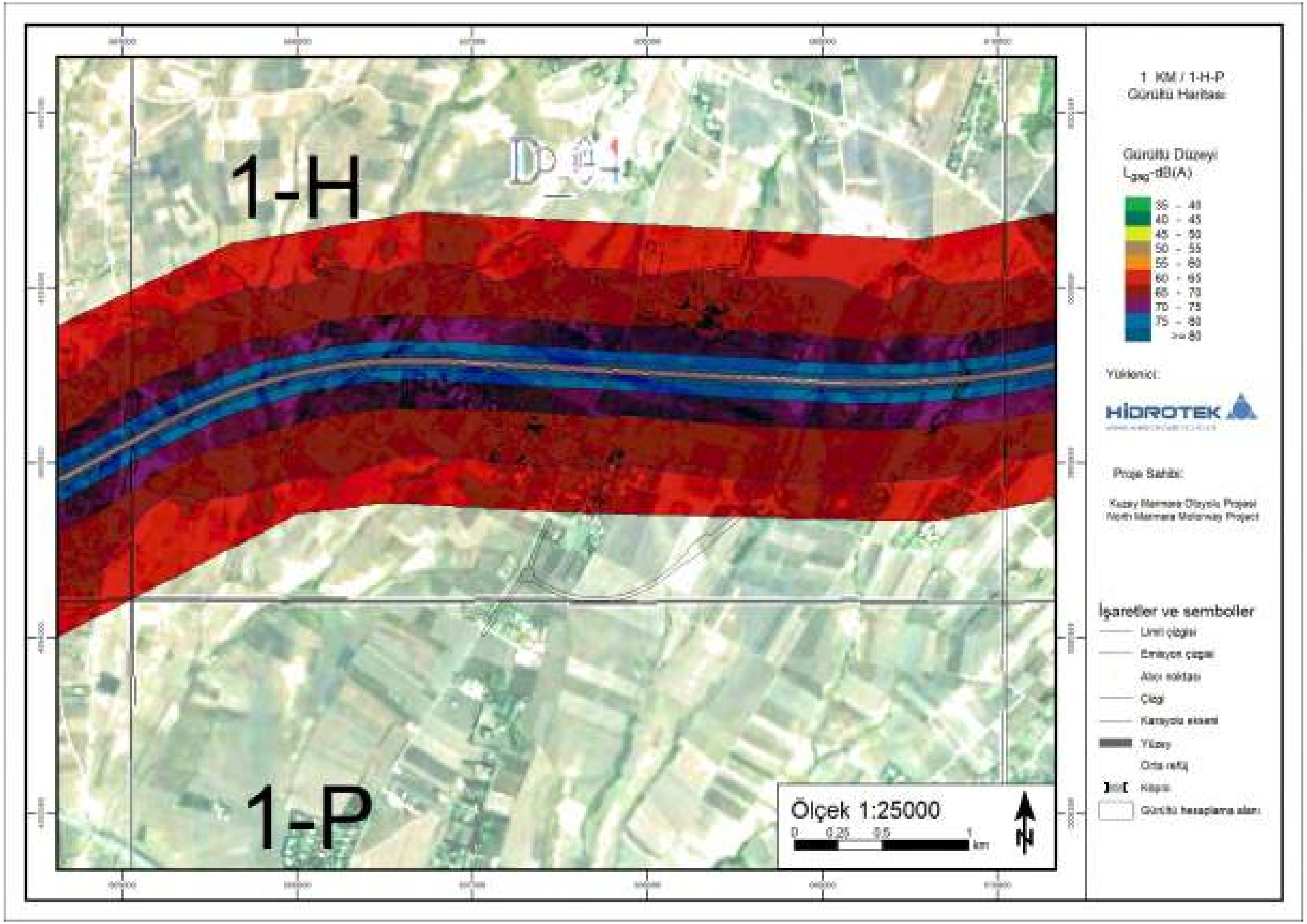

Figure 5.9 Lden noise map for part 1H of year 2027

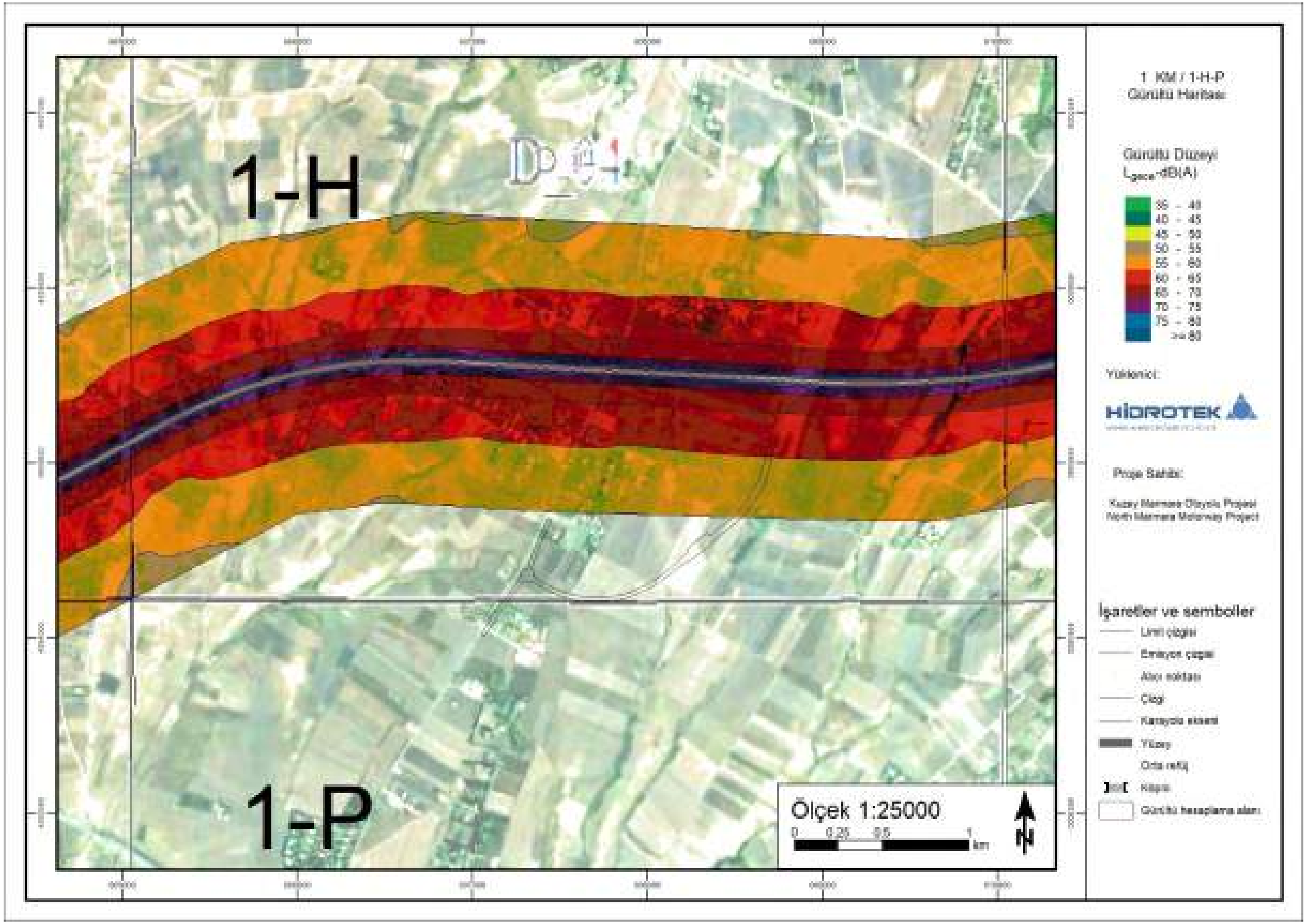

Figure 5.10 Ln noise map for part 1H of year 2027

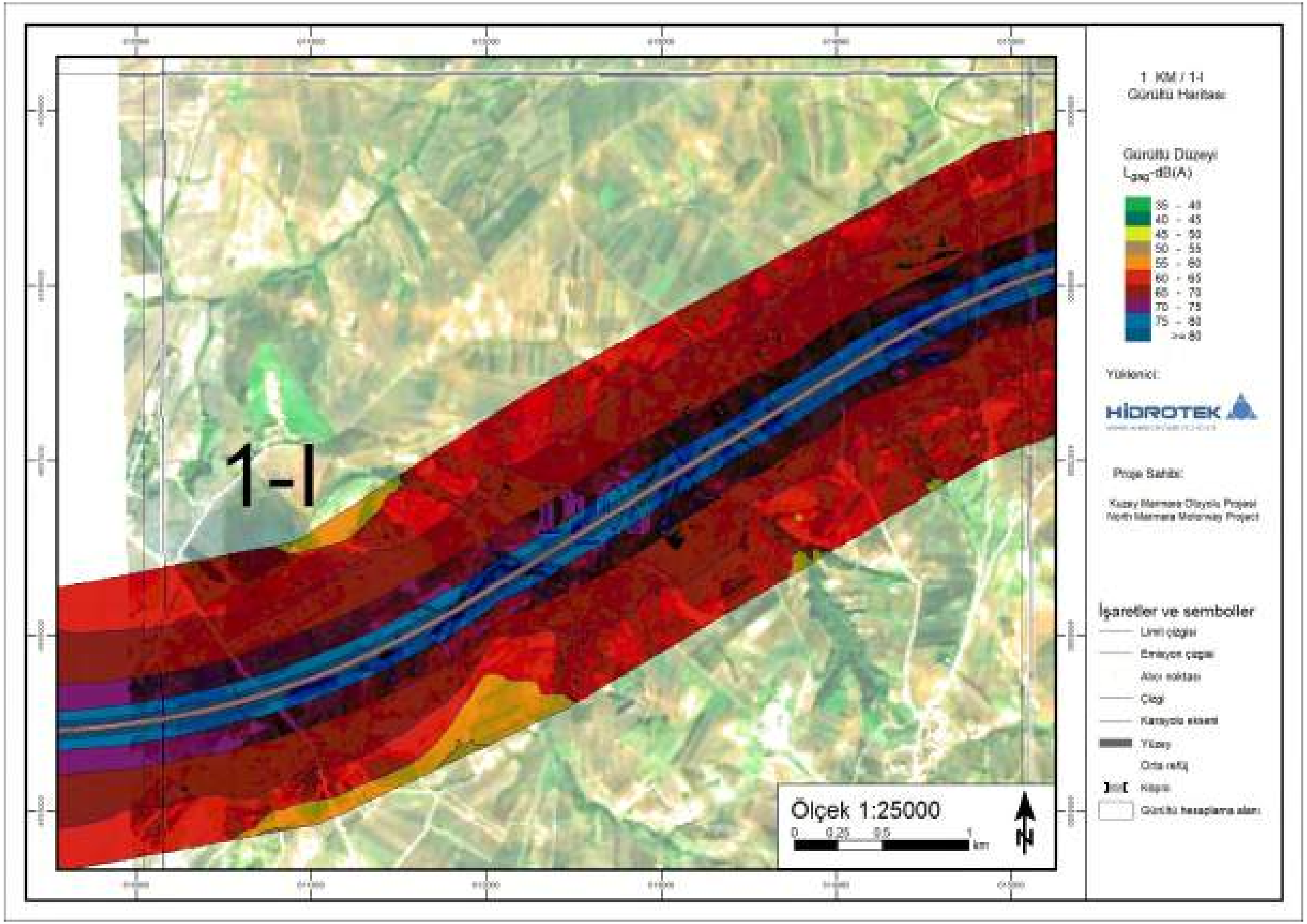

Figure 5.11 Lden noise map for part 1I of year 2027

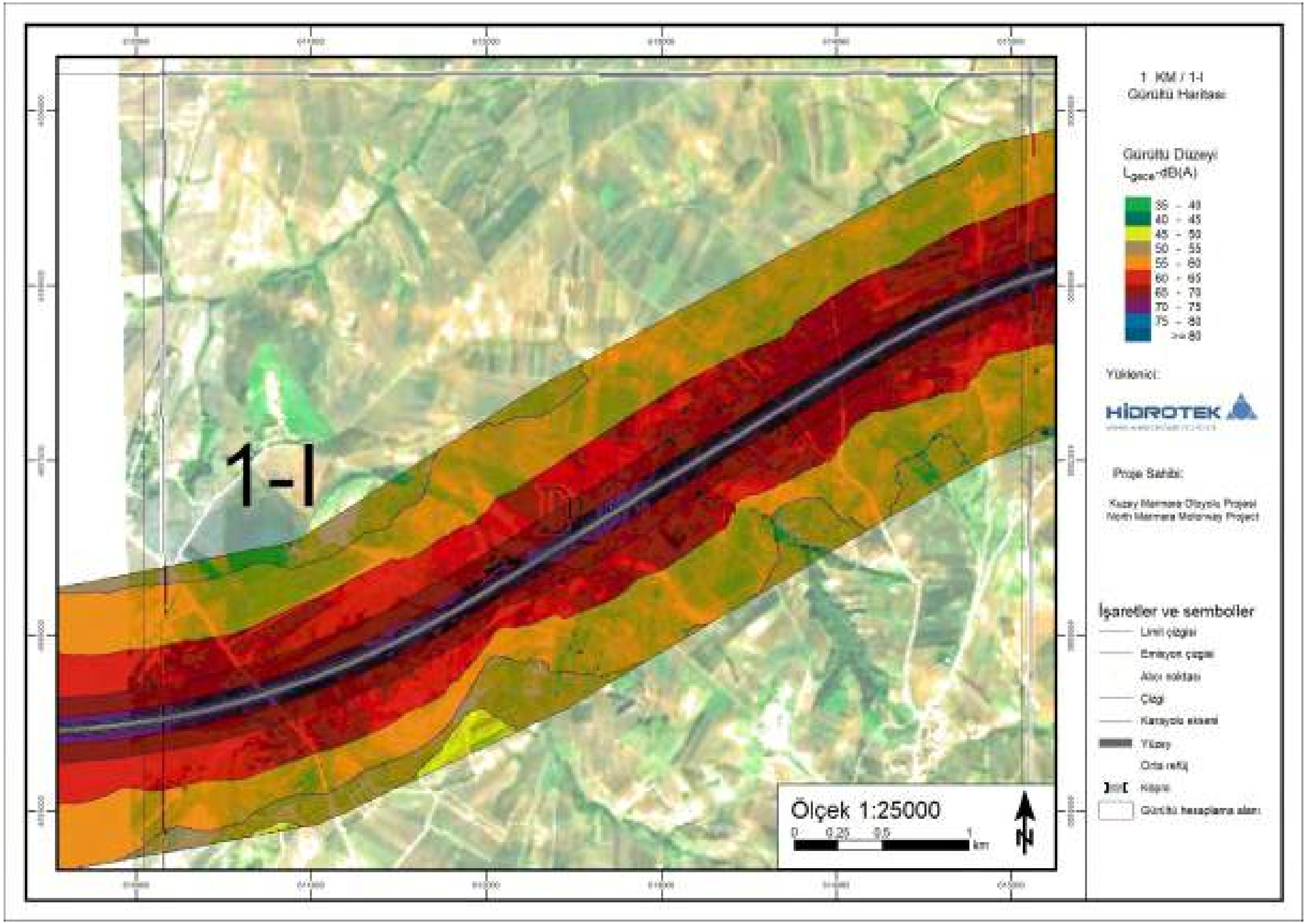

Figure 5.12 Ln noise map for part 1I of year 2027

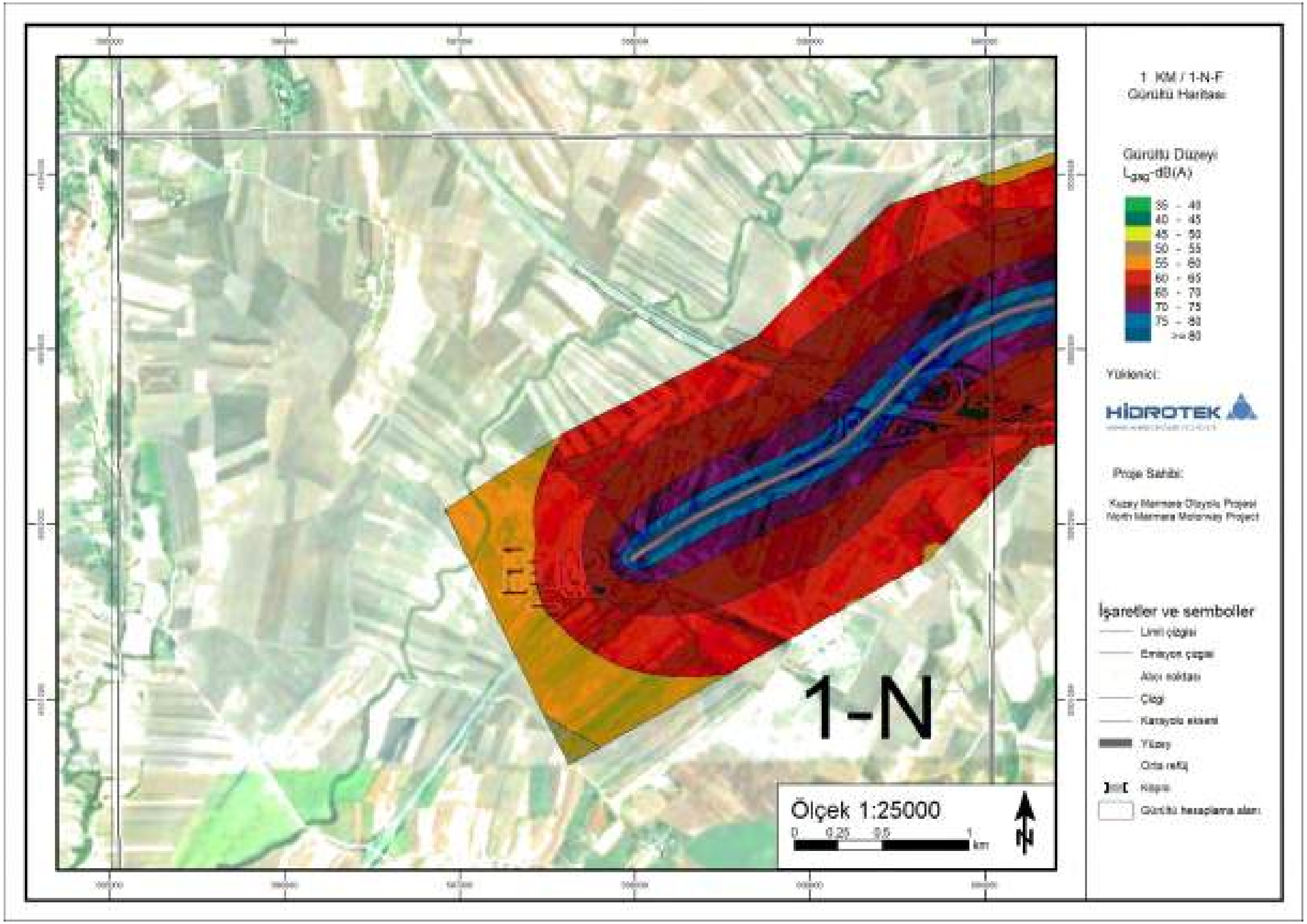

Figure 5.13 Lden noise map for part 1N of year 2027

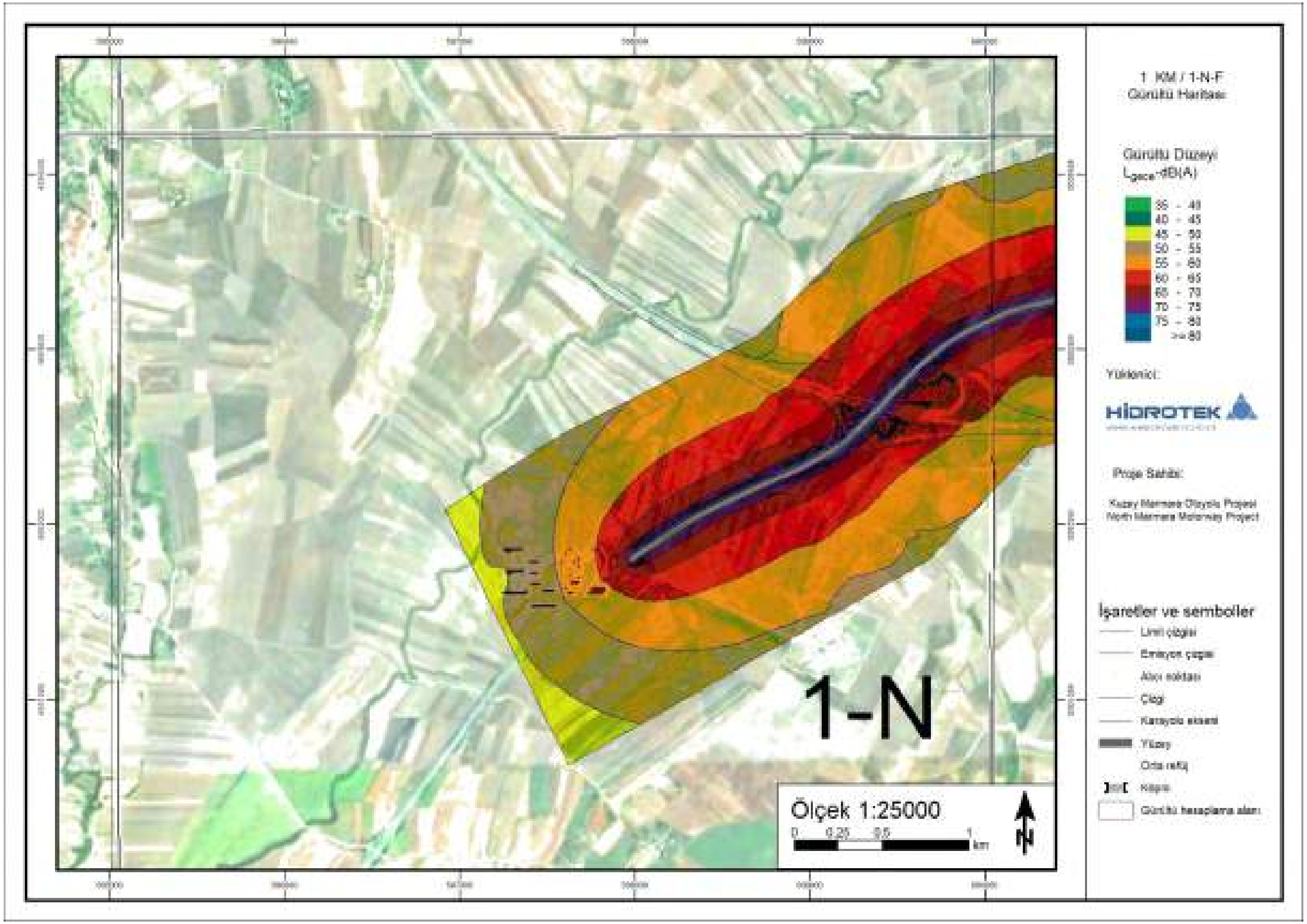

Figure 5.14 Ln noise map for part 1N of year 2027

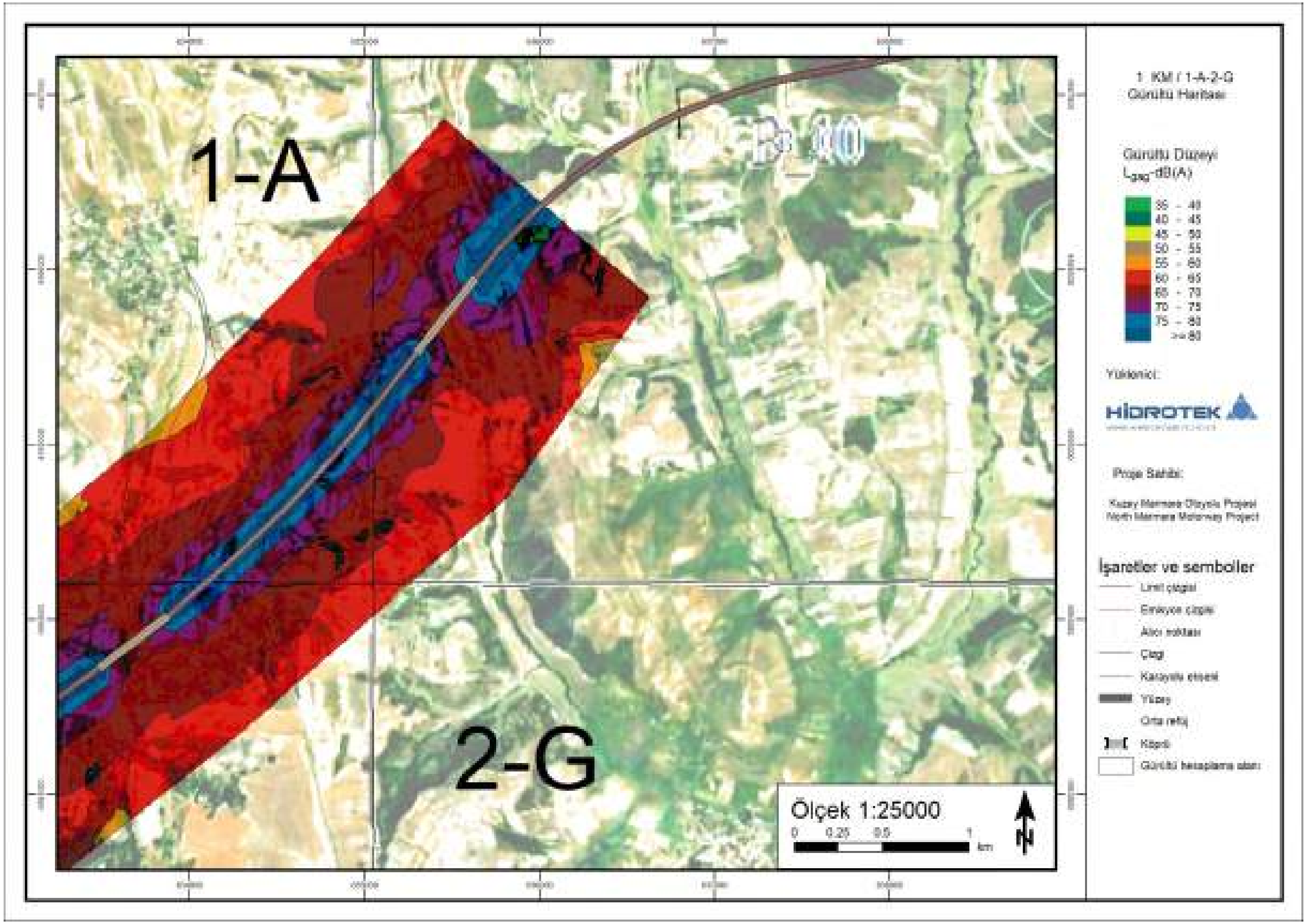

Figure 5.15 Lden noise map for part 1A of year 2027

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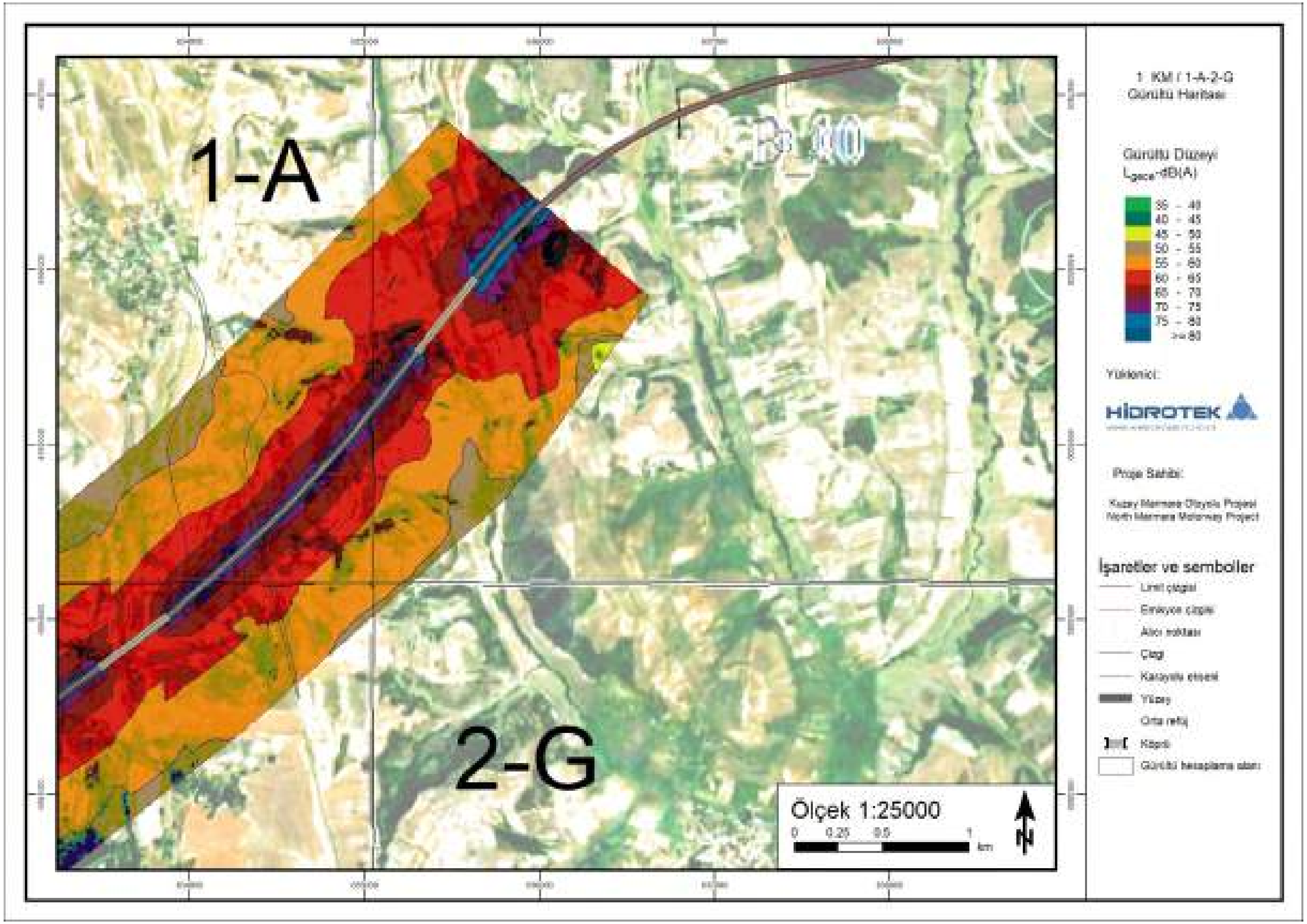

Figure 5.16 Ln noise map for part 1A of year 2027

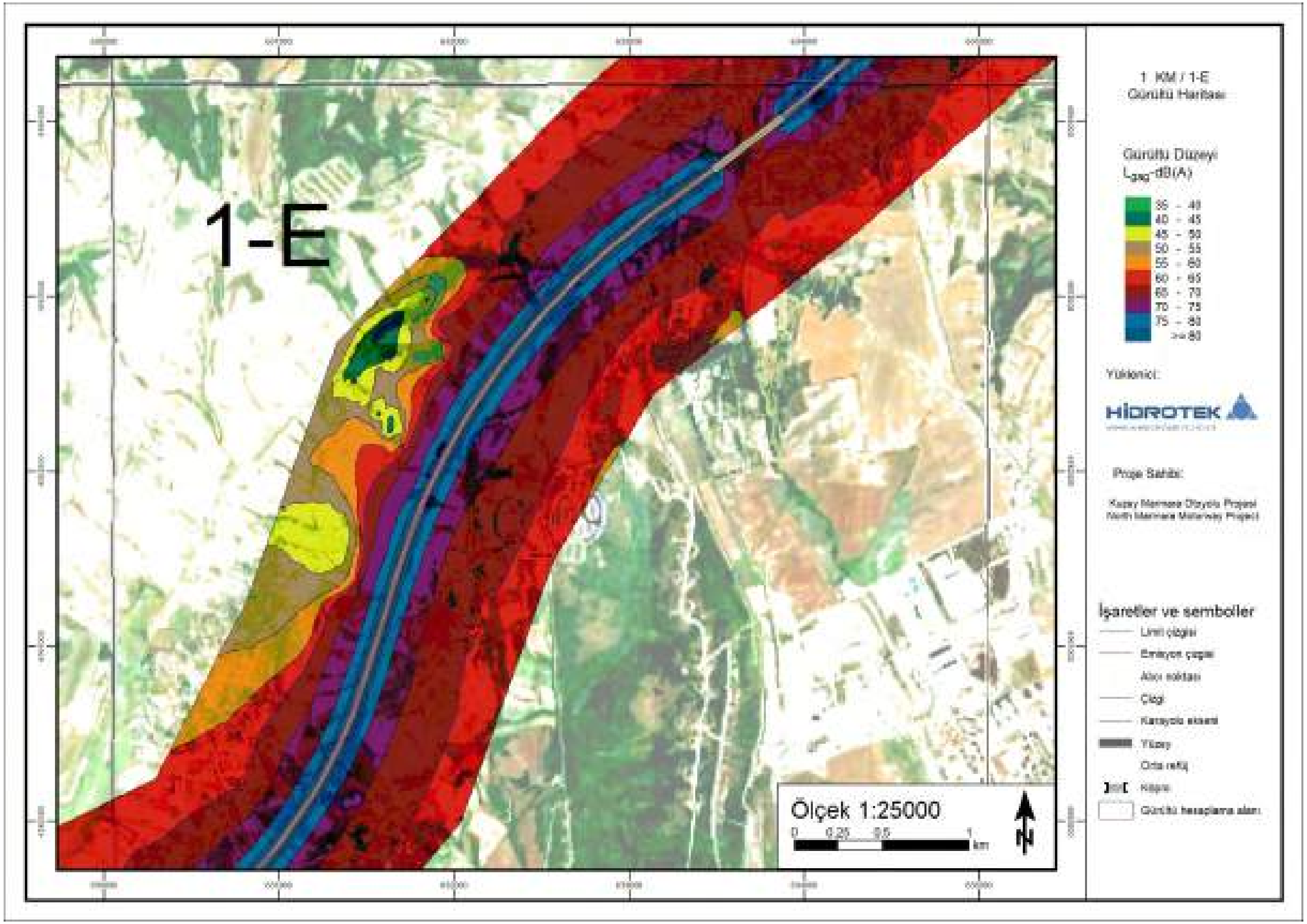

Figure 5.17 Lden noise map for part 1E of year 2027

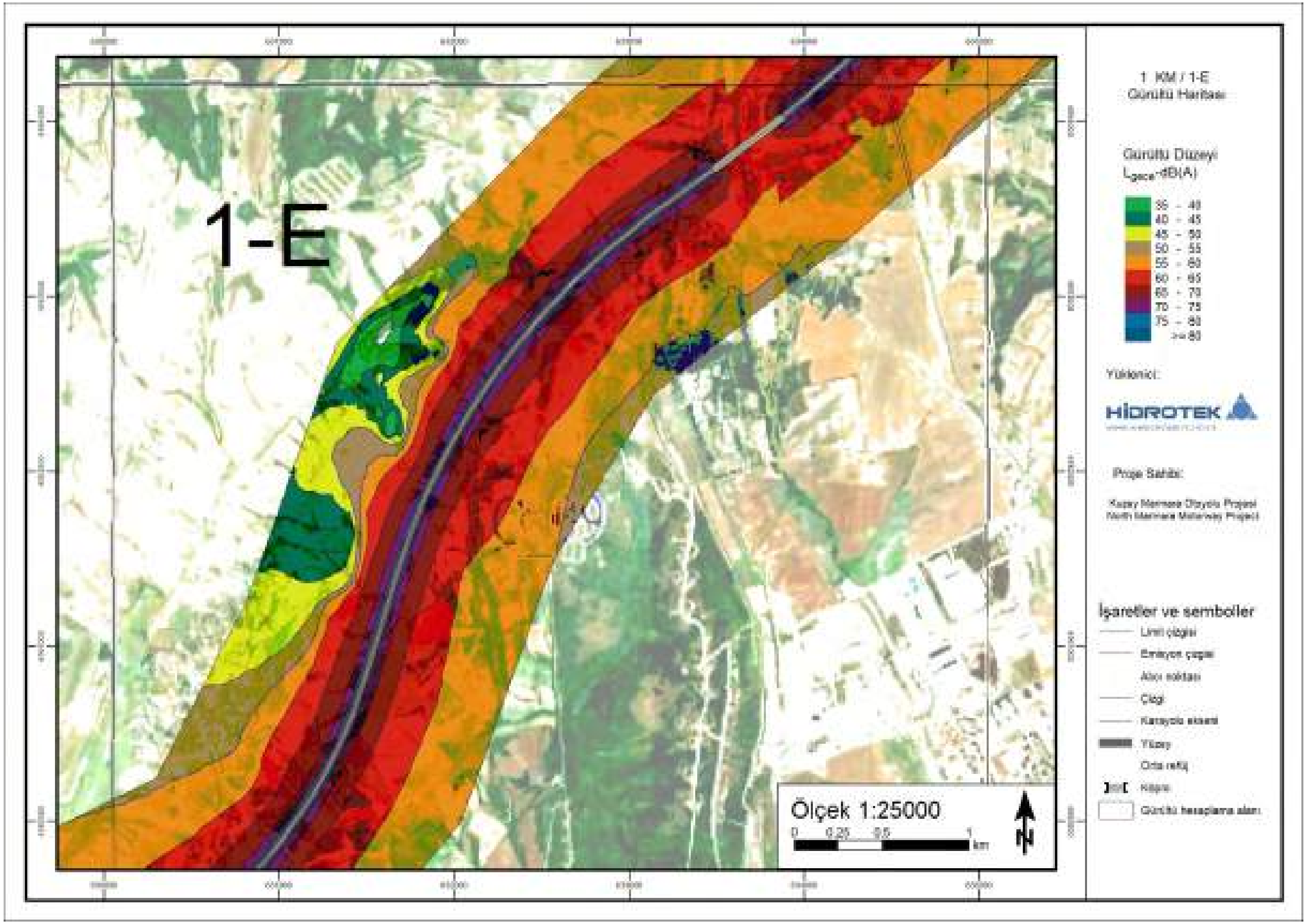

Figure 5.18 Ln noise map for part 1E of year 2027

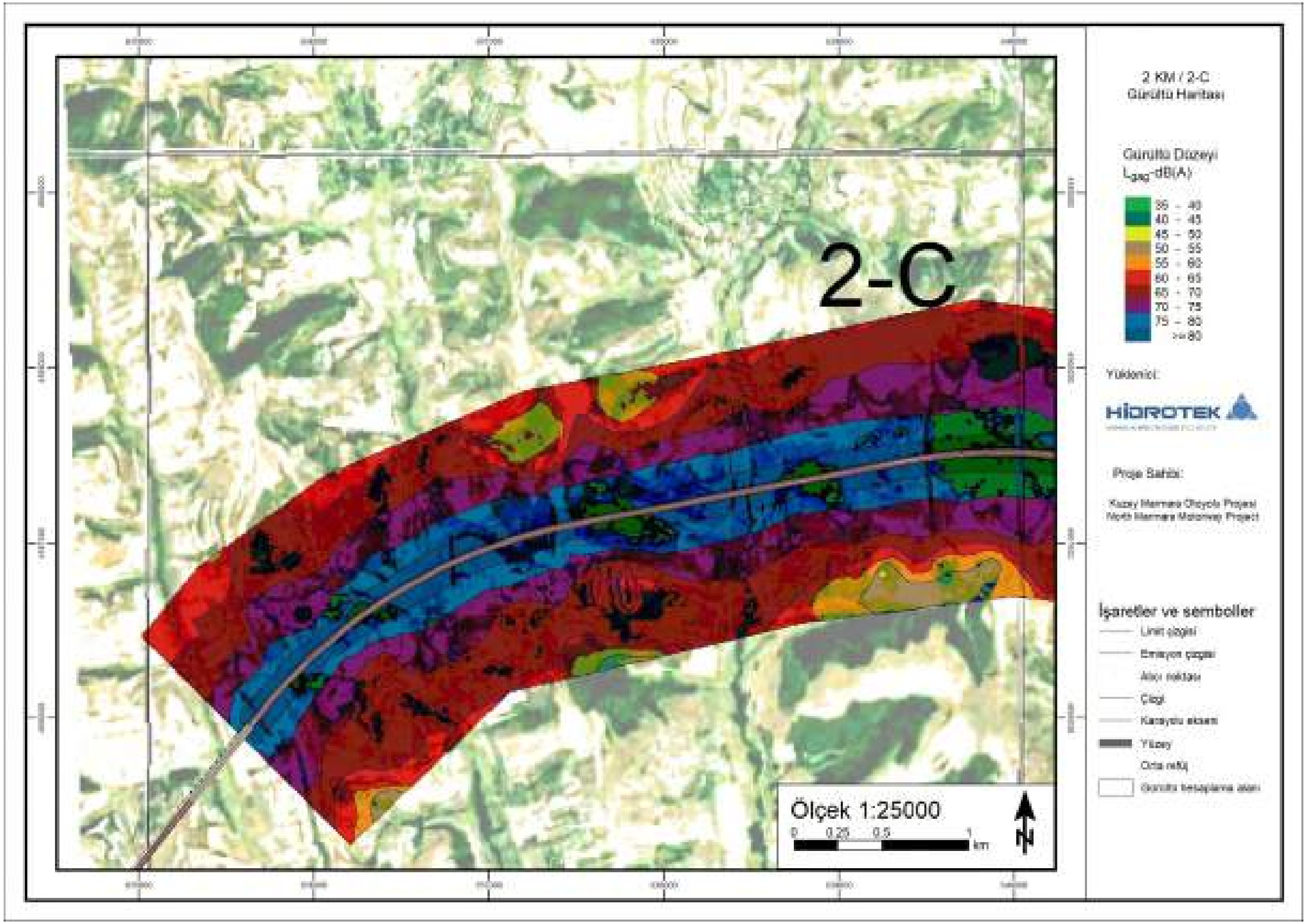

Figure 5.19 Lden noise map for part 2C of year 2027

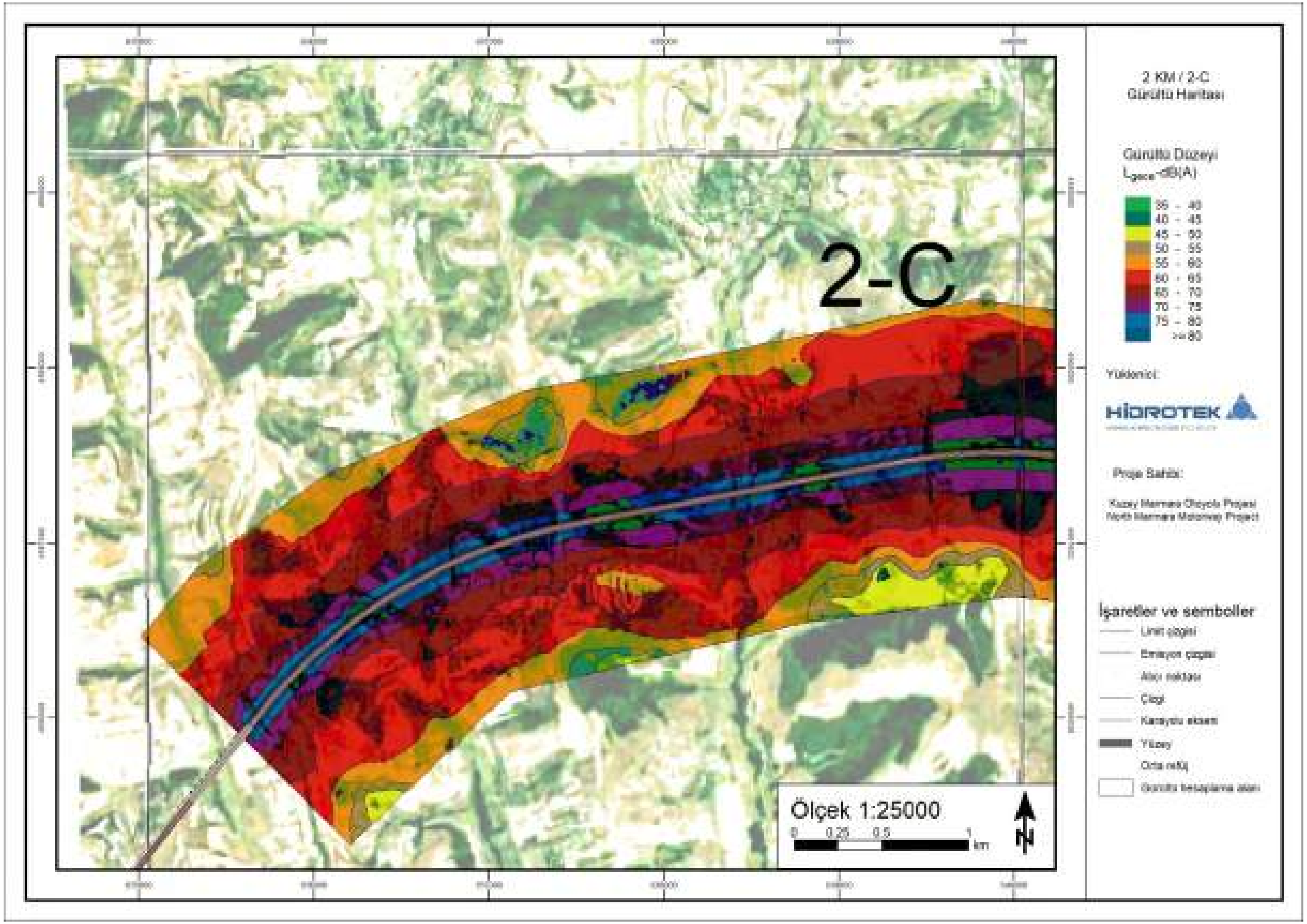

Figure 5.20 Ln noise map for part 2C of year 2027

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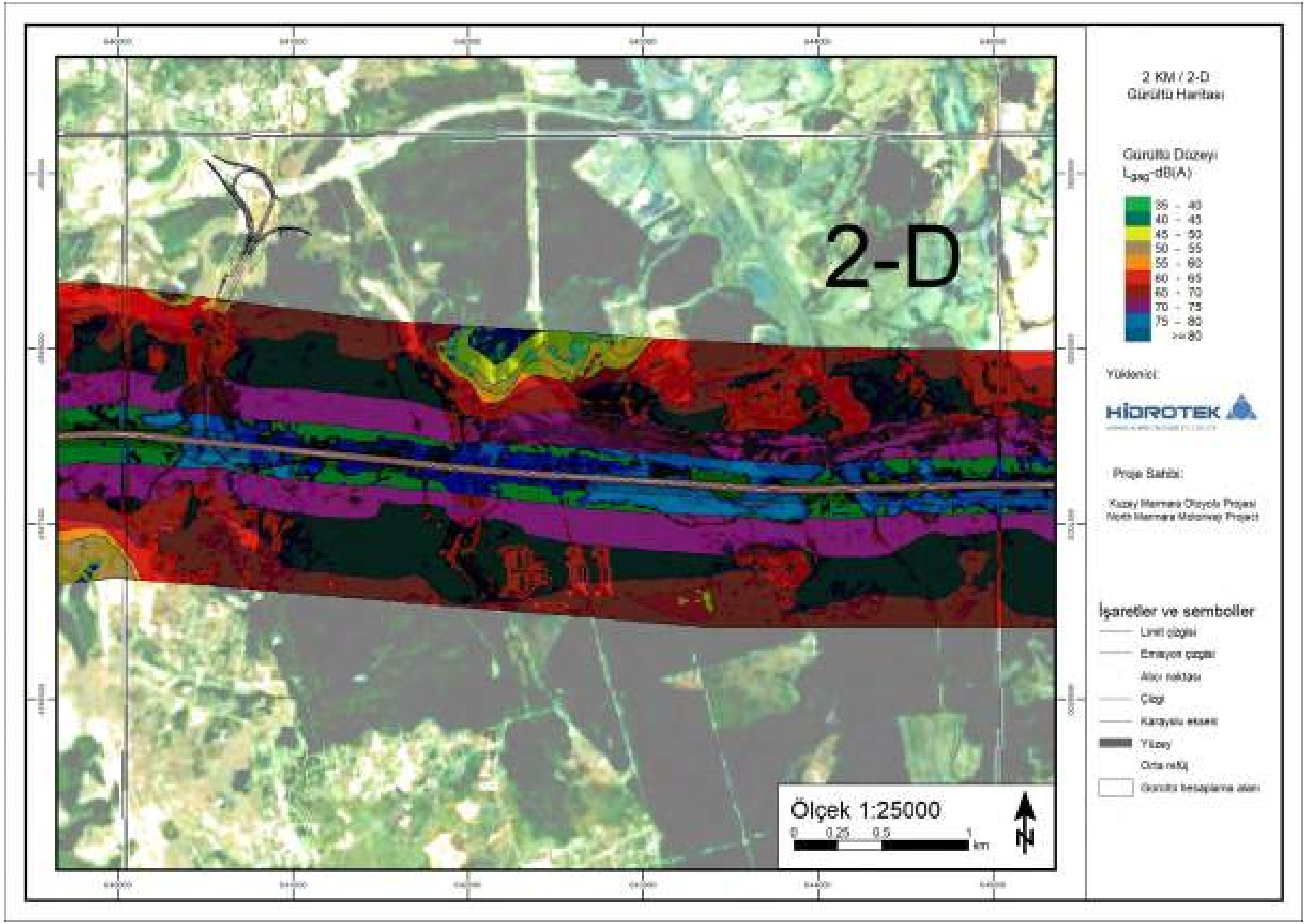

Figure 5.21 Lden noise map for part 2D of year 2027

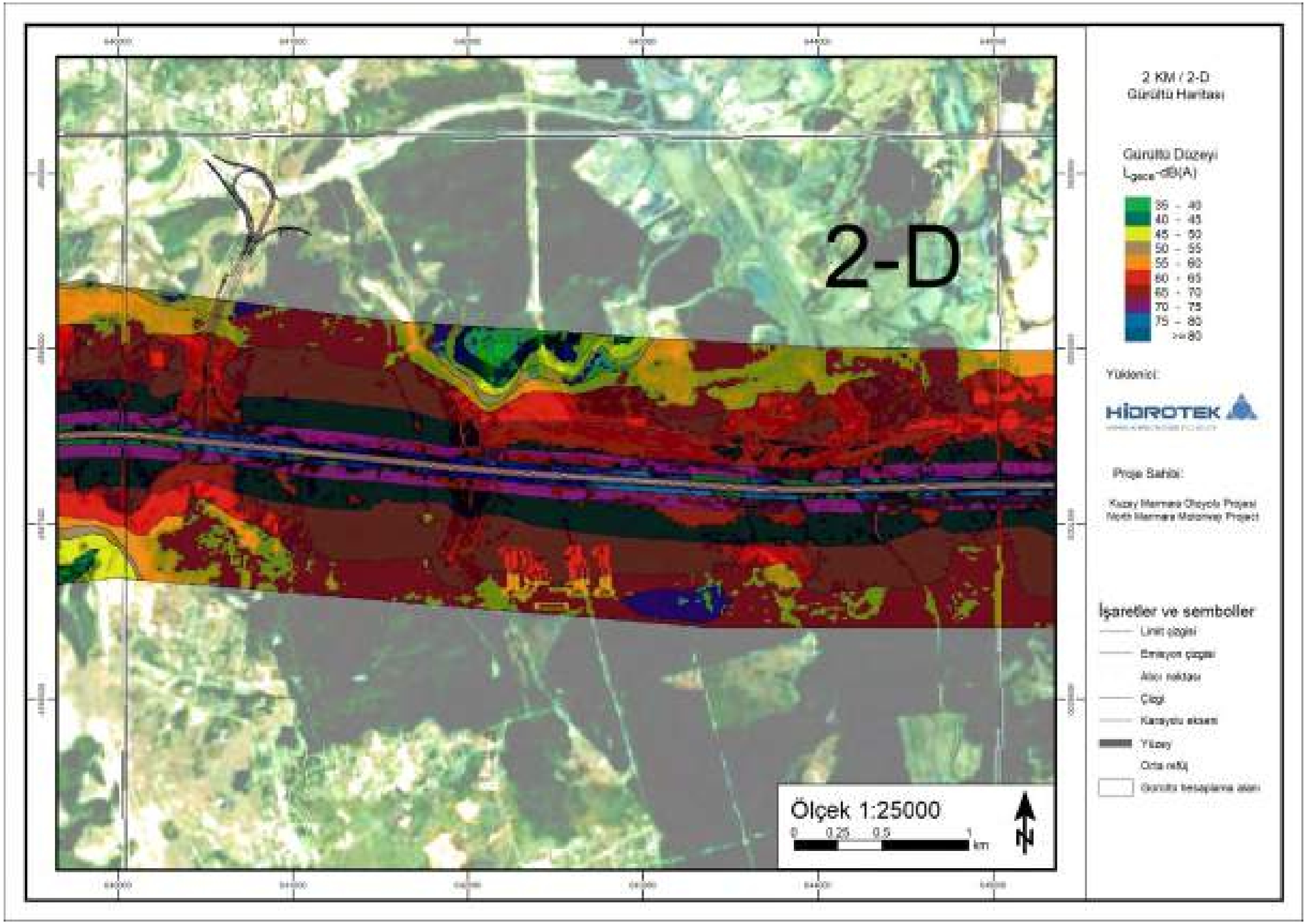

Figure 5.22 Ln noise map for part 2D of year 2027

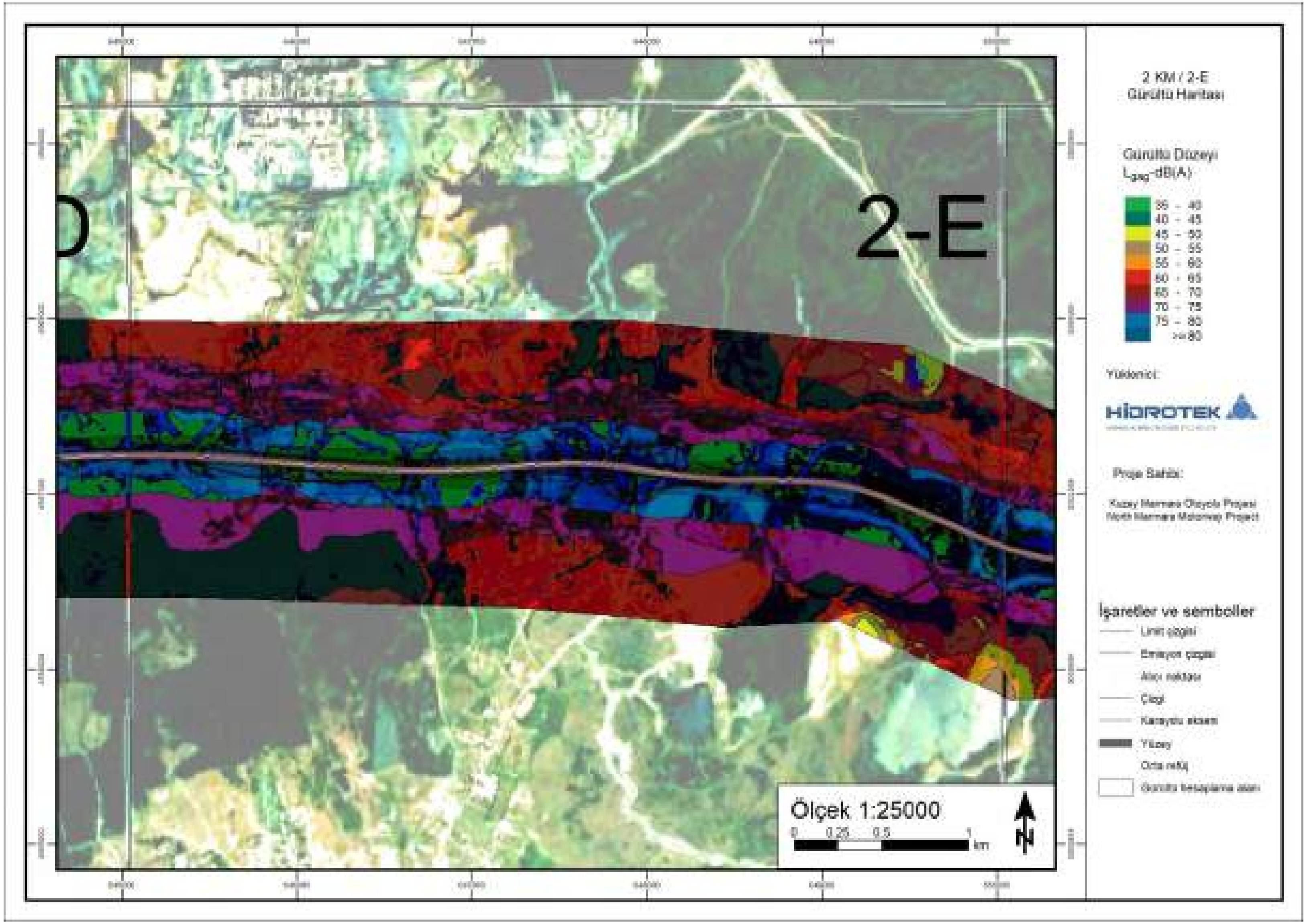

Figure 5.23 Lden noise map for part 2E of year 2027

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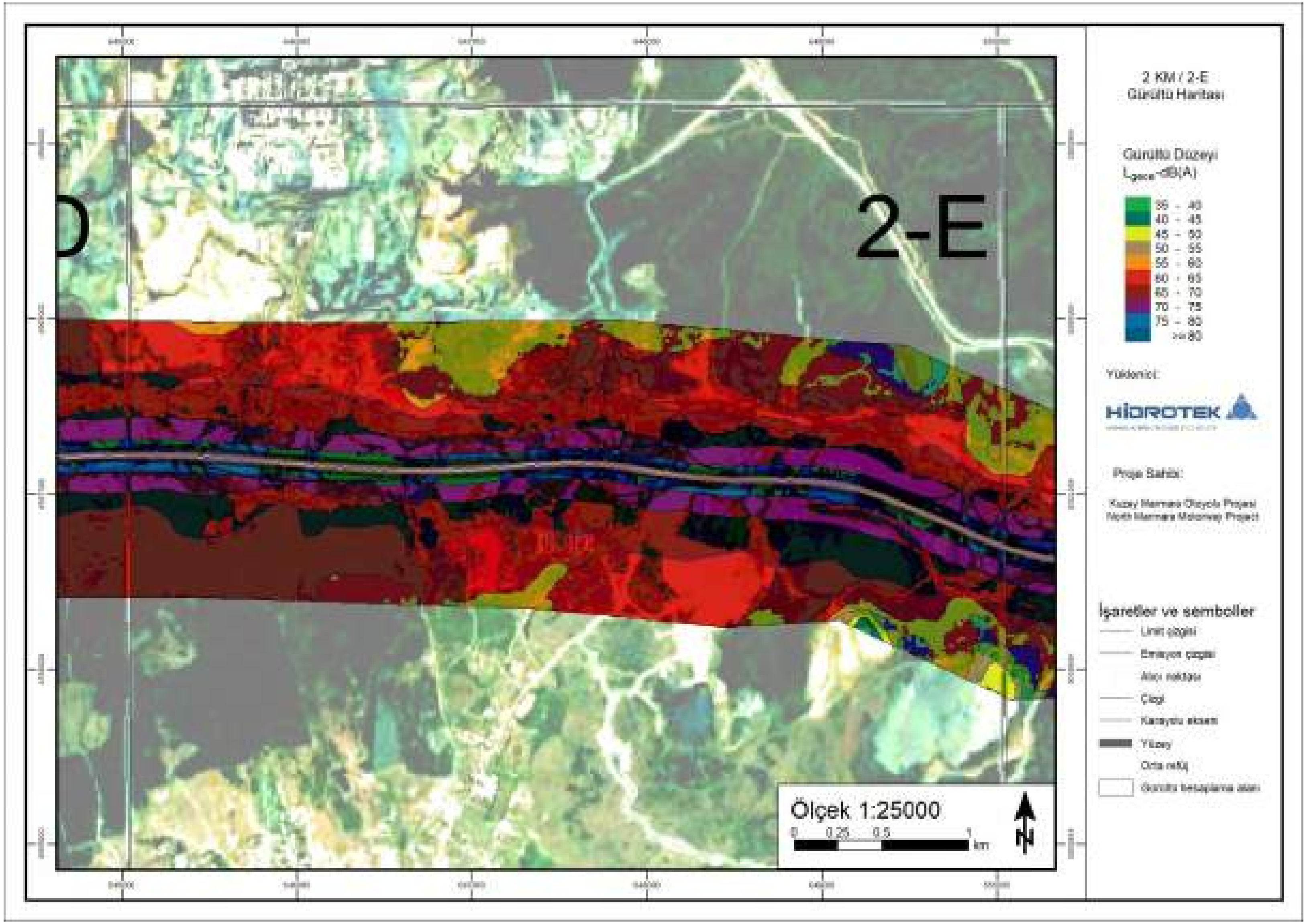

Figure 5.24 Ln noise map for part 2E of year 2027

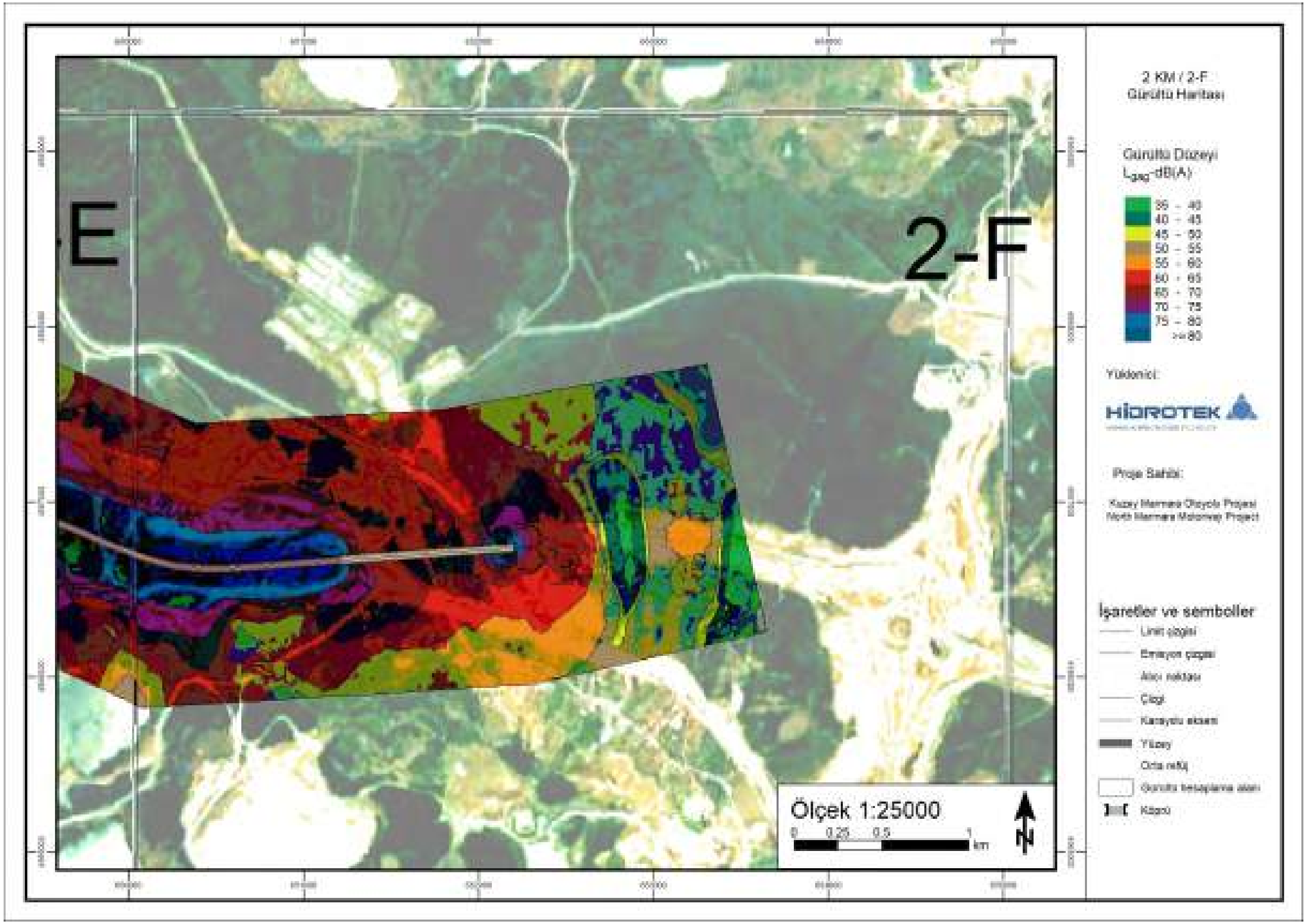

Figure 5.25 Lden noise map for part 2F of year 2027

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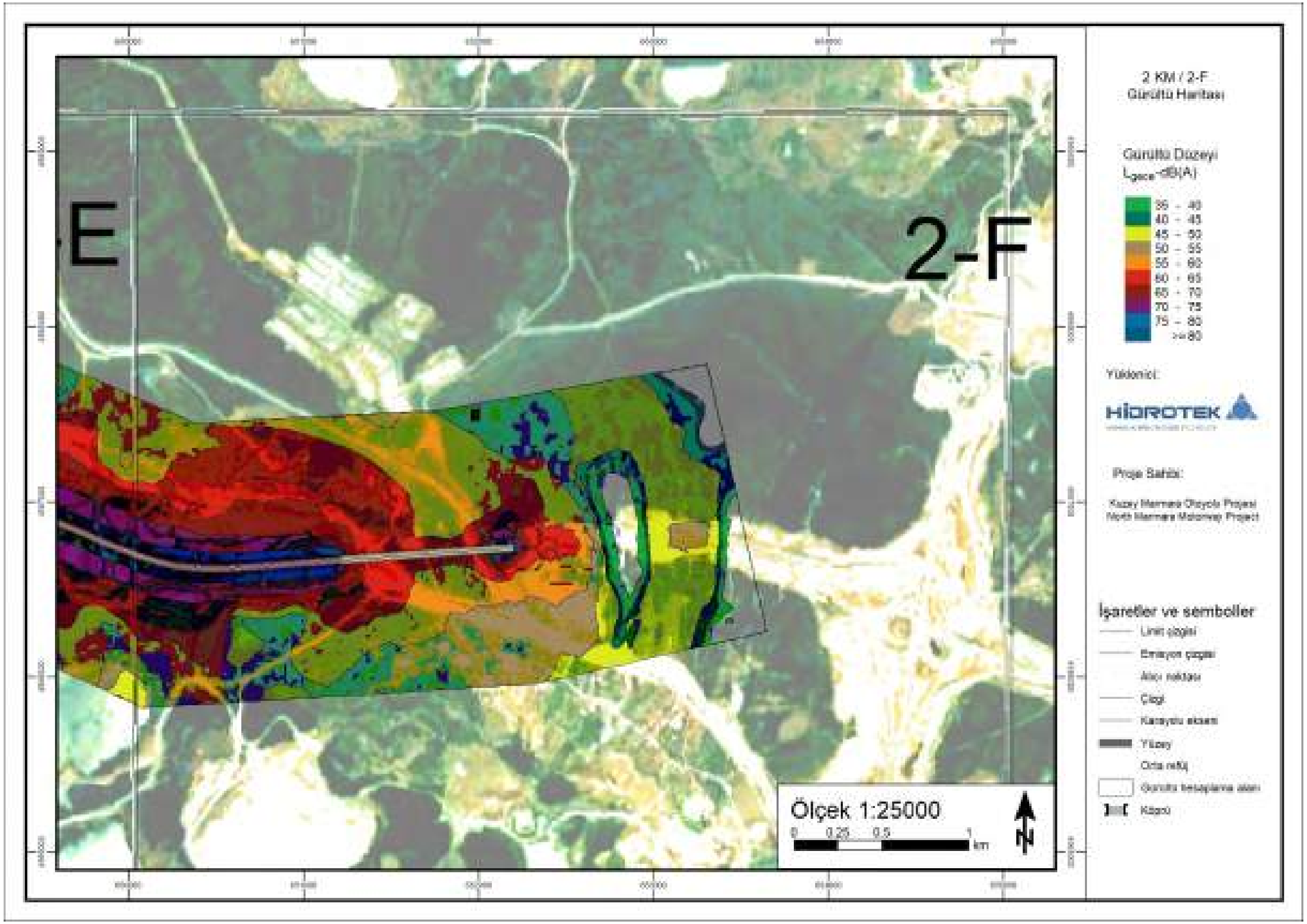

Figure 5.26 Ln noise map for part 2F of year 2027

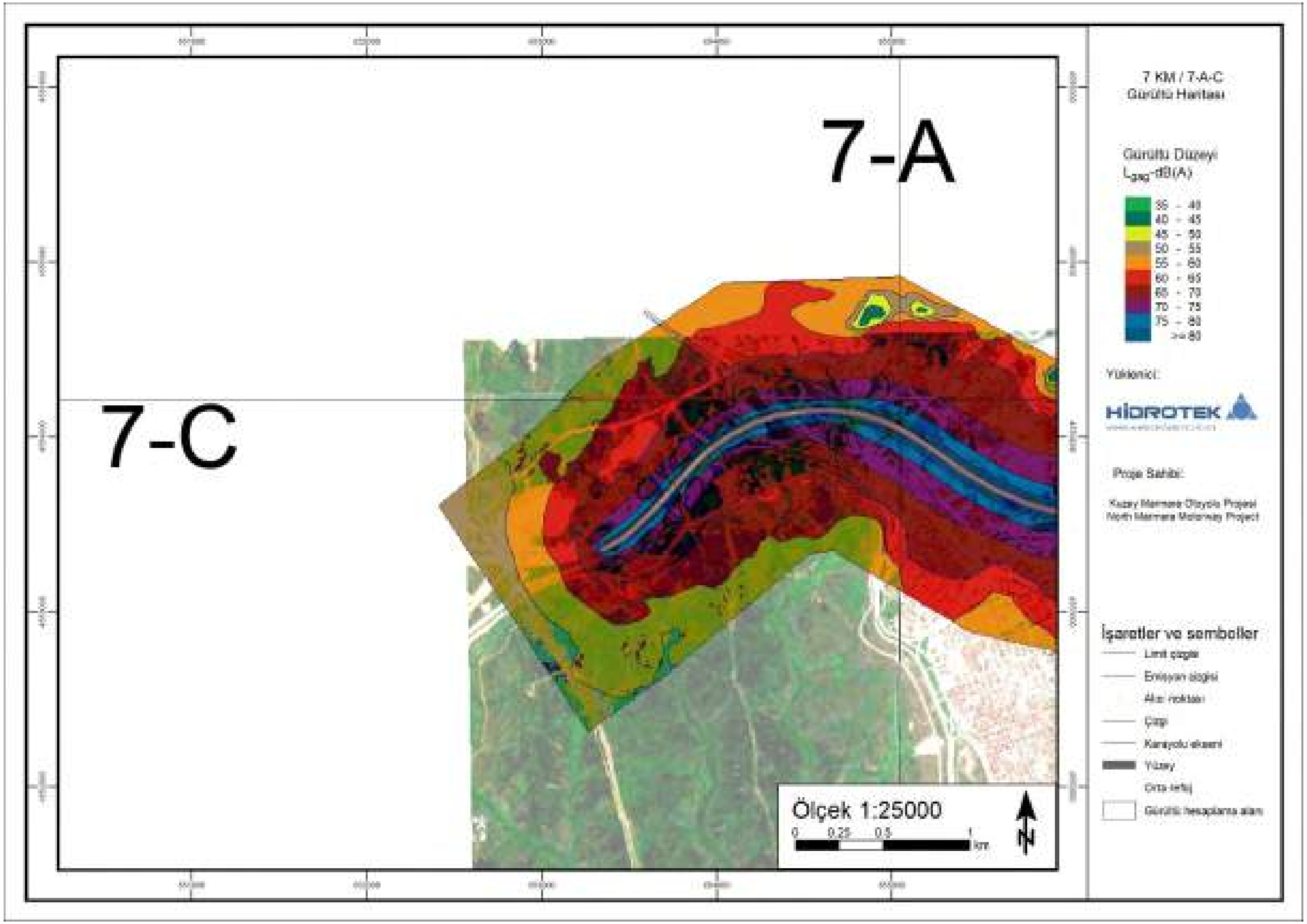

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Figure 5.27 Lden noise map for part 7A of year 2027

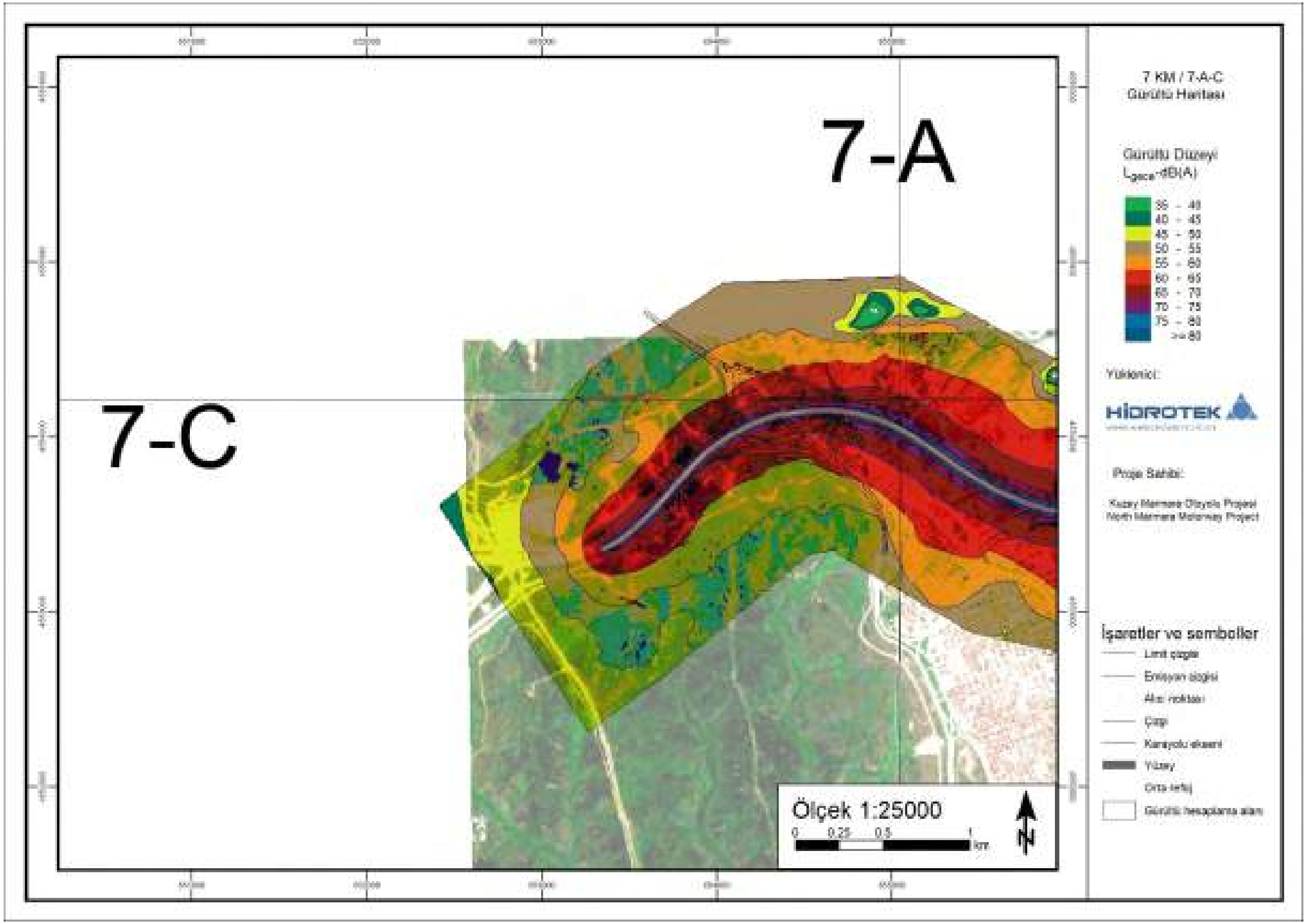

Figure 5.28 Ln noise map for part 7A of year 2027

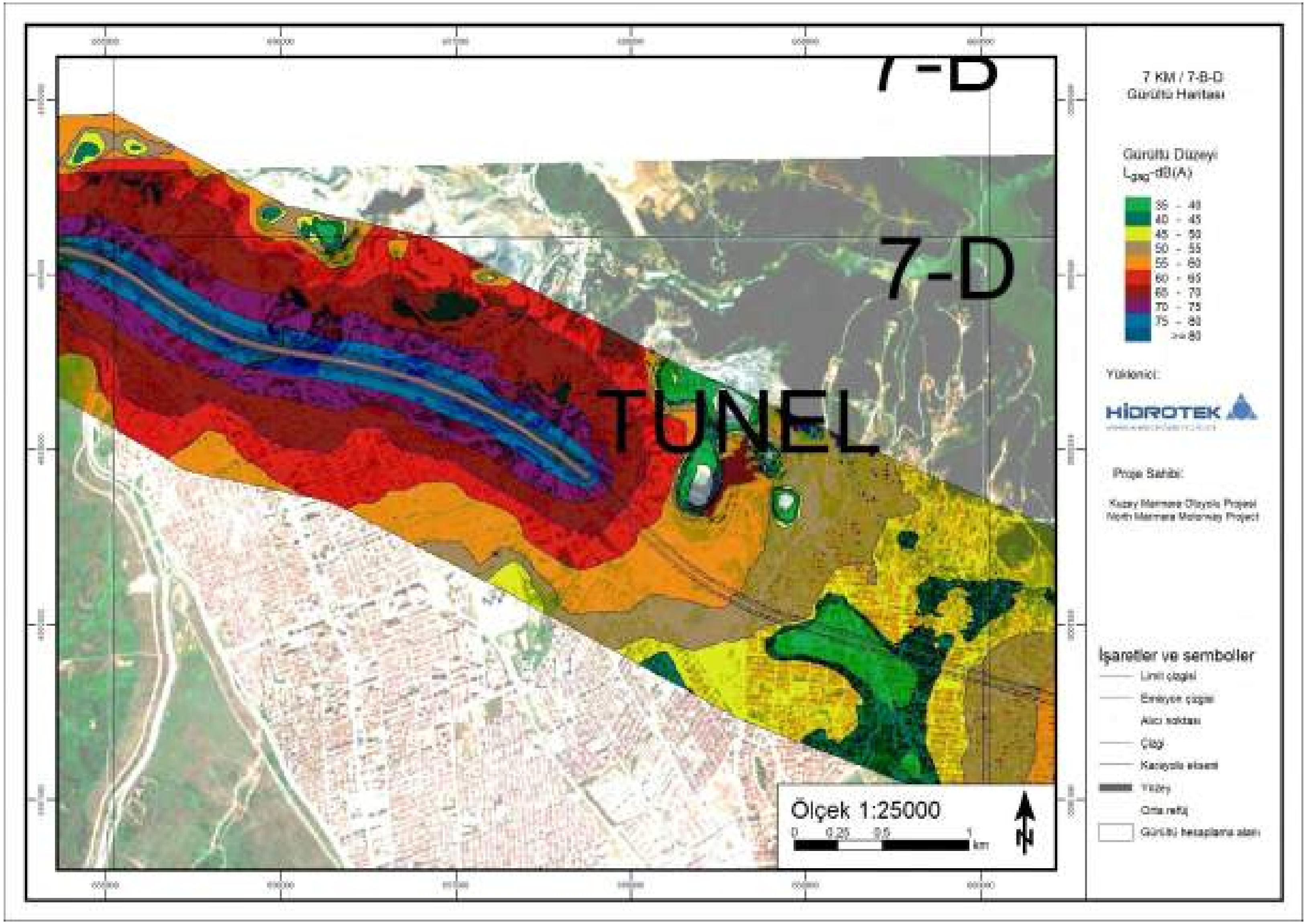

Figure 5.29 Lden noise map for part 7B of year 2027

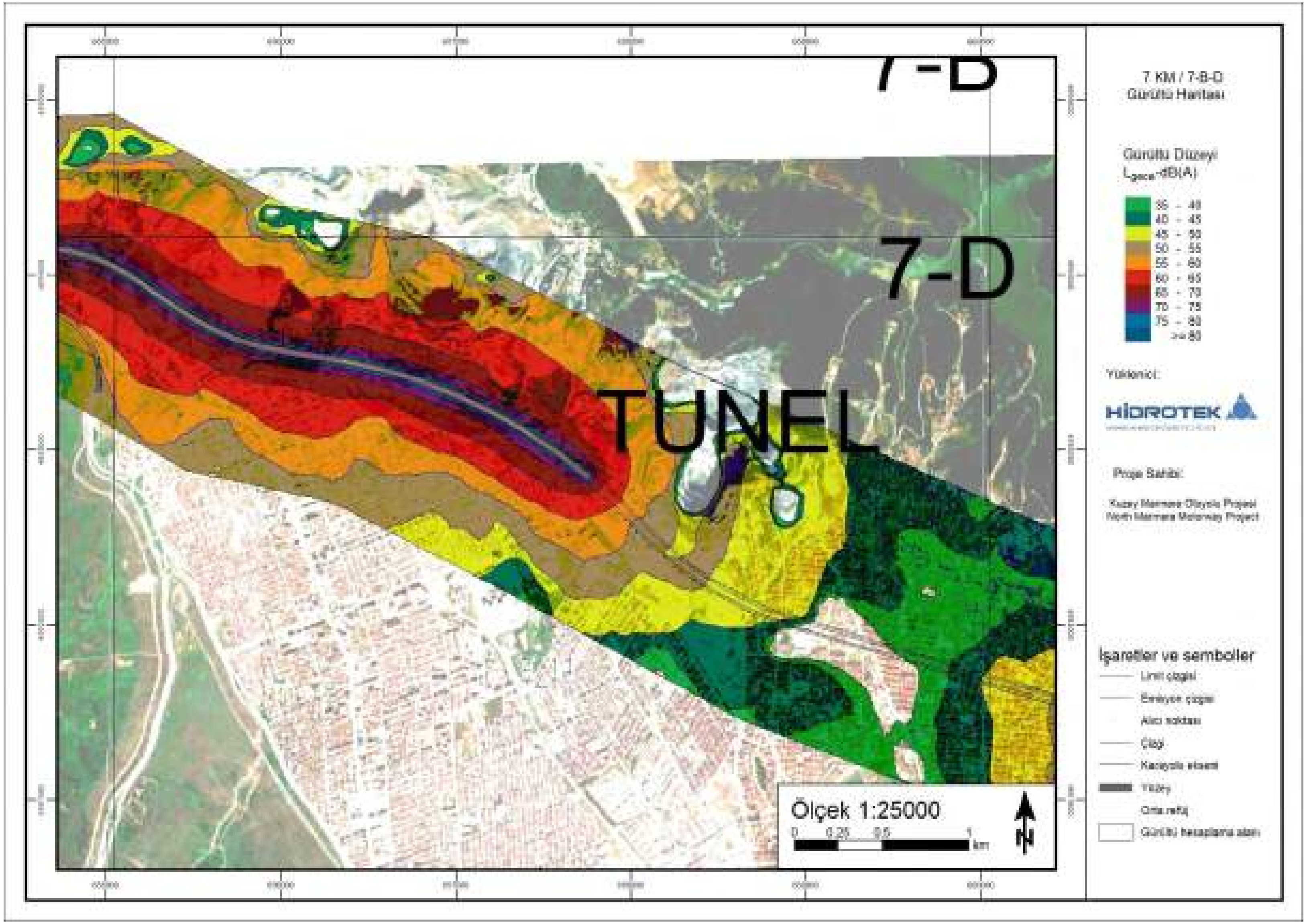

Figure 5.30 Ln noise map for part 7B of year 2027

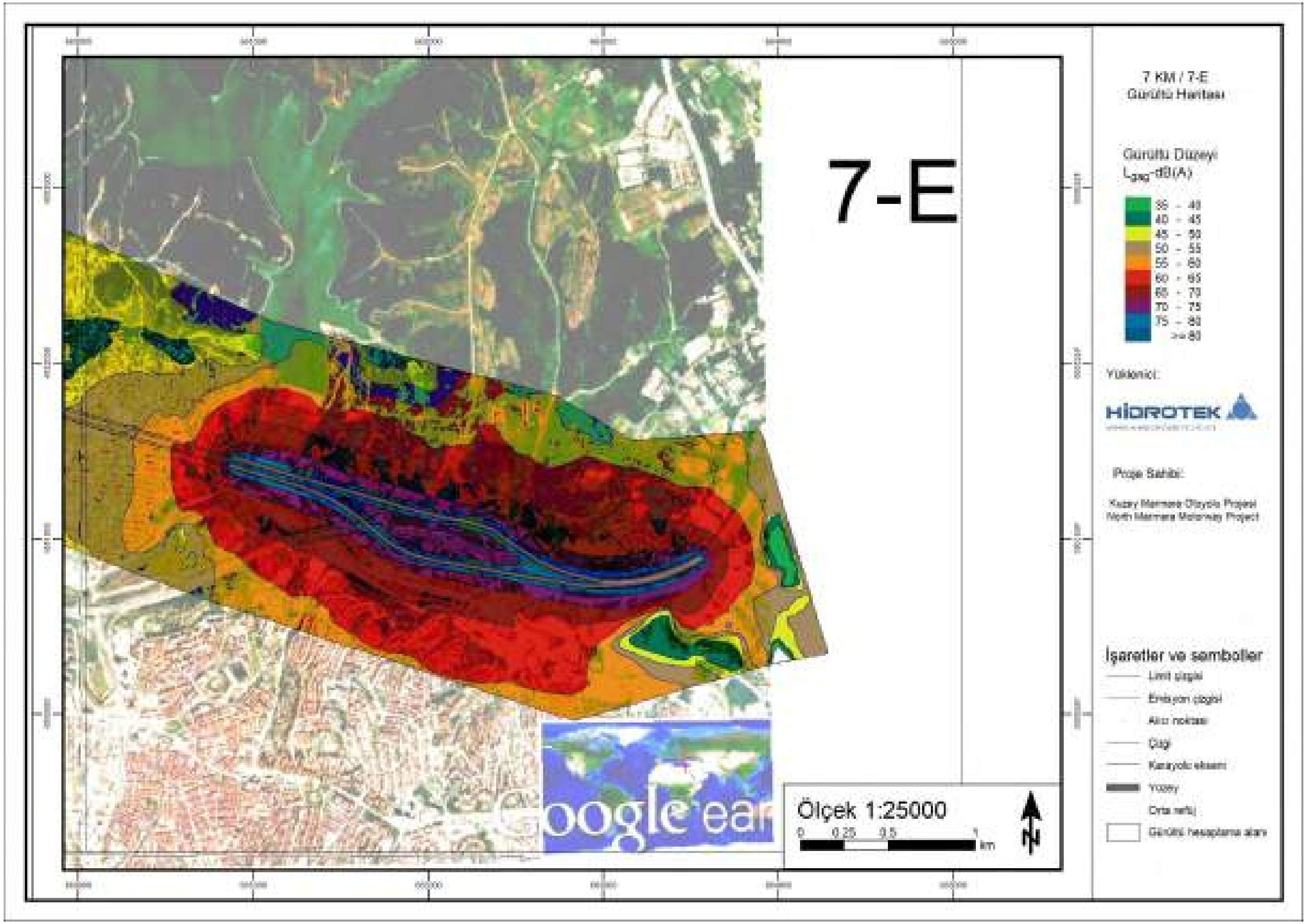

Figure 5.31 Lden noise map for part 7E of year 2027

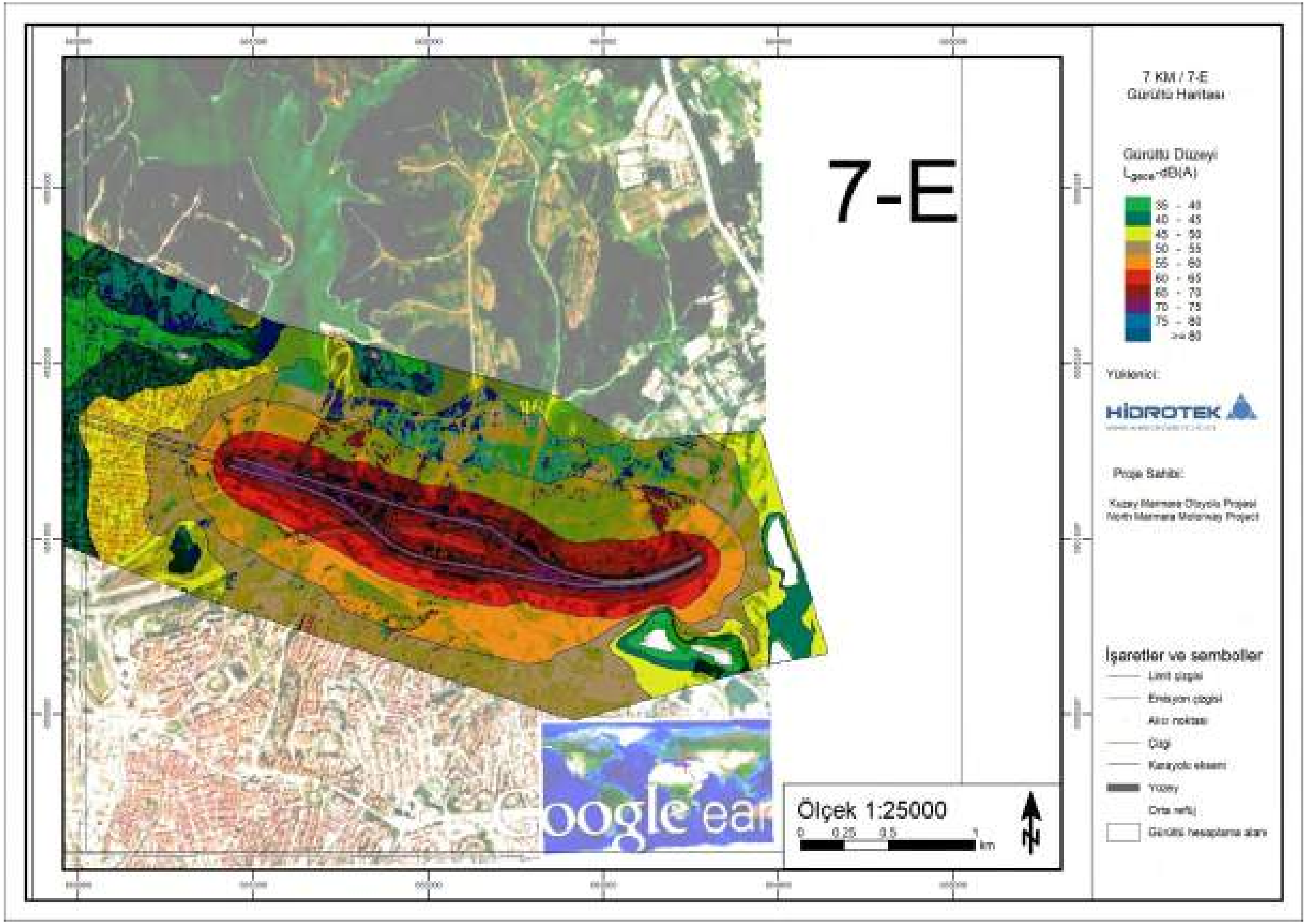

Figure 5.32 Ln noise map for part 7E of year 2027

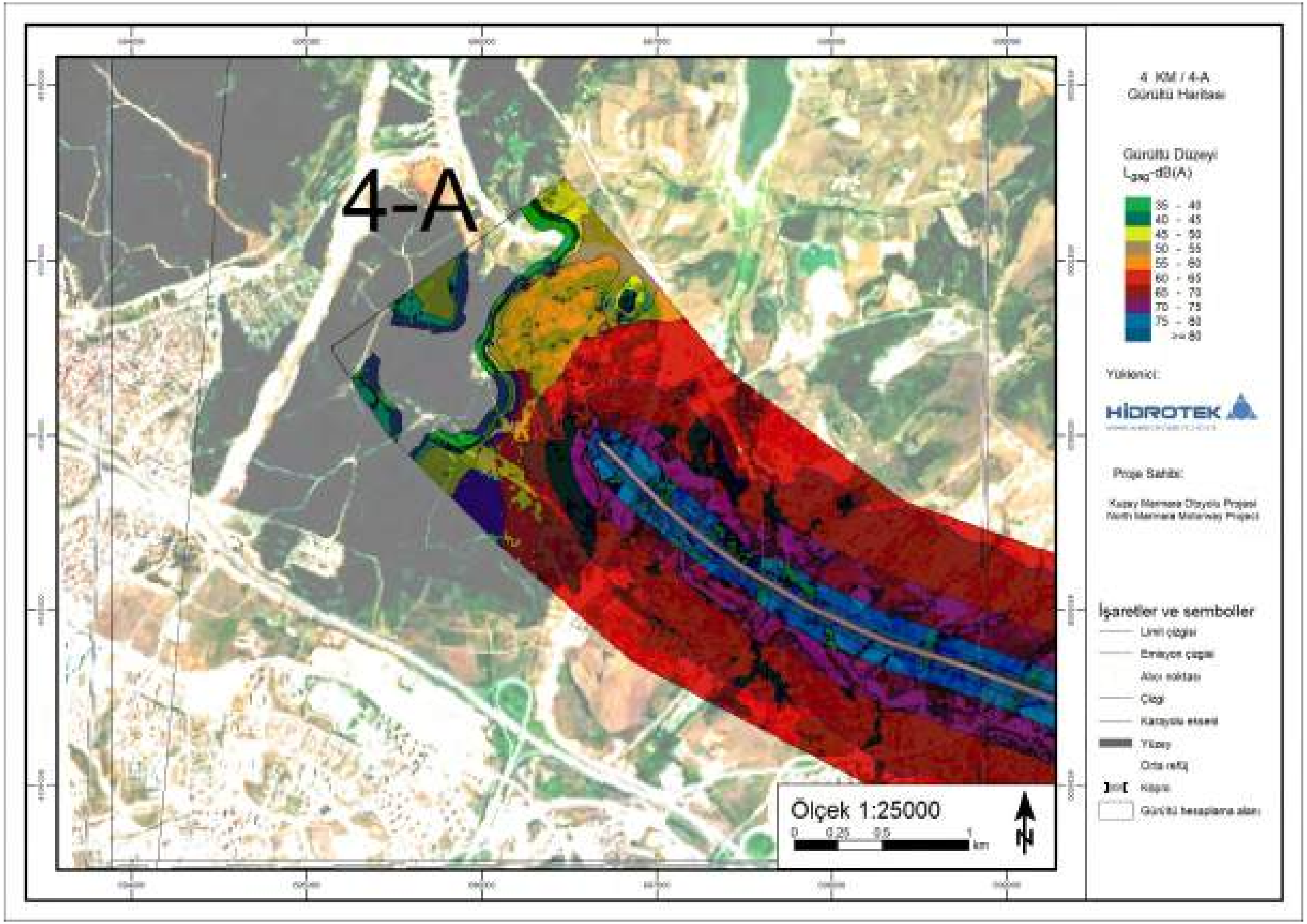

Figure 5.33 Lden noise map for part 4A of year 2027

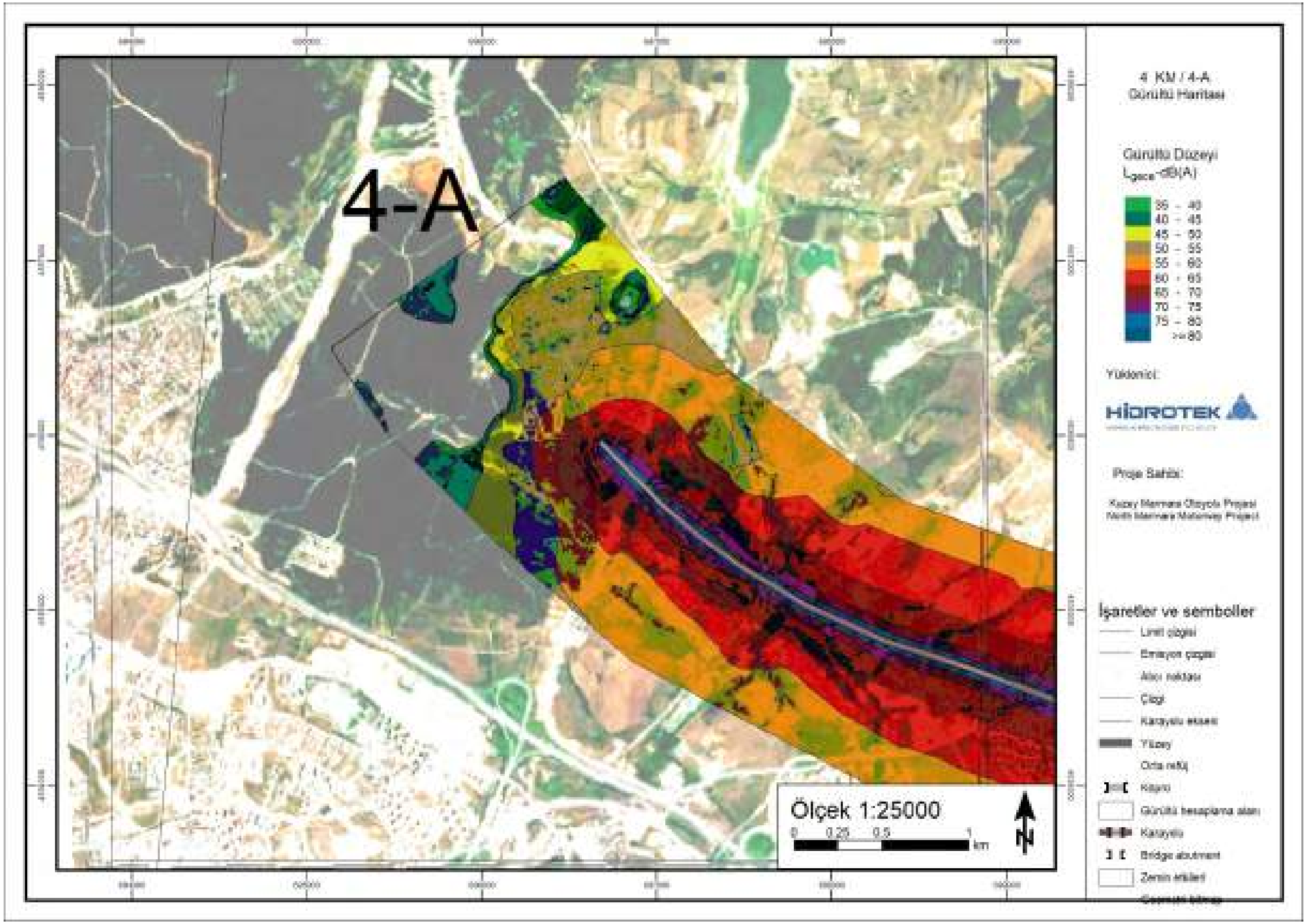

Figure 5.34 Ln noise map for part 4A of year 2027

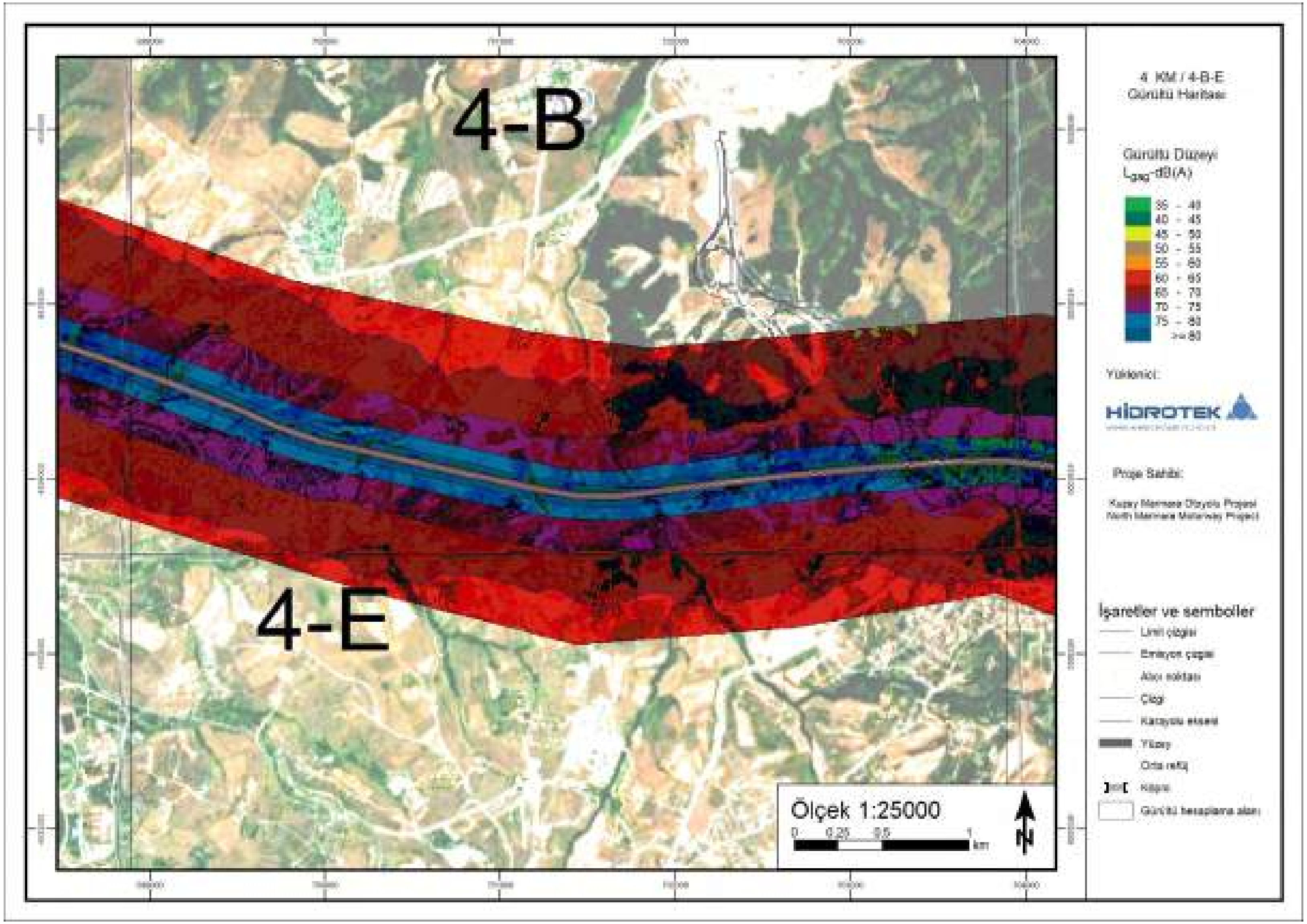

Figure 5.35 Lden noise map for part 4B of year 2027

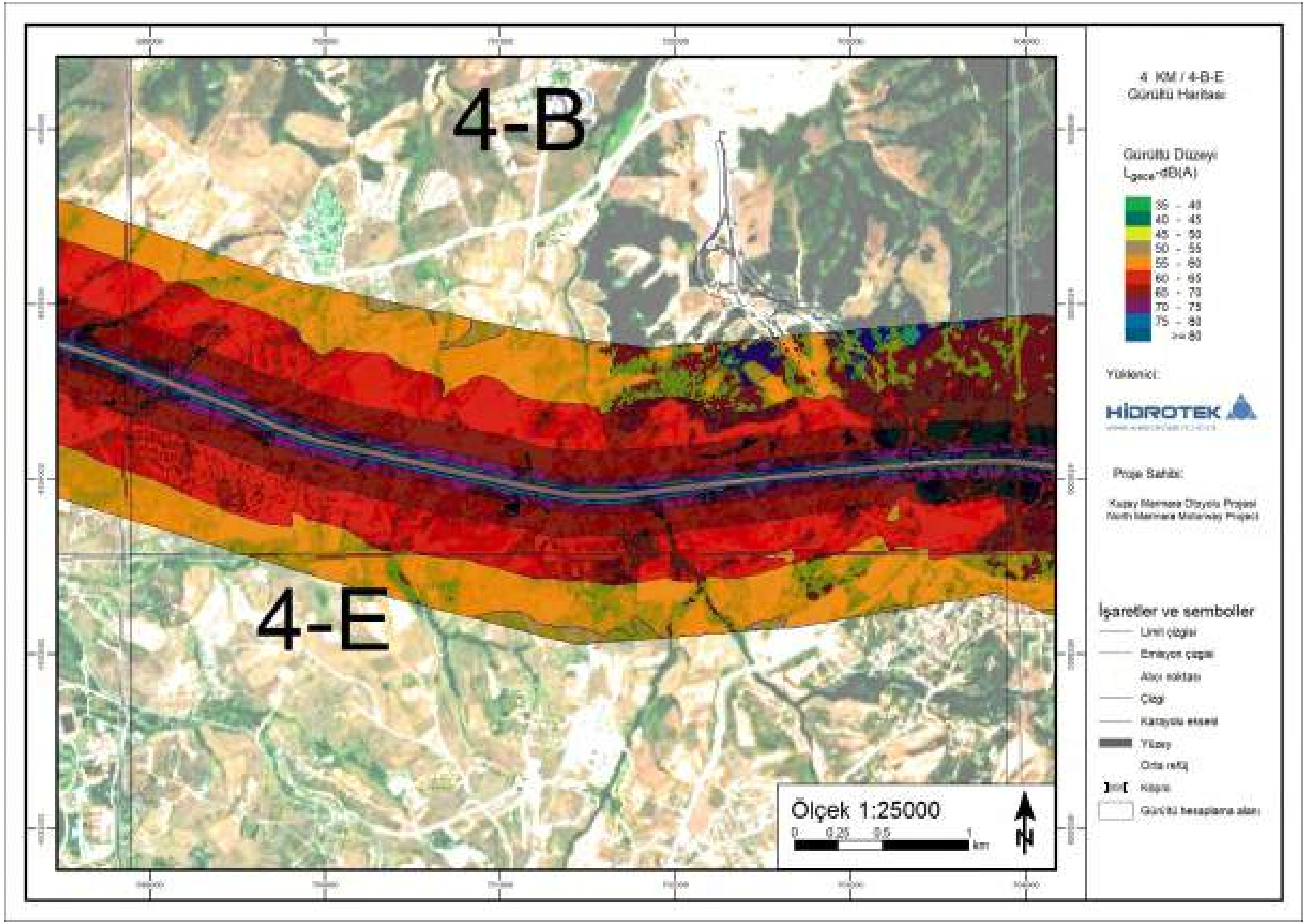

Figure 5.36 Ln noise map for part 4B of year 2027

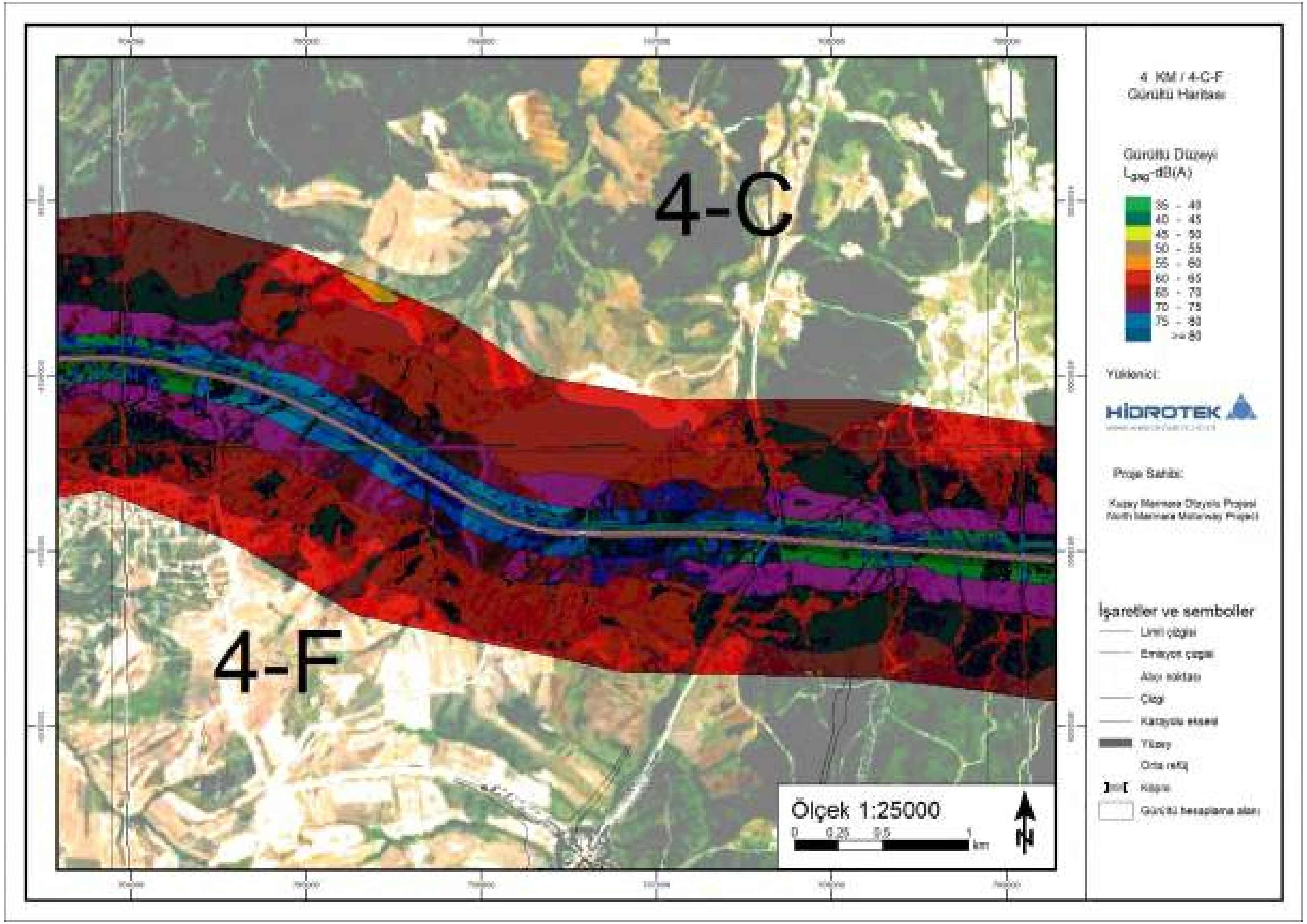

Figure 5.37 Lden noise map for part 4C of year 2027

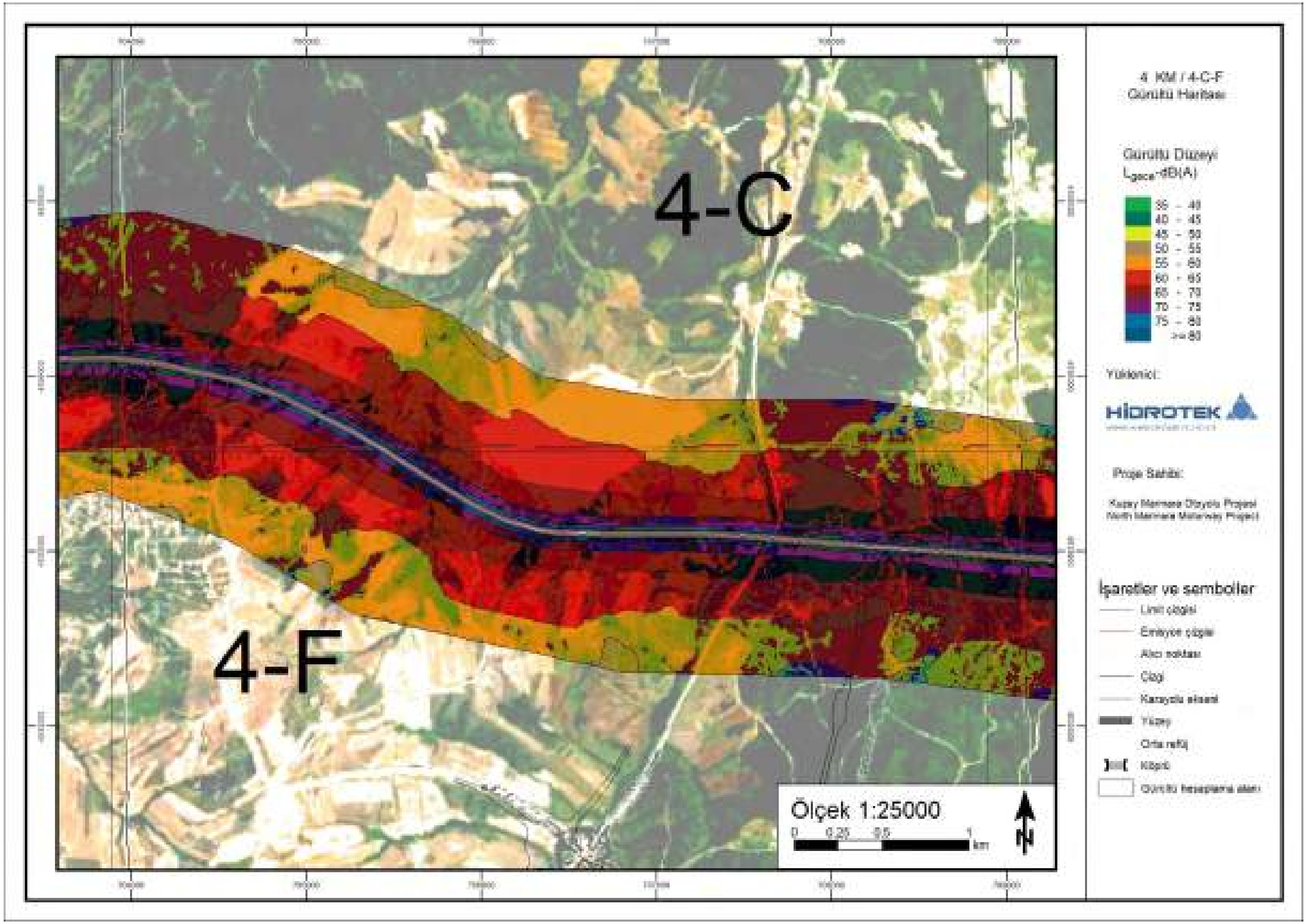

Figure 5.38 Ln noise map for part 4C of year 2027 of year 2027

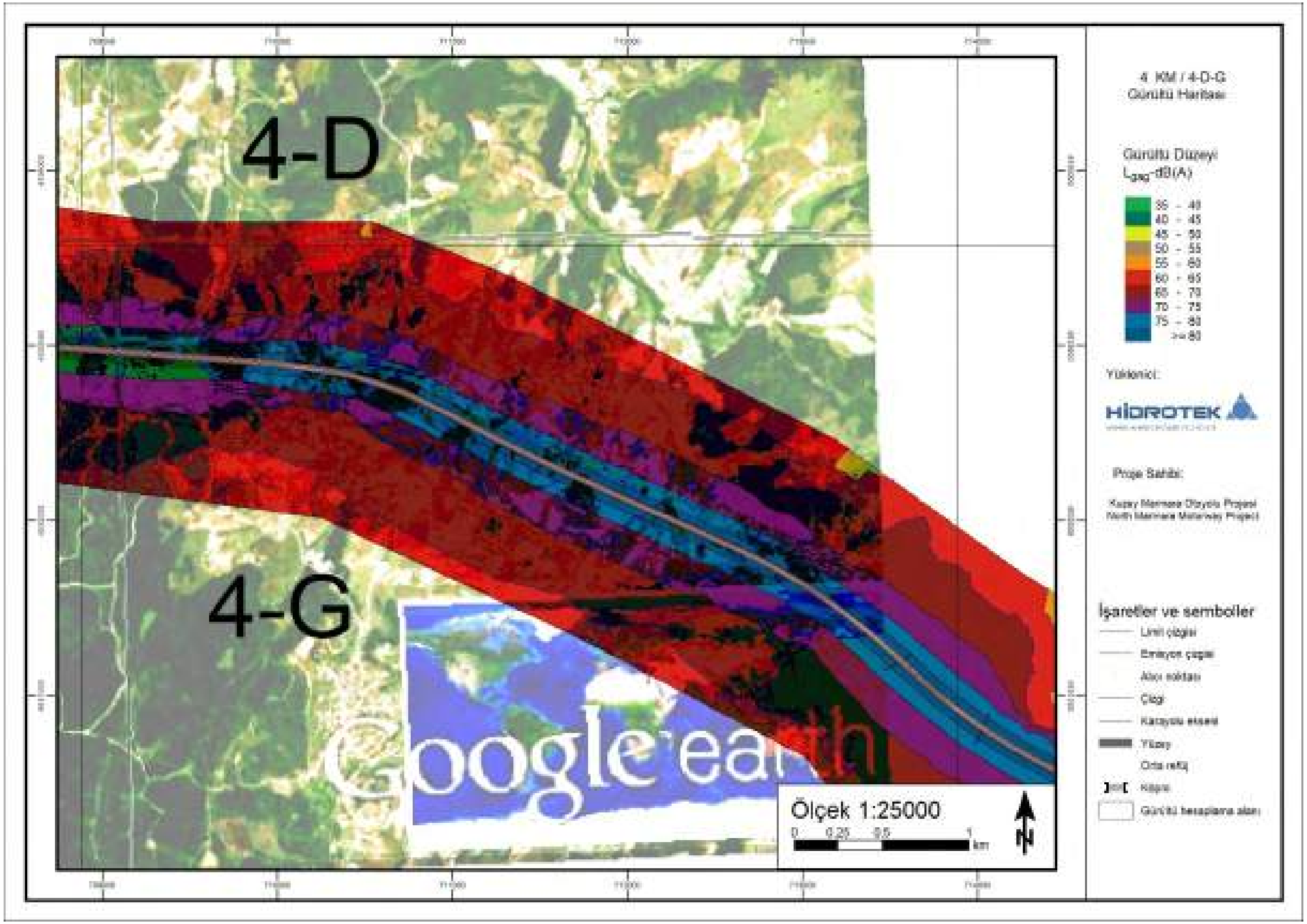

Figure 5.39 Lden noise map for part 4D of year 2027

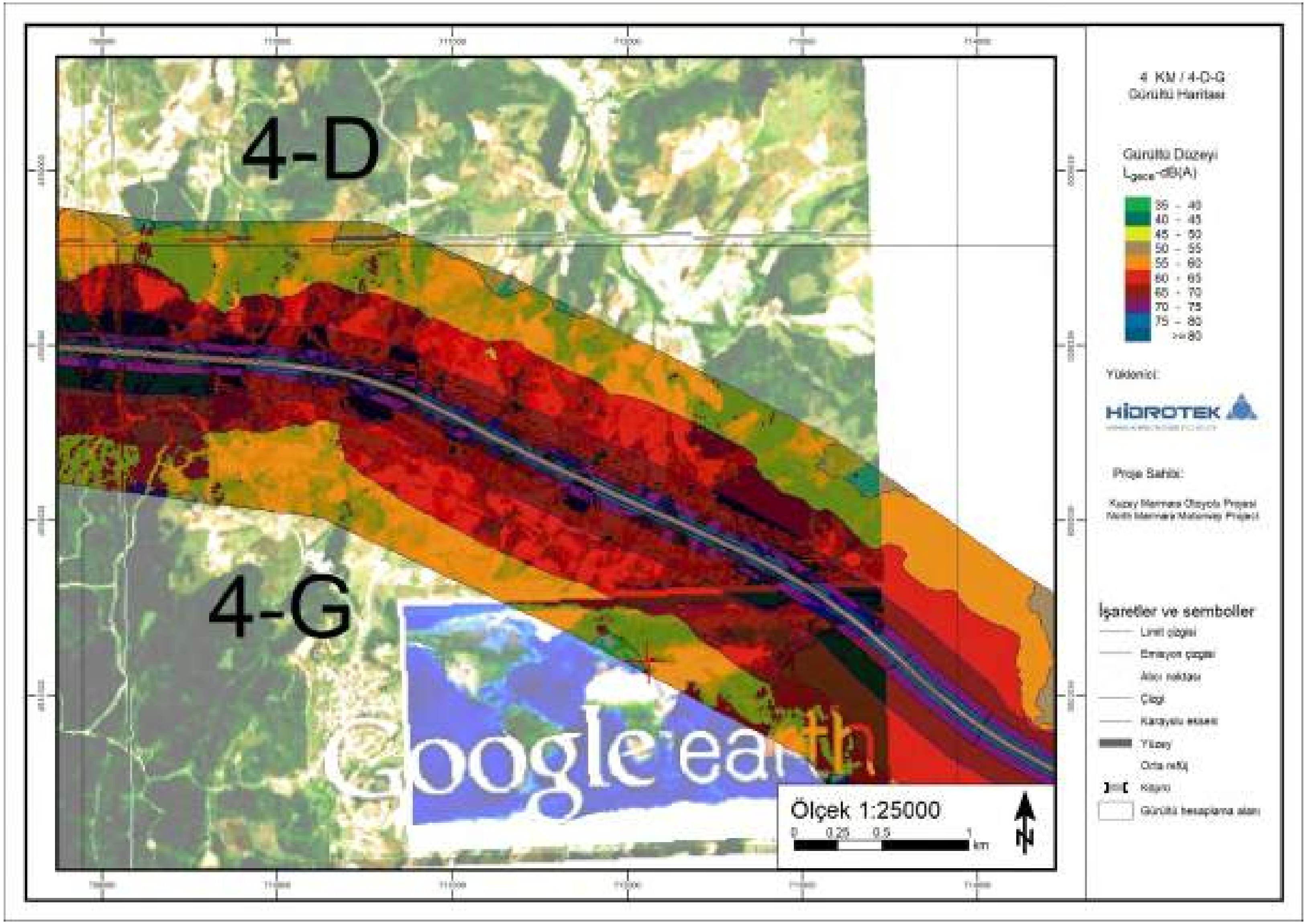

Figure 5.40 Ln noise map for part 4D of year 2027

HİDROTEK

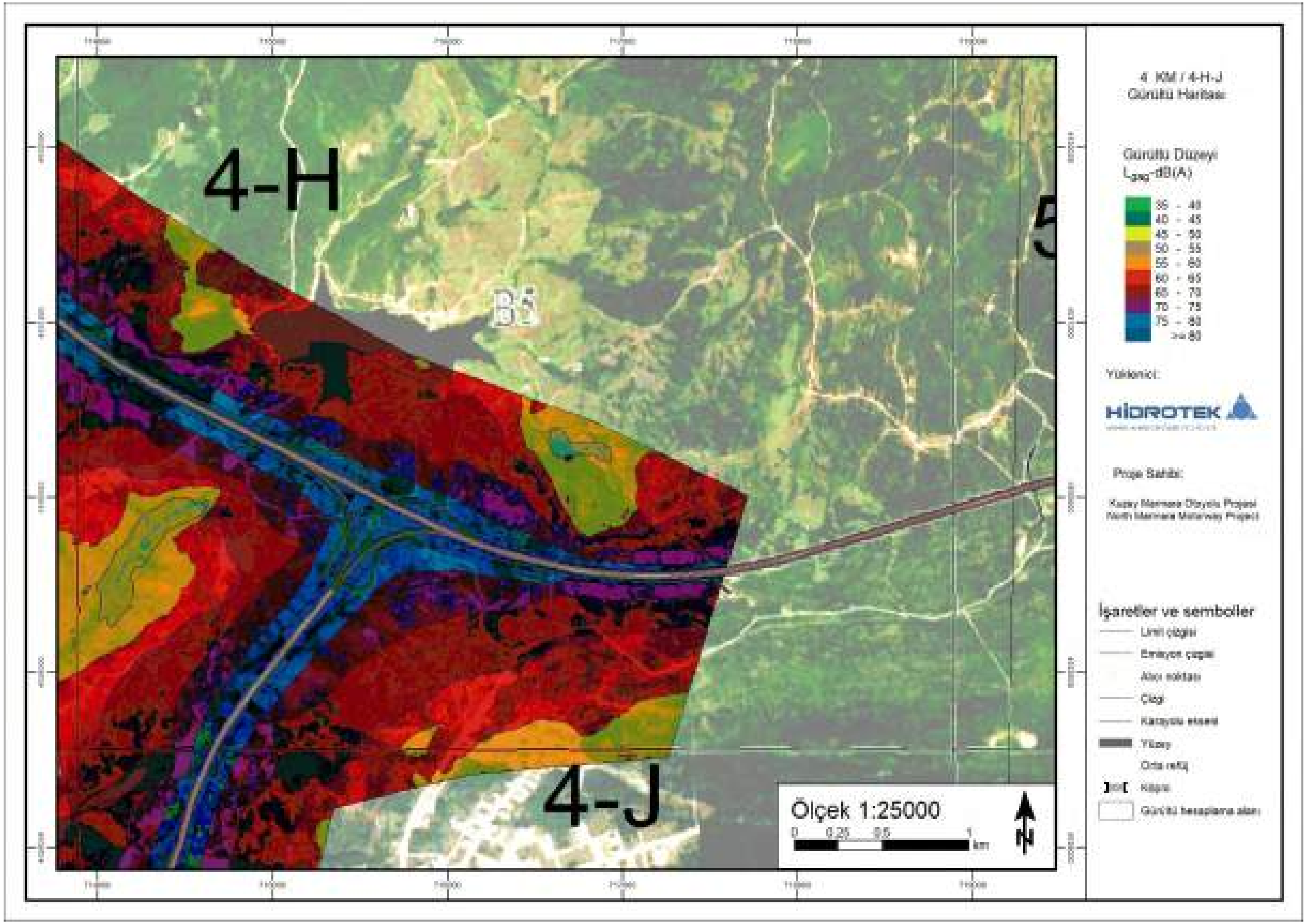

Figure 5.41 Lden noise map for part 4H of year 2027

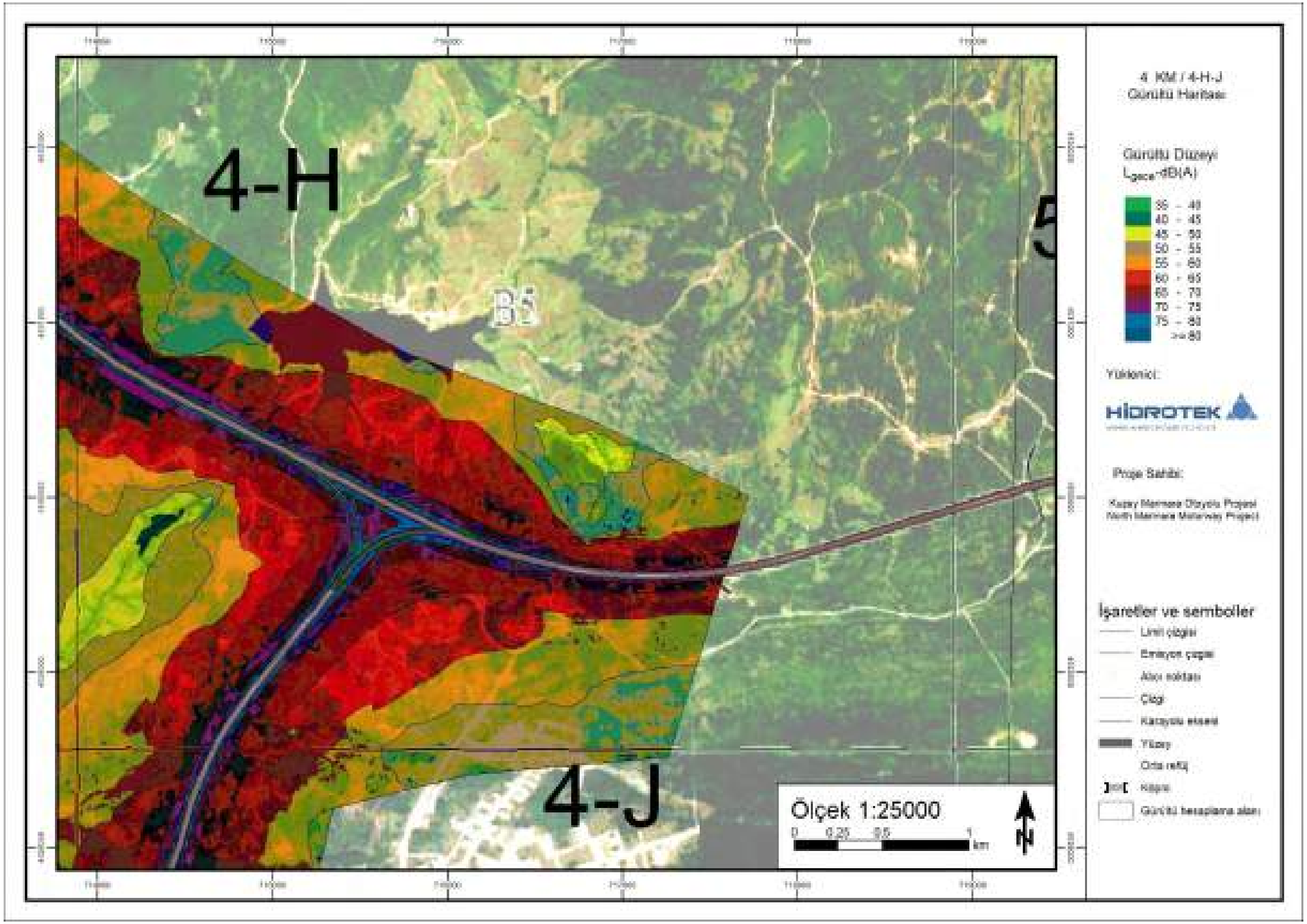

Figure 5.42 Ln noise map for part 4H of year 2027

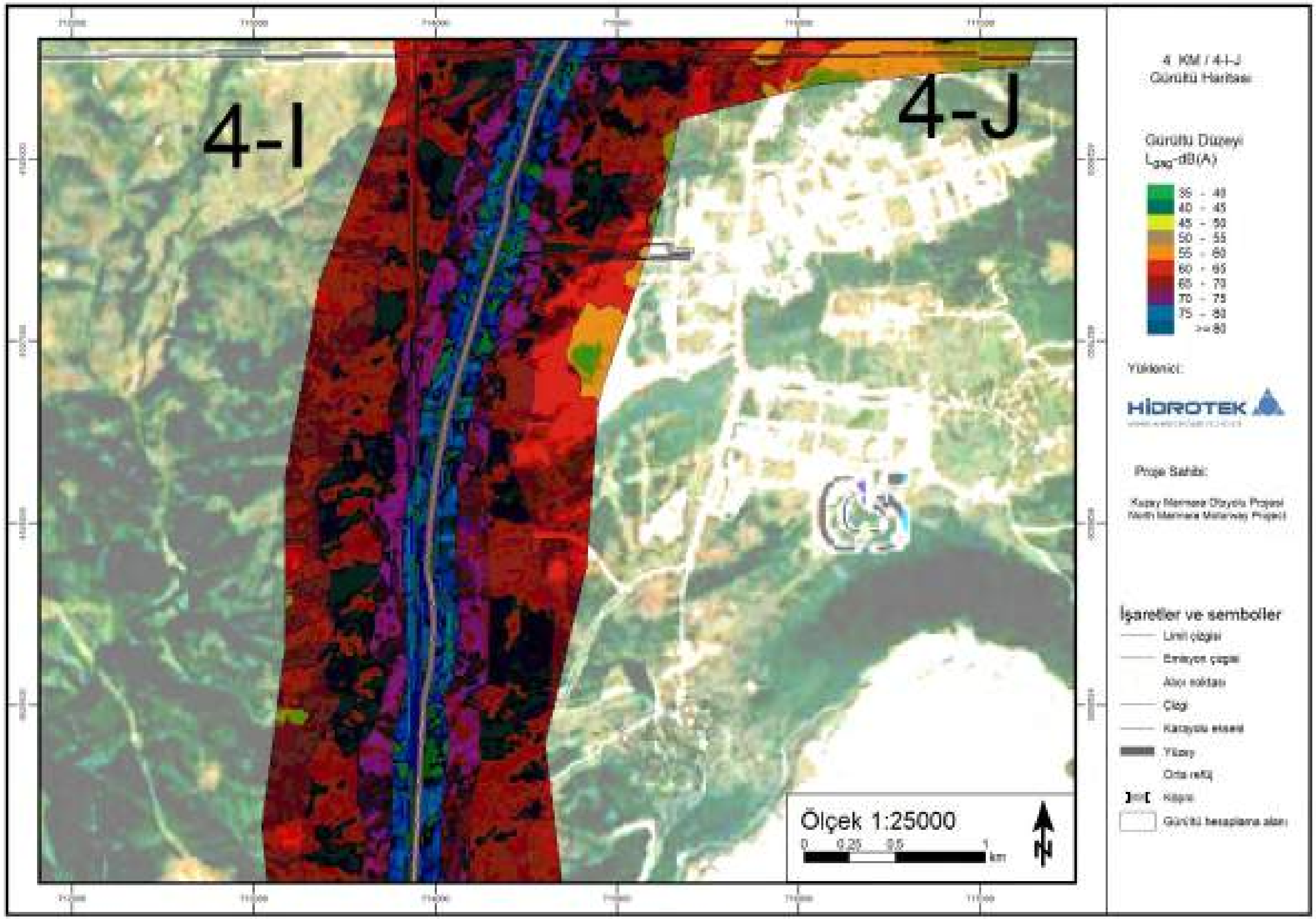

Figure 5.43 Lden noise map for part 4I of year 2027

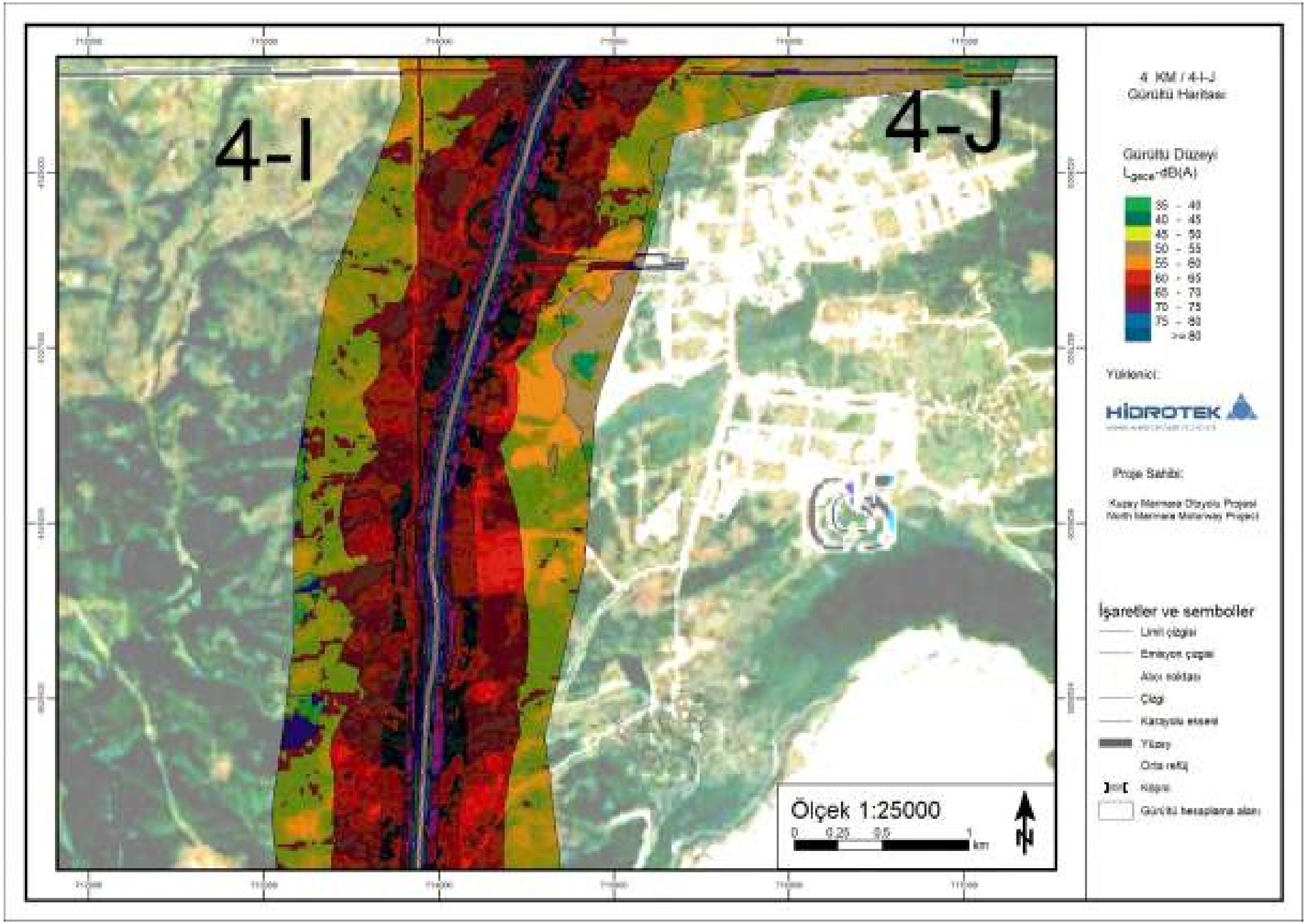

Figure 5.44 Ln noise map for part 4I of year 2027

HİDROTEK

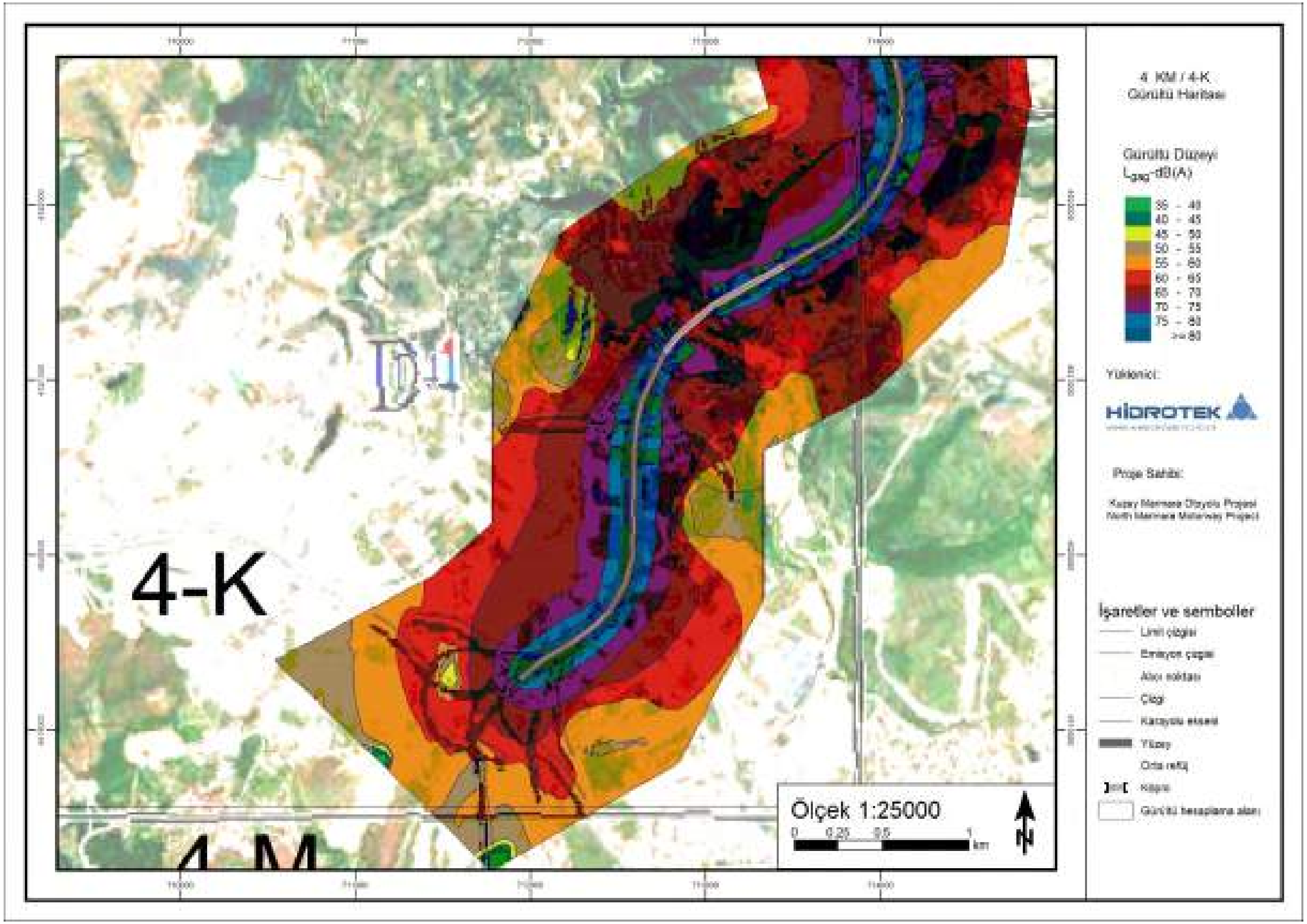

Figure 5.45 Lden noise map for part 4K of year 2027

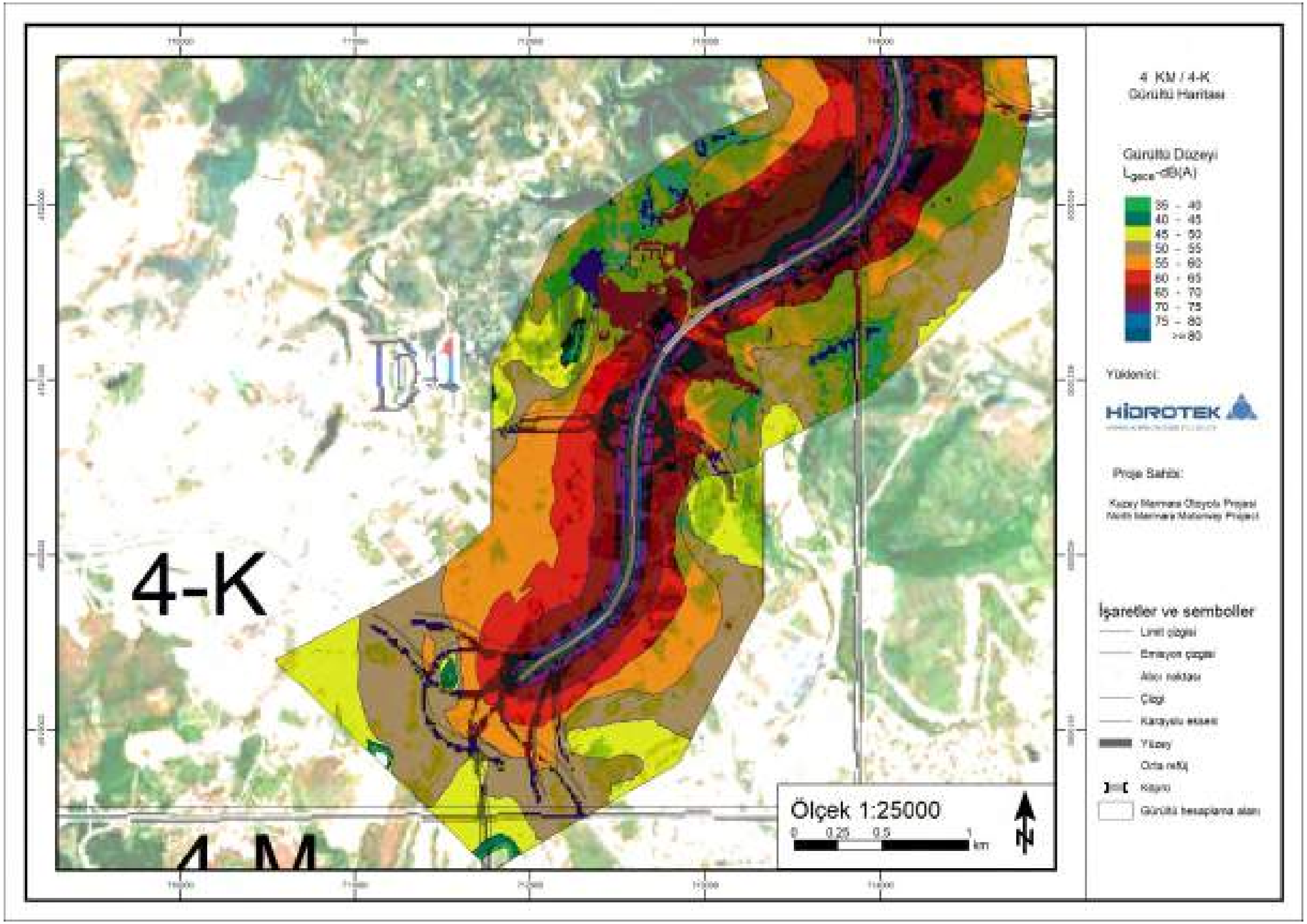

Figure 5.46 Ln noise map for part 4K of year 2027

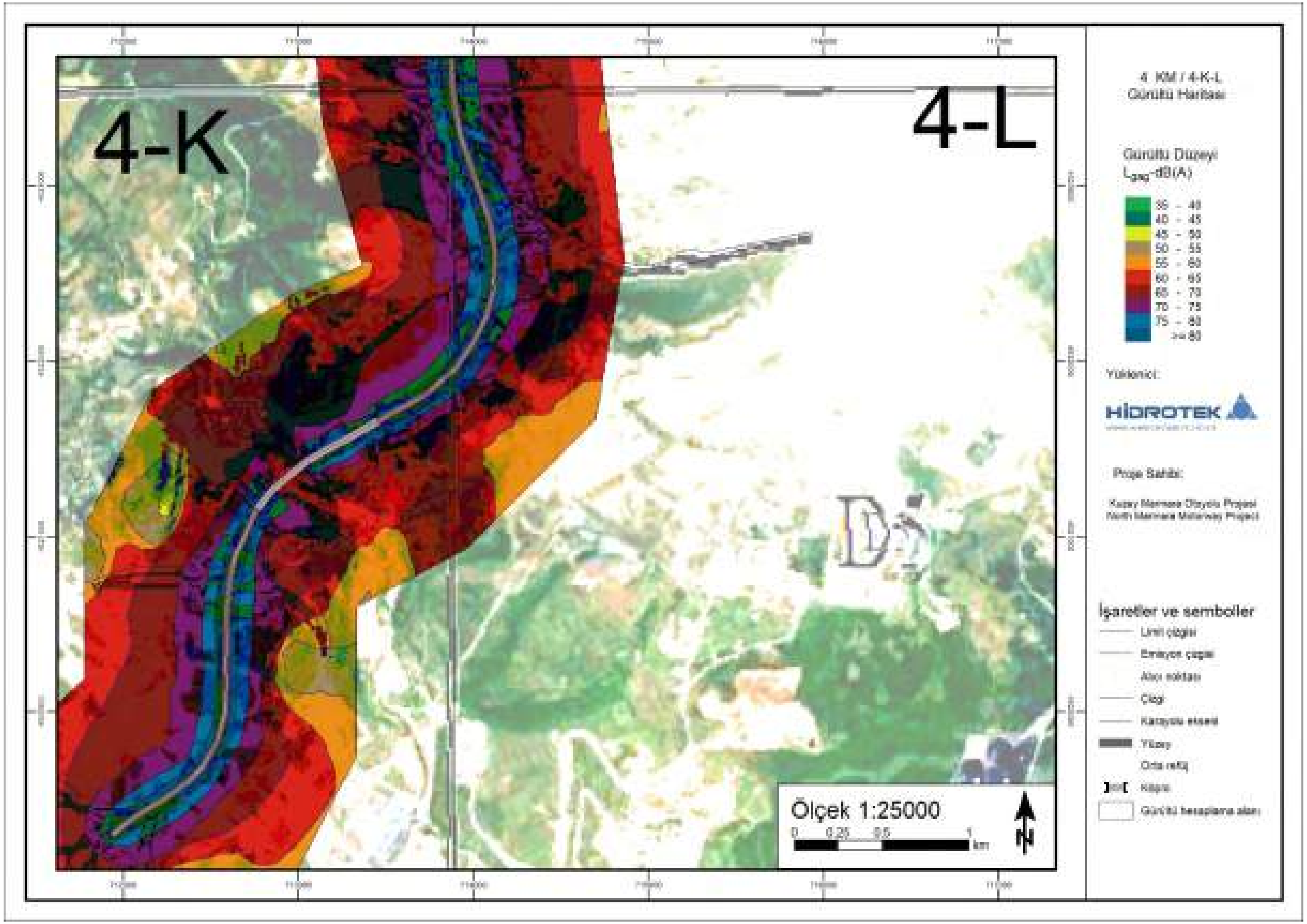

Figure 5.47 Lden noise map for part 4K-L of year 2027

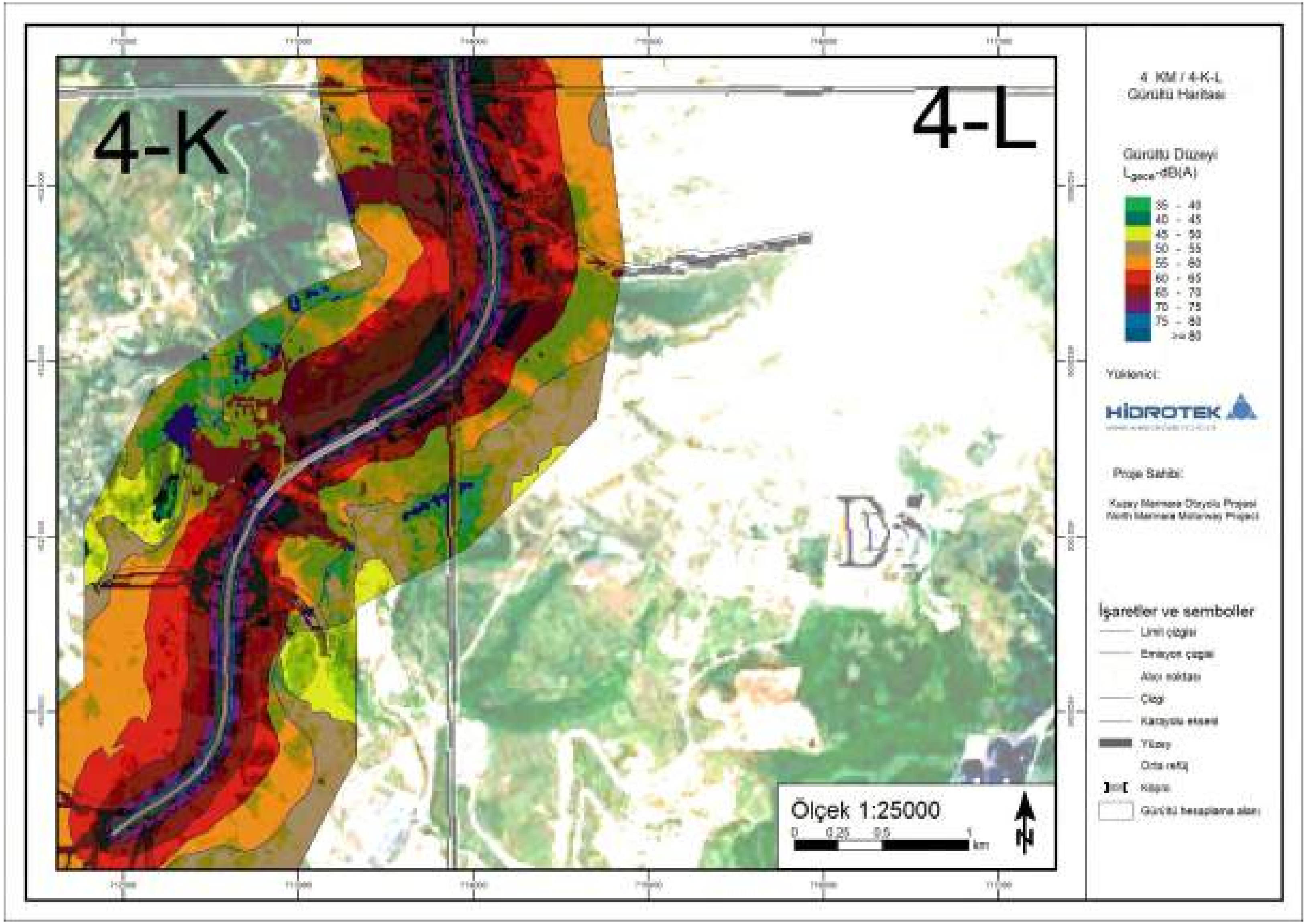

Figure 5.48 Ln noise map for part 4K-L of year 2027

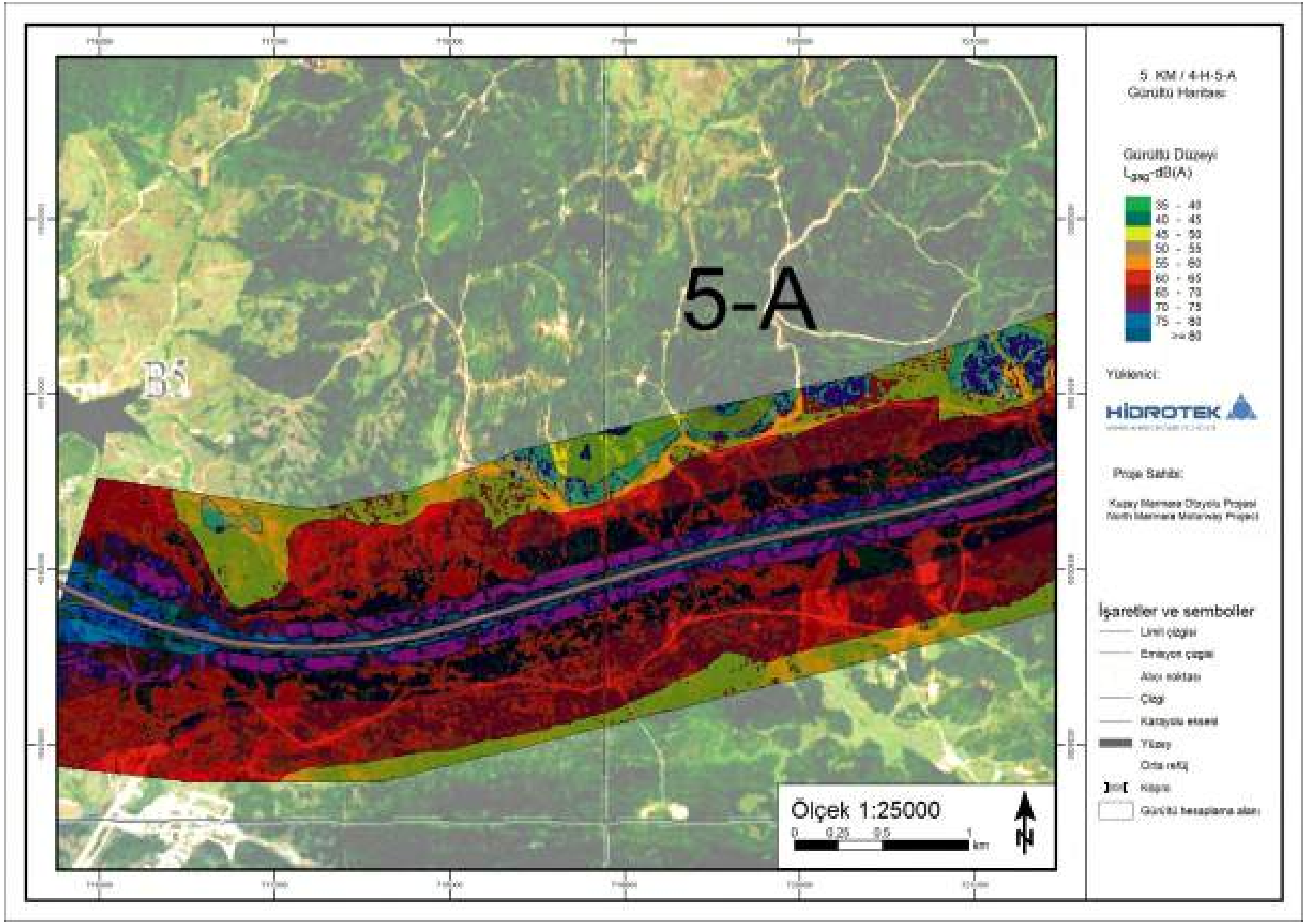

Figure 5.49 Lden noise map for part 5A of year 2027

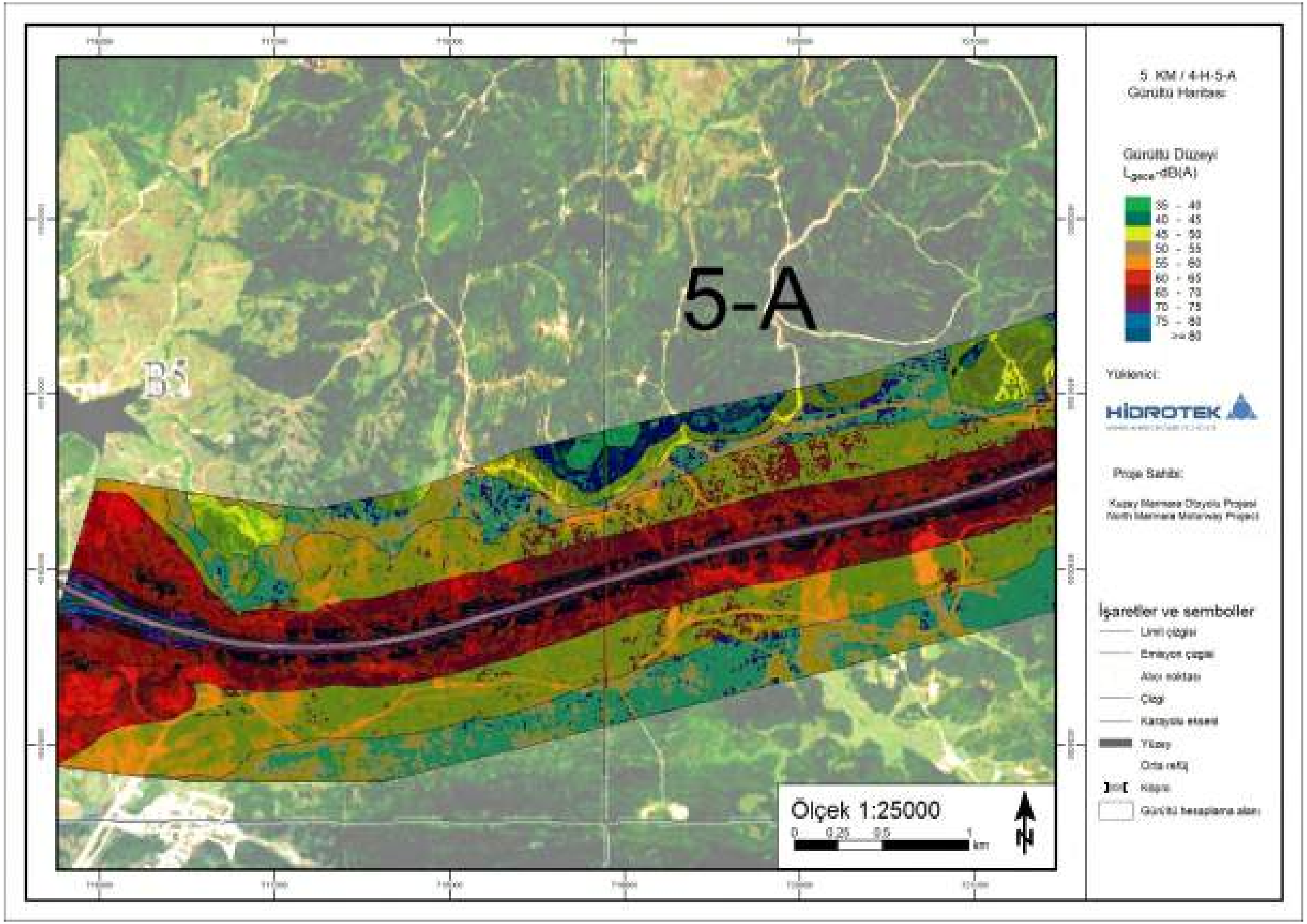

Figure 5.50 Ln noise map for part 5A of year 2027

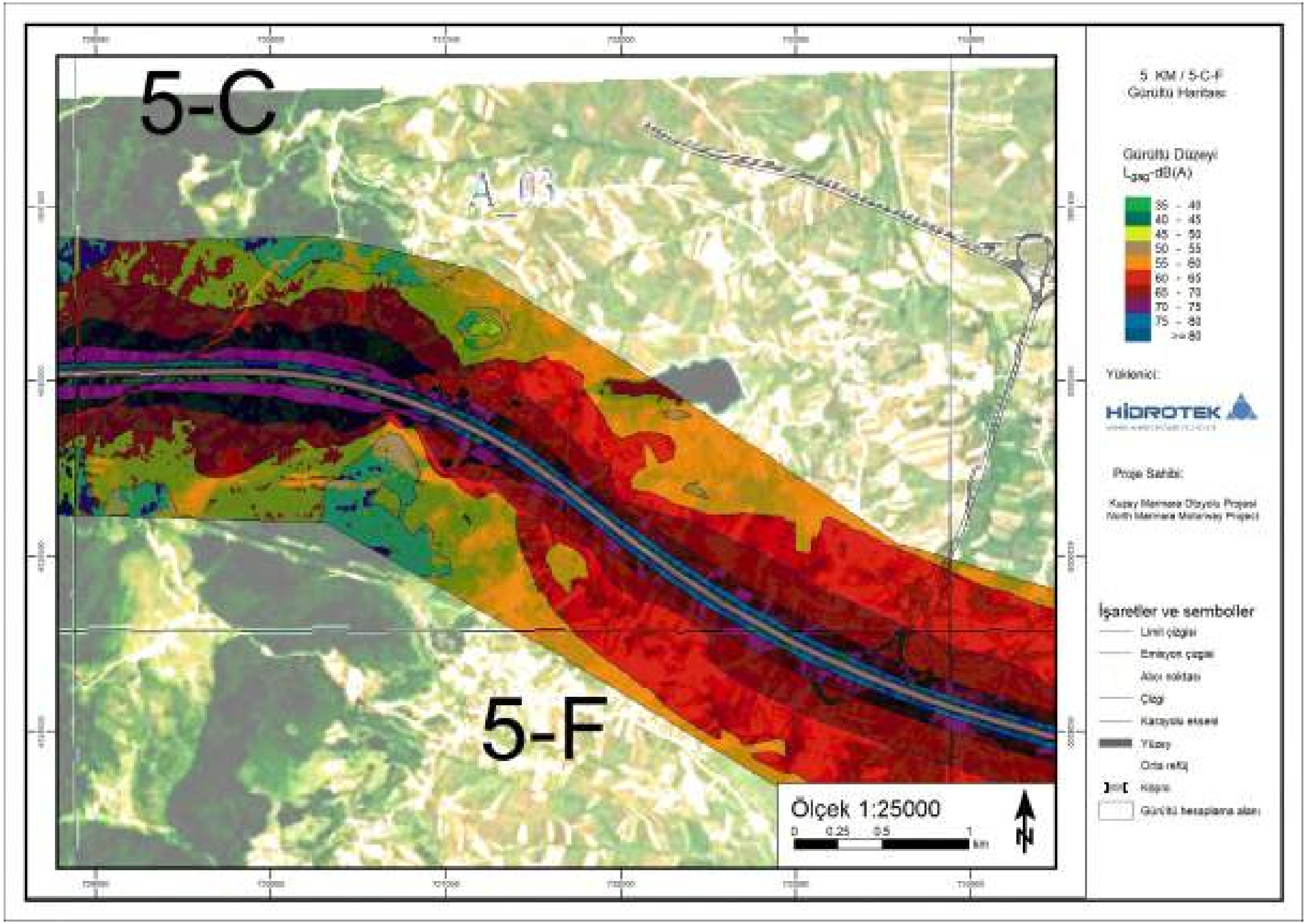

Figure 5.51 Lden noise map for part 5C of year 2027

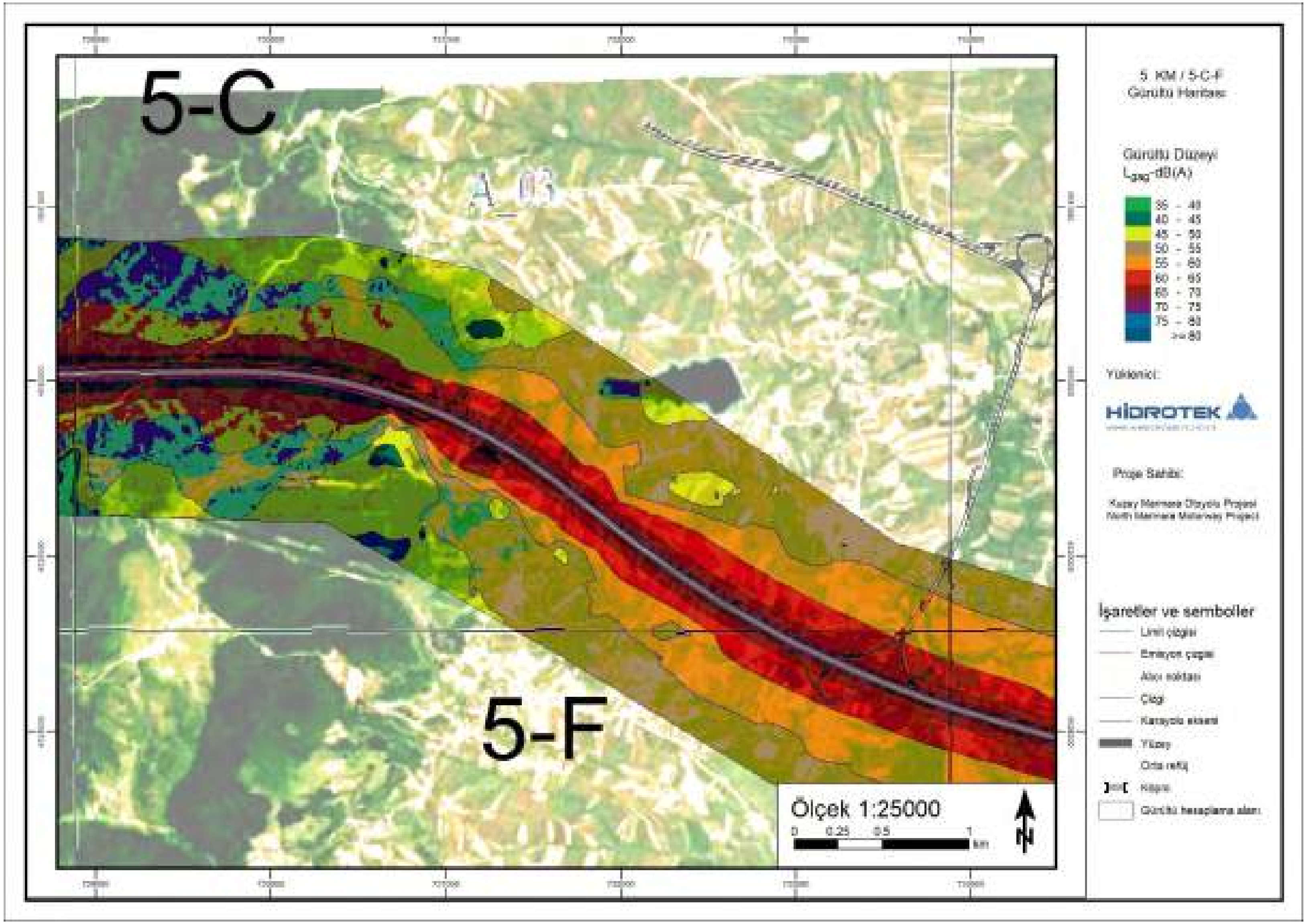

Figure 5.52 Ln noise map for part 5C of year 2027

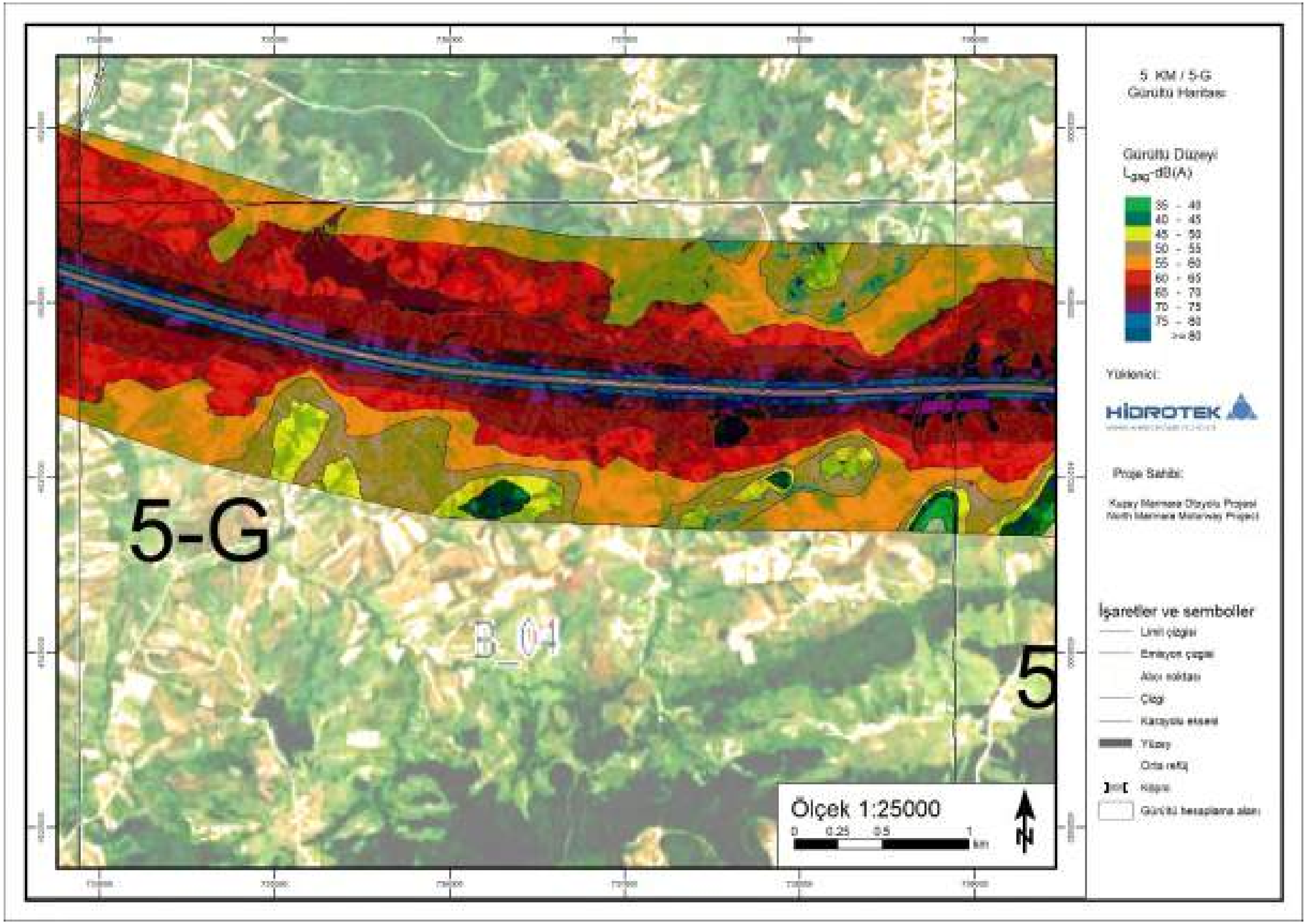

Figure 5.53 Lden noise map for part 5G of year 2027

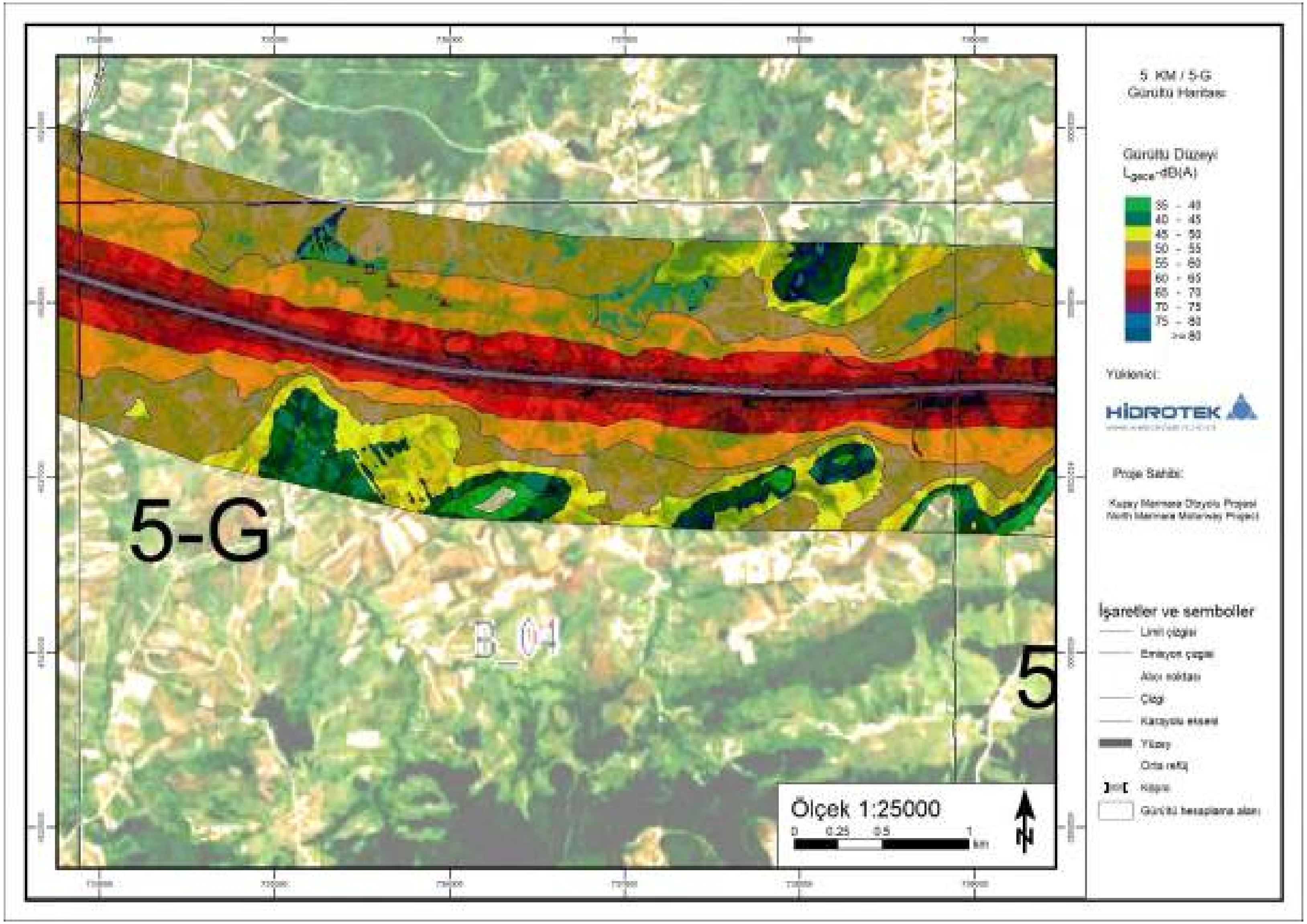

Figure 5.54 Ln noise map for part 5G of year 2027

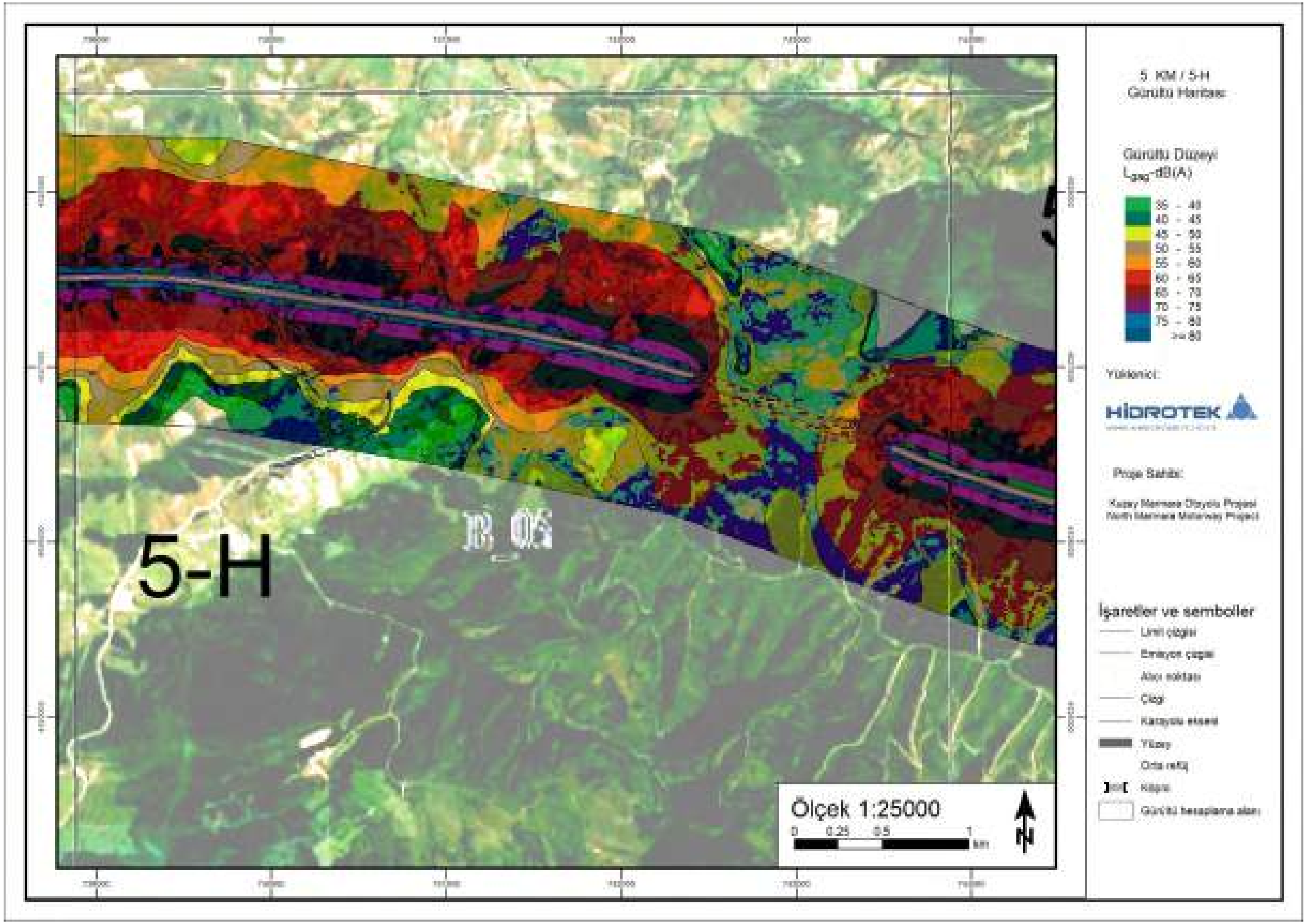

Figure 5.55 Lden noise map for part 5H of year 2027

HİDROTEK

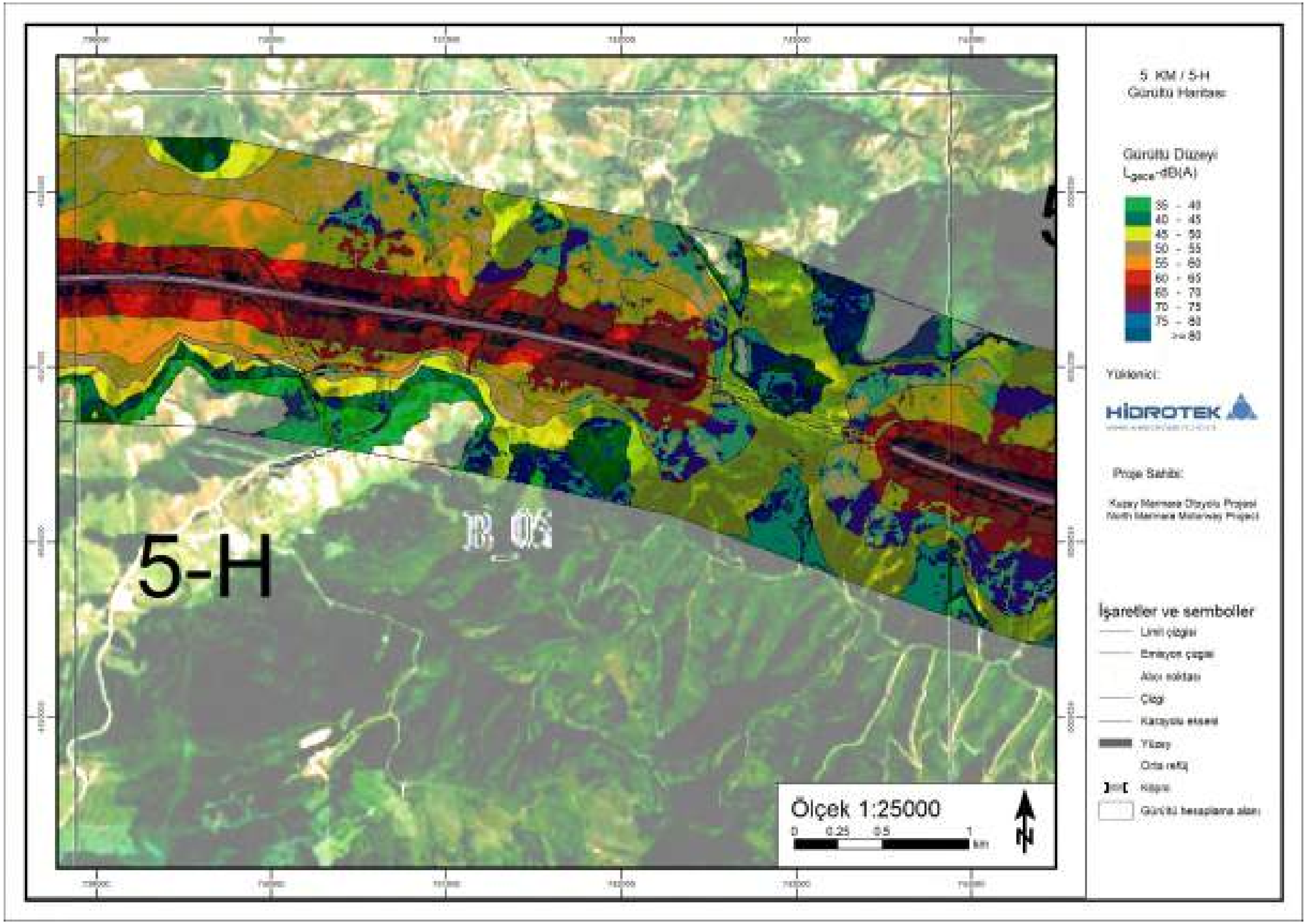

Figure 5.56 Ln noise map for part 5H of year 2027

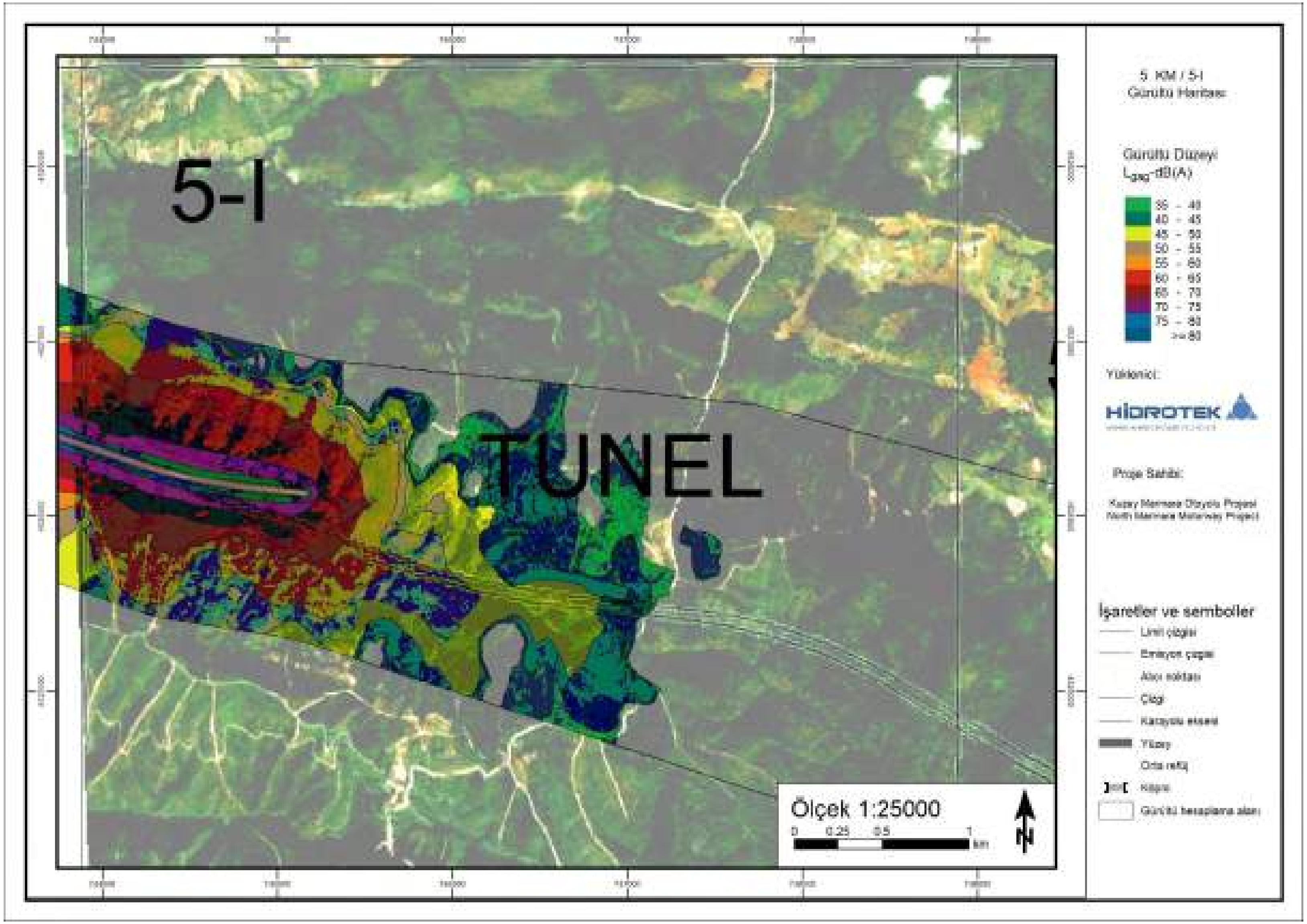

Figure 5.57 Lden noise map for part 5I of year 2027

HİDROTEK

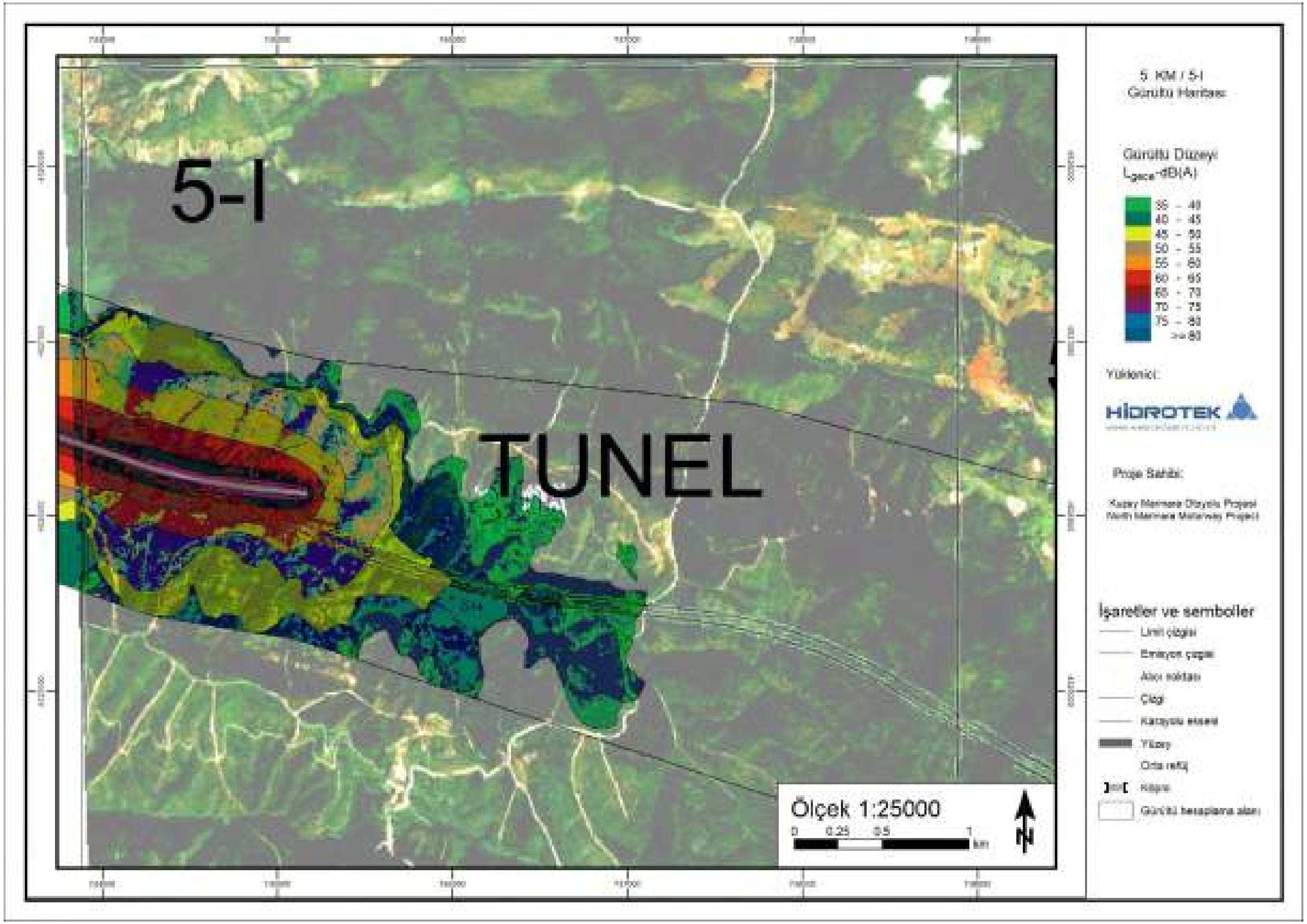

Figure 5.58 Ln noise map for part 5I of year 2027

Figure 5.59 Lden noise map for part 5J of year 2027

(There is a tunnel in this area)

Figure 5.60 Ln noise map for part 5J of year 2027

(There is a tunnel in this area)

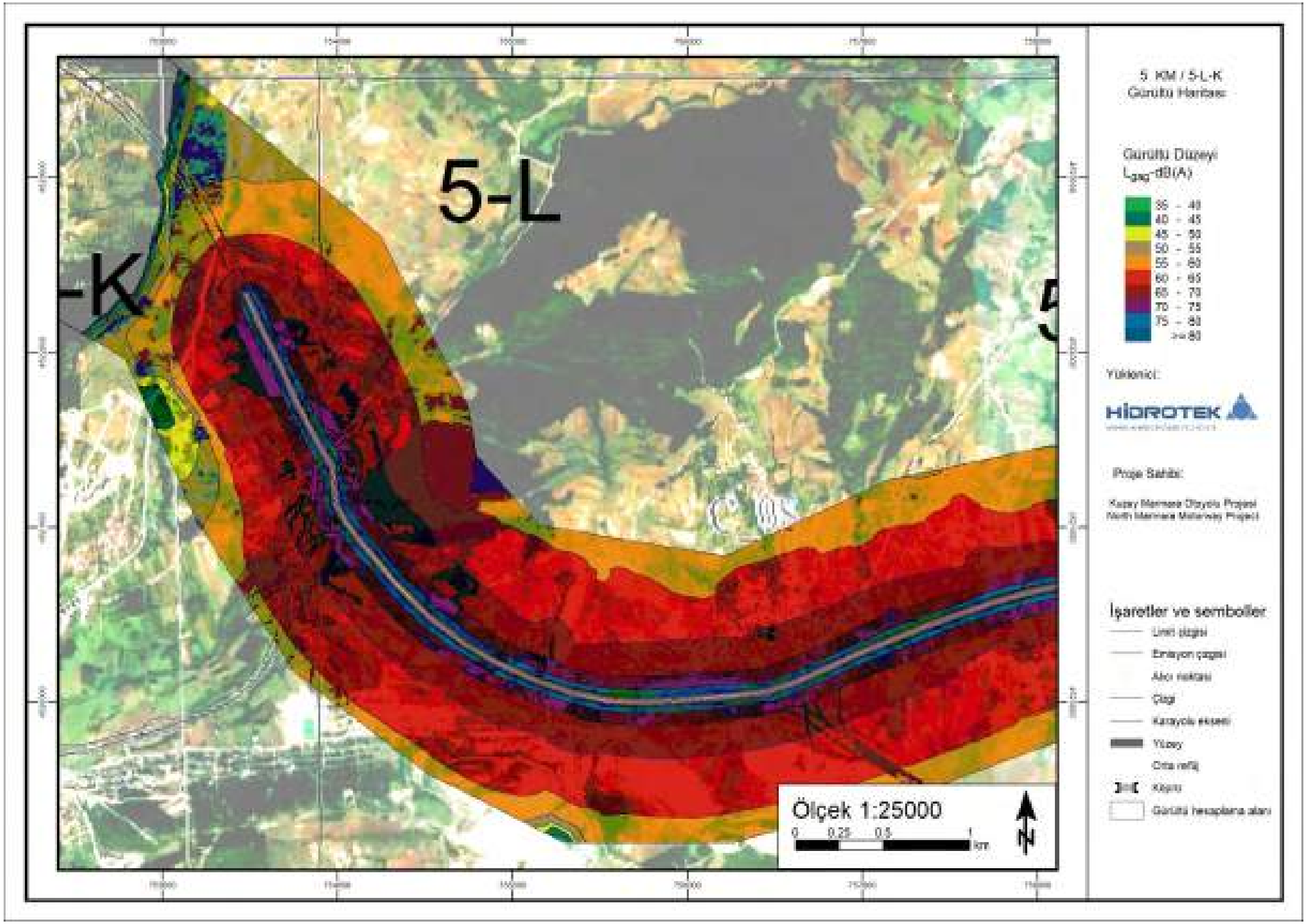

Figure 5.61 Lden noise map for part 5L of year 2027

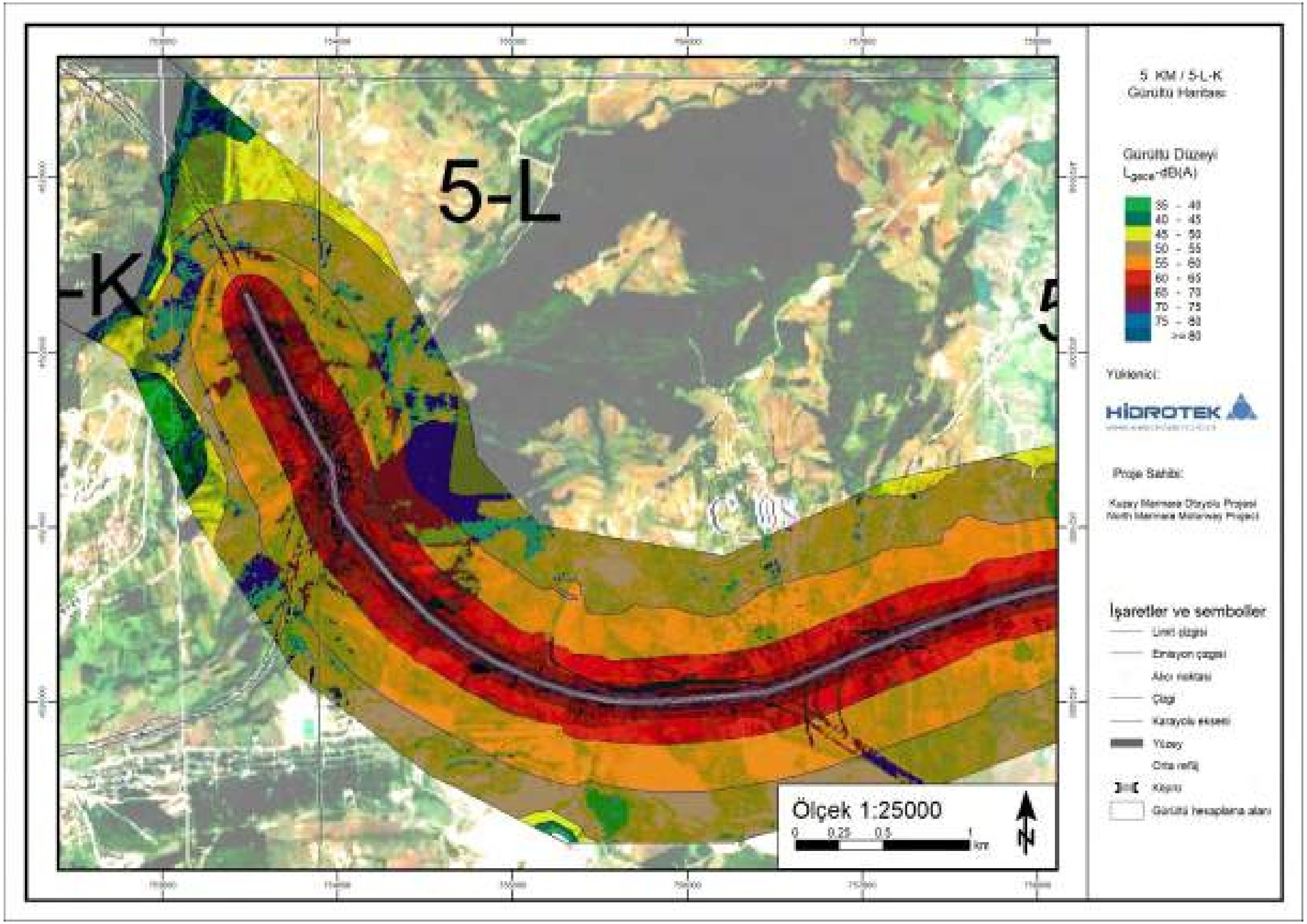

Figure 5.62 Ln noise map for part 5L of year 2027

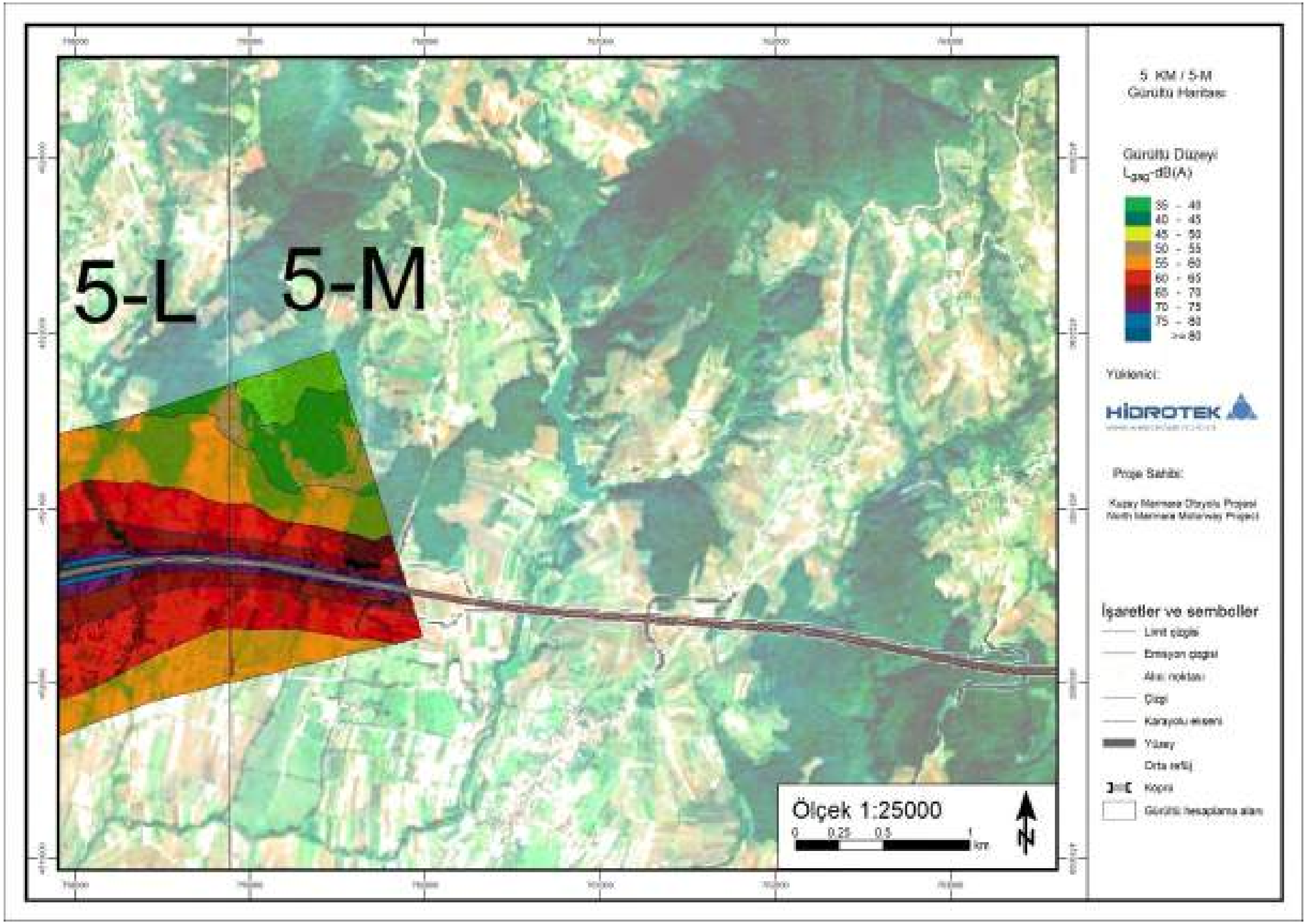

Figure 5.63 Lden noise map for part 5M of year 2027

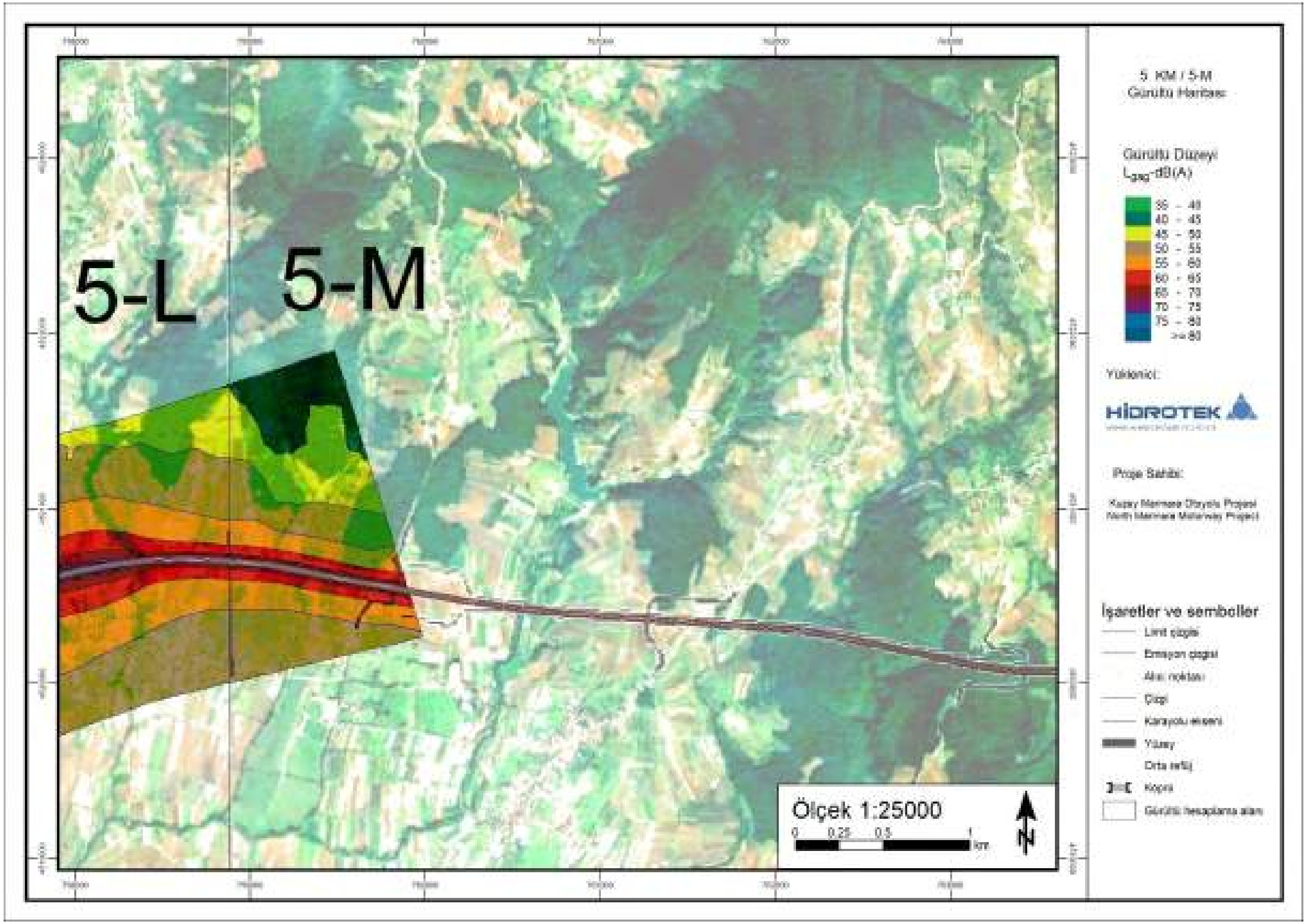

Figure 5.64 Ln noise map for part 5M of year 2027

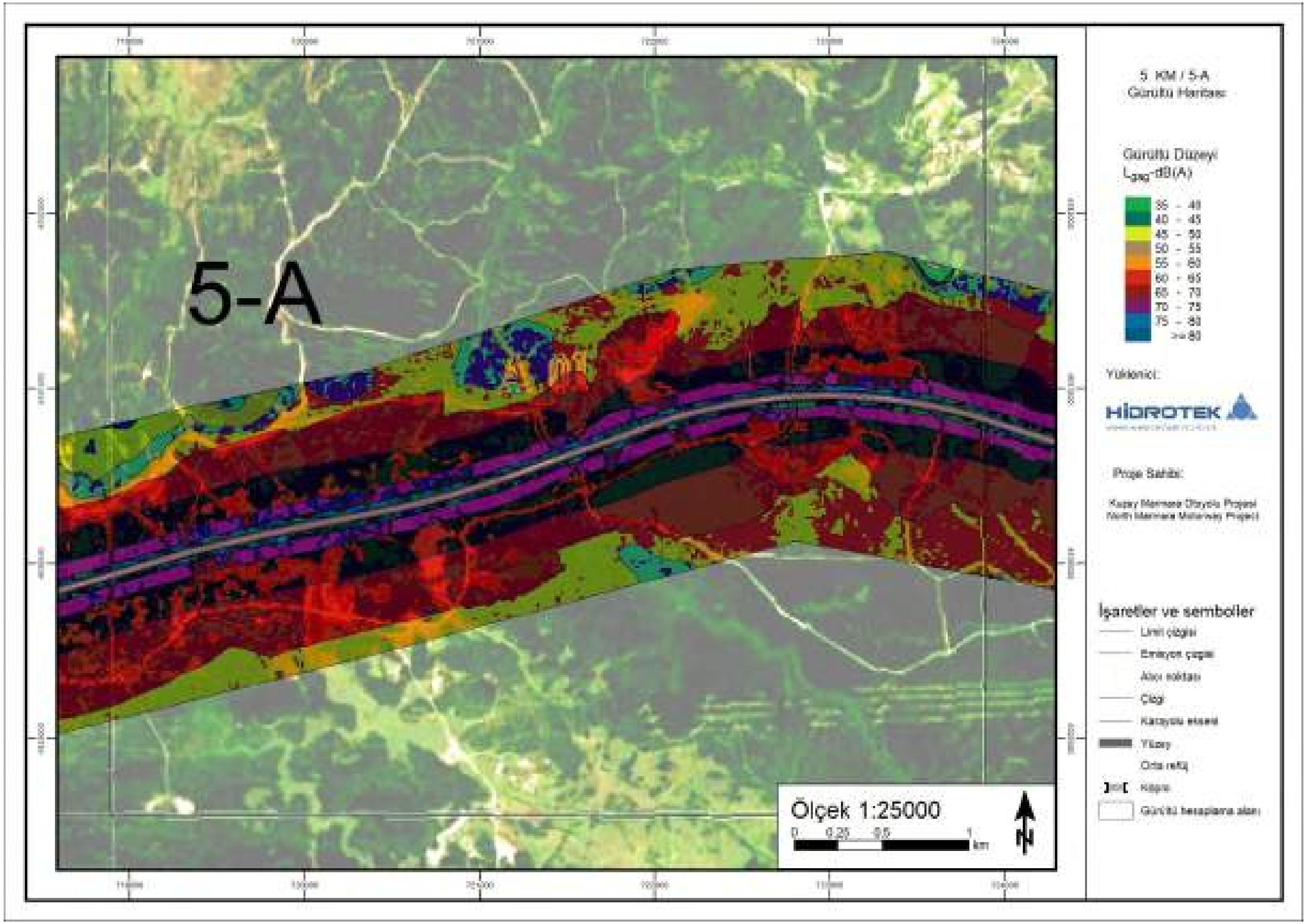

Figure 5.65 Lden noise map for part 5A of year 2027

HİDROTEK

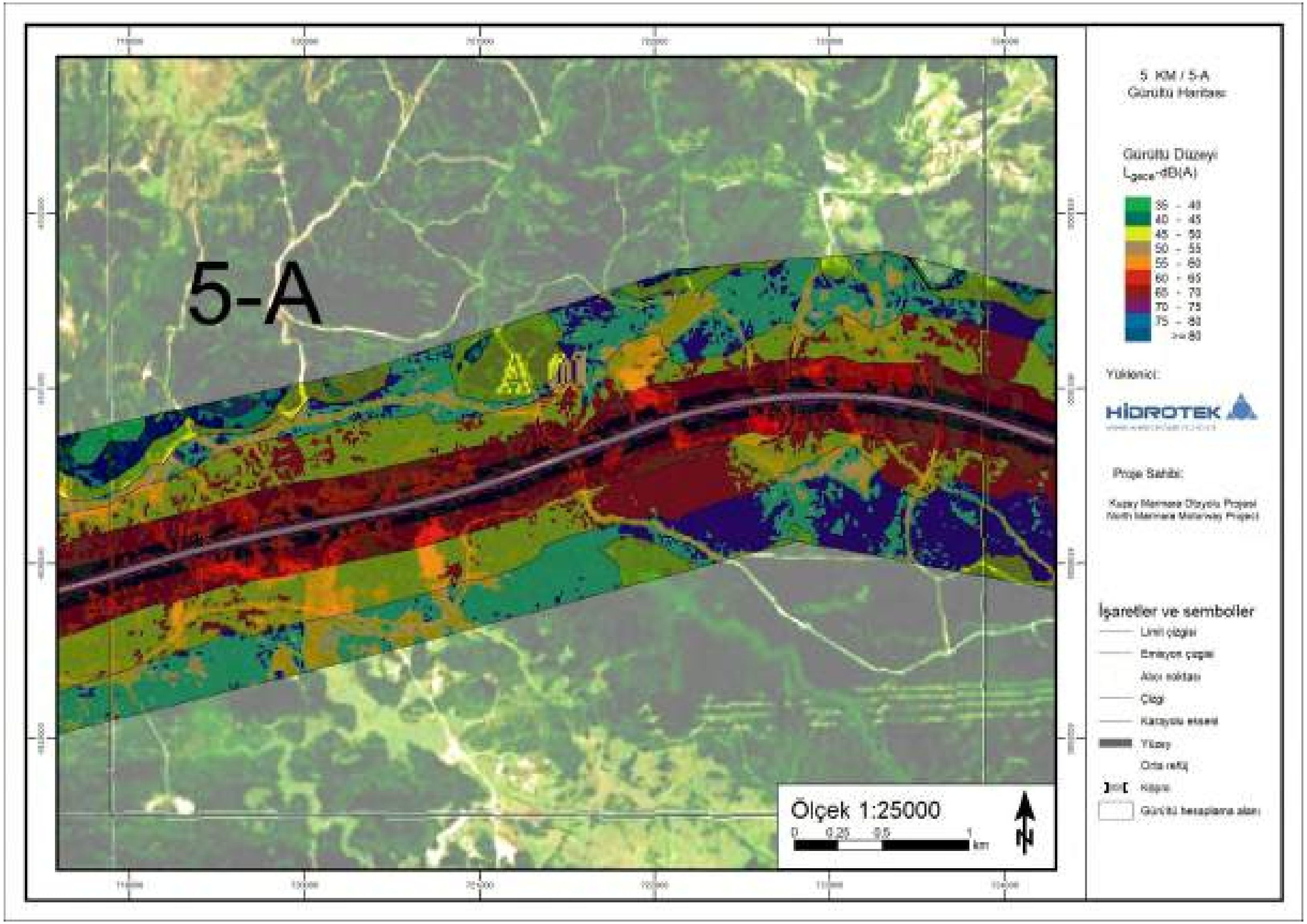

Figure 5.66 Ln noise map for part 5A of year 2027

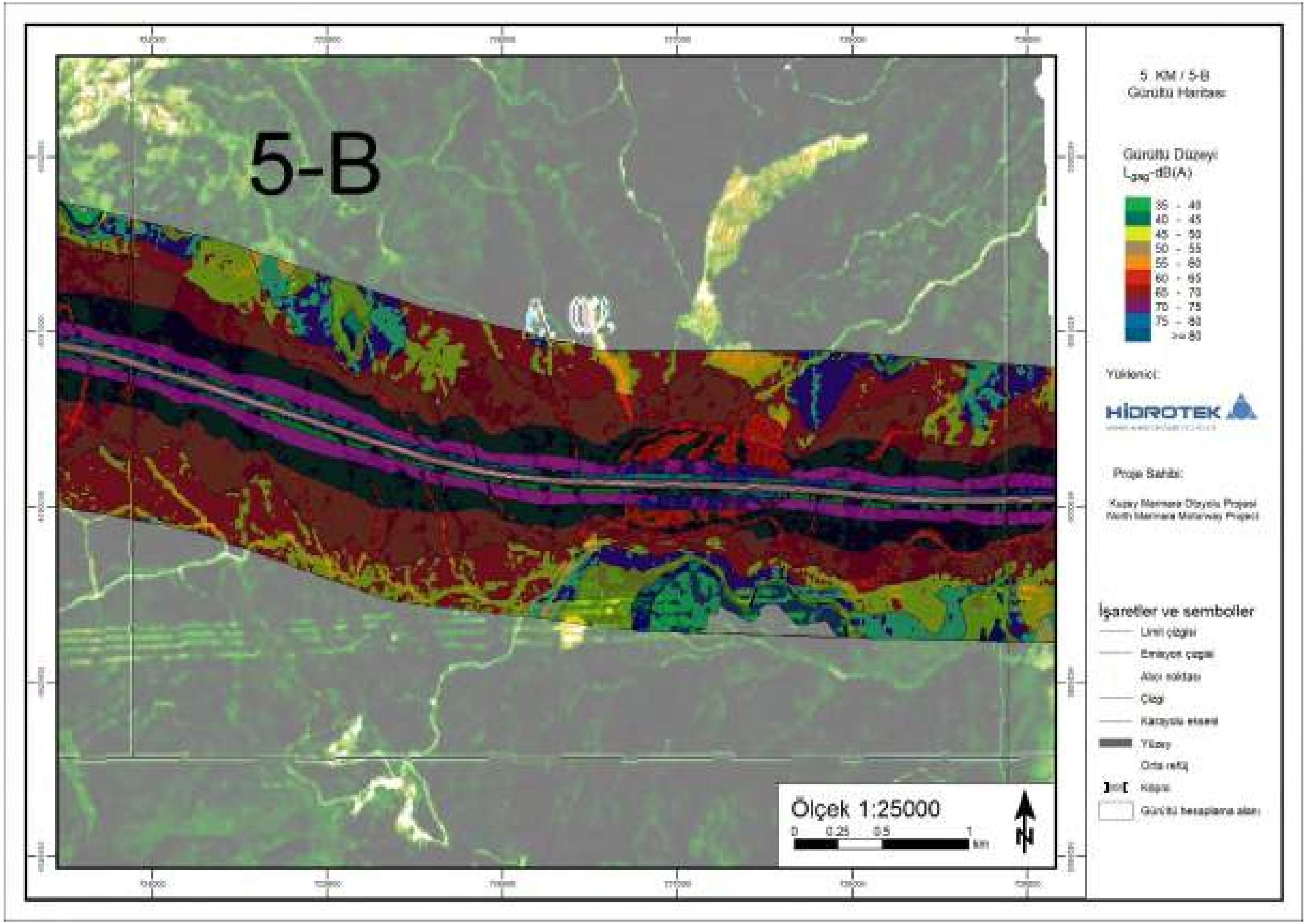

Figure 5.67 Lden noise map for part 5B of year 2027

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HİDROTEK

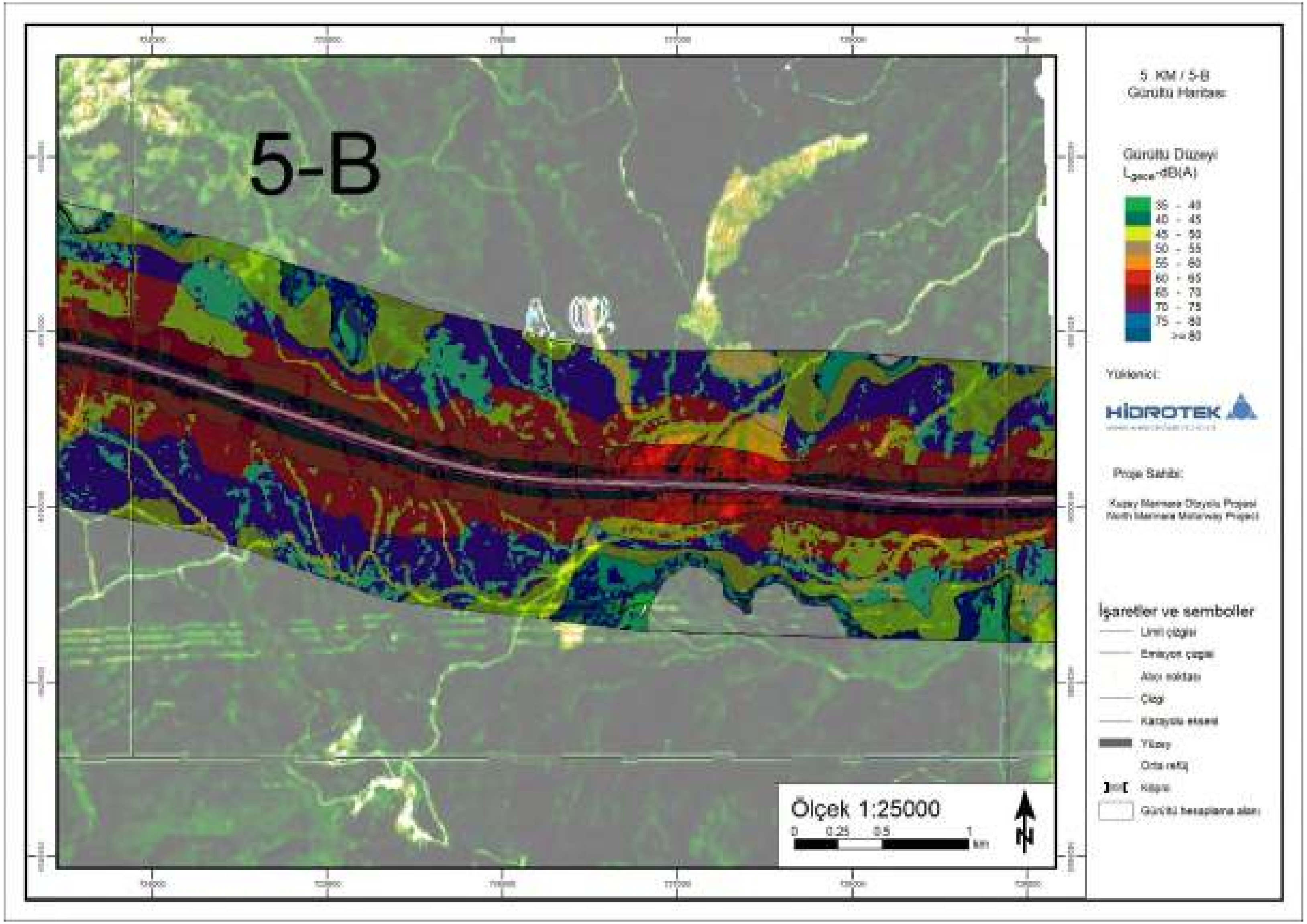

Figure 5.68 Ln noise map for part 5B of year 2027

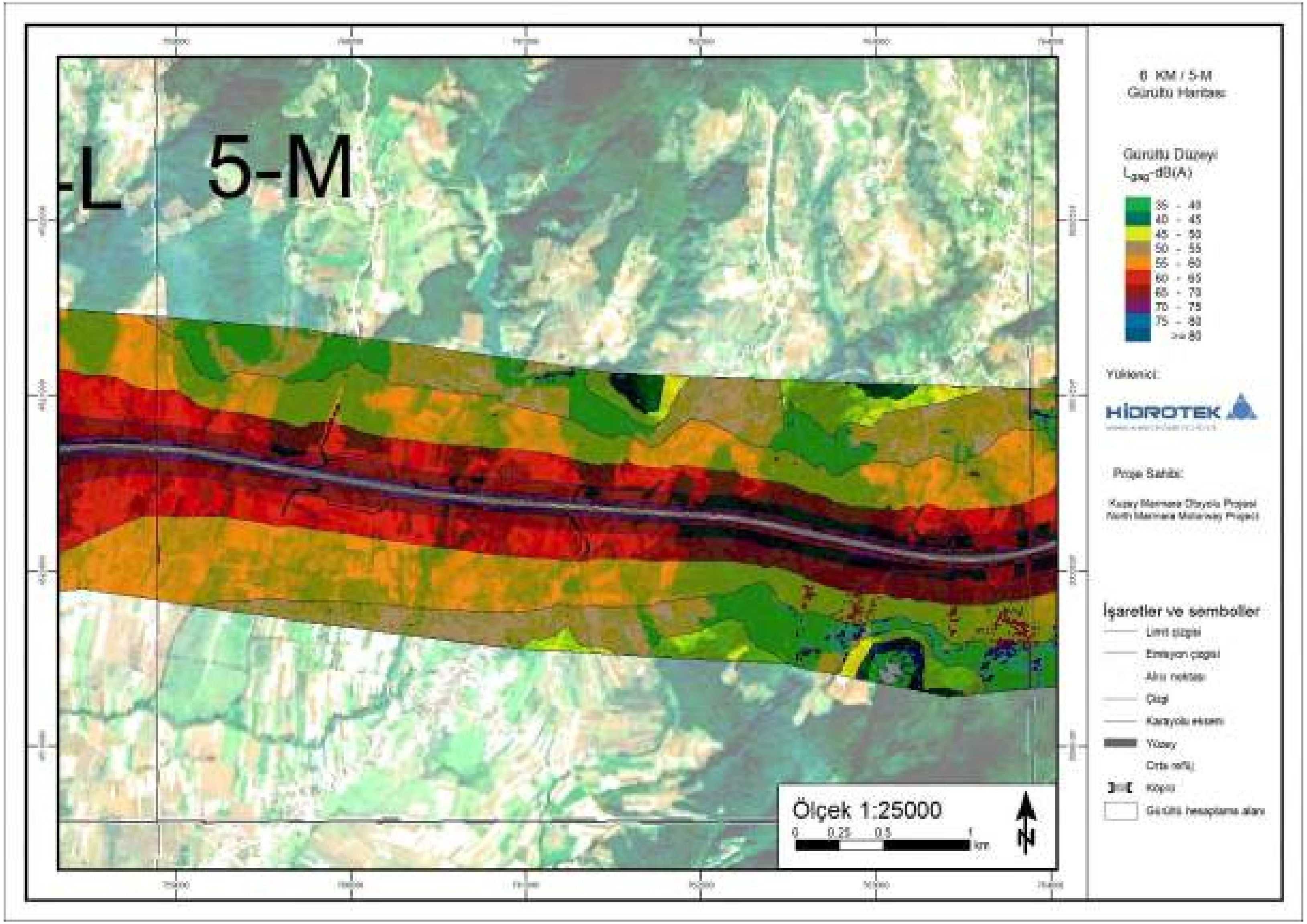

Figure 5.69 Lden noise map for part 5M of year 2027

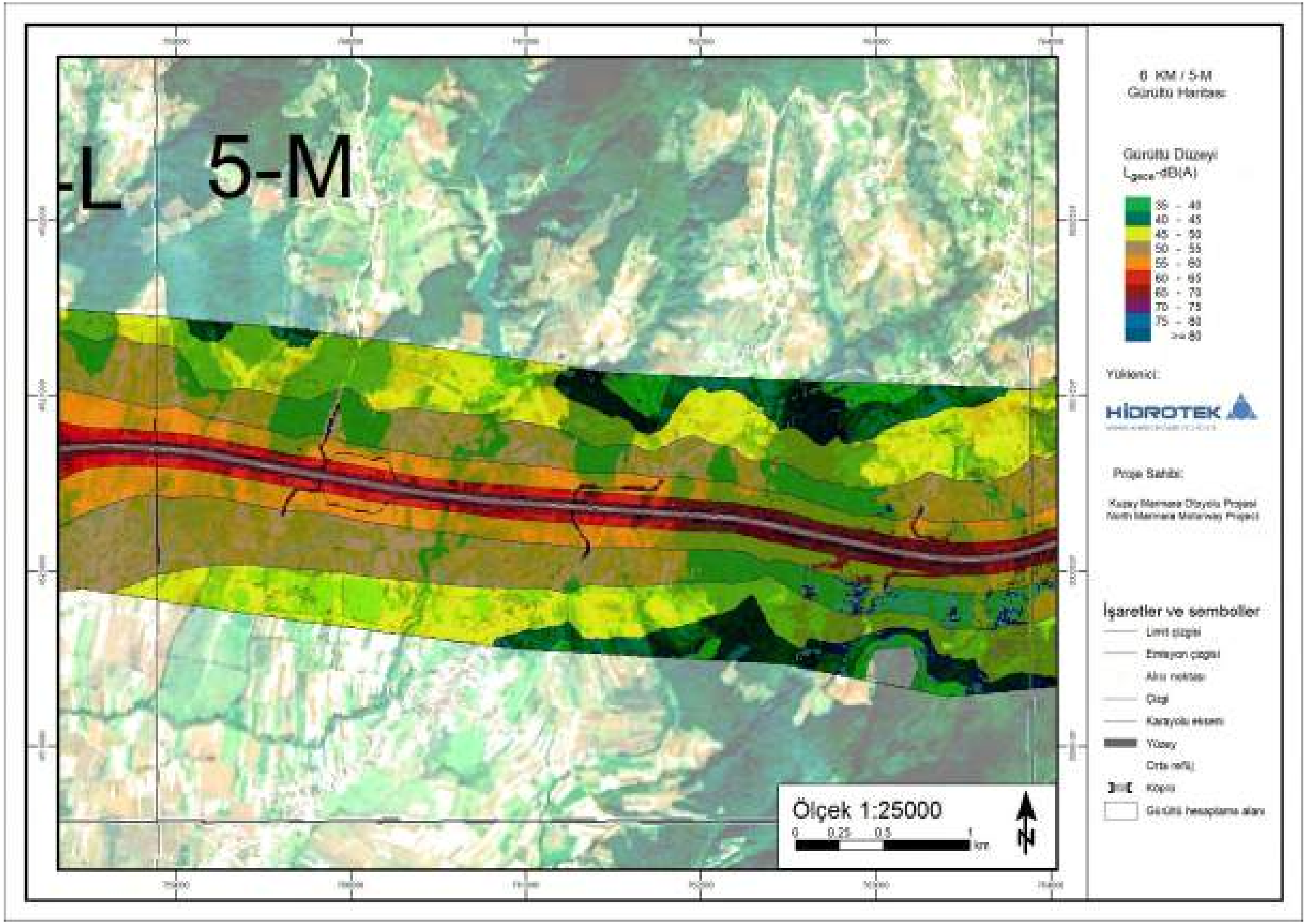

Figure 5.70 Ln noise map for part 5M of year 2027

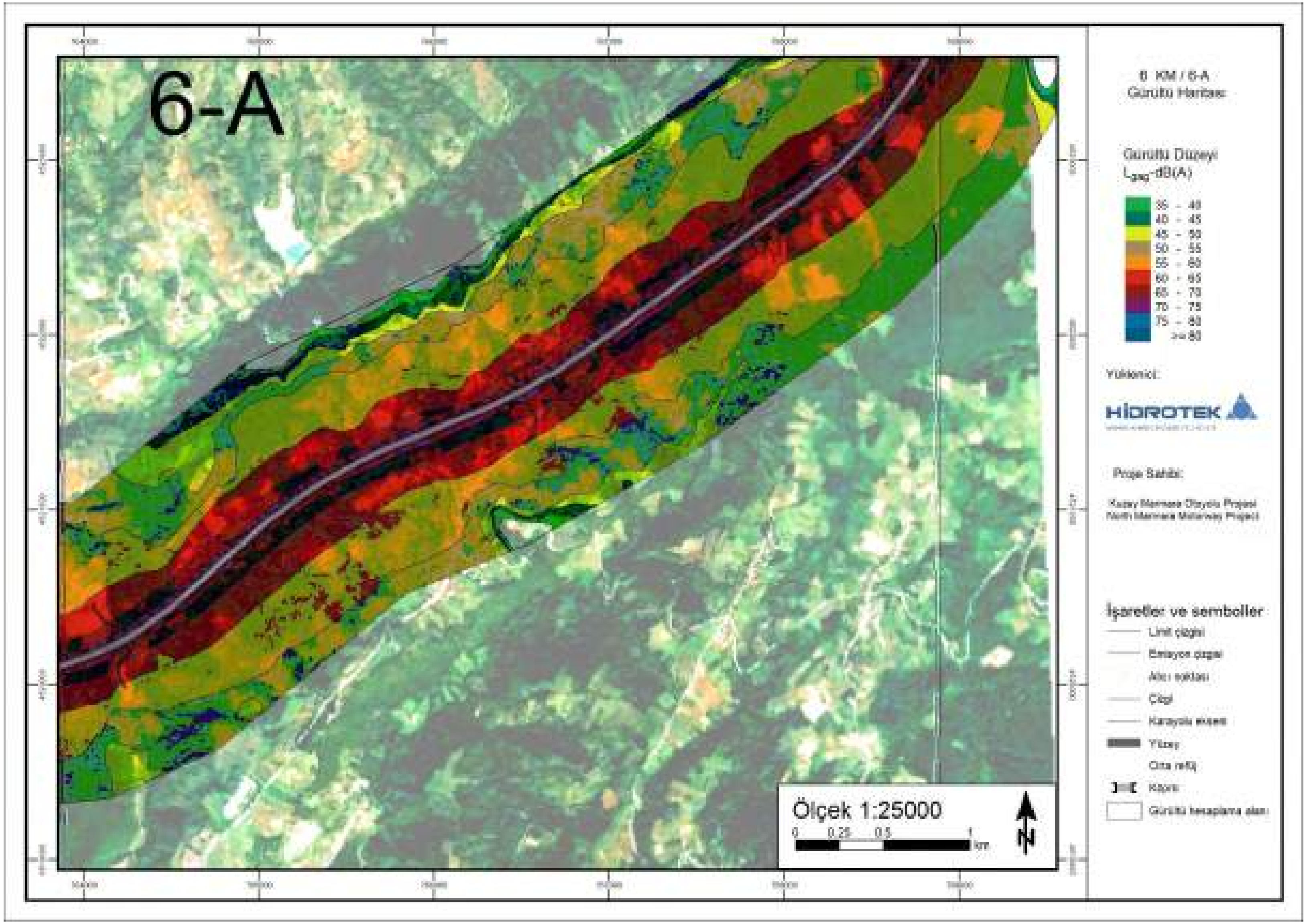

Figure 5.71 Lden noise map for part 6A of year 2027

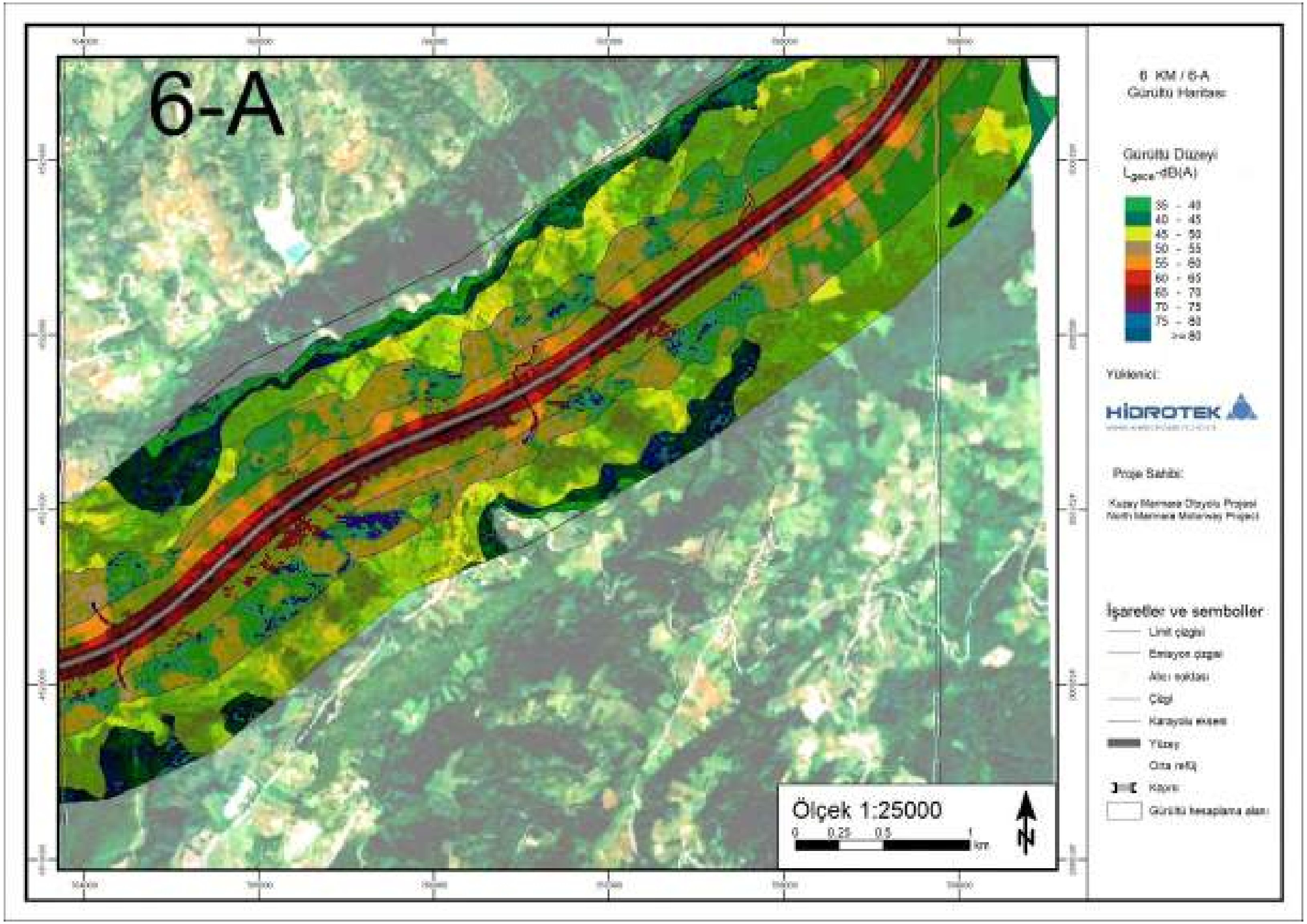

Figure 5.72 Ln noise map for part 6A of year 2027

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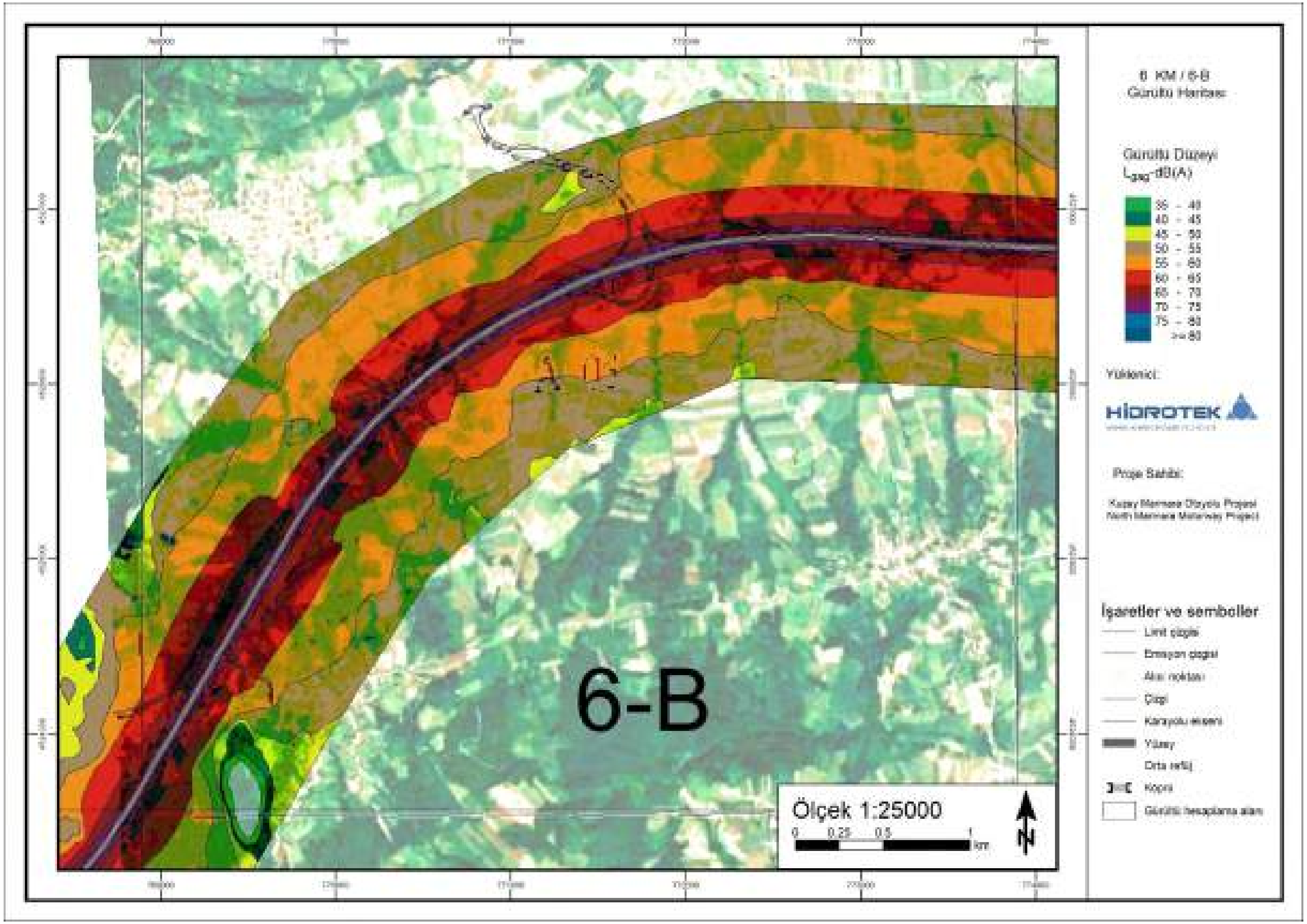

Figure 5.73 Lden noise map for part 6B of year 2027

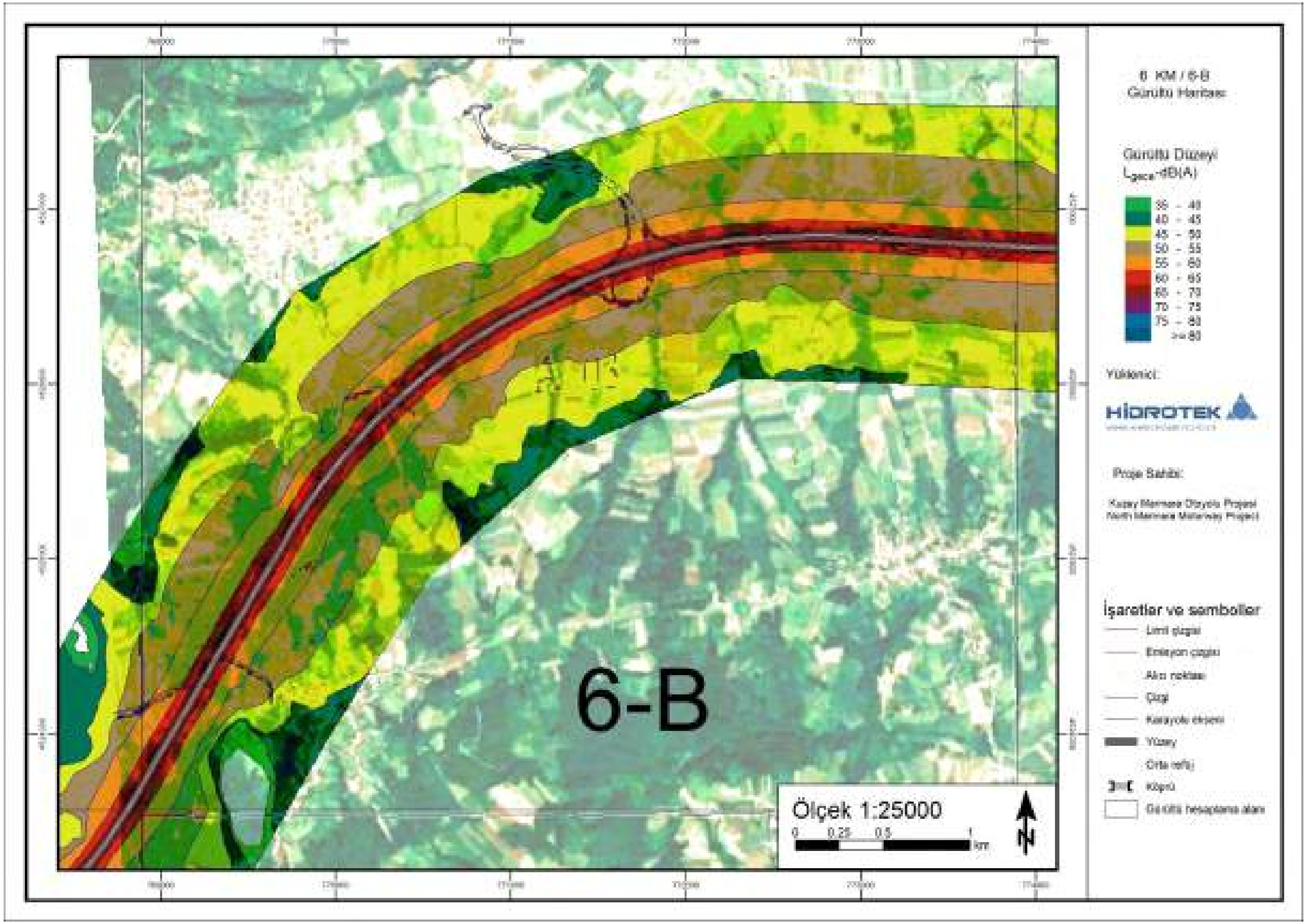

Figure 5.74 Ln noise map for part 6B of year 2027

HİDROTEK

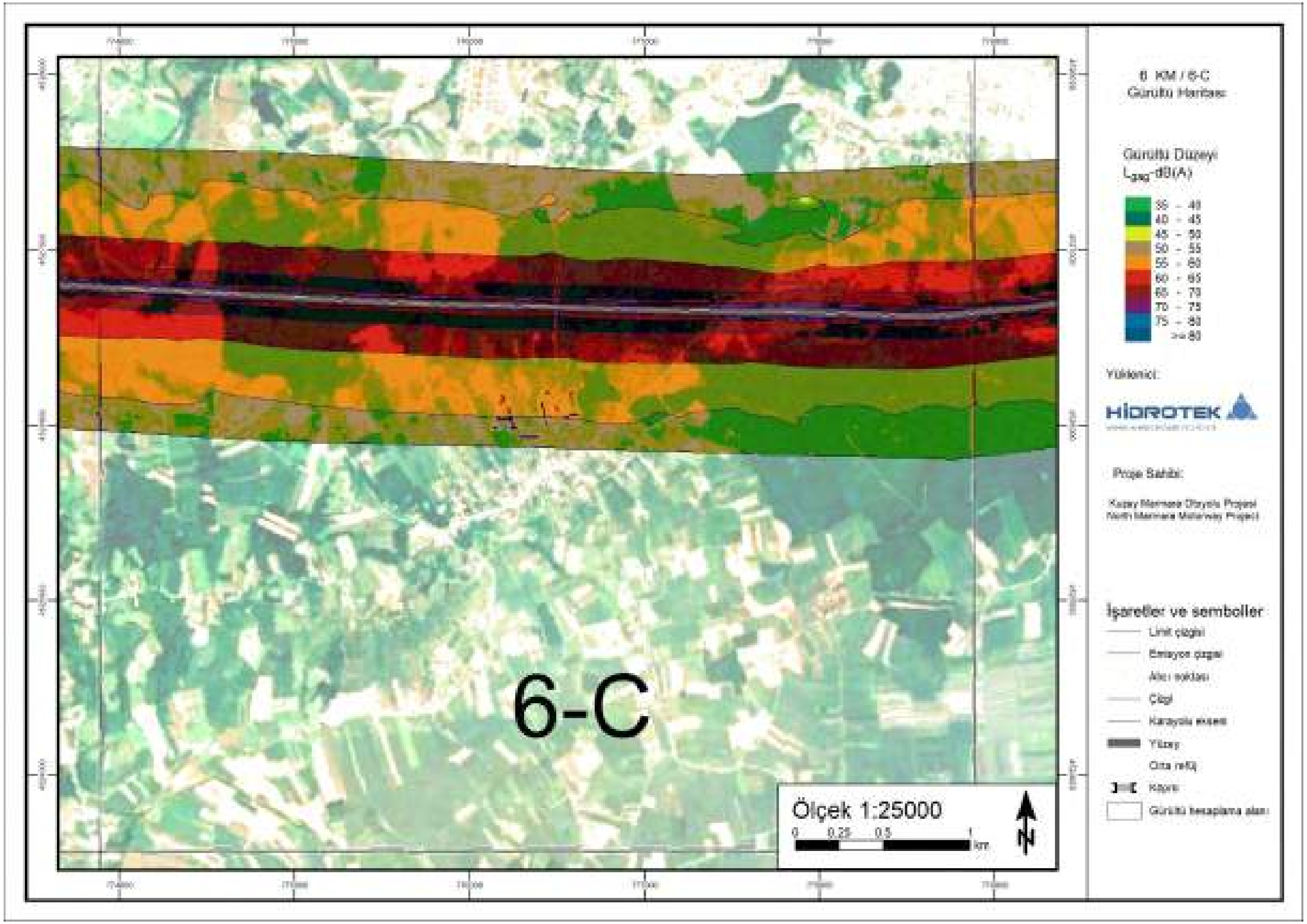

Figure 5.75 Lden noise map for part 6C of year 2027

HİDROTEK

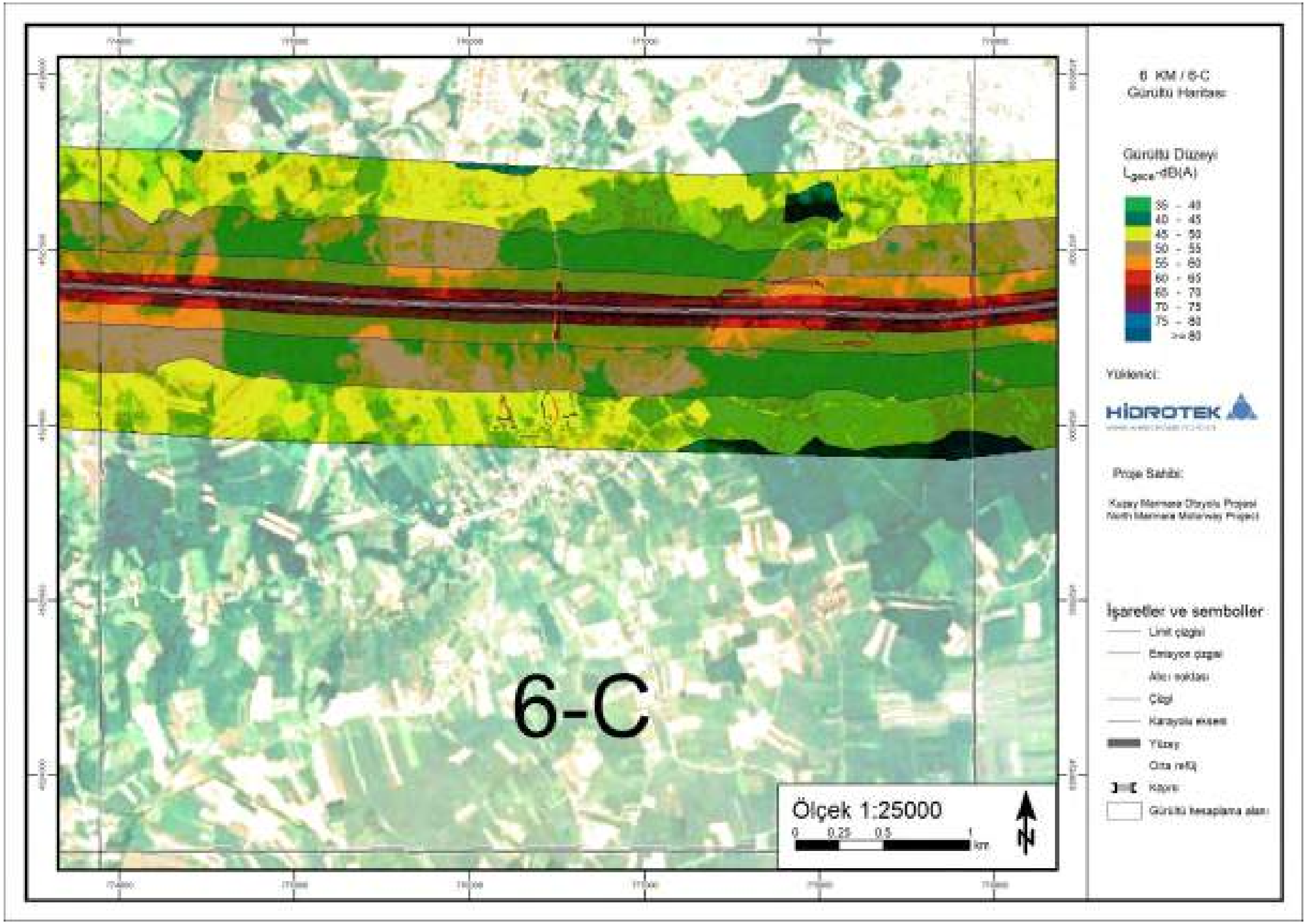

Figure 5.76 Ln noise map for part 6C of year 2027

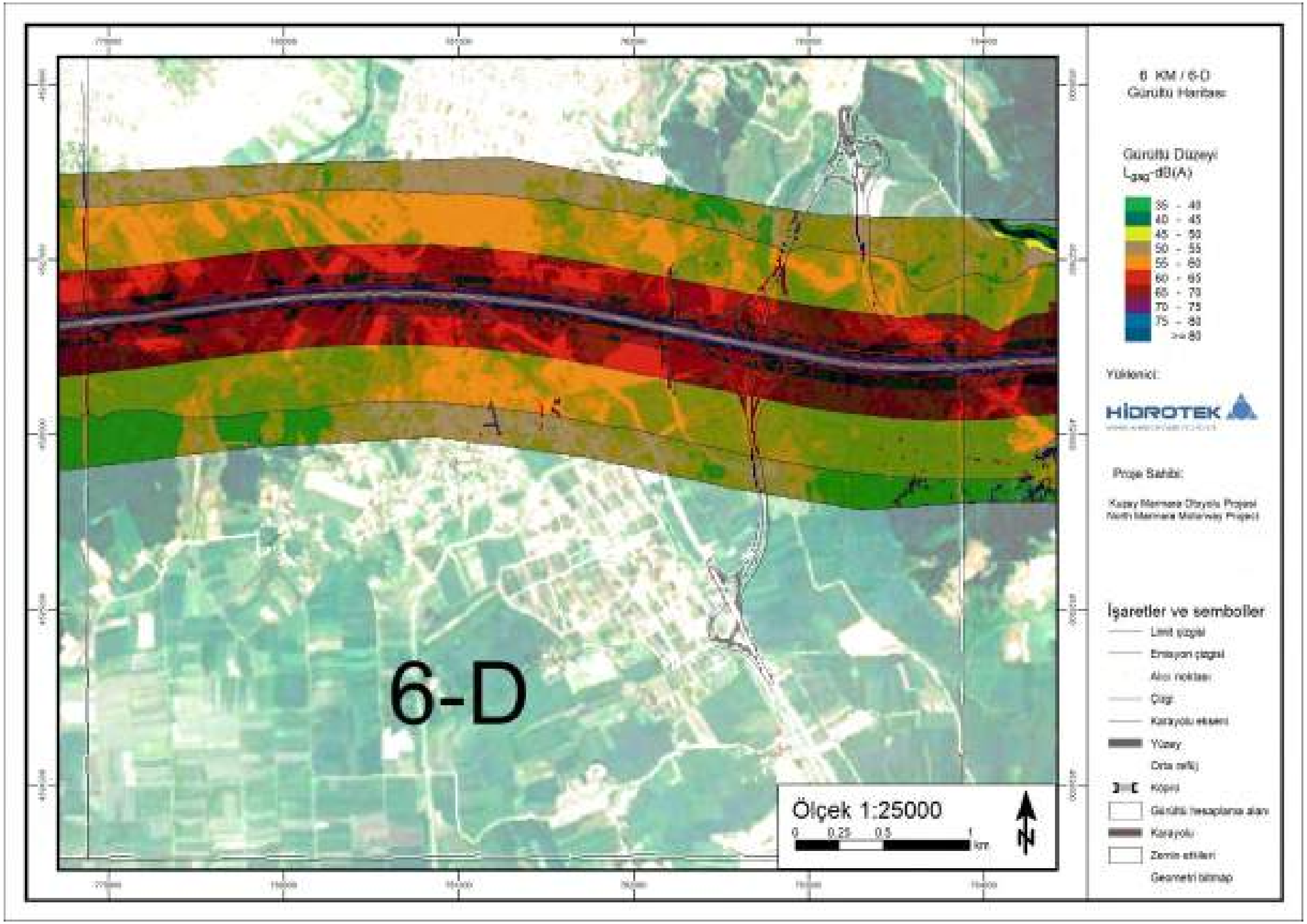

Figure 5.77 Lden noise map for part 6D of year 2027

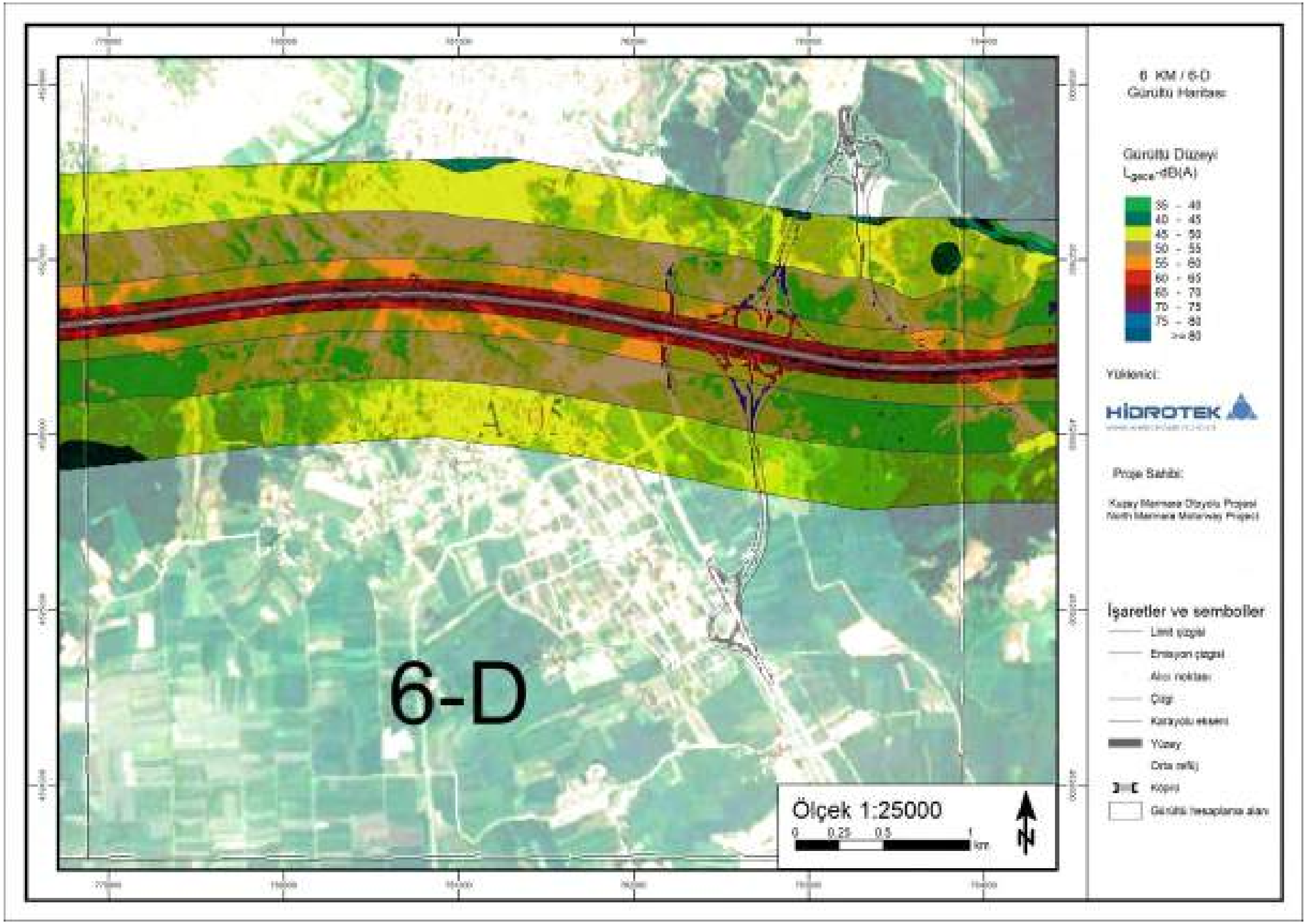

Figure 5.78 Ln noise map for part 6D of year 2027

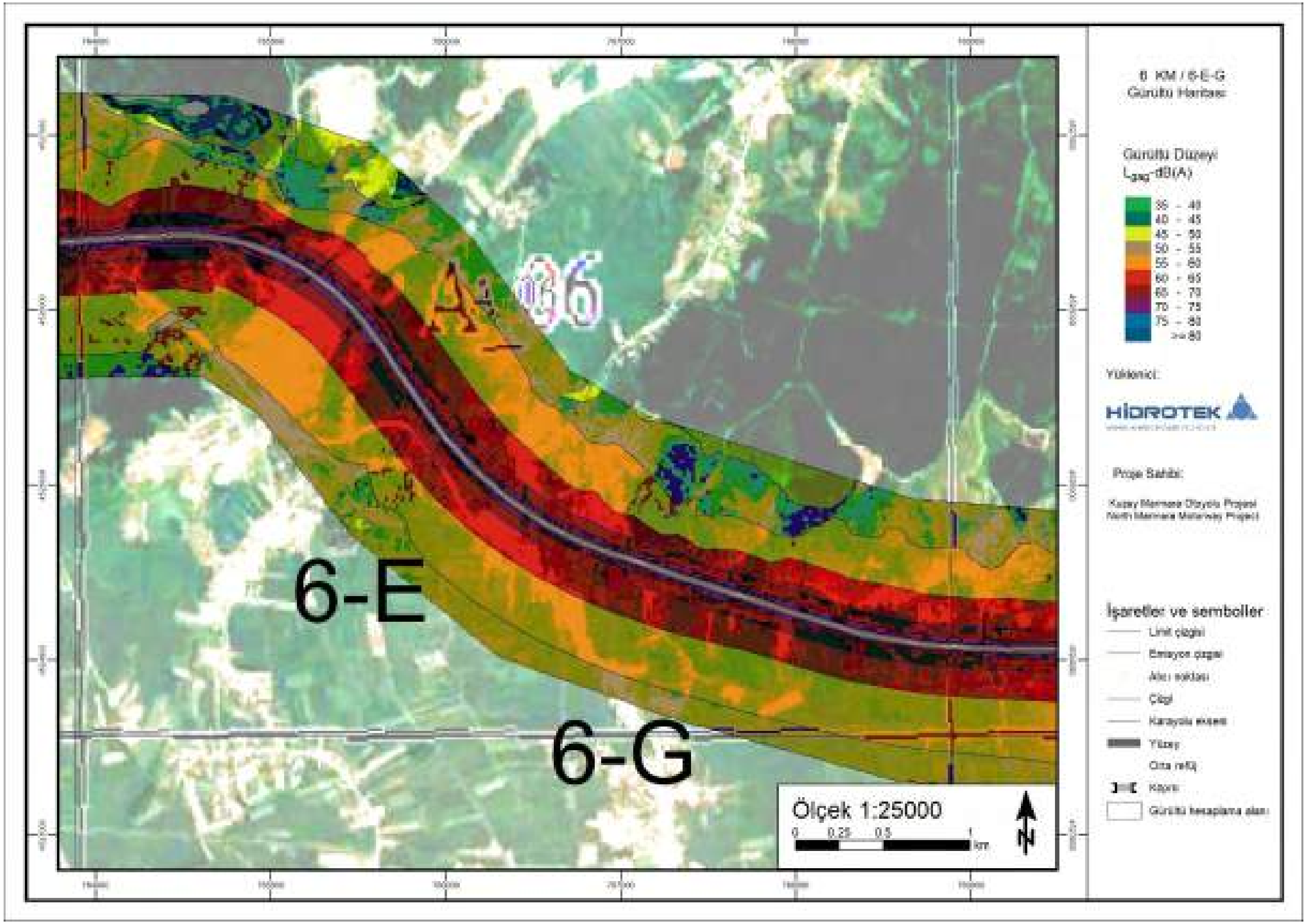

Figure 5.79 Lden noise map for part 6E of year 2027

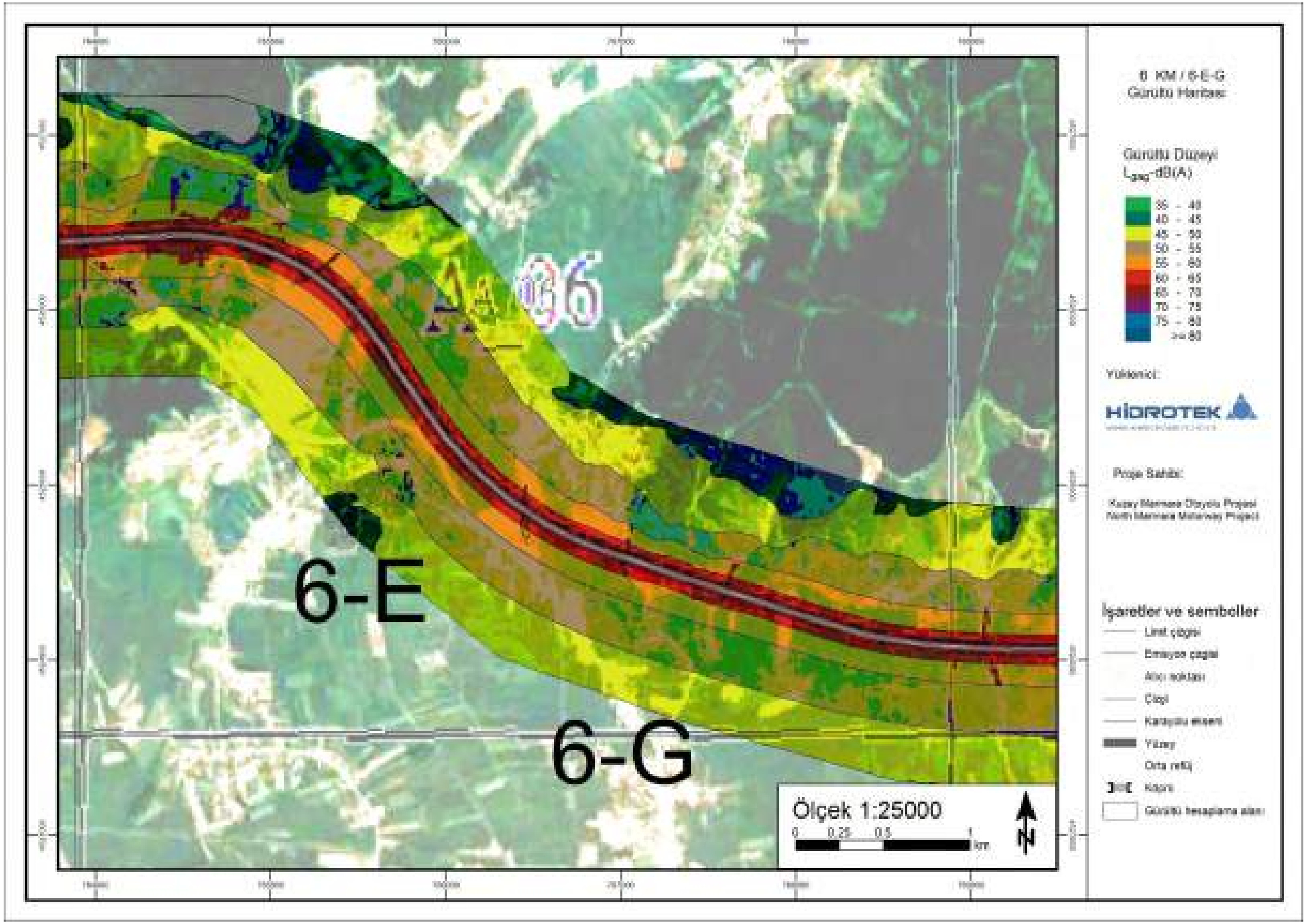

Figure 5.80 Ln noise map for part 6E of year 2027

HİDROTEK

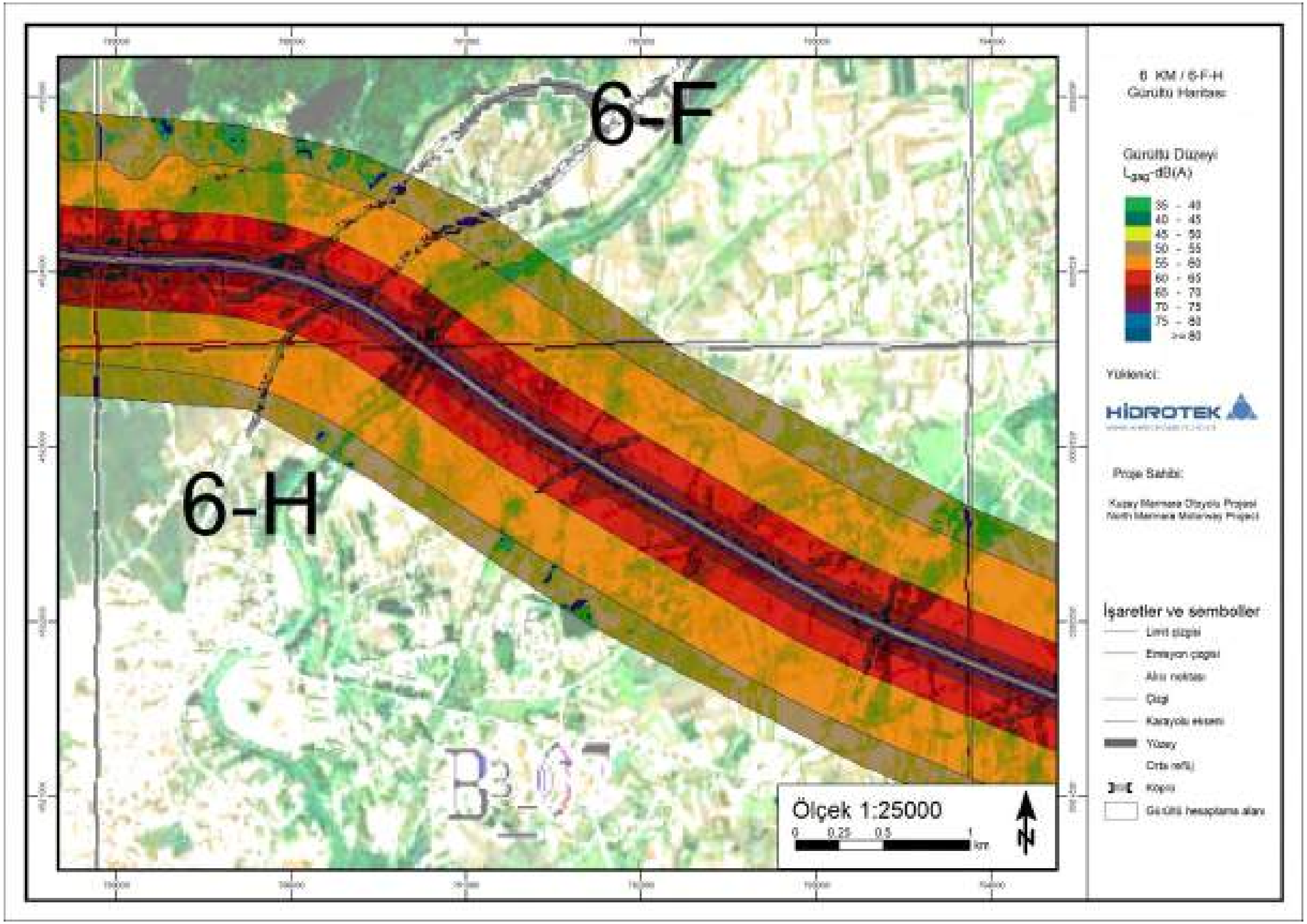

Figure 5.81 Lden noise map for part 6F of year 2027

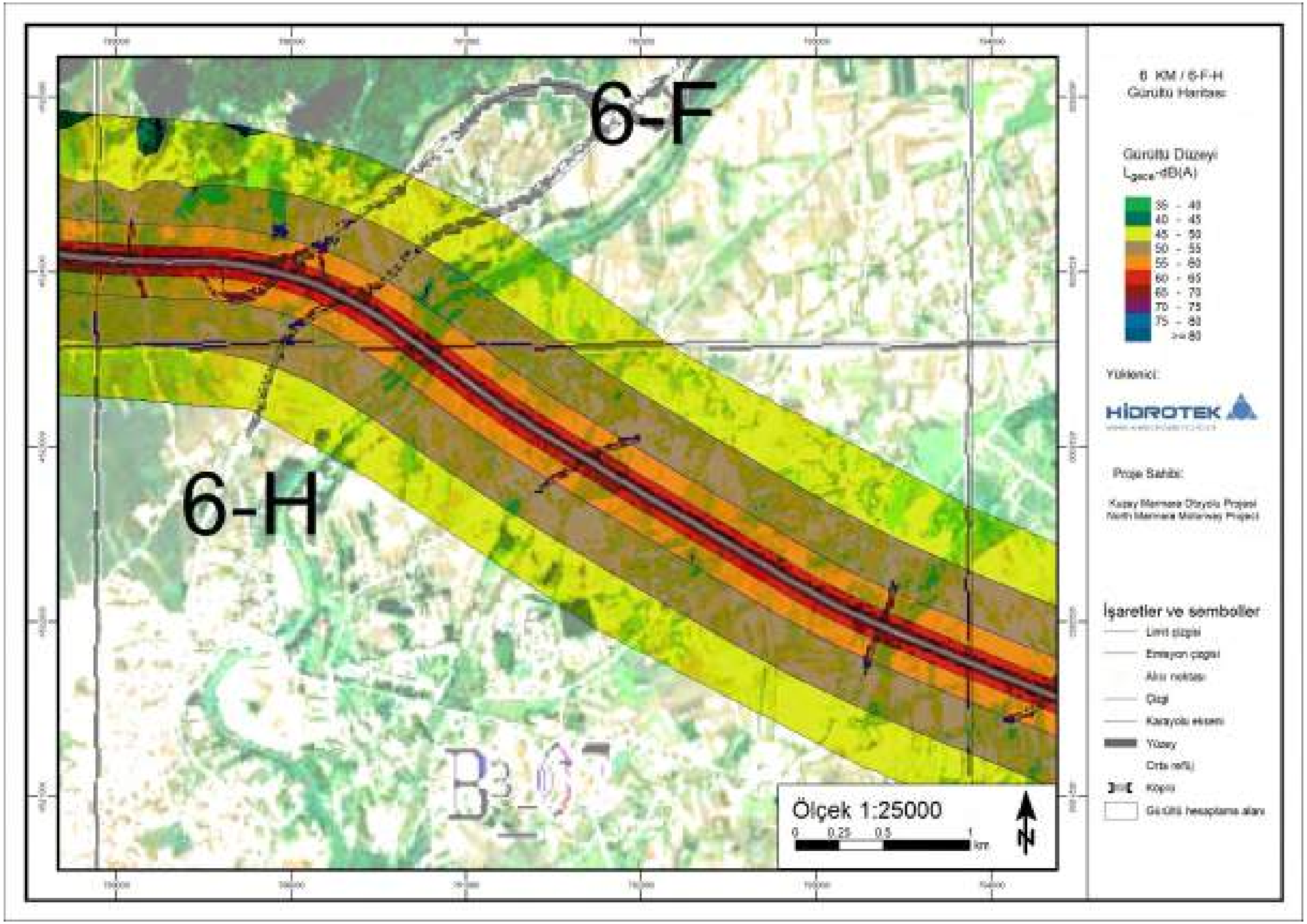

Figure 5.82 Ln noise map for part 6F of year 2027

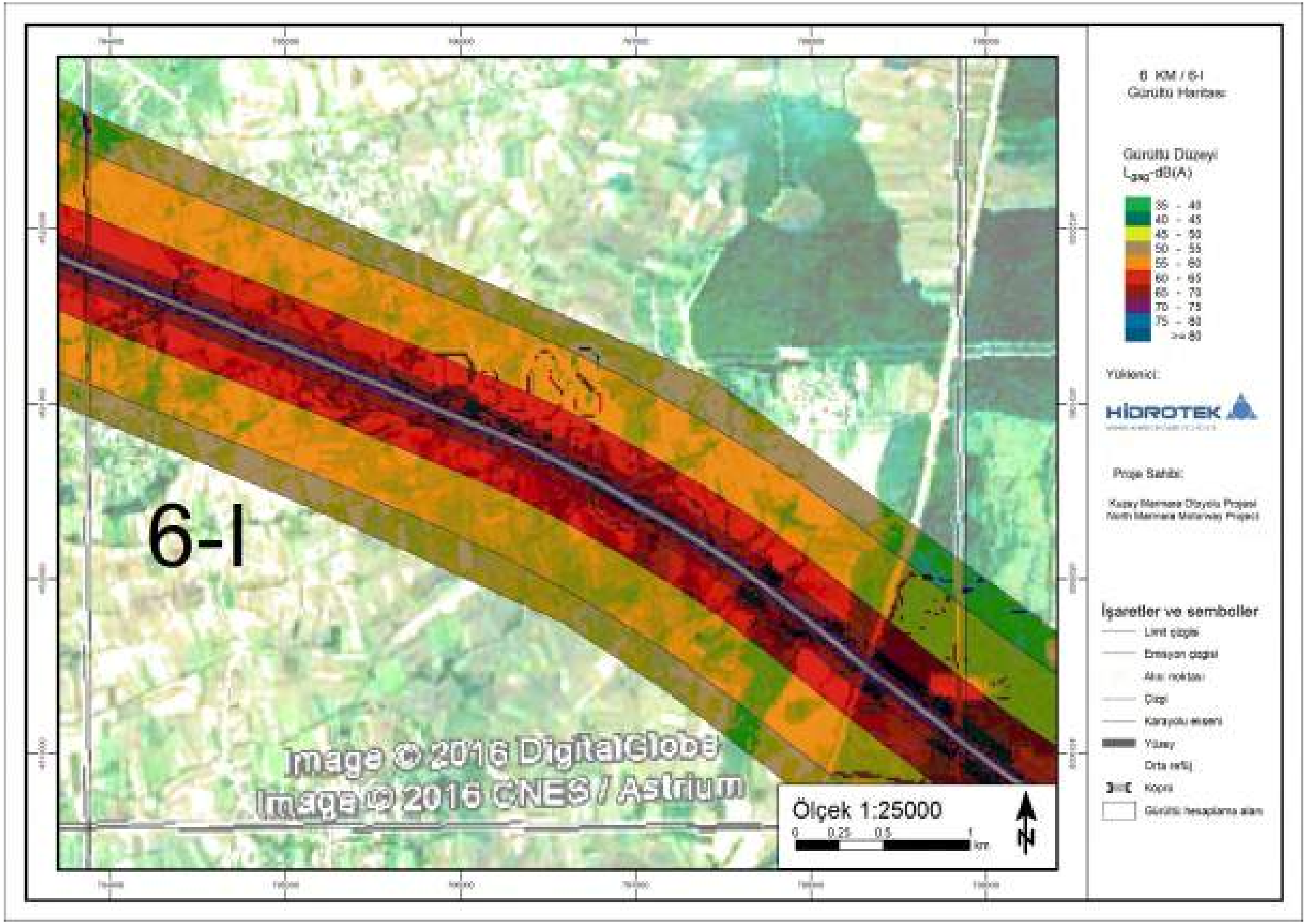

Figure 5.83 Lden noise map for part 6I of year 2027

HİDROTEK

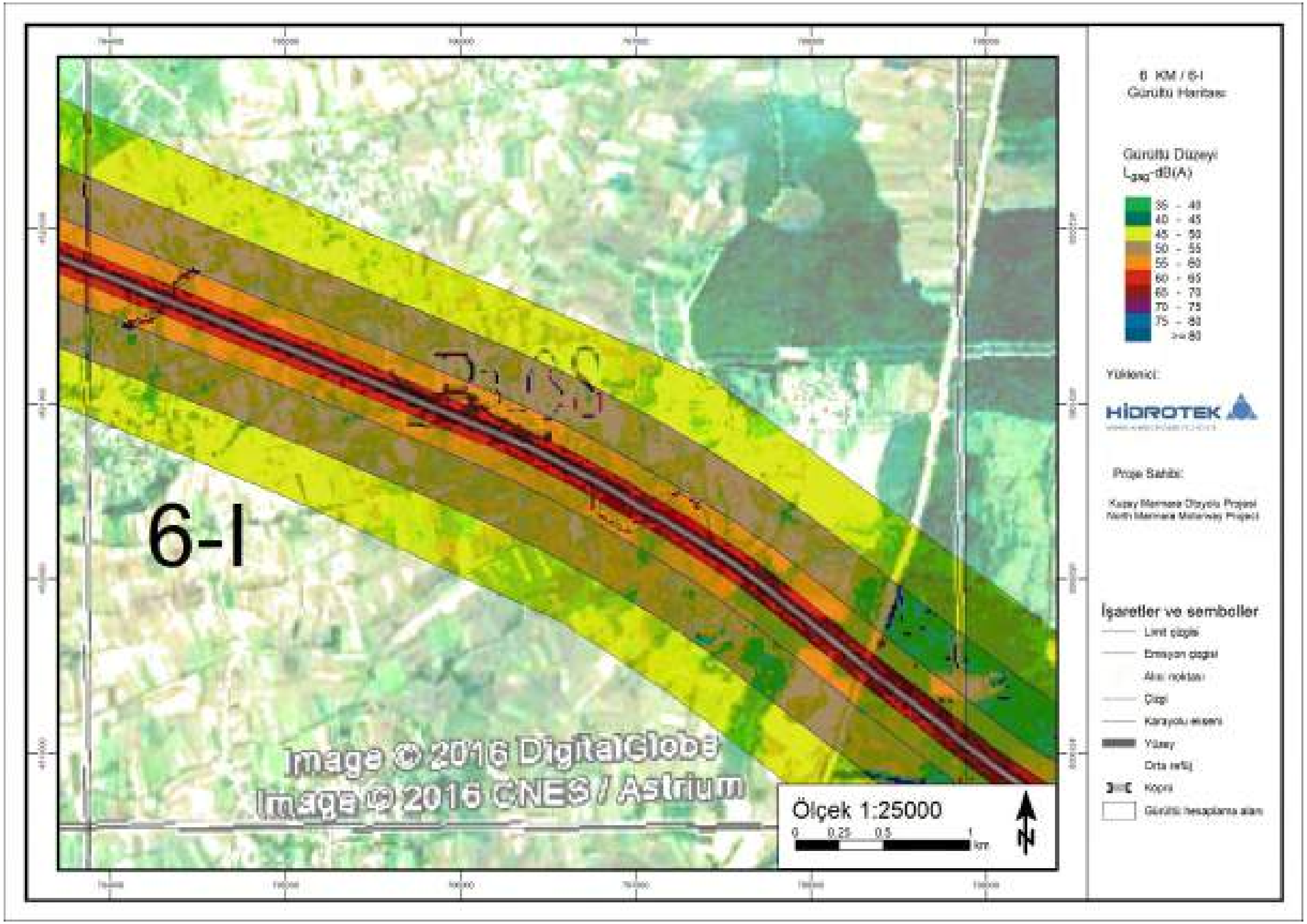

Figure 5.84 Ln noise map for part 6I of year 2027

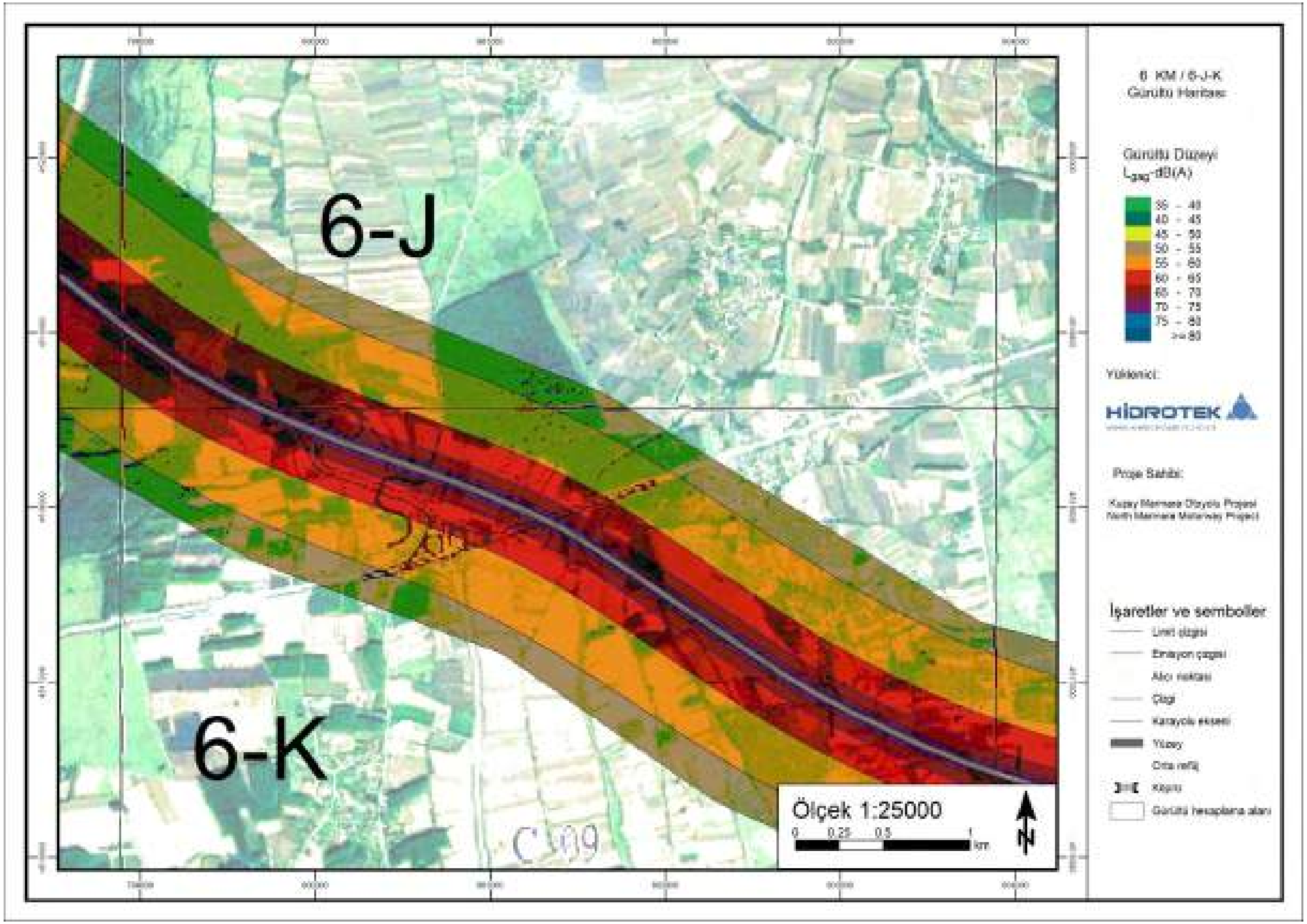

Figure 5.85 Lden noise map for part 6J of year 2027

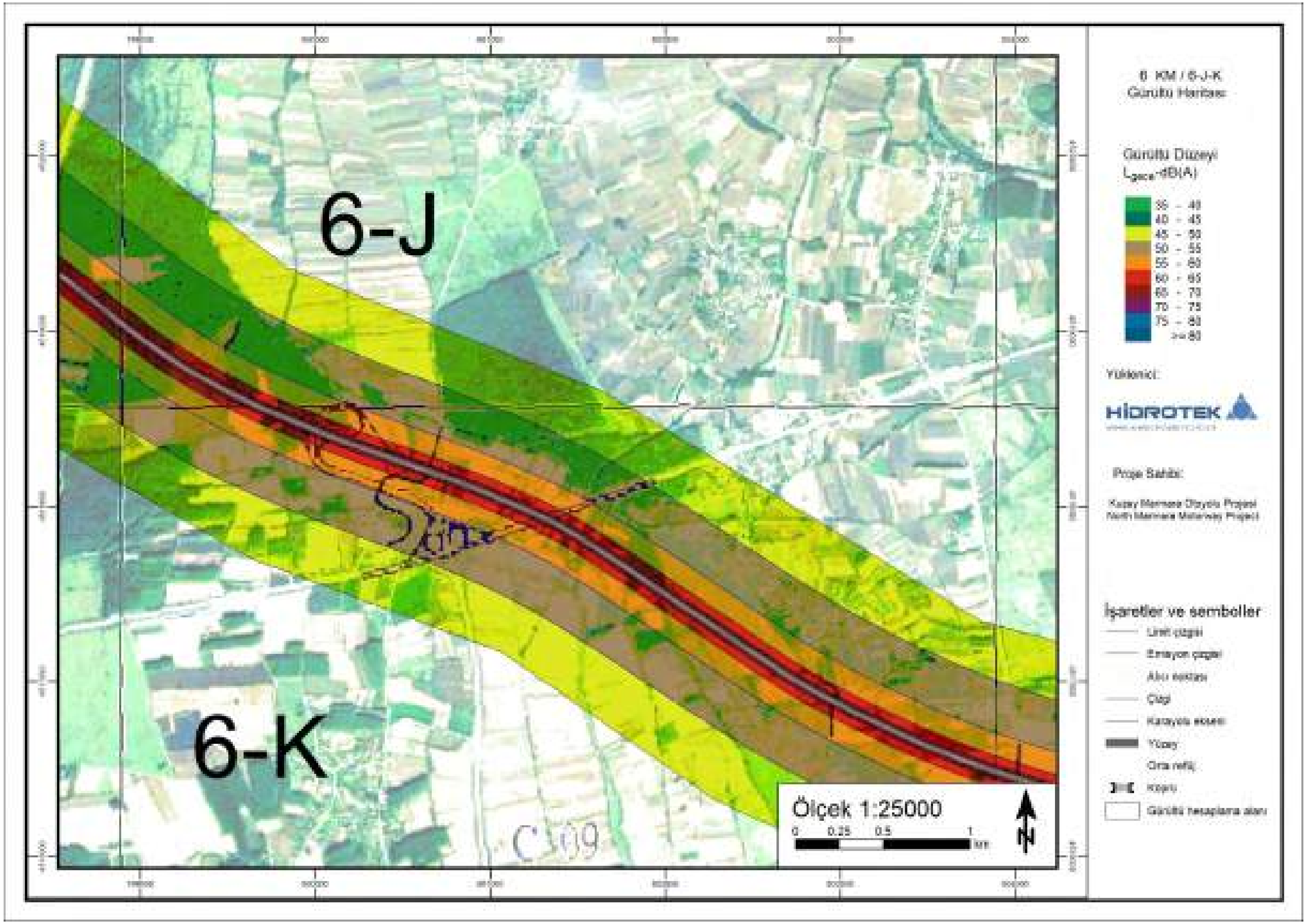

Figure 5.86 Ln noise map for part 6J of year 2027

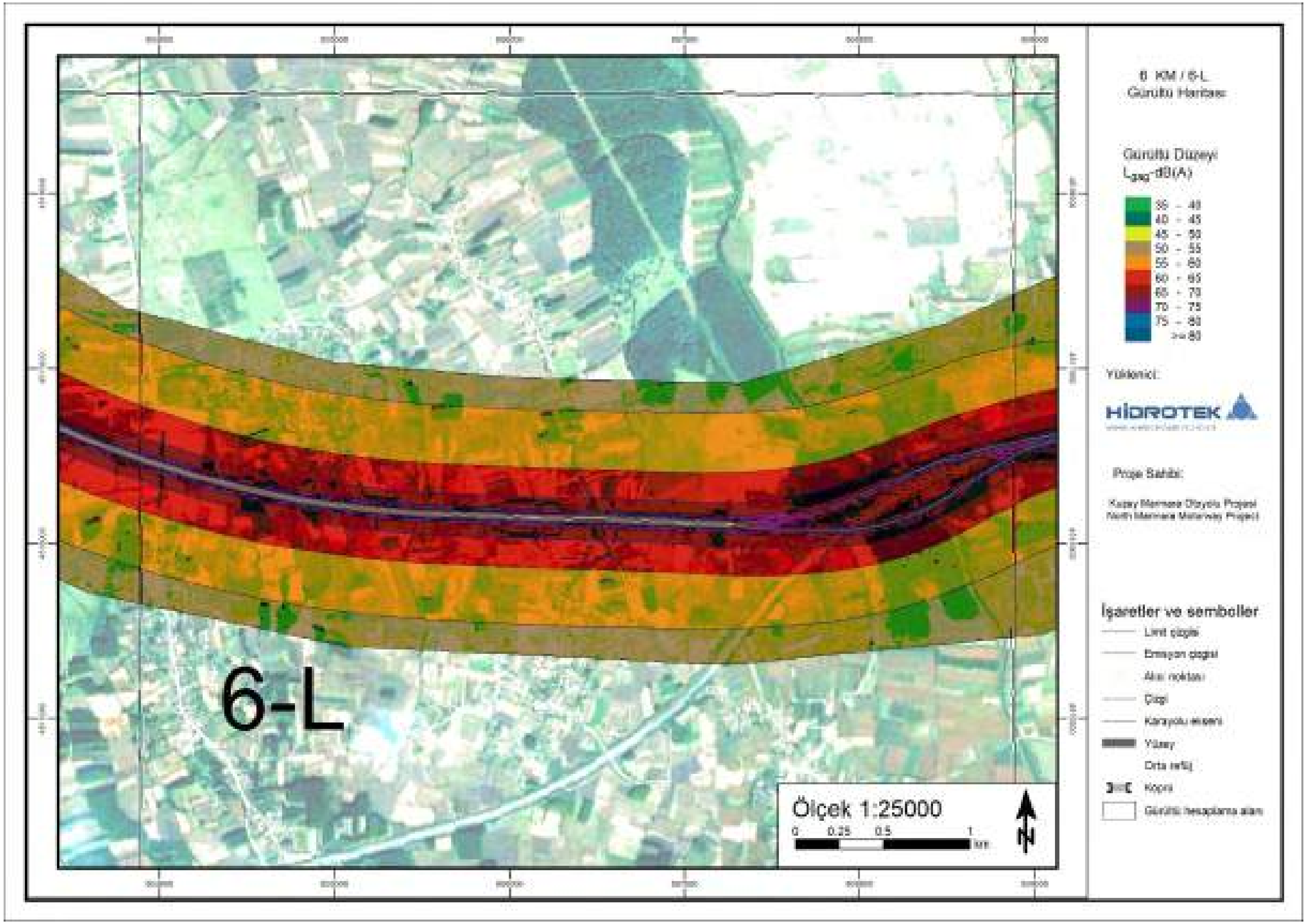

Figure 5.87 Lden noise map for part 6L of year 2027

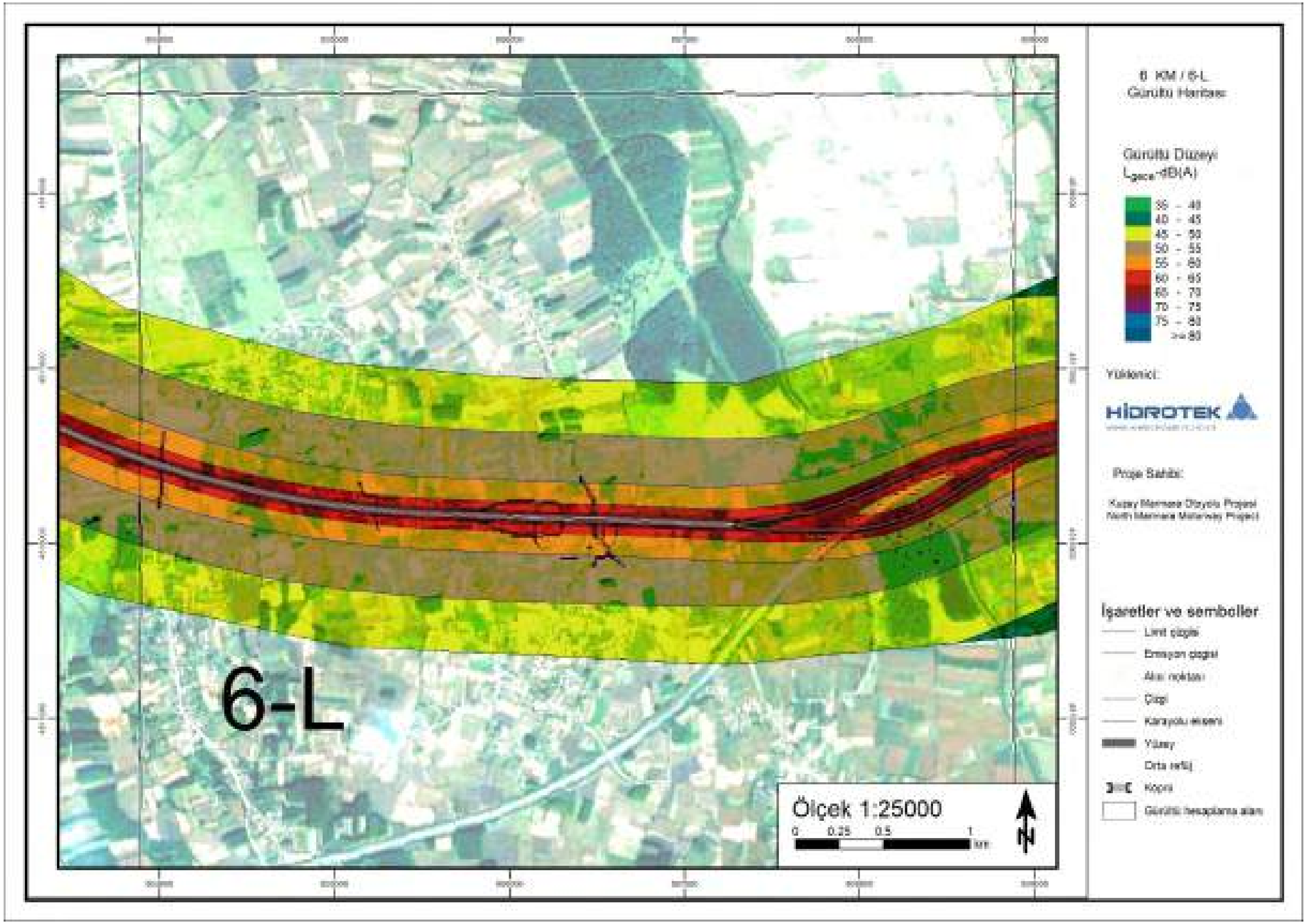

Figure 5.88 Ln noise map for part 6L of year 2027

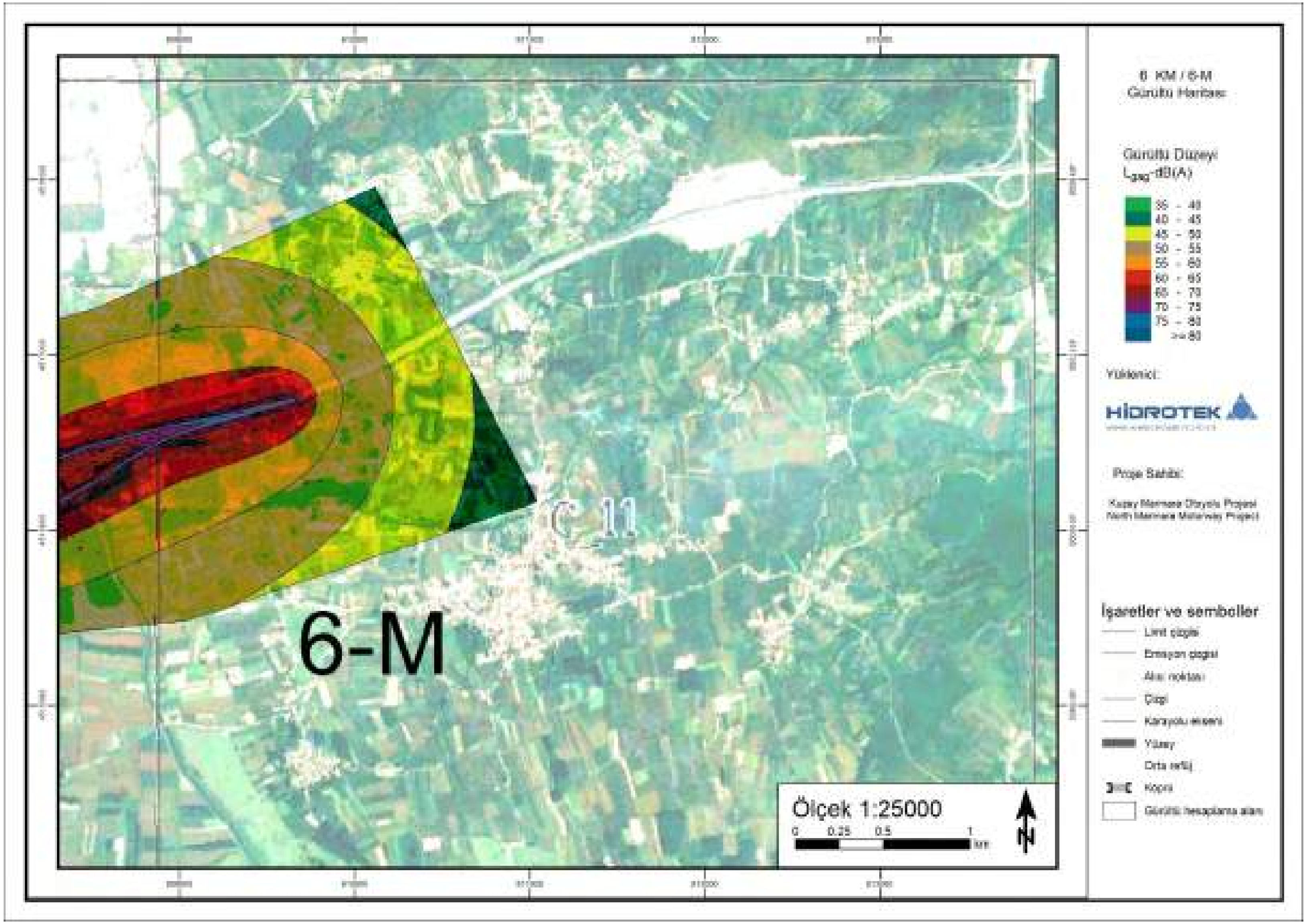

Figure 5.89 Lden noise map for part 6M of year 2027

HİDROTEK

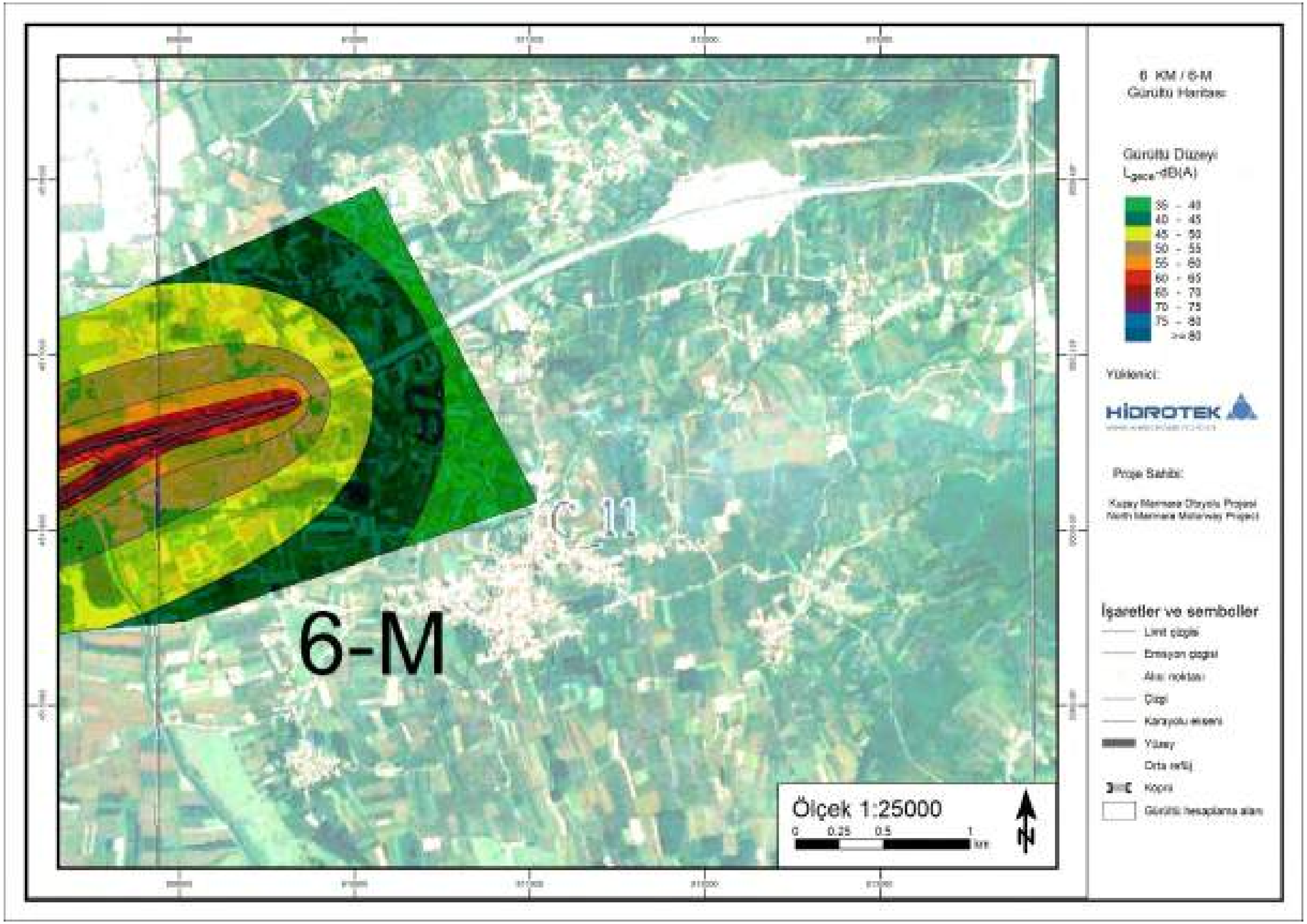

Figure 5.90 Ln noise map for part 6M of year 2027

5.2 Status Assessment For Year 2027

According to the results of motorway noise modeling it is required to make action plan for regions above Lden 65 dB (A) and Lnight 55 dB (A) boundary values. The noise levels from virtual receivers created in these regions for year 2027 are given in Table 5.1.

According to model results at North Marmara Motorway,

It is required to make action plan at Durhasan, Karadülbaki, Süleymaniye, Korucuk, Budaklar Osmanbey, İhsaniye, Sultangazi Turnaköy, Kadıllı, Tepecik, Sipahiler, Akfırat, Eseler, Karaman/Evrenköy regions. The noise levels of the virtual receivers obtained according to the calculation results are shown in Table 5.1. The points indicated in red in the table are the levels at which the limit values are exceeded. Regions where limit values are exceeded are; Durhasan, Karaabdülbaki, Korucuk, İhsaniye, Sultangazi, Kurnaköy, Sipahiler, Akfırat (1_A and 2_A), Eseler.

Table 5.1 Noise levels from virtual receivers for year 2027 (the levels indicated by red state the cases where limit values are exceeded.)

No	Location	X m	Y m	Lden dB(A)	Ld dB(A)	Le dB(A)	Ln dB(A)
17	Çayırköy	247.074,54	4.521.732,06	58,60	51,70	54,00	52,00
16	Evrenköy	247.892,53	4.524.764,04	42,30	35,10	37,60	35,70
18	Durhasan	250.082,50	4.520.124,07	65,20	58,60	60,70	58,50
19	Karaabdülbaki	259.704,48	4.520.305,08	62,50	57,20	58,20	55,40
20	Süleymaniye	263.410,40	4.522.994,07	55,60	48,60	50,90	49,00
21	Korucuk	269.796,42	4.525.241,07	65,80	59,80	61,30	58,90
22	Taşkısığı	280.778,36	4.525.803,08	33,80	26,60	29,00	27,20
23	Budaklar	287.810,34	4.518.574,13	59,30	52,50	54,70	52,60
24	Osmanbey	298.447,29	4.512.957,17	59,80	53,10	55,20	53,10
1	Küçük Kılıçlı	601.149,74	4.553.759,43	58,30	53,90	54,10	51,10
2	Kadıköy	614.360,67	4.554.892,43	34,40	29,90	30,10	27,10
3	İnceğiz	617.653,65	4.558.940,41	32,50	28,00	28,30	25,30
4	İzzettin	626.114,61	4.558.946,41	47,30	42,90	43,10	40,10
5	Yassıören	633.886,56	4.566.218,37	44,10	39,40	39,60	37,00
6	Tayakadın	640.490,53	4.565.248,38	36,00	29,20	29,70	29,70
7	İhsaniye	651.600,46	4.566.923,38	62,10	55,20	55,70	55,70
8	Sultangazi Cebeci	655.422,45	4.553.361,45	52,00	47,90	47,70	44,70
9	Sultangazi	660.842,42	4.551.423,40	71,70	67,00	67,50	64,50
10	Kurnaköy	696.716,23	4.536.081,56	71,80	67,10	67,50	64,60
11	Kadıllı	708.512,16	4.533.508,57	64,60	58,60	59,90	57,80
12	Demirciler	715.135,13	4.524.838,62	60,00	54,10	55,30	53,10
13	Tepecik	720.755,10	4.529.849,59	60,80	53,80	56,10	54,10
14	Kutluca	730.824,04	4.530.661,59	52,80	46,20	48,20	46,10
15	Sipahiler	737.013,01	4.527.481,61	75,70	70,10	71,30	68,70
1_A	Akfırat	699.419,00	4.534.658,00	72,80	67,30	68,20	65,80
2_A	Akfırat	703.566,00	4.533.409,00	64,90	58,50	60,10	58,20
12_1	Eseler	251.938,00	4.519.957,00	64,90	58,50	60,10	58,20

No	Location	X m	Y m	Lden dB(A)	Ld dB(A)	Le dB(A)	Ln dB(A)
6_A	Karaman-Evrenköy	275.662,00	4.525.395,00	54,90	49,30	50,60	47,90
7_A	Çamyolu	280.791,00	4.522.599,00	61,10	55,30	56,70	54,10

5.3 Evaluation of Modelling Results For Construction Area

The noise maps showing the analyzes made by modeling for the project site of construction facilities are shown in Figure 5.91 - Figure 5.116.

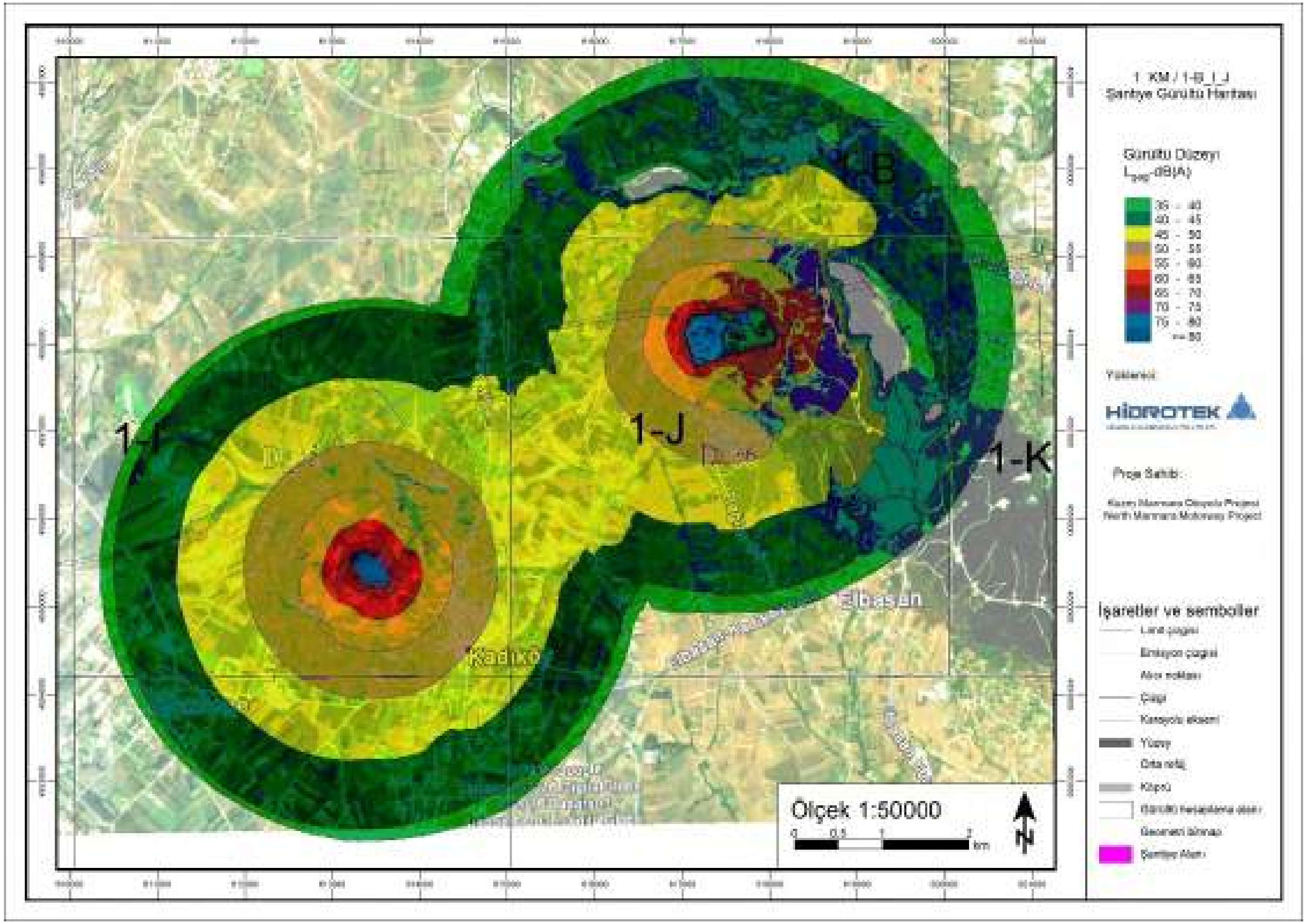

Figure 5.91 Lden noise map for part 1B-J

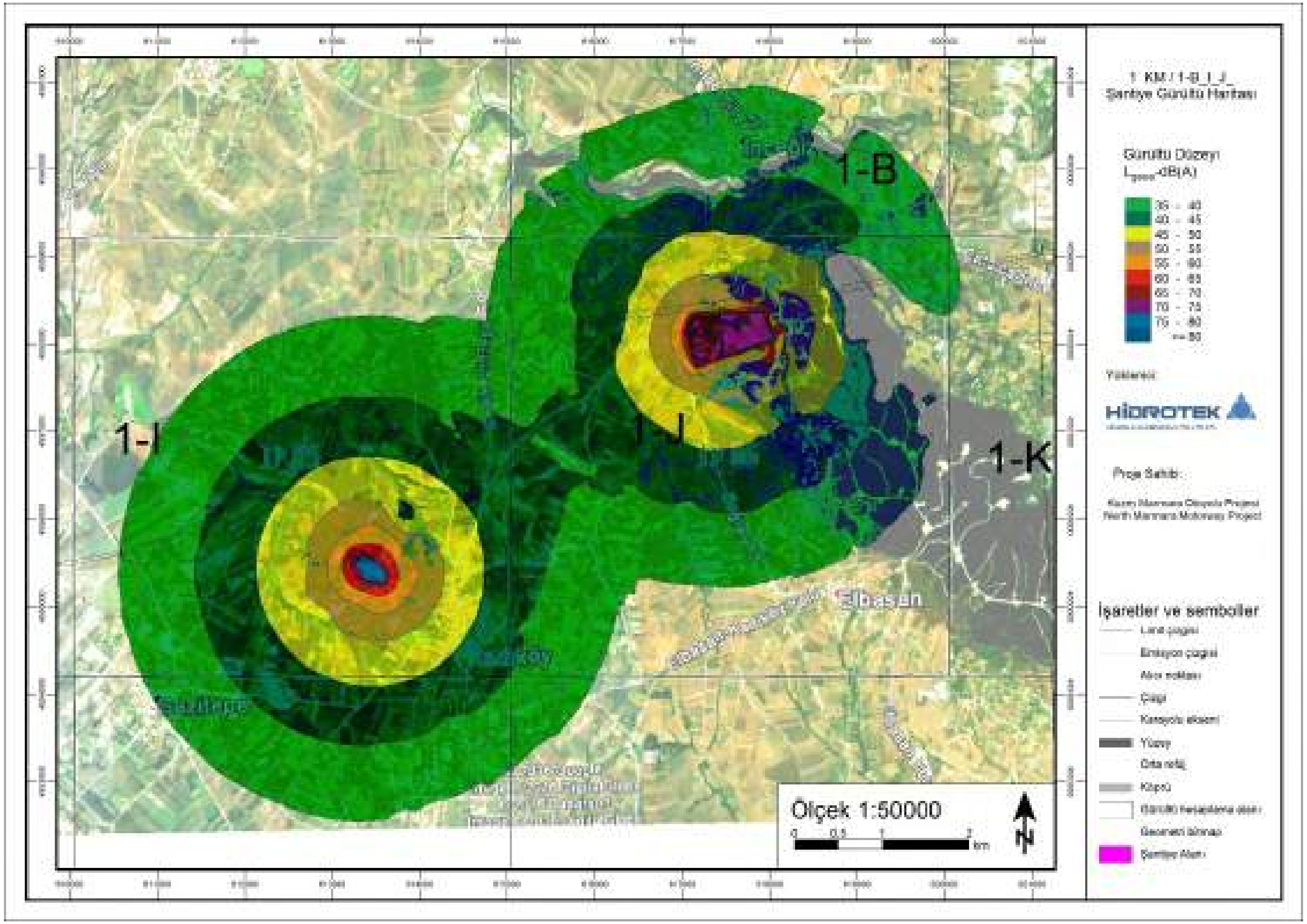

Figure 5.92 Ln noise map for part 1B-J

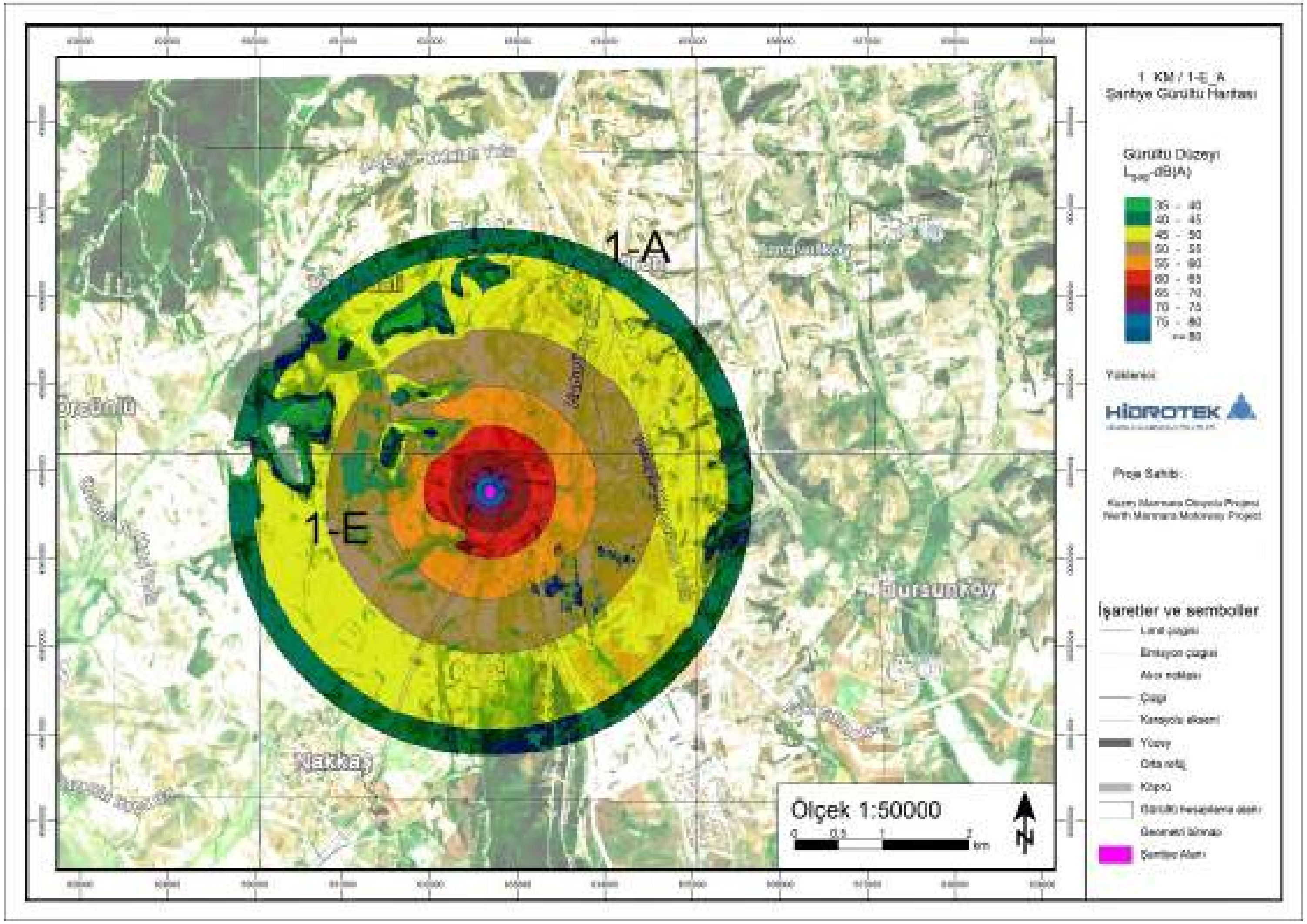

Figure 5.93 Lden noise map for part 1E-A

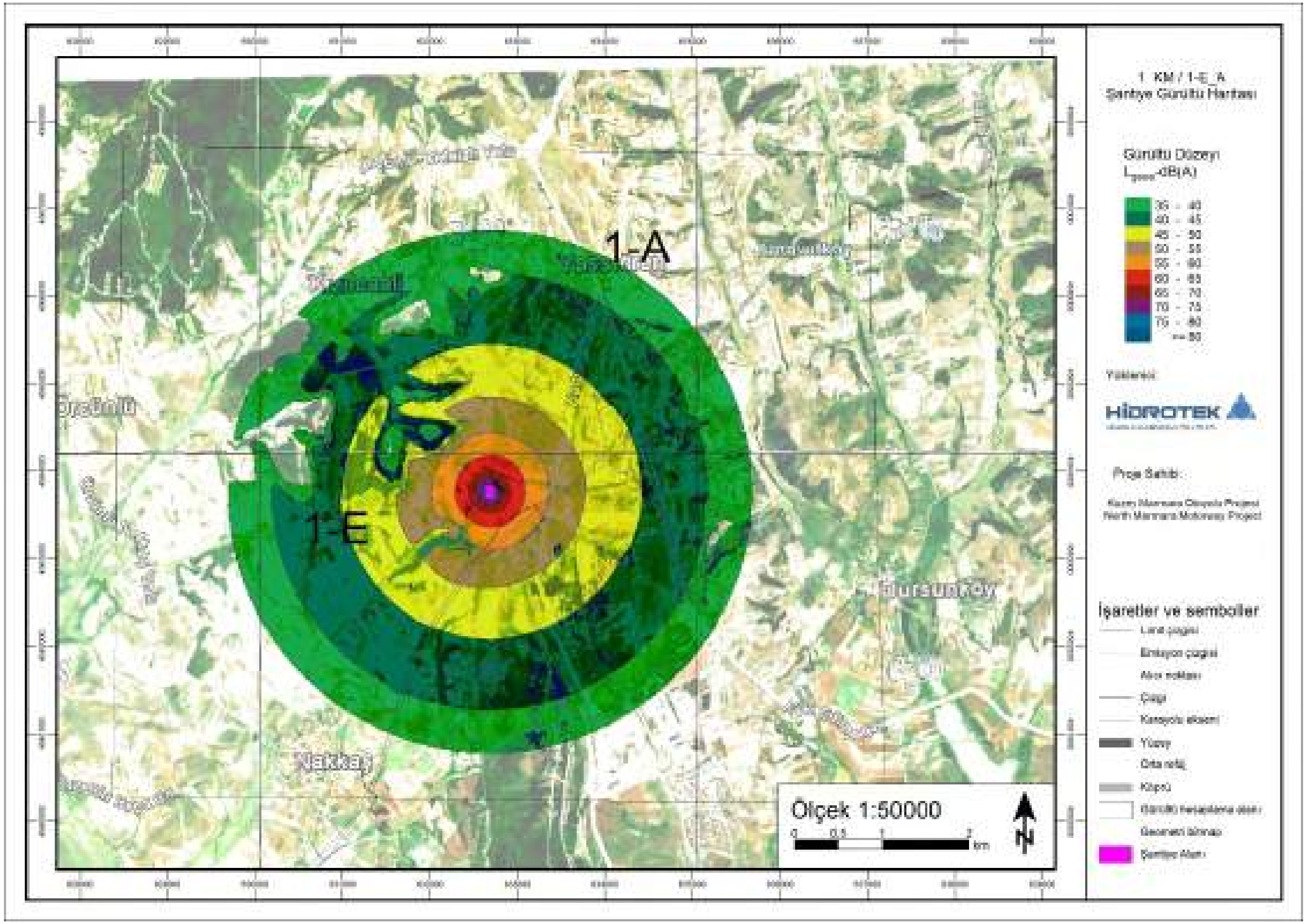

Figure 5.94 Ln noise map for part 1E-A

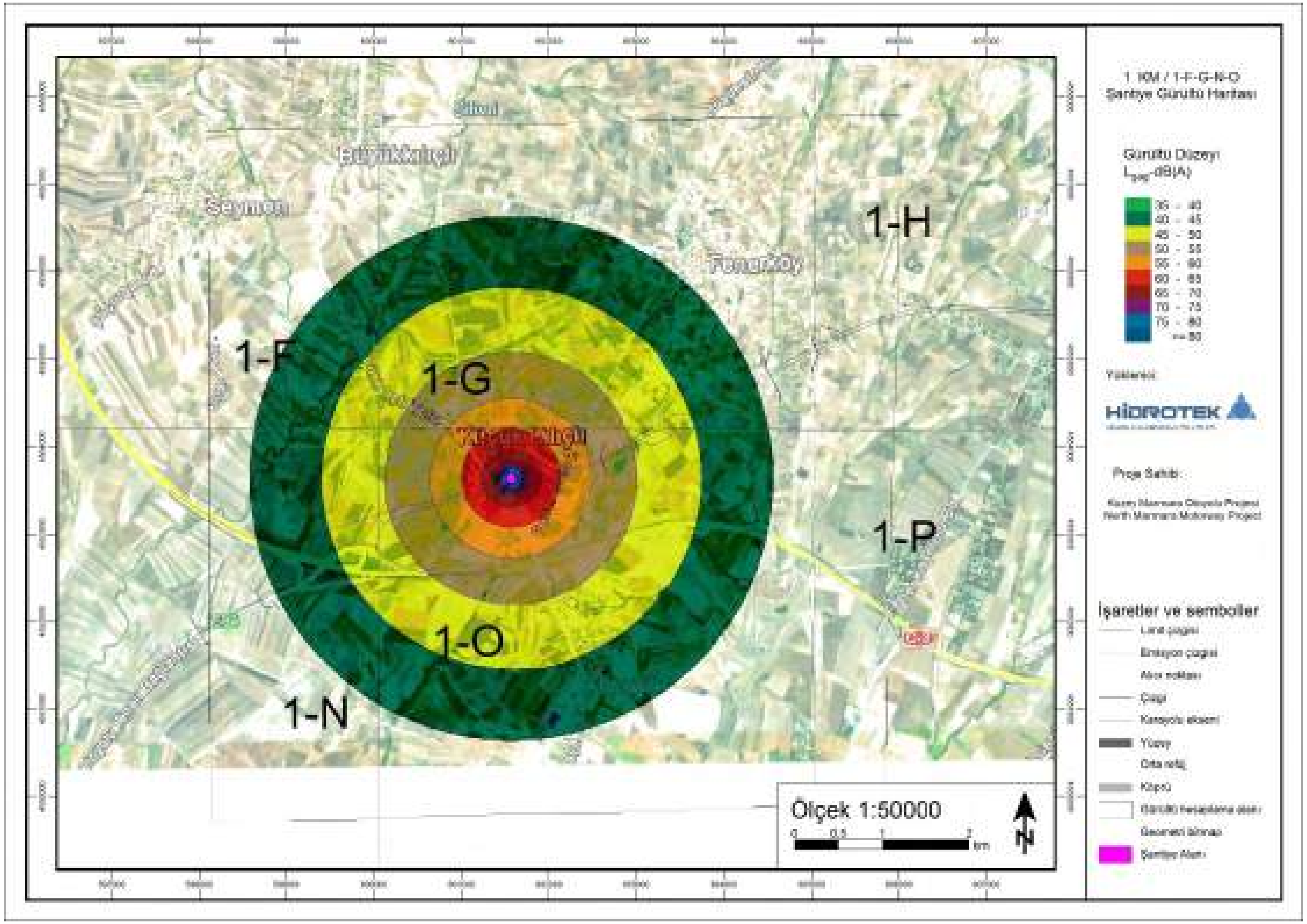

Figure 5.95 Lden noise map for part 1 F-G-O

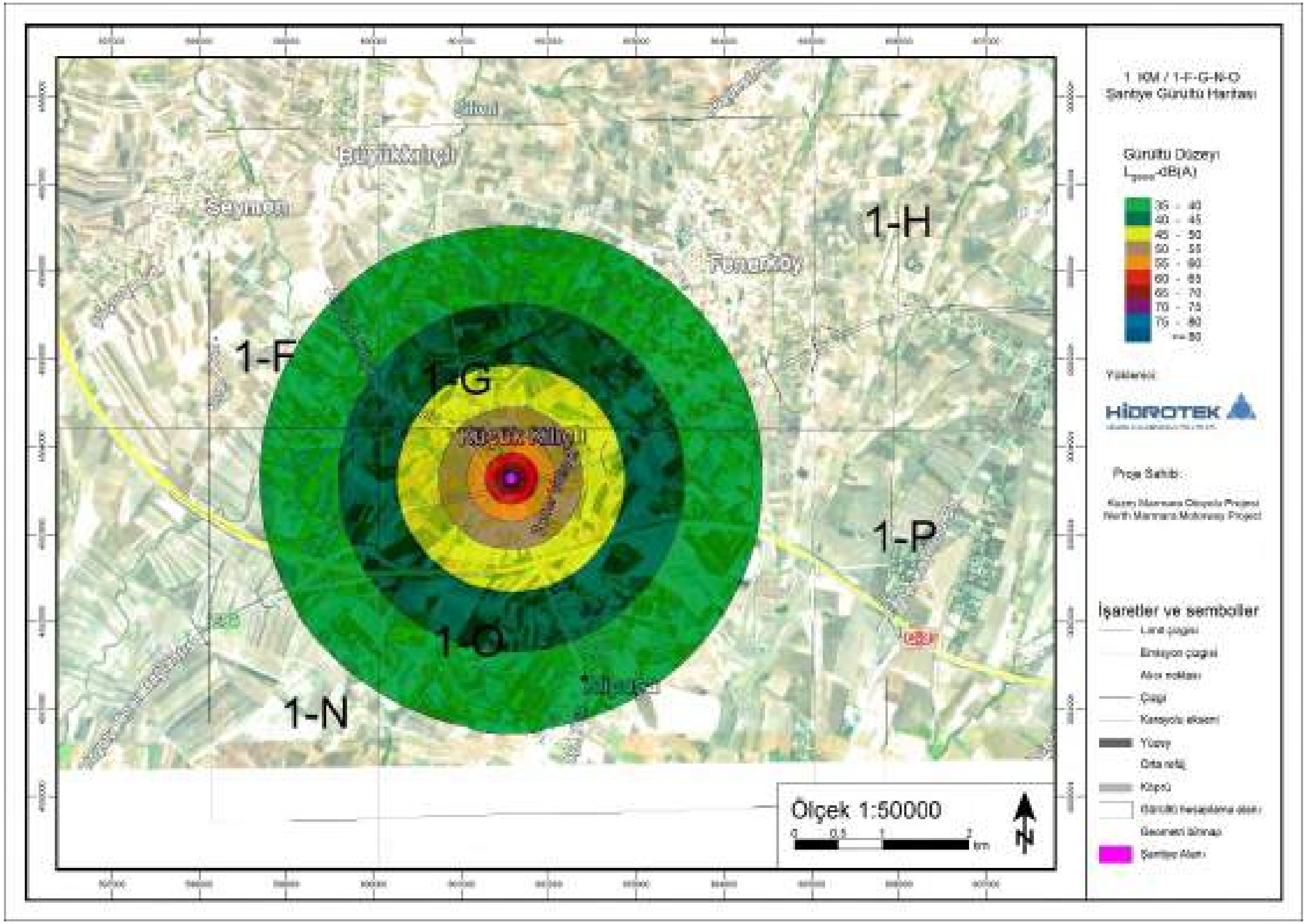

Figure 5.96 Ln noise map for part 1 F-G-O

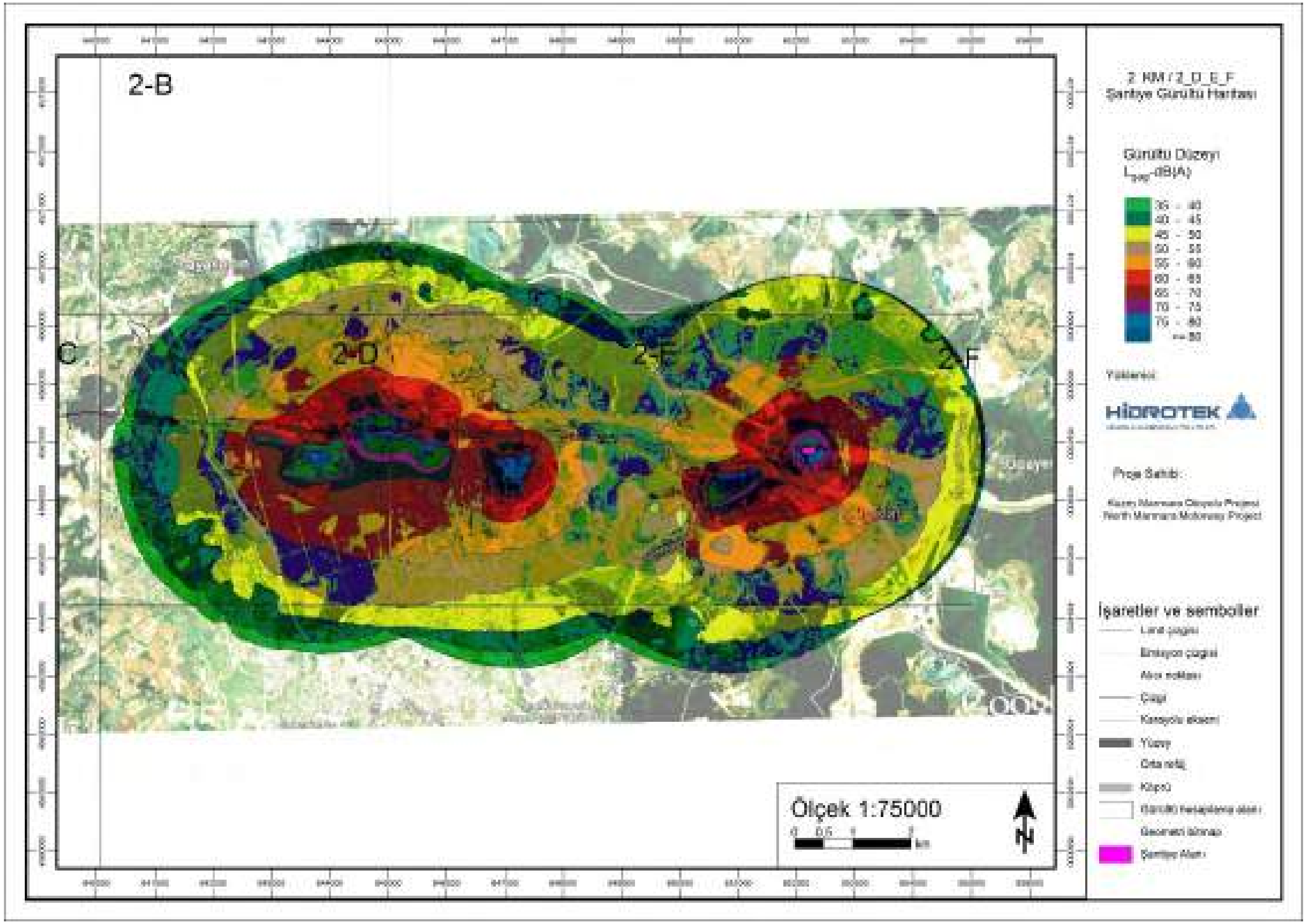

Figure 5.97 Lden noise map for part 2 D-E-F

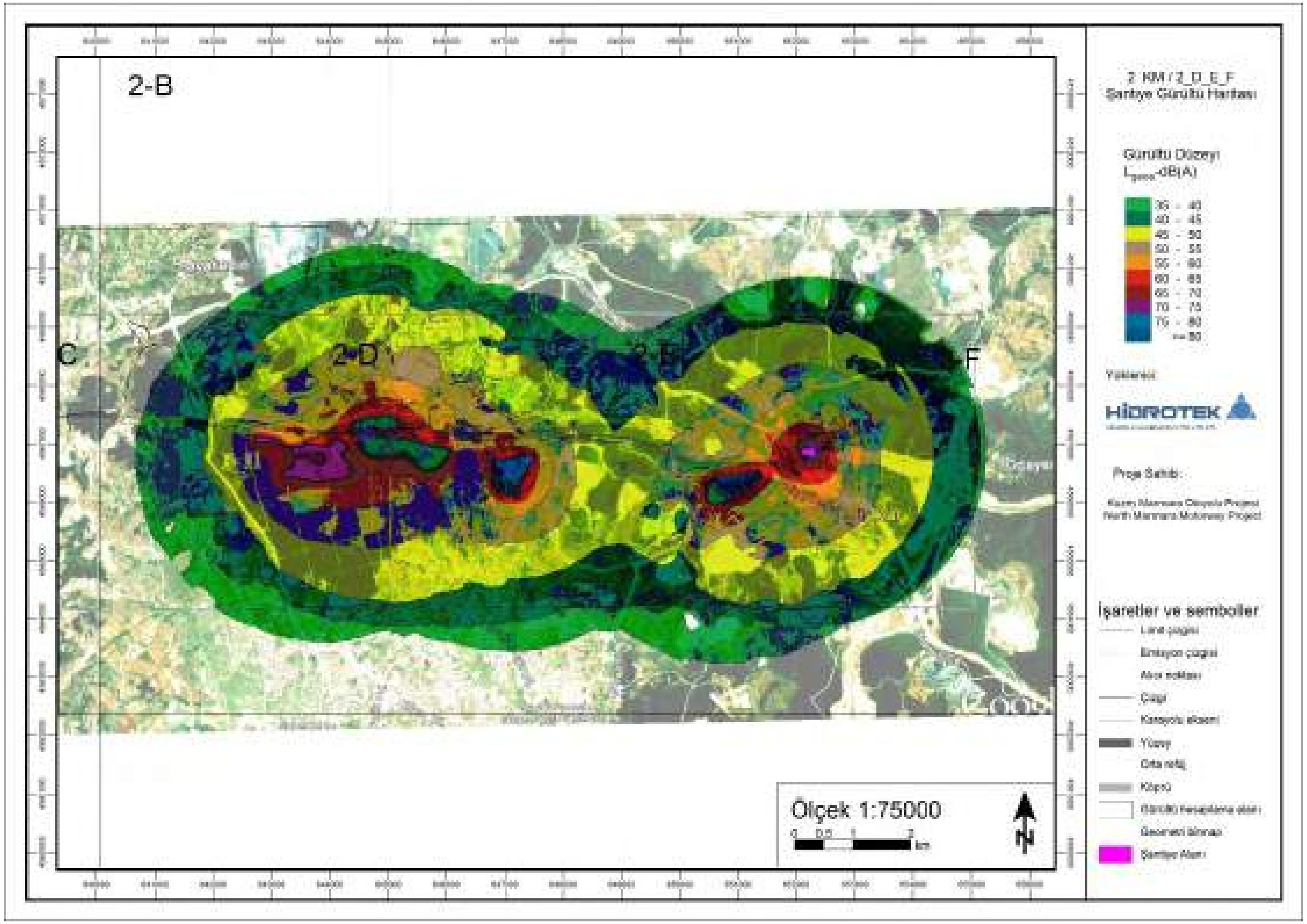

Figure 5.98 Ln noise map for part 2 D-E-F

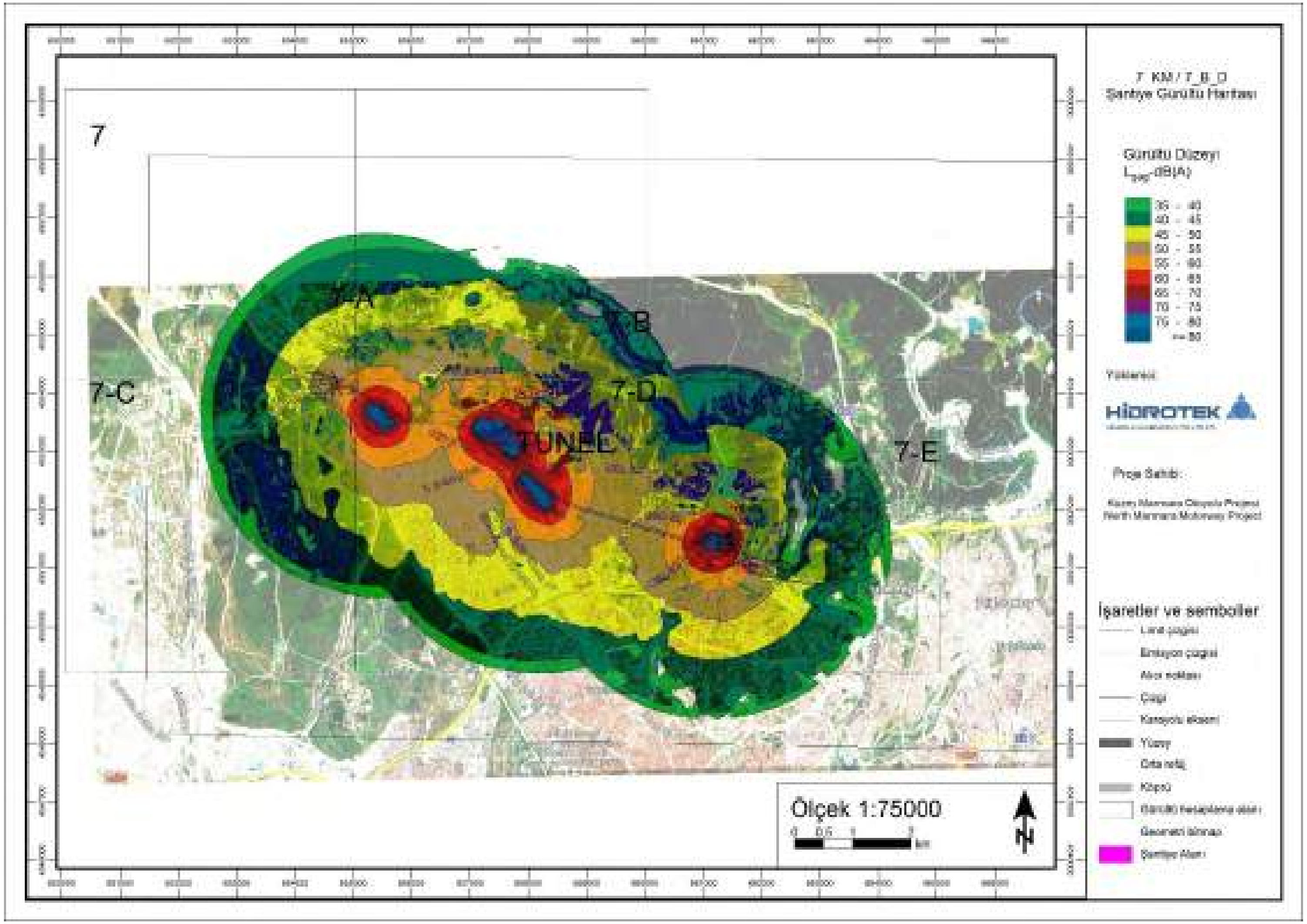

Figure 5.99 Lden noise map for part 7 B-D

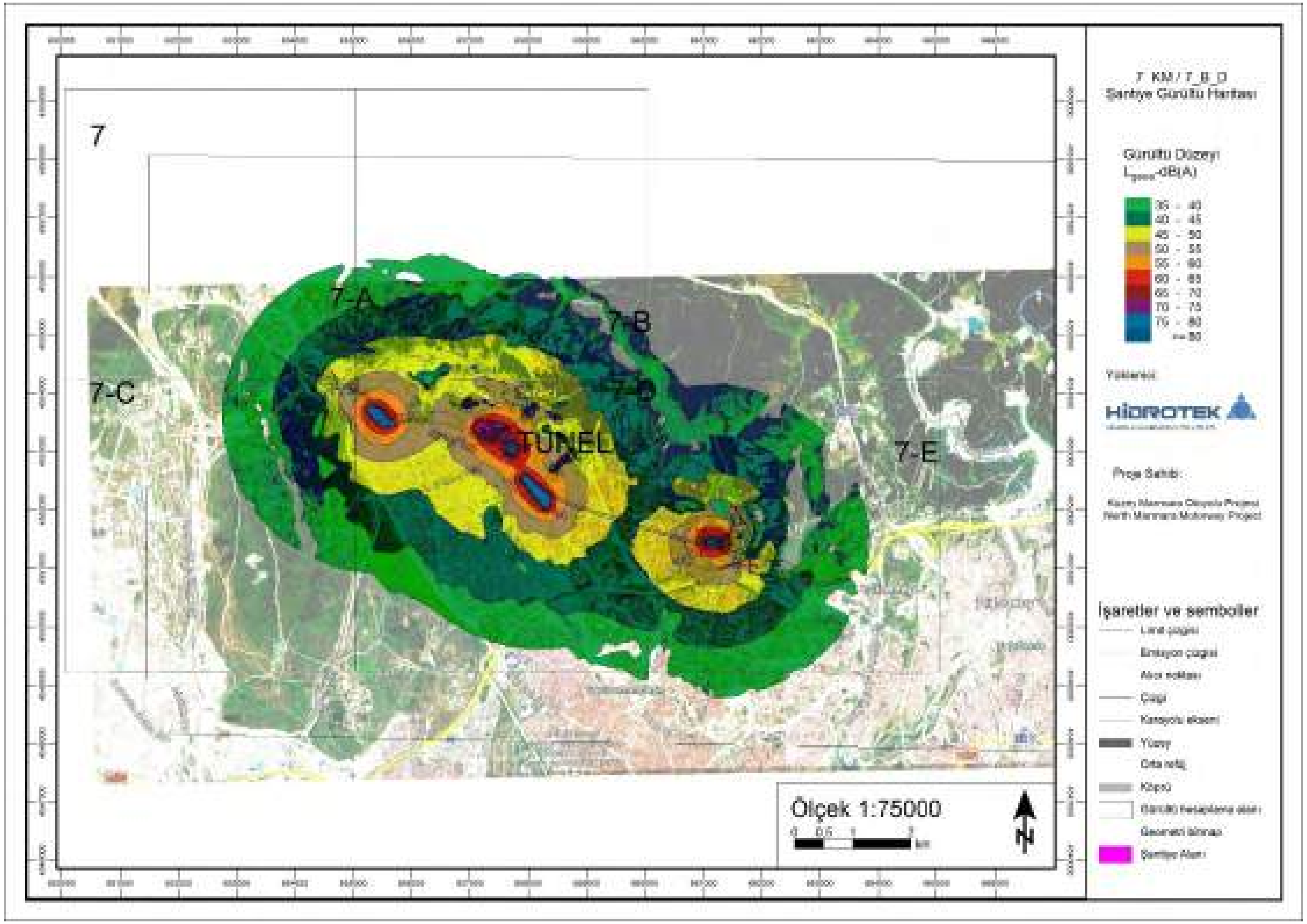

Figure 5.100 Ln noise map for part 7 B-D

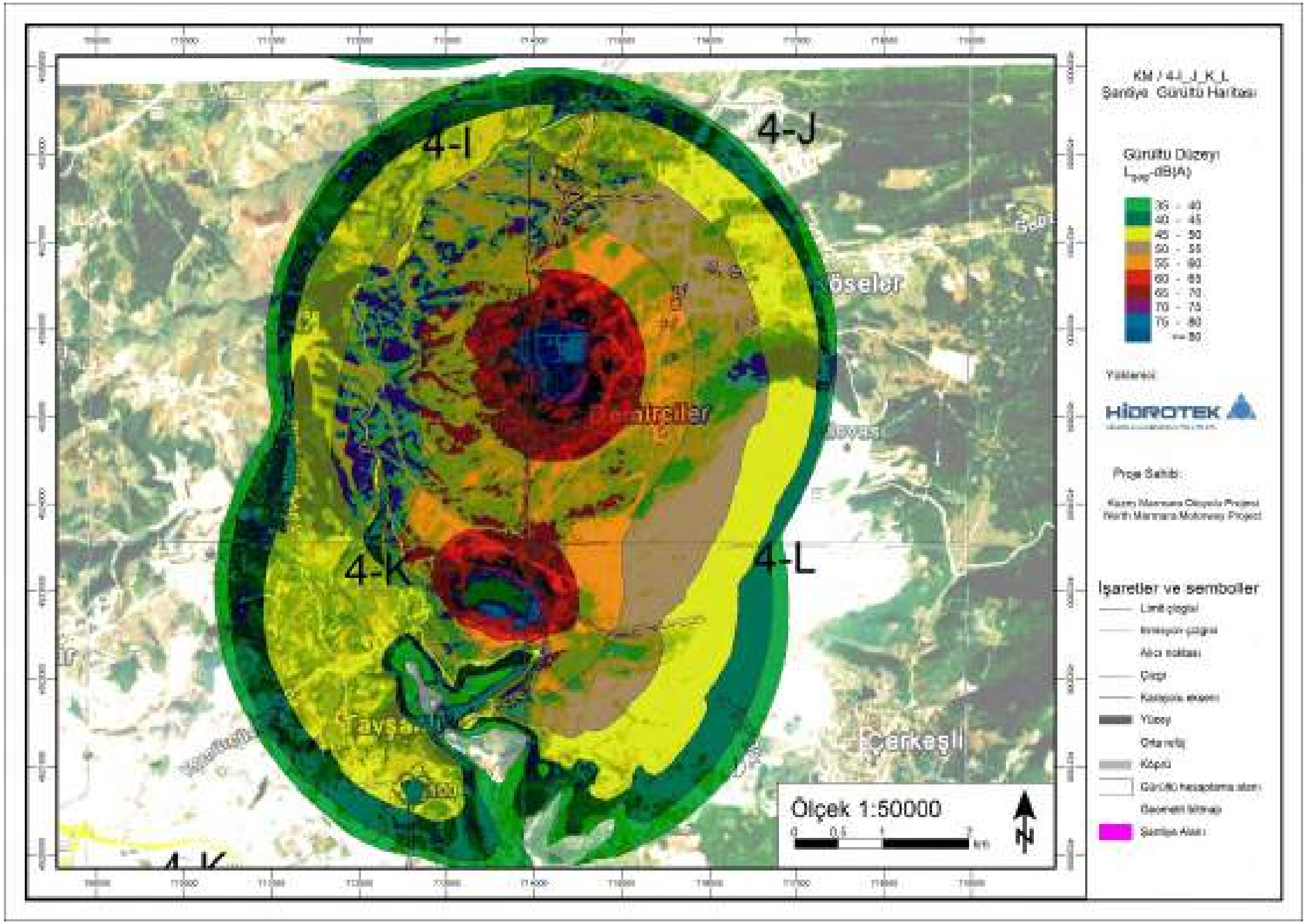

Figure 5.101 Lden noise map for part 4 J-K-L

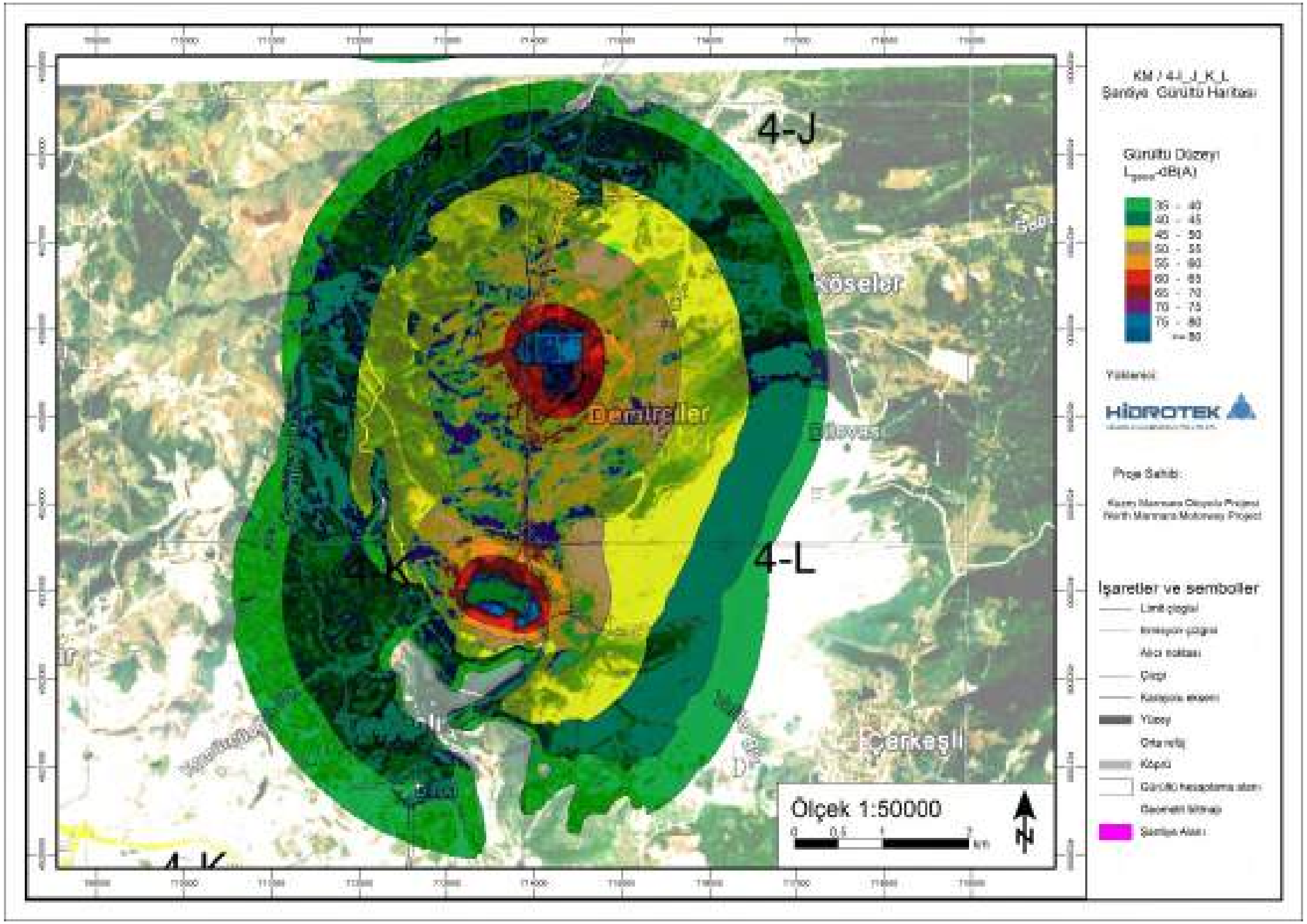

Figure 5.102 Ln noise map for part 4 J-K-L

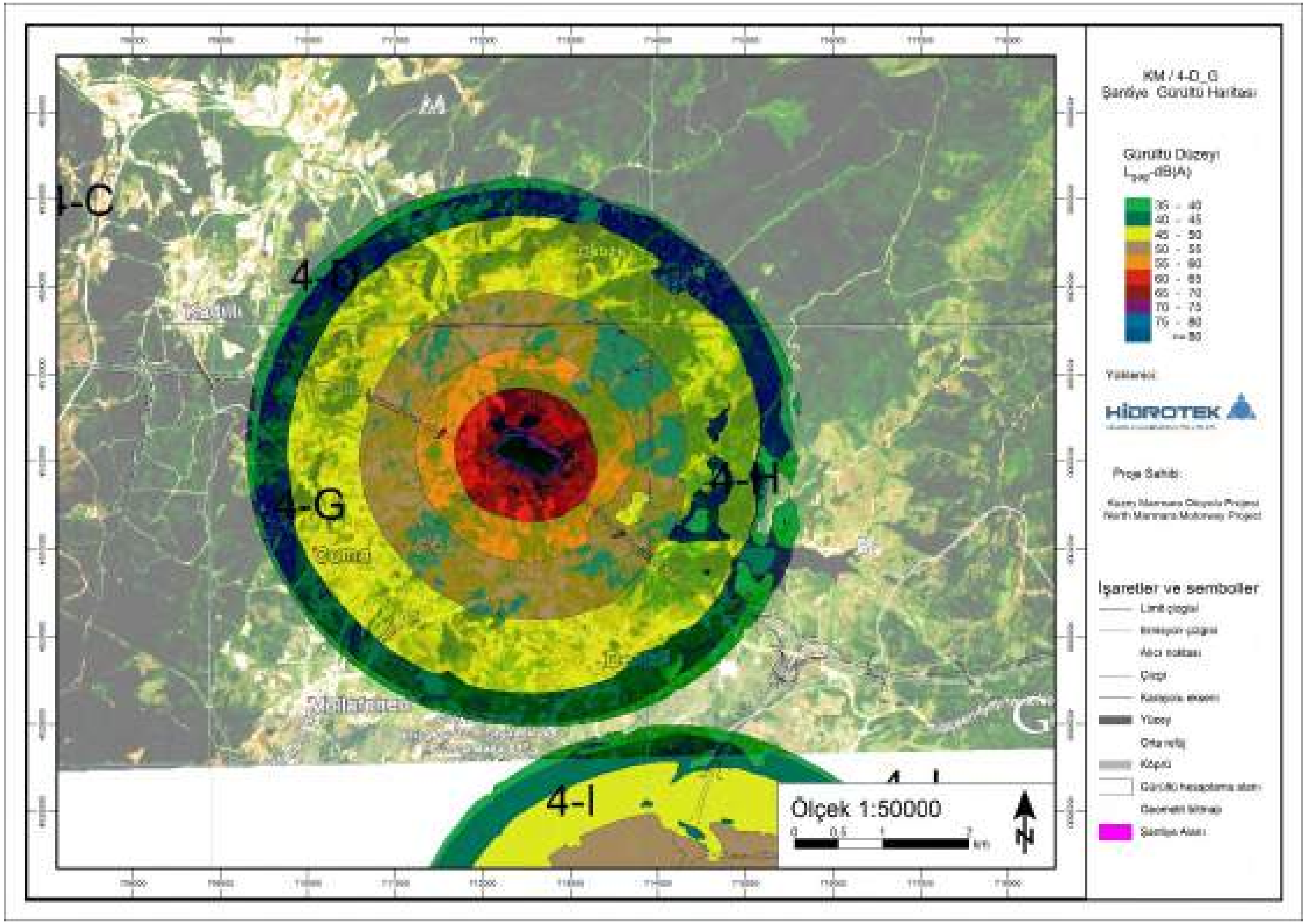

Figure 5.103 Lden noise map for part 4 D-G

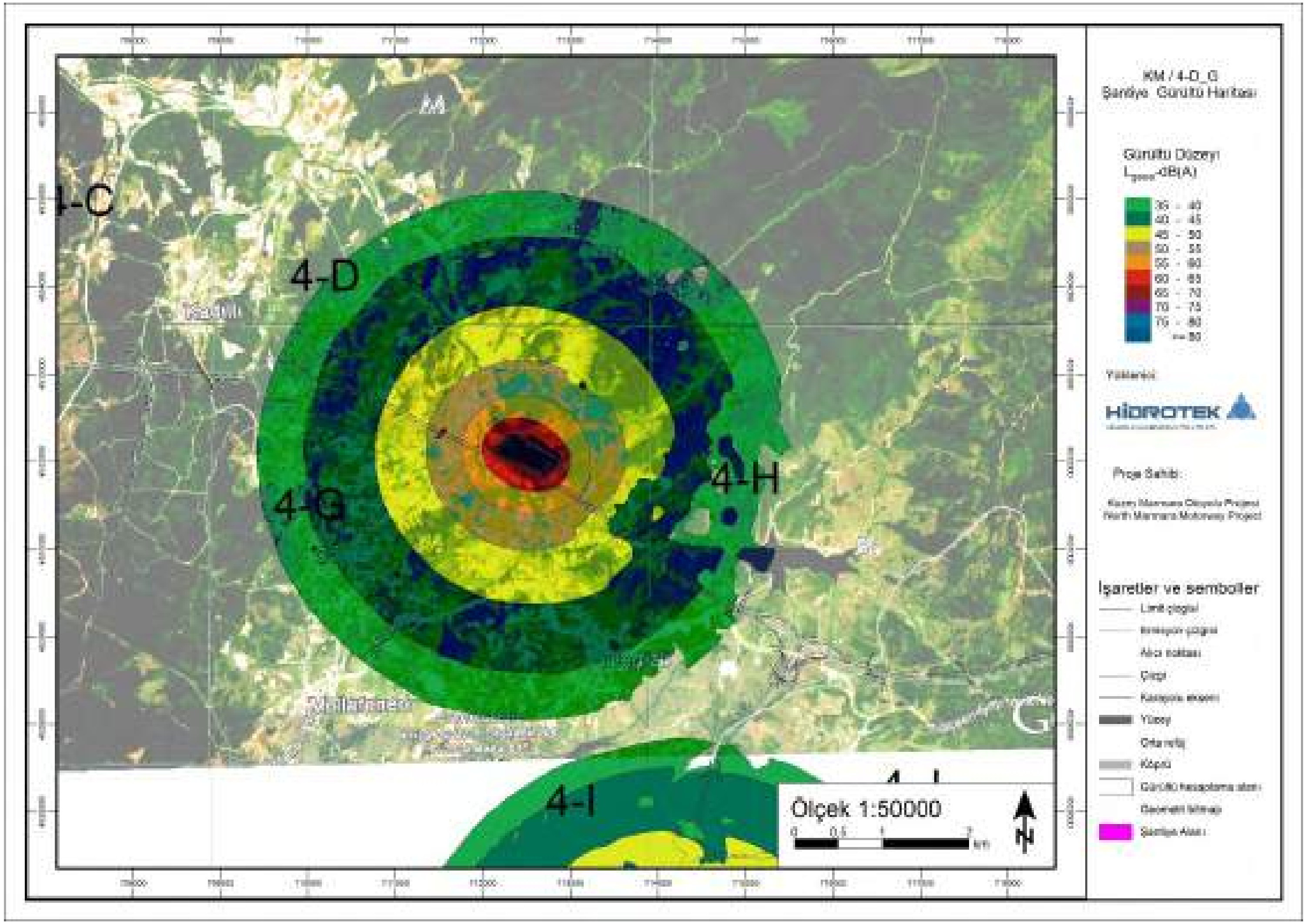

Figure 5.104 Ln noise map for part 4 D-G

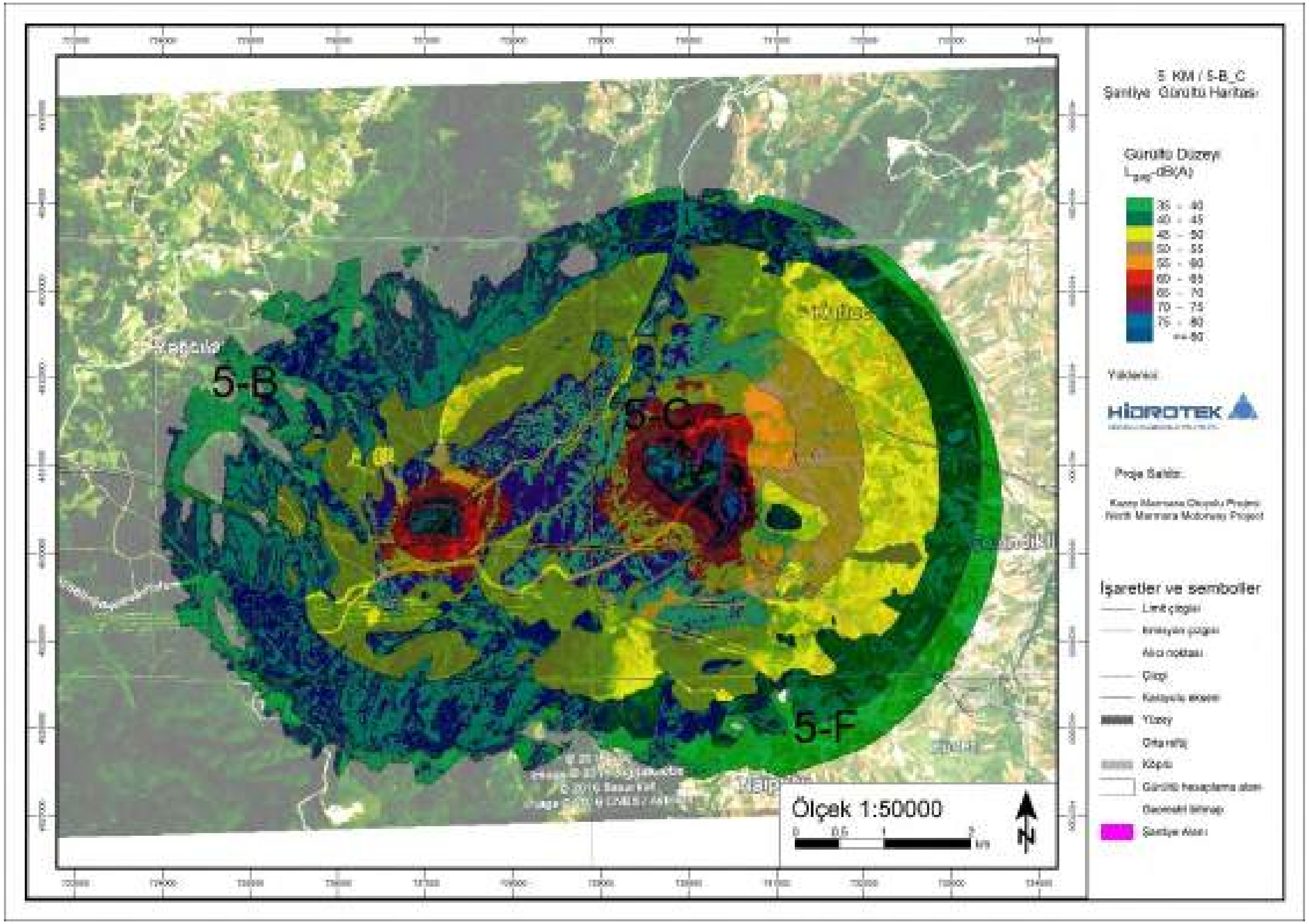

Figure 5.105 Lden noise map for part 5 B-C

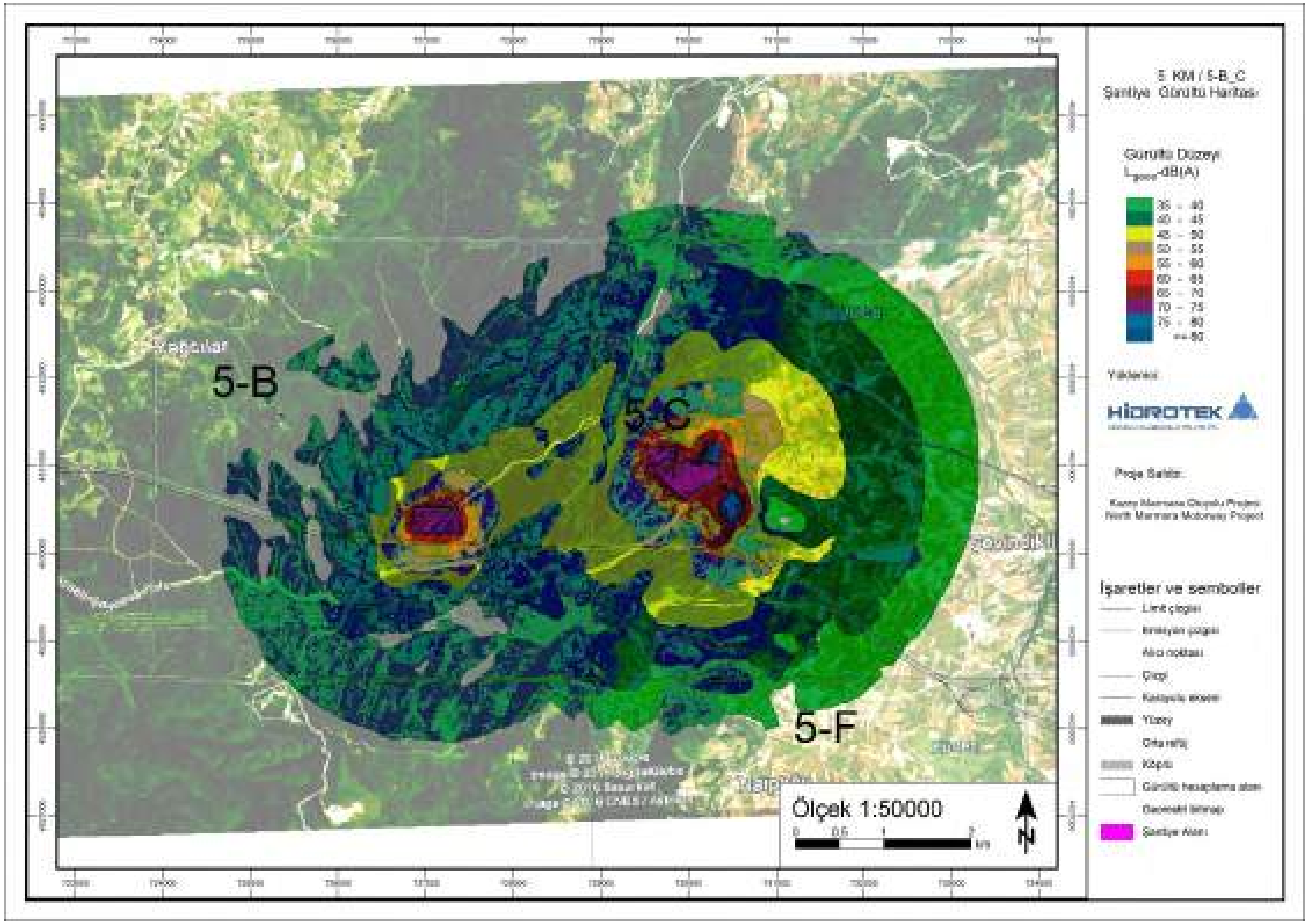

Figure 5.106 Ln noise map for part 5 B-C

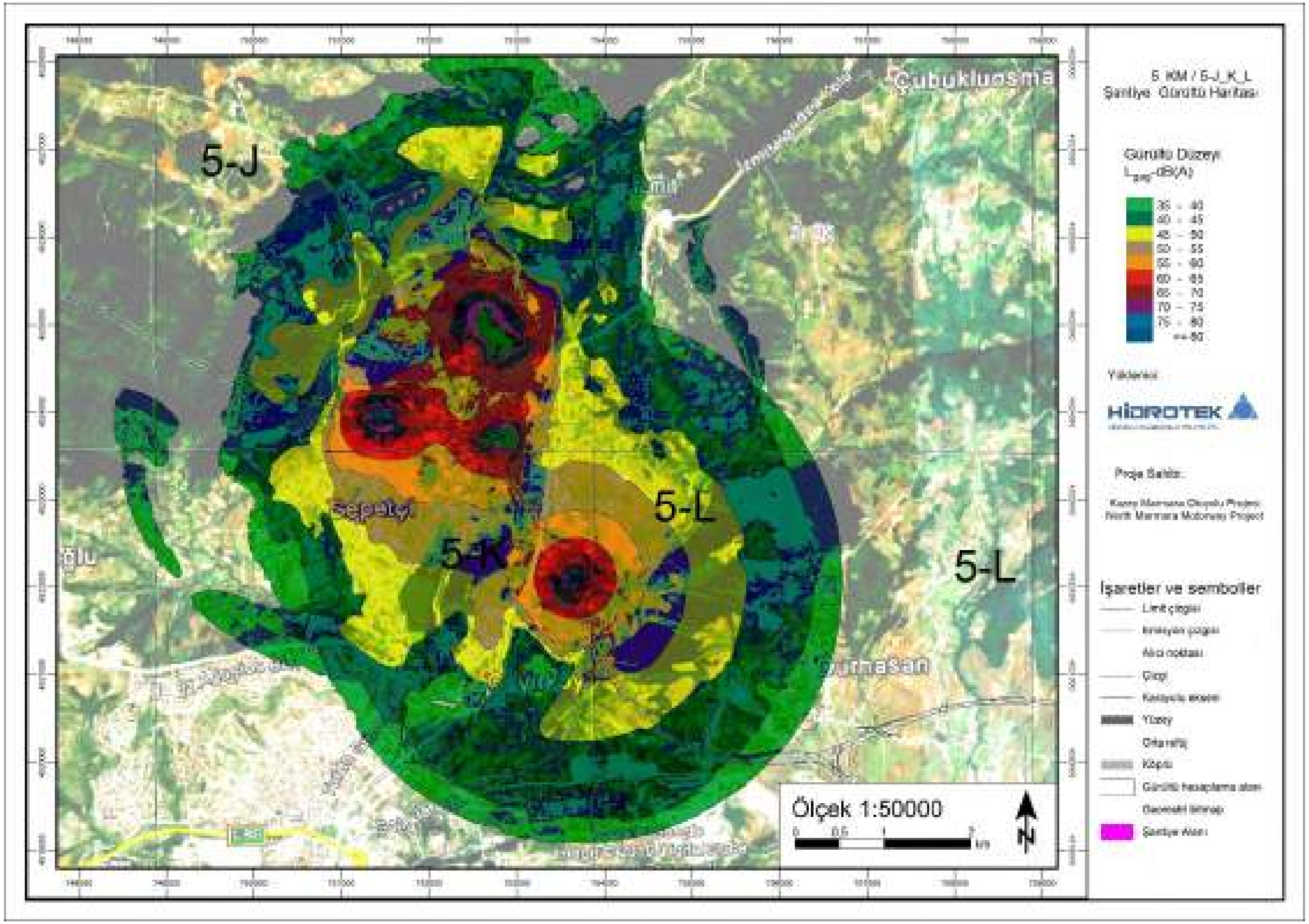

Figure 5.107 Lden noise map for part 5 J-K-L

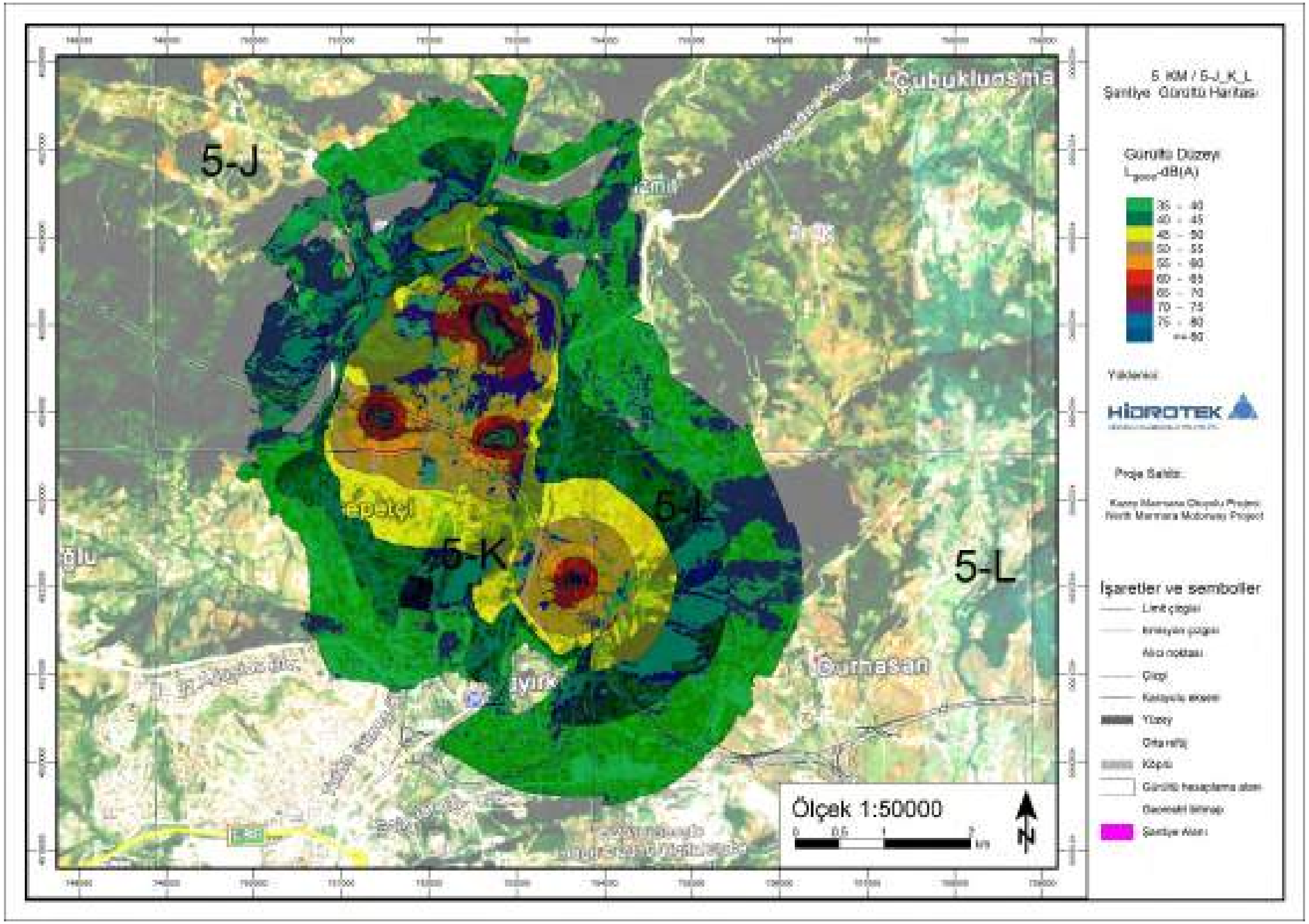

Figure 5.108 Ln noise map for part 5 J-K-L

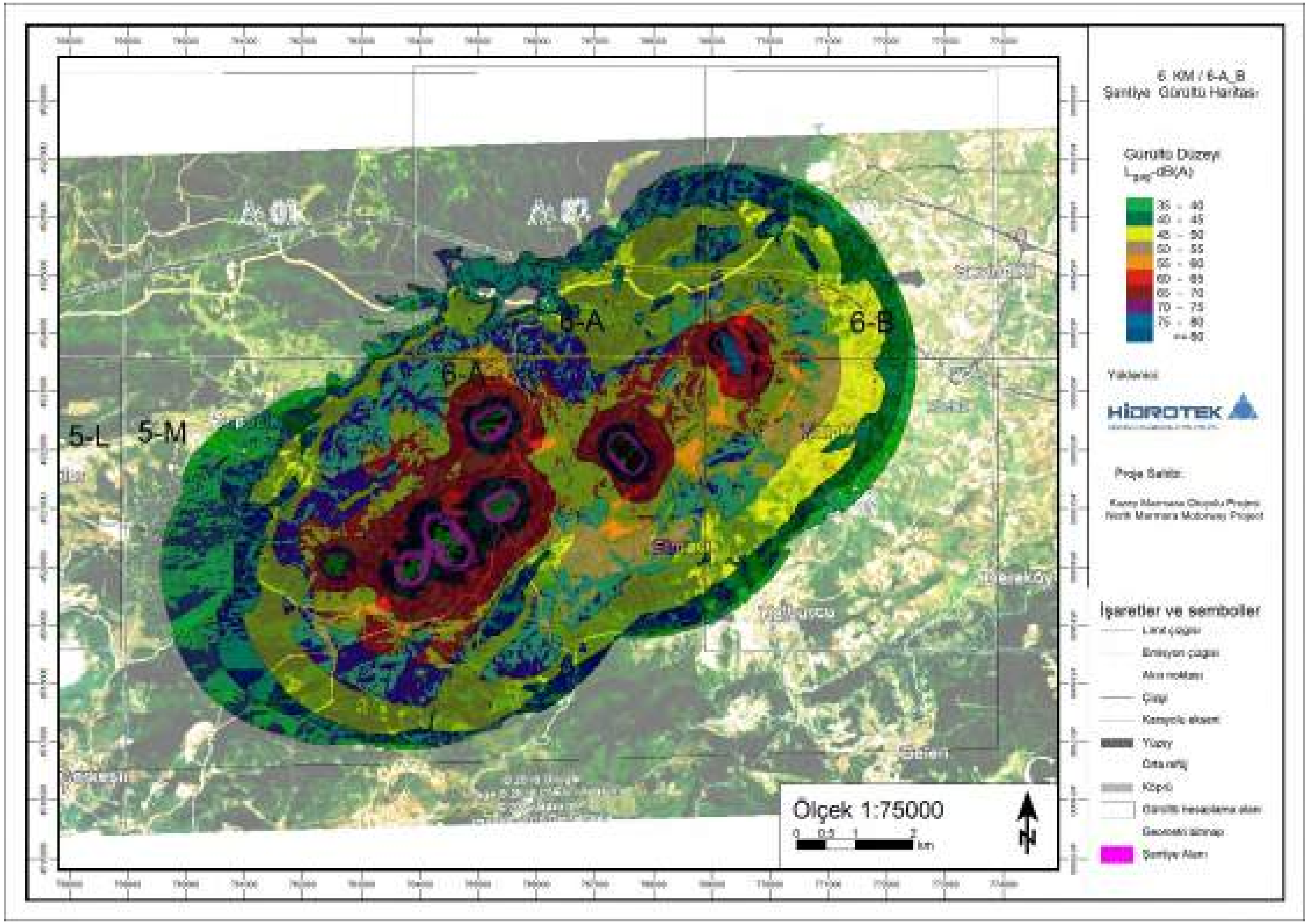

Figure 5.109 Lden noise map for part 6 A-B

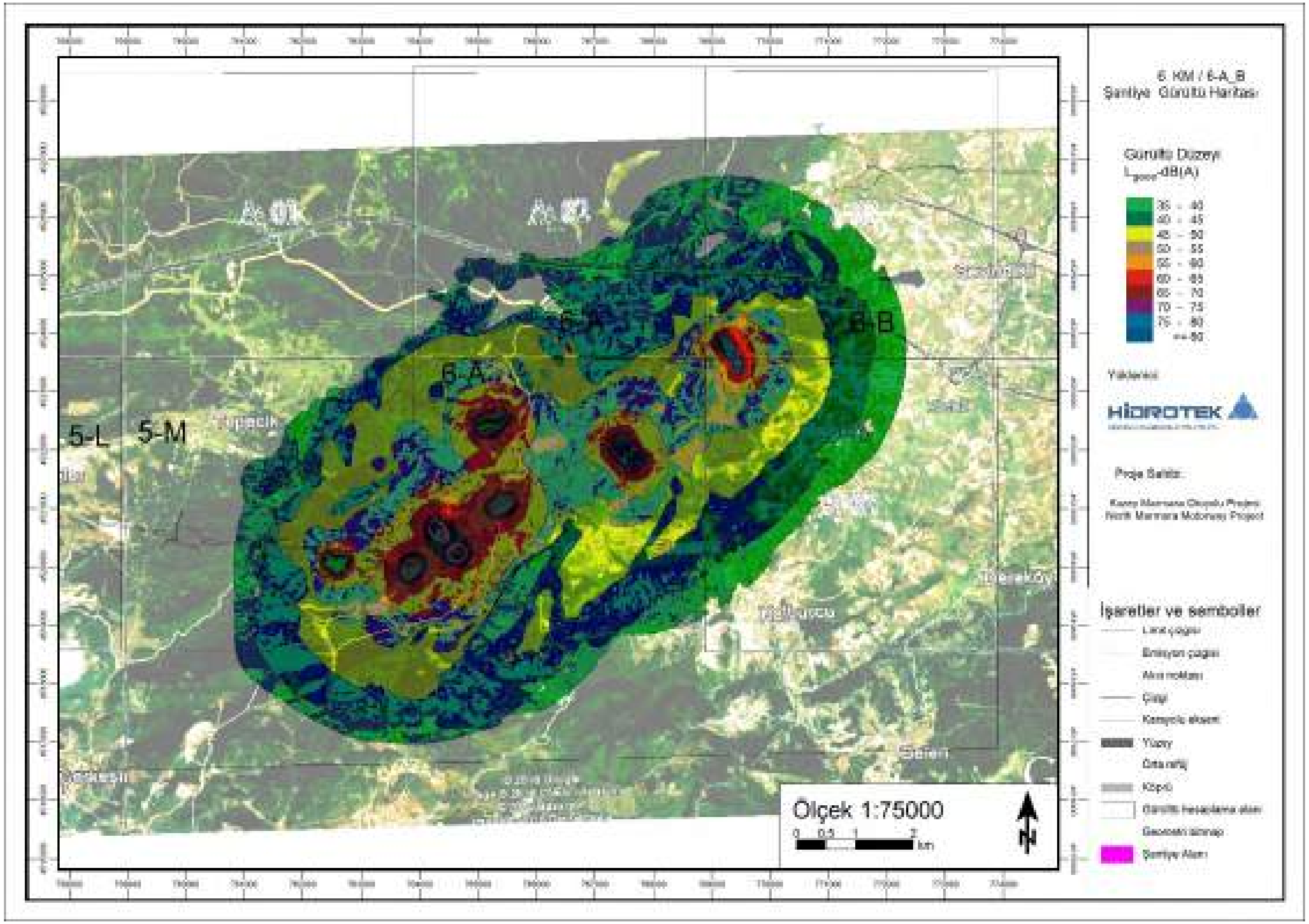

Figure 5.110 Ln noise map for part 6 A-B

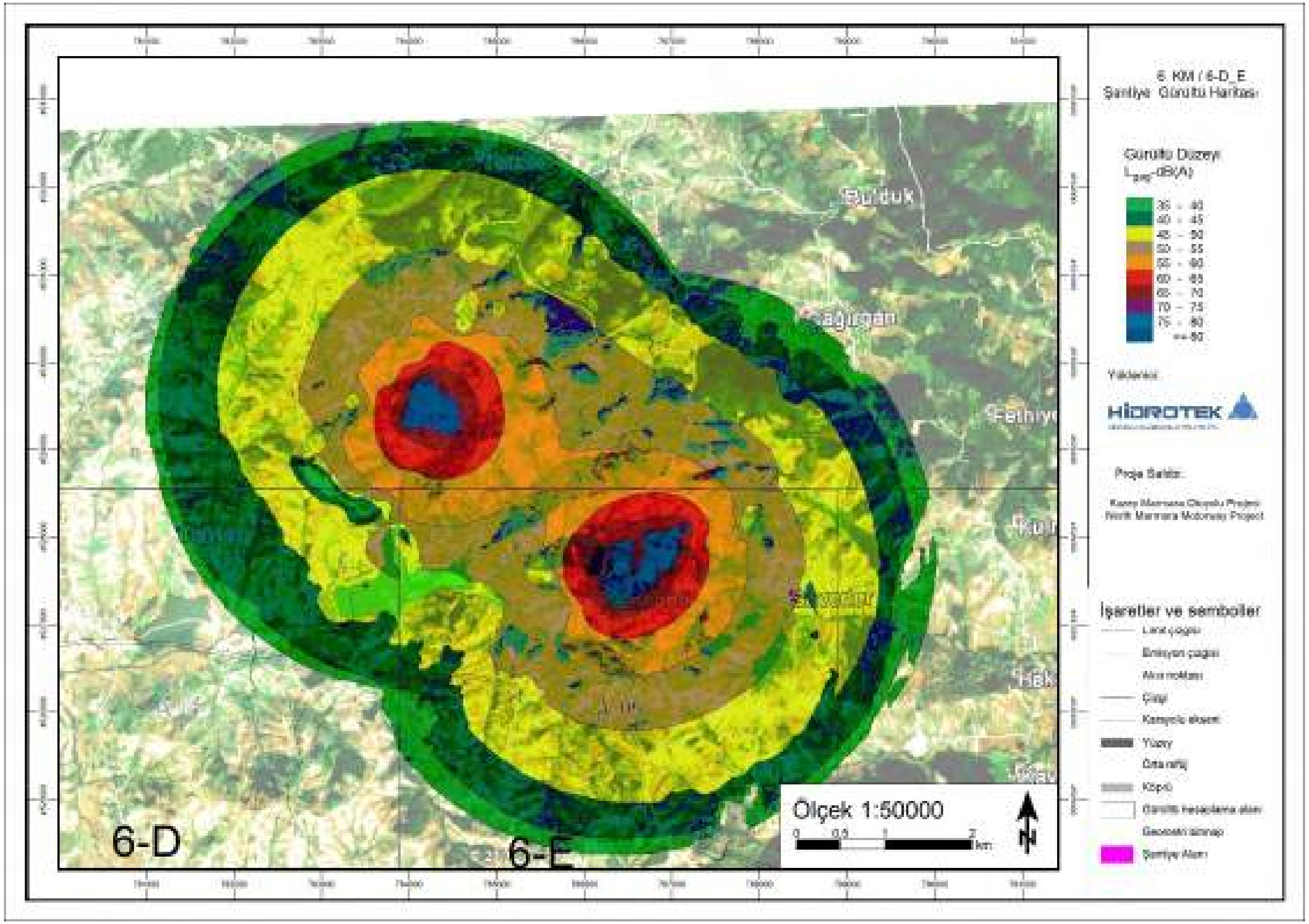

Figure 5.111 Lden noise map for part 6 D-E

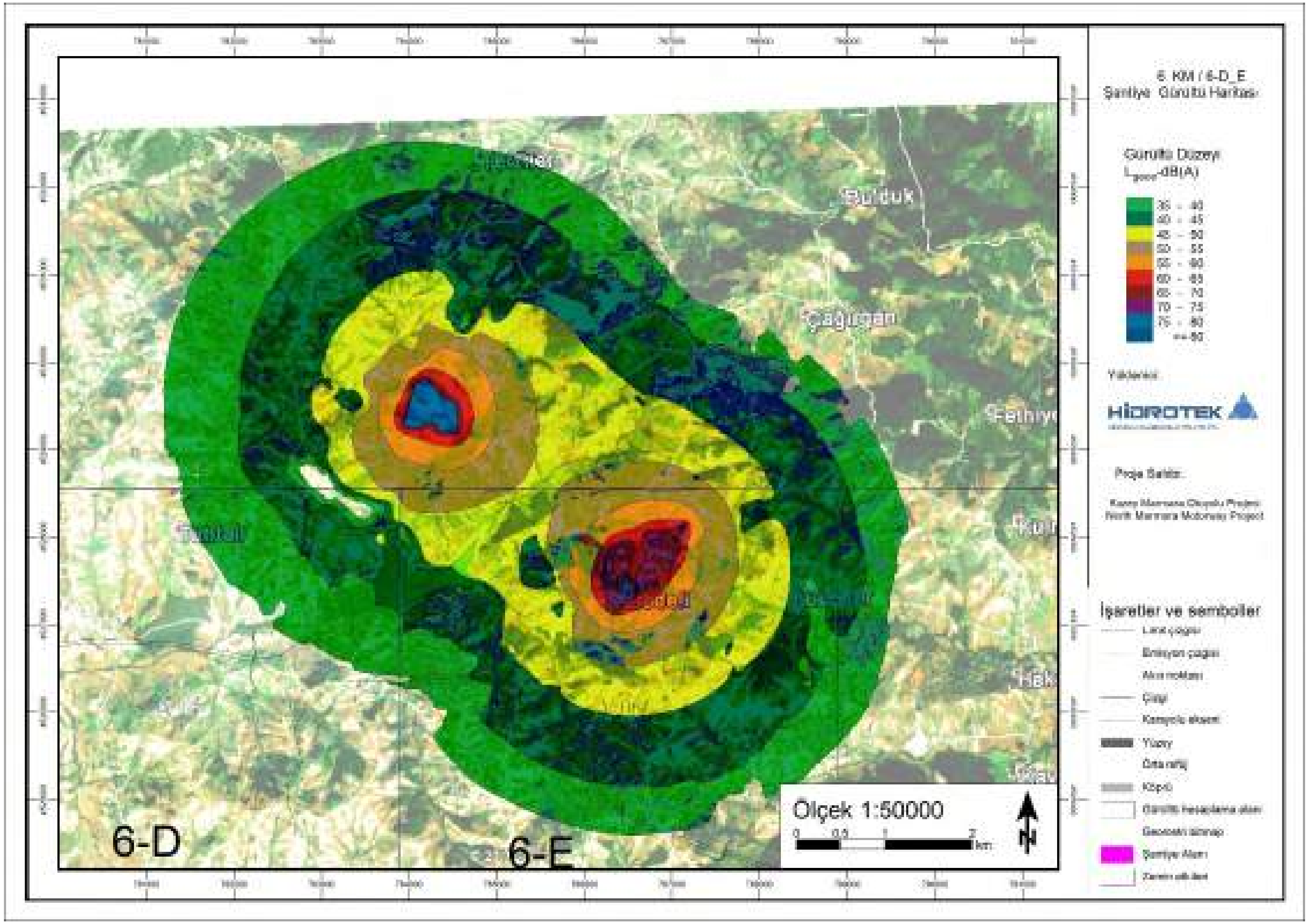

Figure 5.112 Ln noise map for part 6 D-E

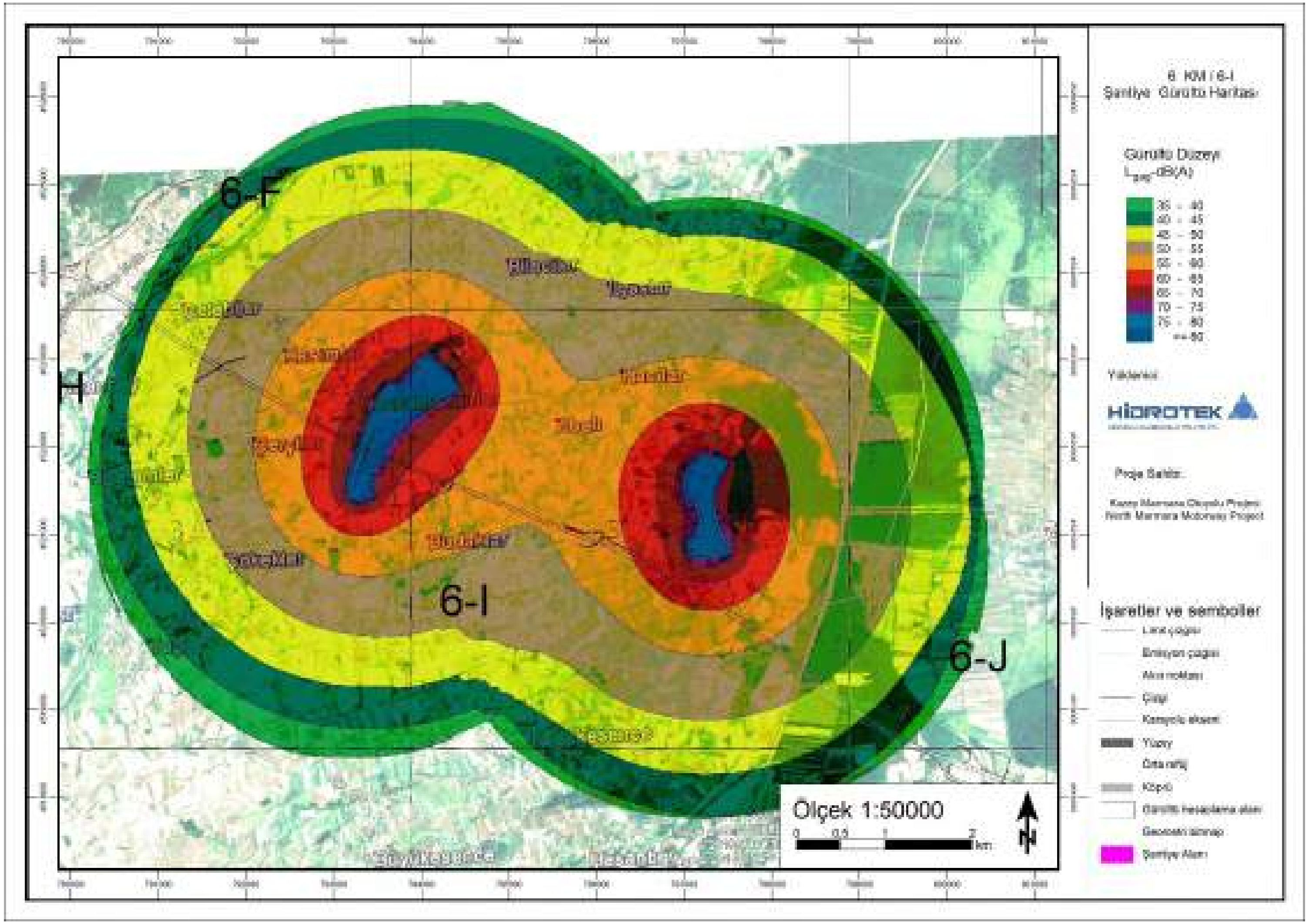

Figure 5.113 Lden noise map for part 6I

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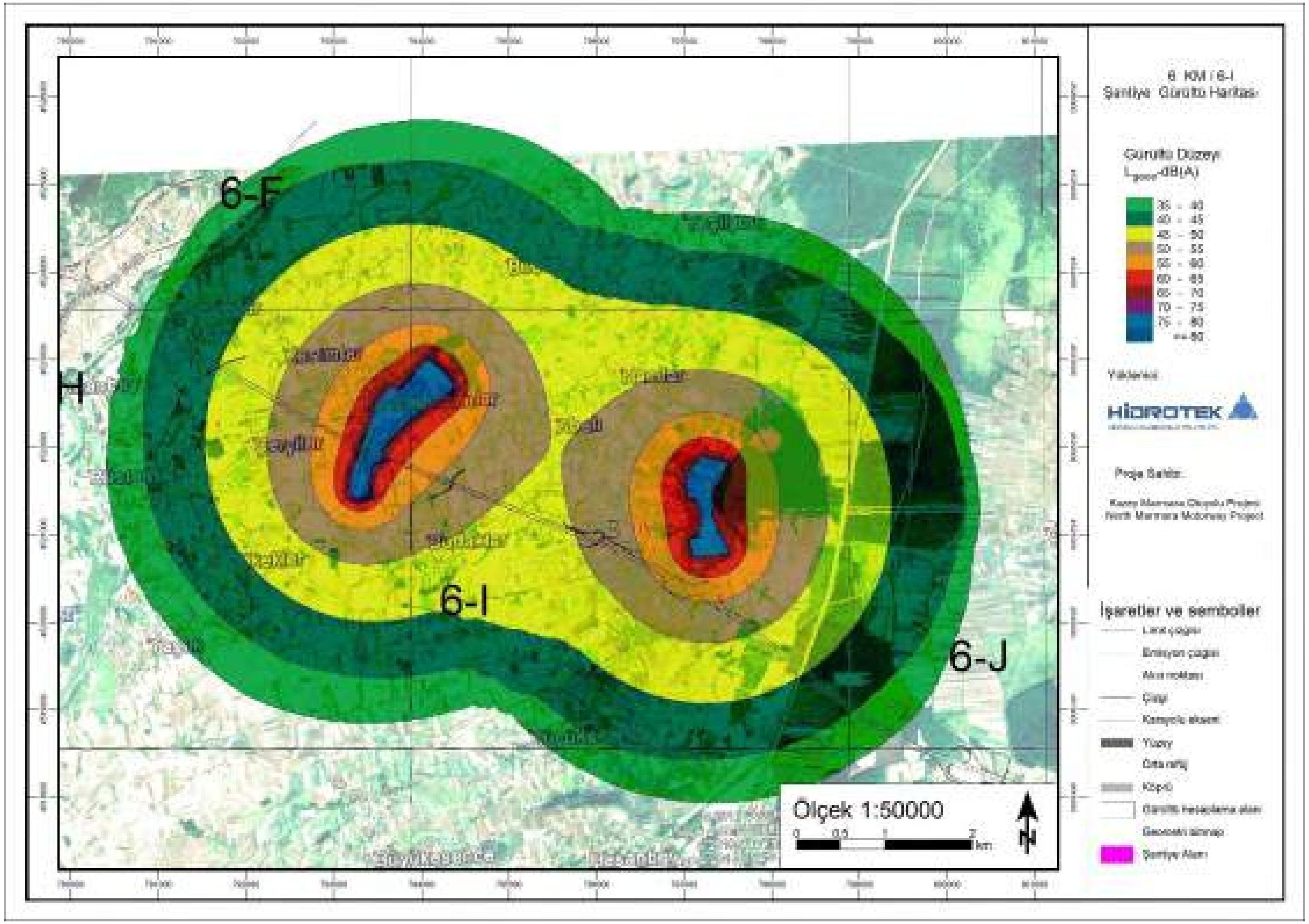

Figure 5.114 Ln noise map for part 6I

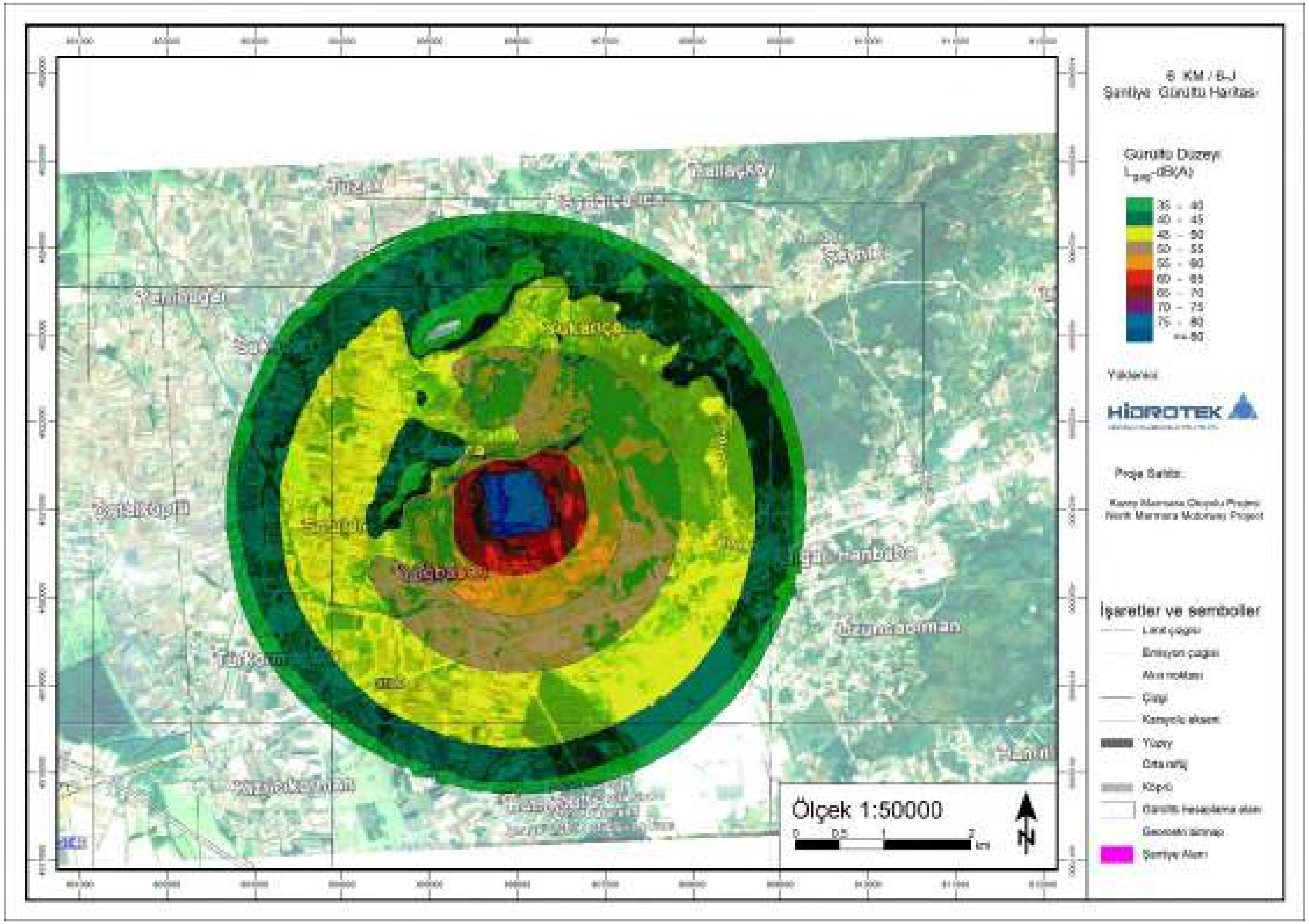

Figure 5.115 Lden noise map for part 6J

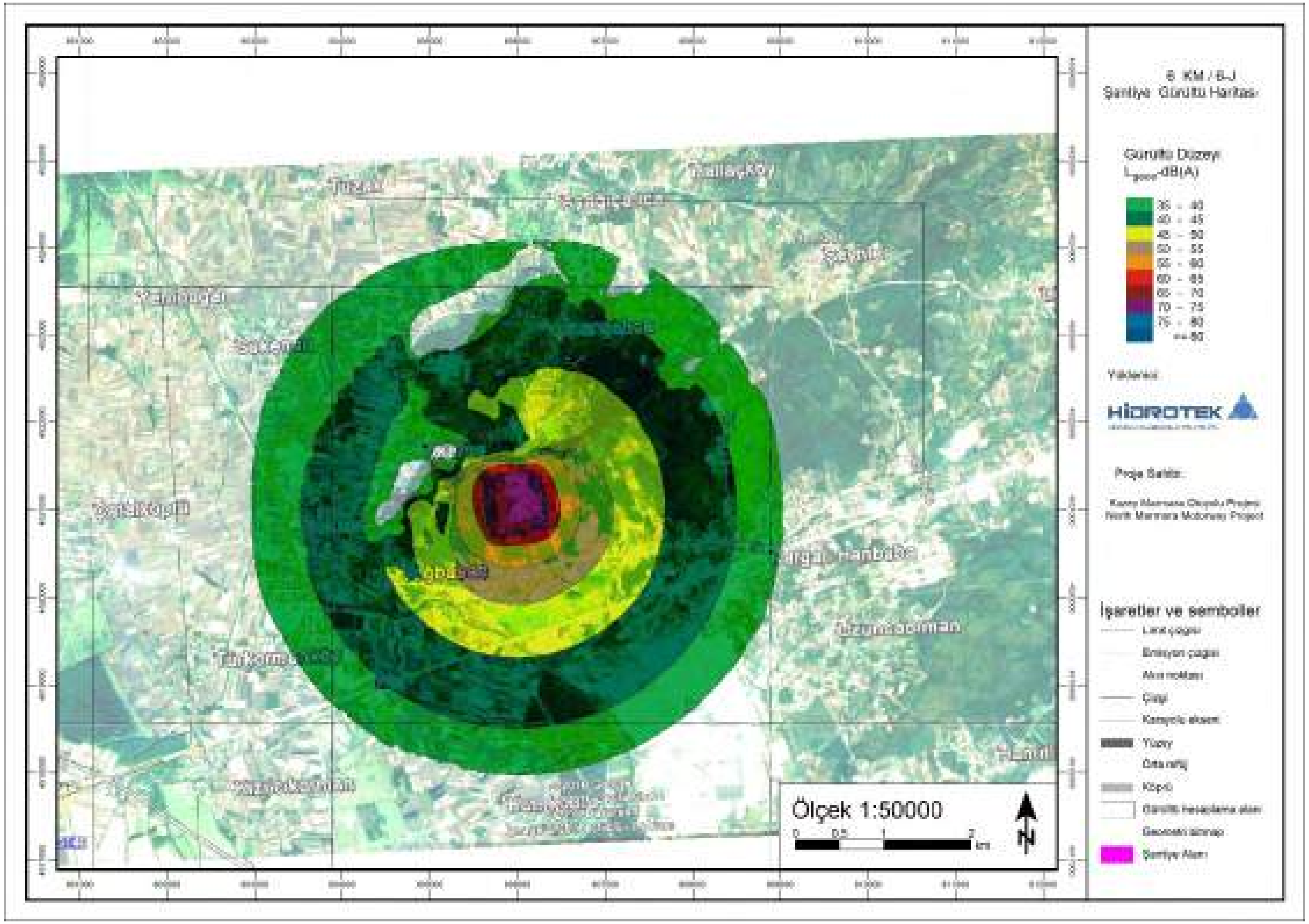

Figure 5.116 Ln noise map for part 6J

Lden: Day – Evening – Night noise

Ln: Night noise

6 ACTION PLAN

Noise emission effects of North Marmara Motorway Project is studied within TNR by using SoundPLAN V 7.4 (64 bit) software. Foreseen traffic data are used for noise level estimates. Noise levels are measured at 24 points on the highway and virtual receiver assignment is implemented each point to calculate the potential noise levels.

A more detailed noise action plan implementation needs to be carried out by using TNR criteria in the impact assessment of 10 from 24 locations for year 2027.

6.1 Action Plan Implementation

Noise barrier is selected as the applicable action plan for identified 10 locations. The characteristics of the selected noise barriers are given below for information.

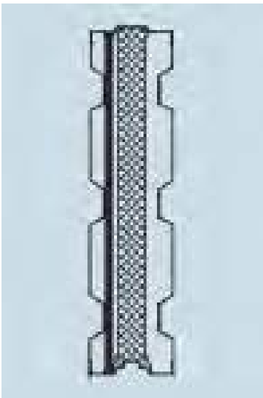

Figure 6.1 One-side absorber noise barrier

All of the acoustic test reports

According to the method

EN ISO 354:2005 : Measuring sound absorption in the tinnitus chamber

According to test reports made by accredited laboratories;

MINIMUM CHARACTERISTICS OF ALUMINUM NOISE BARRIER:

Sound absorption	**:DL_a ≥ 9 dB A4**
Classification of sound insulation performances	**: DL_R ≥ 25dB B3**
Weight	**: ≥ 25 kg/m^2**

P.S : These features are minimum.

The noise levels from virtual receivers of noise action plan for locations when implemented with the SoundPLAN 7.4 (64 Bit) program are given in Figure 6.2.

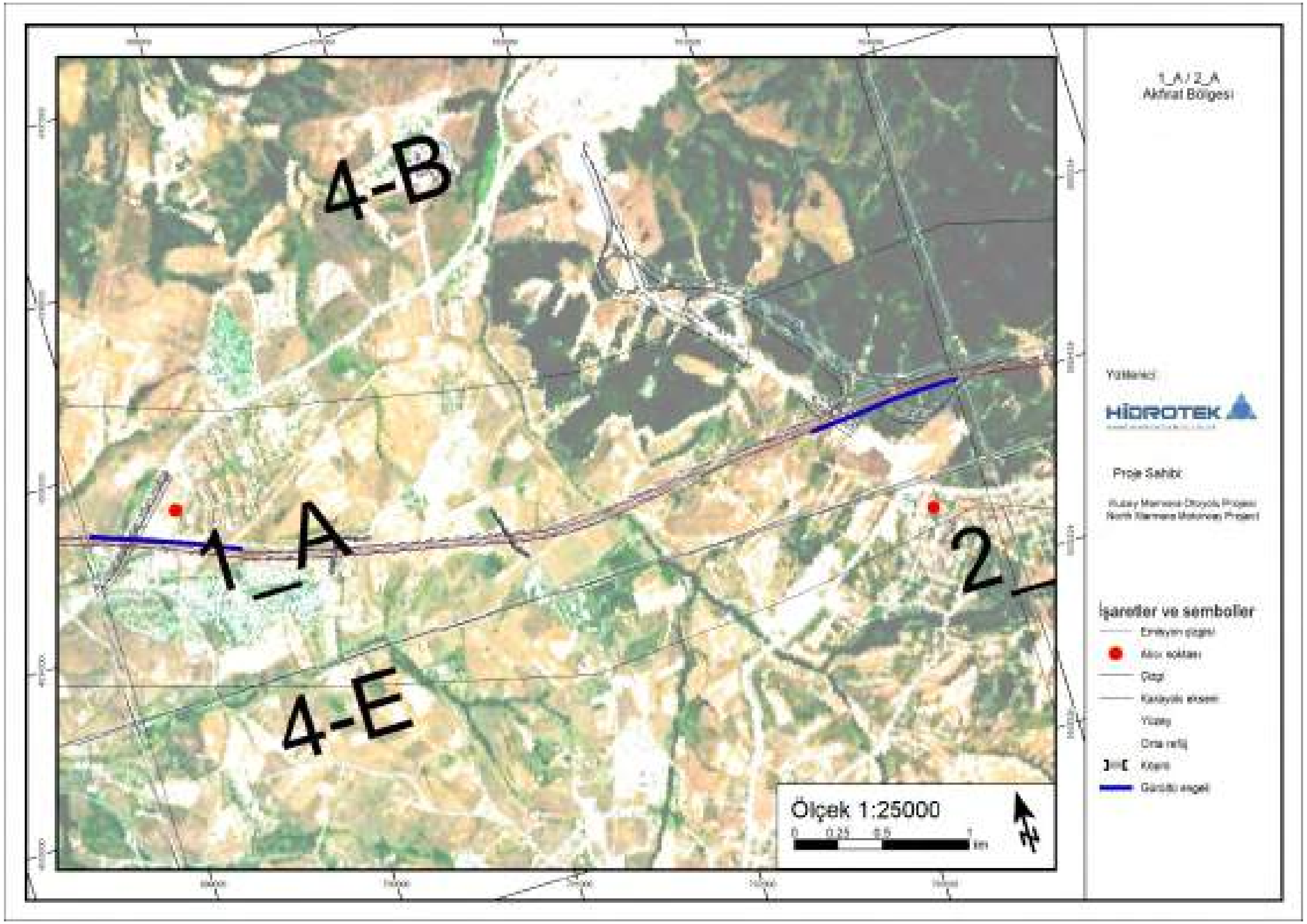

Figure 6.2 Akfırat

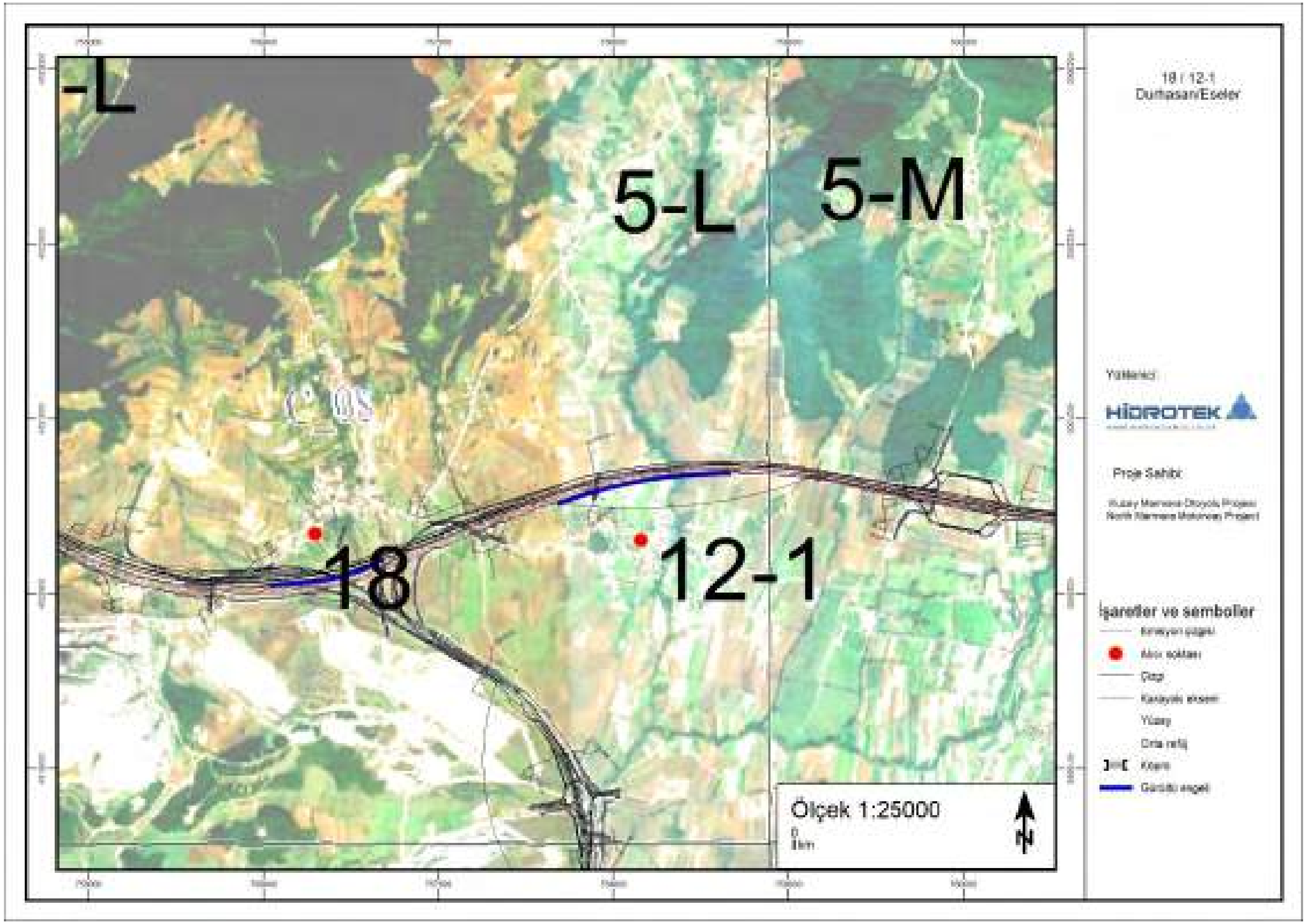

Figure 6.3 Durhasan/Eseler

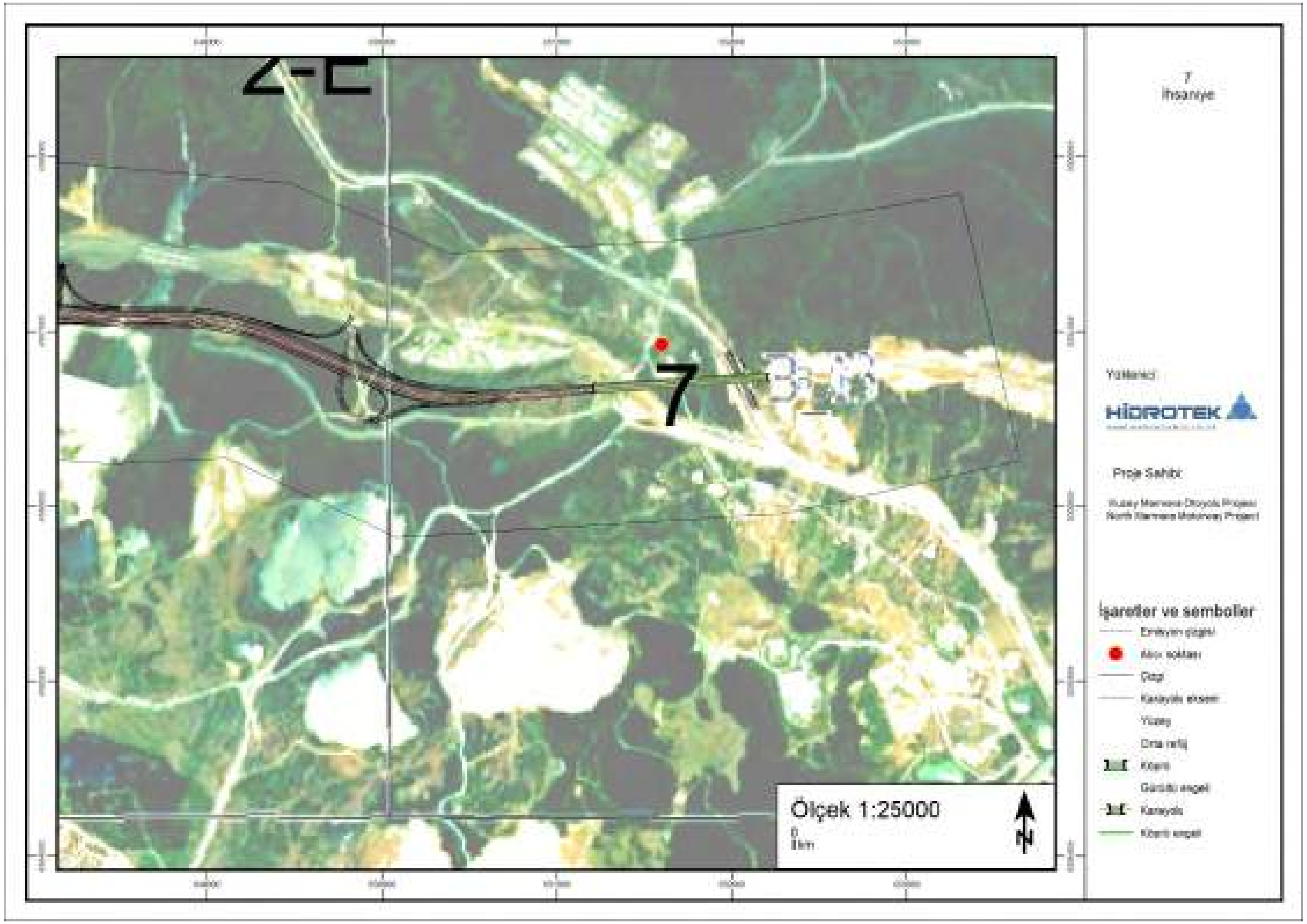

Figure 6.4 İhsaniyer

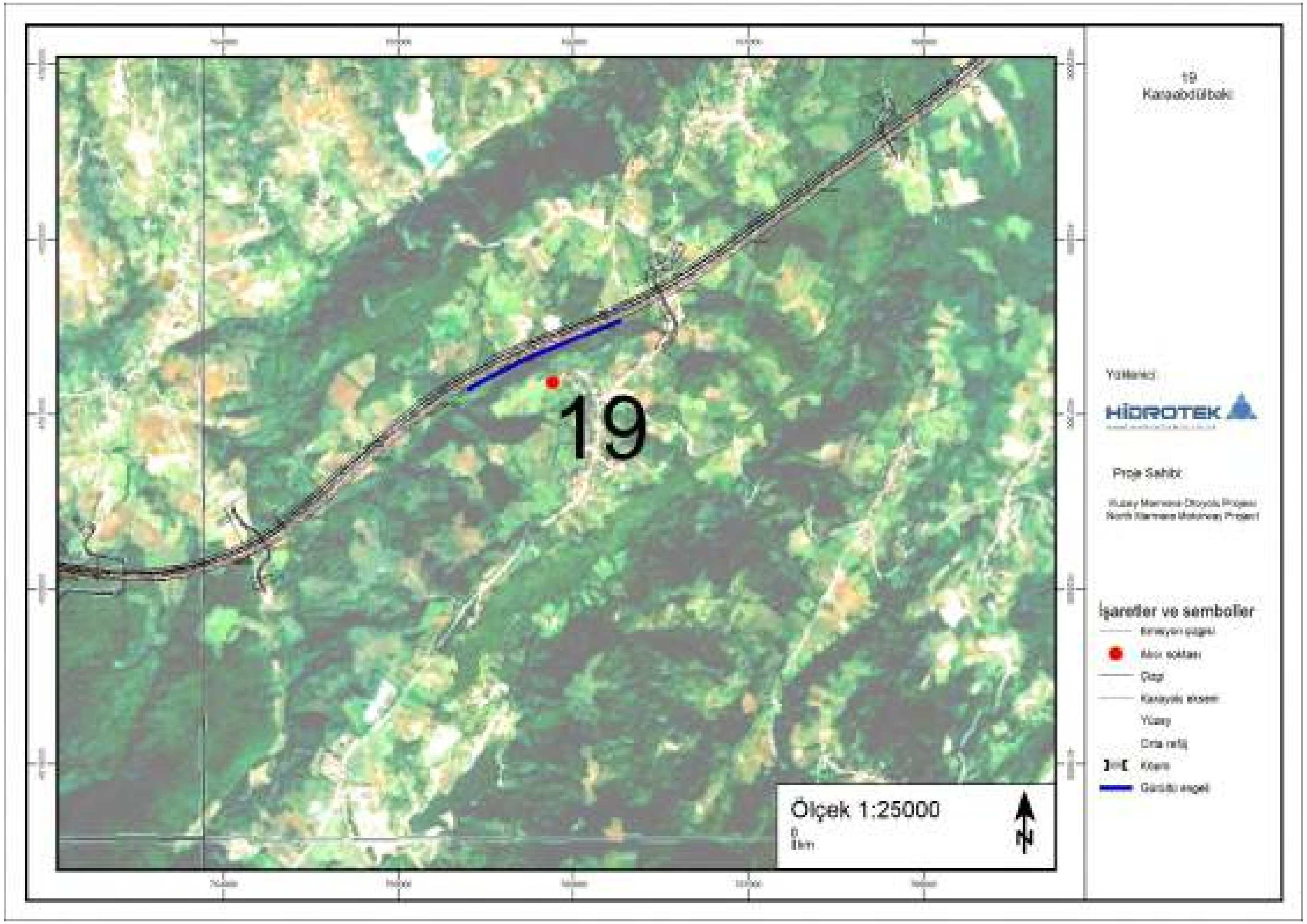

Figure 6.5 Karaabdülbaki

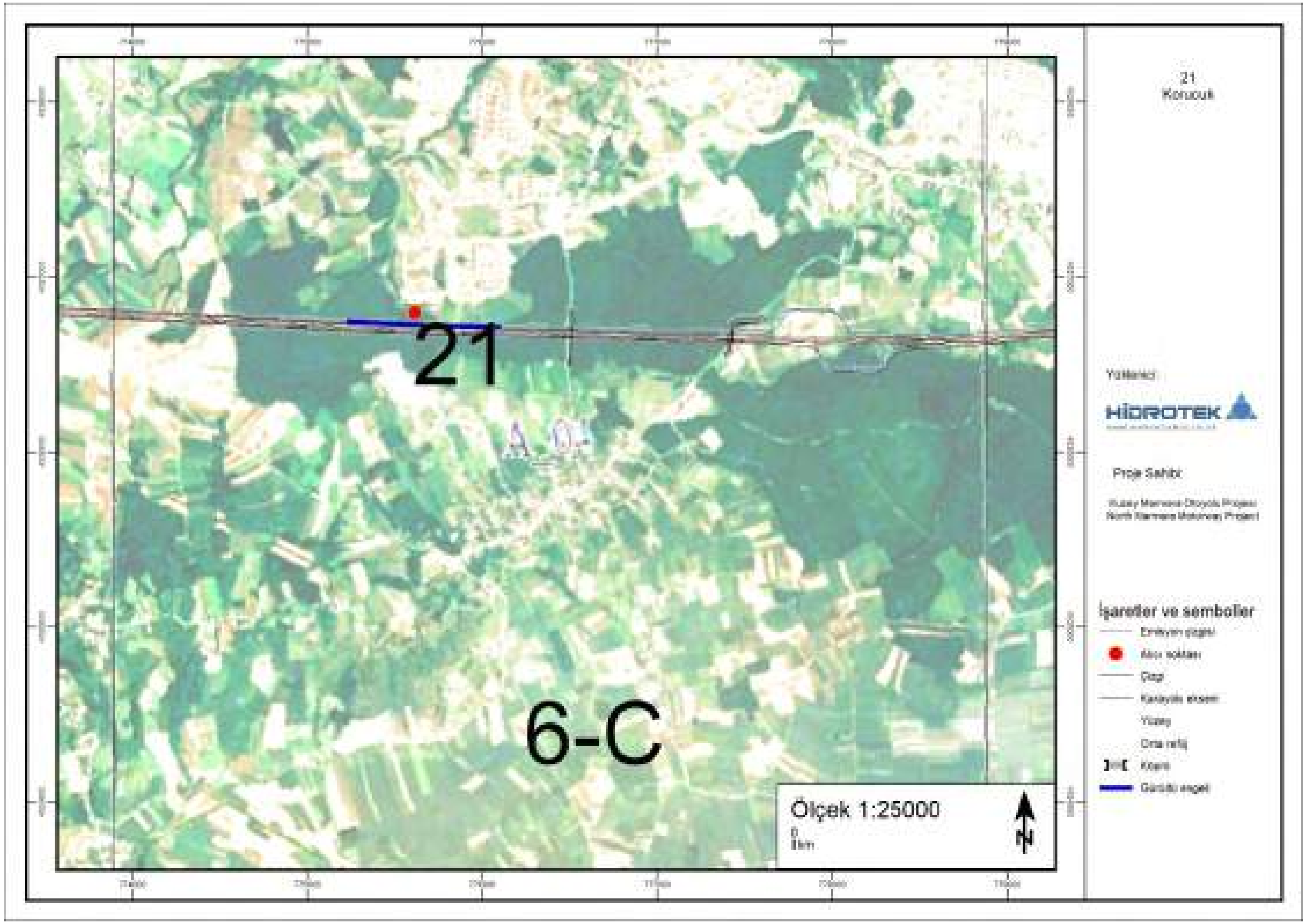

Figure 6.6 Korucuk

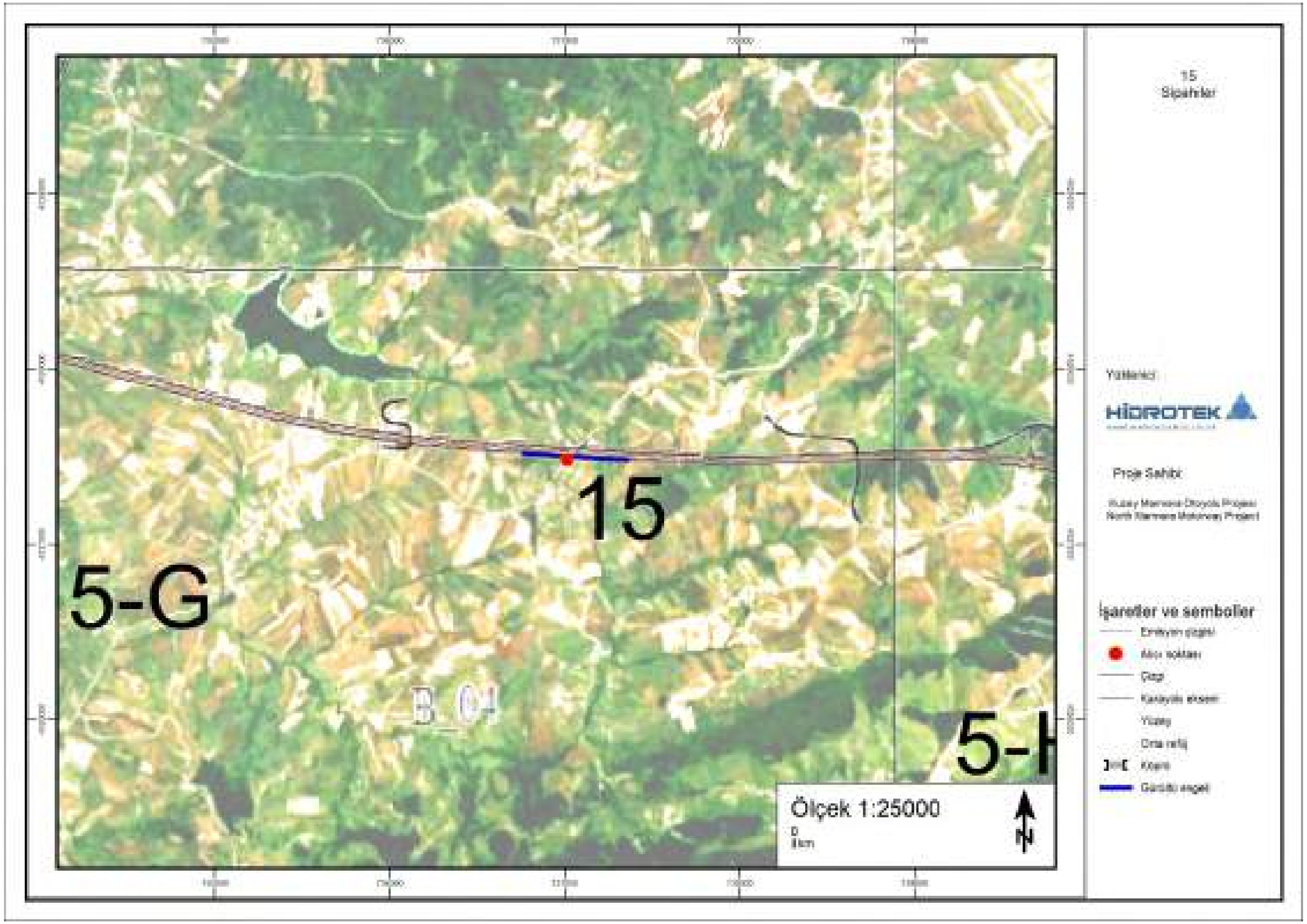

Figure 6.7 Korucuk

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				Current State				Action Planned Stiuation				m^2	Length	Height	Direction
No	Location	X m	Y m	Lden dB(A)	Ld dB(A)	Le dB(A)	Ln dB(A)	Lden dB(A)	Ld dB(A)	Le dB(A)	Ln dB(A)		m	m	
18	Durhasan	250,082.50	4,520,124.07	65.20	58.60	60.70	58.50	58.7	52.2	54.2	51.9	2500	625	4	İstanbul
19	Karaabdülbaki	259,704.48	4,520,305.08	62.50	57.20	58.20	55.40	58.3	52.4	53.9	51.4	3000	1000	3	Ankara
21	Korucuk	269,796.42	4,525,241.07	65.80	59.80	61.30	58.90	49.7	42.9	45	43	3000	857	3.5	İstanbul
7	İhsaniye	651,600.46	4,566,923.38	62.10	55.20	55.70	55.70	61.1	54.2	54.7	54.7	4000	1143	3.5	Edirne
9	Sultangazi	660,842.42	4,551,423.40	71.70	67.00	67.50	64.50	69.2	64.5	65	62	8000	1450	5.5	Edirne
10	Kurnaköy	696,716.23	4,536,081.56	71.80	67.10	67.50	64.60	69.3	64.6	65	62	8000	1450	5.5	İstanbul
15	Sipahiler	737,013.01	4,527,481.61	75.70	70.10	71.30	68.70	61.8	56	57.4	54.9	2500	625	4	Ankara
1_A	Akfirat	699.419,00	4.534.658,00	72.80	67.30	68.20	65.80	61	55.2	56.4	54.2	3500	875	4	İstanbul
2_A	Akfirat	703.566,00	4.533.409,00	64.90	58.50	60.10	58.20	58.2	52	53.5	51.5	3500	875	4	Ankara
12_1	Eseler	251.938,00	4.519.957,00	64.90	58.50	60.10	58.20	53.6	47.1	49	46.8	3000	1000	3	Ankara

Figure 6.8 Comparison chart

7 RESULTS

Noise emission effects of North Marmara Motorway Project is studied within TNR by using SoundPLAN V 7.4 (64 bit) software. Foreseen traffic data are used for noise level estimates. Noise levels are measured at 24 points on the highway and virtual receiver assignment is implemented each point to calculate the potential noise levels.

By using TNR for year 2027, the noise action plan was implemented in 10 out of 24 locations. So in 8 of these locations, the results below the limit values stated in our regulation were obtained. The size of the noise barrier to be placed in this area is 25.000 m^{2}. Approximate quantities for the regions is shown in Figure 6.7.

For Sultangazi and Kurnaköy, it is not possible to reach the limit values stated in the regulation. These areas will be affected by other noise sources during operation as they are located between the other link roads. Further studies are required when link roads for these zones are taken into operation.

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Acoustics Specialist

Ali AKDAĞ
Electronics and Communication Engineer
Acoustics Specialist

ABBREVİATİONS

Lden:Lday-evening-night

Ln: Lnight

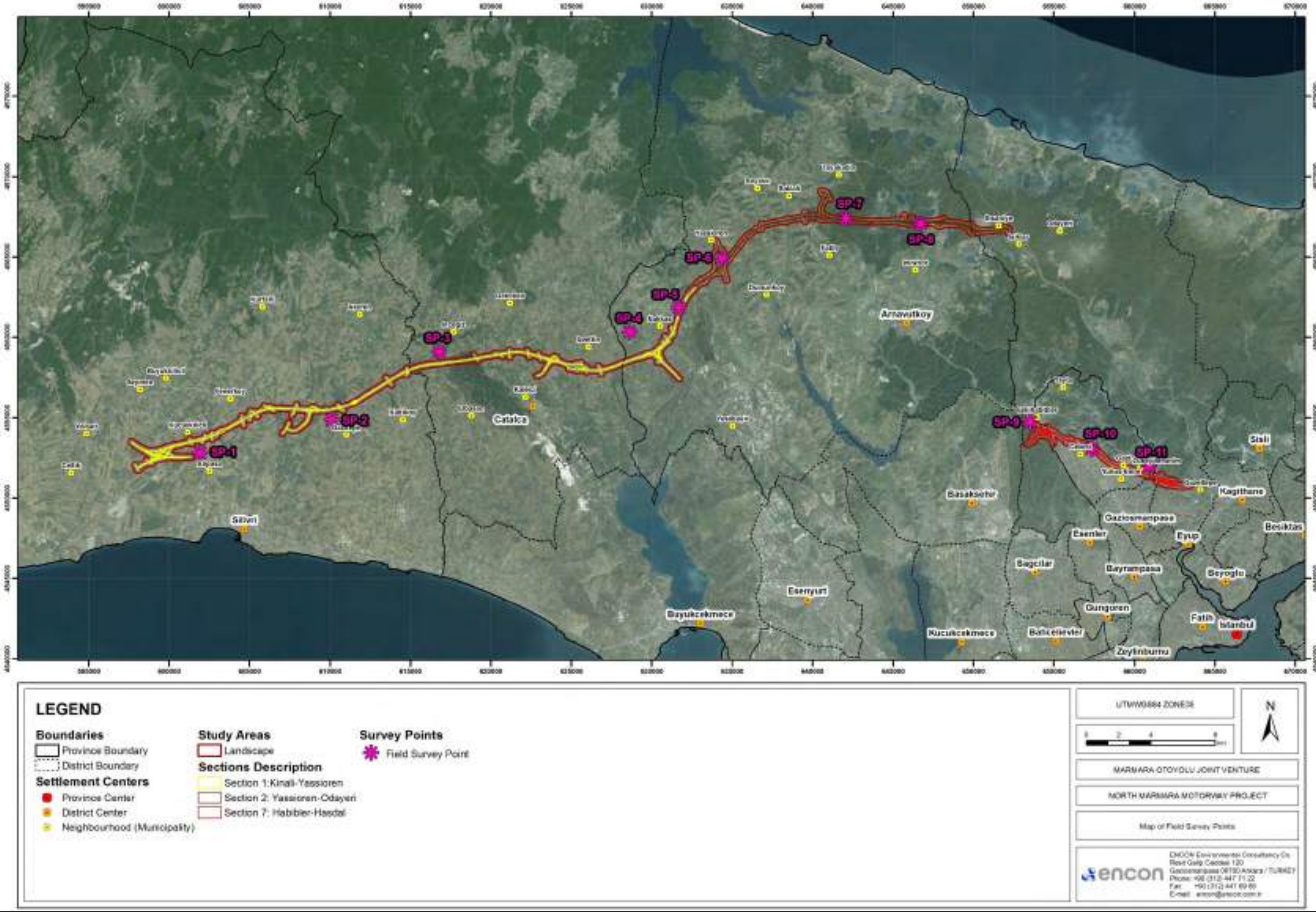
TNR: Turkish Noise Regulations

ANNEX-9

LANDSCAPE FIELD SURVEY POINTS

Annex-9. Landscape Field Survey Points

Annex-9.1. Map of Field Survey Points



Annex-9.2. Panoramic Views of the Field Survey Points

Survey Point 1 (Section 1)

Survey Point 2 (Section 1)

Survey Point 3 (Section 1)

Survey Point 4 (Section 1)

Survey Point 5 (Section 1)

Survey Point 6 (Section 1)

Survey Point 7 (Section 2)

Survey Point 8 (Section 2)

Survey Point 9 (Section 7)

Survey Point 10 (Section 7)

Survey Point 11 (Section 7)

ANNEX-10

ARCHAEOLOGY AND IMMOVABLE CULTURAL HERITAGE REPORT

NORTH MARMARA MOTORWAY PROJECT ESIA ARCHAEOLOGICAL REPORT

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GLOSSARY

Anatolian Seljuks	Definition for Seljuk tribes who established a Turkish state in Anatolian territories. Seljuk commander Kutalmışoğlu Süleyman Şah (Süleyman Şah I) led the conquests in western Anatolia, captured İznik in 1075 and declared it as the capital city and established Anatolian Seljuk state. Anatolian Seljuk State, which was founded when İznik became capital, existed until İlhanids overthrown the last Anatolian Seljuk ruler in 1318.
Access Road	A section of a motorway in the junction area allowing connection of vehicle roads with each other not covering the junction itselfed and reserved for one way traffic.
Bithynia	The name of the eastern part of the Bosporus in ancient sources. The Kingdom, which was established by Bithyns of Thracian origin in 377 BCE with the capital city of Nicaea and survived until 64 BCE is also named after the same toponym.
Byzantine Period	The period during when the Byzantine Empire reigned as the successor of the Roman Empire throughout the Late Antiquity and Medieval Age and ended in 1453 when Istanbul was conquered by the Ottomans.
Byzantium	The ancient city which was established on the area that is occupied by the Topkapi Palace and Hagia Sophia on the Thracian side of Bosporus, which separates Europe from Asia. Sarayburnu and its hinterland formed the core of Byzantium. The city have developed and extended to the area, which today roughly covers Eminönü and Fatih districts. Today, this area, where the historic traces of Istanbul can be observed, is called “the Historic Peninsula”.
Early Bronze Age	The period, which roughly covers between 3200 BCE and 2000 BCE in Anatolia. It is divided into three sub-periods as Early Bronze Age I, Early Bronze Age II and Early Bronze Age III.
Hellenistic Period	The period during when the Hellenic civilization spread to the entire known world. Hellenic civilization first appeared in the Island of Crete and diffused first into the neighbouring islands and then to Greek Peninsula. Hellenic civilization existed in the form of city-states. Hellenic civilization spread to a vast geography during the Hellenistic period that started when Alexander the Great ended the Persian dominion in Anatolia and unified these city-states into the large Greek Empire.
Hittite	Hittite Kingdom was the state which ruled in Anatolia between 1700 BCE and 1200 BCE.
Scythians	Scythians were nomadic people, who lived in the east of Europe (Crimea and Pontic steppes) and in the region covering Tengri Mountains and Fargana Valley in the Central Asia, between the 8th century BCE and 3rd century BCE.
Chalcolithic Period	The period in the Anatolian history during which copper was used in addition to stone tools. It covers the interval between 5500 BCE and 3000 BCE.
Bunker	A type of fortification, which provides larger field of view built on elevated grous for machine gun and artillery shooting while providing protectionom light weapon and hand grenade attacks.

Conservation Site	The sites for protection of conservation of cultural and natural assets or their preservation in the historic environment. In certain conditions, protection of single building or a landscape is not sufficient. The building or natural formation may be negatively affected by activities, transformations, and developments around them. For this reason, an area which can be called a buffer zone or a temporary transition zone is formed around the protected cultural and natural assets and construction and physical interventions are restricted in this area.
Cultural Inventory	The database, which is formed as a result of documentation of movable and immovable cultural assets by government institutions.
Cultural Assets	All movable and immovable assets dated to prehistoric and historic periods that are associated with science, culture, religion and fine arts or those that became subject to social life in the historic period. Cultural assets which carry authentic scientific or cultural values can be found on surface, underground or underwater.
Cultural Heritage	General definition for monuments and artefacts which were created by previous generations and believed to possess universal values. It is divided into two as tangible and intangible cultural heritage.
Late Bronze Age	The name of the period which covers the interval between 1750 BCE and 1200 BCE.
Lydia	The name of the ancient region located between Gediz and Menderes rivers in the western Anatolia.
Mycenaean	The general name of the civilization and people, which dominated the Mainland Greece and the Aegean Islands between 1400 and 1200 BCE. The people are also known as Achaeans.
Mesolithic (Epipalaeolithic)	The word Mesolithic is the combination of Ancient Greek words Mesos (middle) and lithos (stone). It means the Middle Stone Age (22.000-10.000 BCE).
Necropolis	The epithet of areas that include cemeteries and mass graves. It is derived from the ancient Greek words necro(s) and polis meaning “the land of dead”.
Neolithic Period	The period in human history when hunter-gatherer life style ended and mankind started sedentary agricultural life. During this period many animal species were domesticated, villages, and cities were established as a result of production and pottery were started to be produced in order to store foods. It is also called the Neolithic Age. Neolithic Age is divided into two phases called as Pre-Pottery Neolithic and Pottery Neolithic (8000-5500 BCE). It is also known as the New Stone Age.
Middle Bronze Age	It is the second phase of the Bronze Age and covers the time span between 2000 BCE and 1750 BCE in Anatolia.
Palaeolithic Period	The period, which started around 2 million years ago and ended in 10000 BCE.

Persian Period	The period between 533 BCE and 334 BCE, during which Persians ruled in Anatolia and Iran.
Project Impact Area/Corridor	The sections, which remained under the influence of all types of construction activities (cleavage, infilling, stocking, explosion activities etc.) within NMM project. Within the scope of this project, as far as cultural heritage is concerned the impact corridor is defined as the 400-m strip with the construction main axis in the middle. Project Impact Area/Corridor encompasses the Project Construction Area/Corridor.
Project Route	The route, which covers all main motorway course including the access roads within the scope of the project.
Project Construction Area/Corridor	The areas, where all types of construction activities (cleavage, infilling, stocking, explosion activities etc.) causing direct influence on corresponding assets are implemented within NMM project. This area/corridor is encompassed by the 400 m impact area/corridor.
Redoubt	A type of an entrenchment, which is constructed and equipped with weapons for the defence of a specific area.
Roman Civilization	The civilization, which started in the city-state of Rome that was established in the 9th century BCE in the Italian Peninsula and became an empire that surrounded all Mediterranean Sea. It was divided into two as the Eastern Roman (Byzantine) Empire and Western Roman Empire by the Emperor Theodosius in 395 CE. The Byzantine (Eastern Roman) Empire has survived until the conquest of Istanbul in 1453.
Site	Site is a general definition covering the cities and city remains, which reflect the social, economic, architectural and similar features of their period; places, which include ample amount of cultural assets, became a subject of social life or witnessed important historic events; and places, which were documented with their natural properties and require protection.
Thracia	The name of the western part of the Bosporus in ancient sources. Its modern name is Thrace.
Thracians	The name of people, which have inhabited the Thrace, Bulgaria, and Northern Greece until the 4th century BCE.
Tumulus	The monumental graves, which are built with accumulation of soil and look like a hill.
Vault	A type of masonry, which is constructed in convex shape or semi-cylindrical with stone or brick. It is used in doors or ceilings.

ABBREVIATIONS

BCE	Before Common Era
c.	Century
CE	Common Era
EBRD	European Bank for Reconstruction and Development
ESIA	Environmental and Social Impact Assessment
GIS	Geographical Information Systems
GPS	Global Positioning System
ICOMOS	International Council on Monuments and Sites
IFC	International Finance Corporation
KM	Kilometre
KVKBKM	Directorate of Regional Conservation Board for Conservation of Cultural Assets
M	Metre
NMM	North Marmara Motorway
OUV	Outstanding Universal Value
RT	Republic of Turkey
WHS	World Heritage Sites

1. INTRODUCTION

This document is prepared for identifying the current status of archaeological and immovable cultural heritage within the scope of the North Marmara Motorway Project Environmental and Social Impact Assessment studies and defining possible influences of the project construction activities on the archaeological assets and immovable cultural heritage located within the project impact area.

1.1. Aim

The main objectives of the studies on the archaeological and immovable cultural assets, which were conducted within the scope of the Environmental and Social Impact Assessment over the 400 m impact corridor of project route (which covers the Project construction area) including the access roads are as following:

- Identifying the exact location and properties of potential cultural heritage located on the motorway construction route and its impact area (access roads etc.) as well as developing plans and strategies to mitigate the possible negative impacts of the construction activities on these areas;
- Providing information about the identified sites to official authorities and relevant project departments in order to prevent delays in motorway construction activities to help to prepare project activity plan (including the construction schedule) avoiding possible delays;
- Developing mitigation measures, which are compatible with the legal procedures and board decisions for the sites that are registered by the Ministry of Culture and Tourism, if any, or which are in the process of registration as well as those that were identified within the scope of this study and may have archaeological importance;
- Collecting the information about the sites located on the project construction route in compliance with scientific methods and contributing to the archaeological and cultural inventory of Turkey by sharing this information with relevant Regional Boards for Conservation of Cultural Assets.

1.2. Scope

The approximate length of the main project route, which is planned to be constructed between the City of Sakarya, Akyazı District and Istanbul, Silivri District is 190,4 km. The total length of the access roads of the Project on the other hand, is approximately 84 km (Map 1).

Map 1: North Marmara Motorway Project Route

Works for identifying the archaeological and cultural heritage assets that are possibly be located on the North Marmara Motorway Project route and necessary impact assessment studies were conducted within the corridor, which is in the same length with the construction impact area, including the access roads, covering the project route. The project route including the access roads was divided into 6 main sections. These sections where the studies were held are presented in Table 1.

Table 1: The Project Route and Corresponding Sections

Section	Km	City	Districts
6	251+143-241+250	Sakarya	Akyazı
	241+250-215+500		Adapazarı
	215+500-187+000	Kocaeli	İzmit
5	187+000-183+250	Kocaeli	İzmit
	183+250-175+500		Derince
	175+500-162+500		Körfez
	162+500-156+500		Gebze
	156+500-151+500		Dilovası
4	151+500-139+500	Kocaeli	Gebze
	139+500-132+750	İstanbul	Tuzla
	132+751-129+650		Pendik
7	71+250-69+500	İstanbul	Eyüp
	69+501-62+500		Sultangazi
	62+501-60+400		Esenler
2	58+000-55+750	İstanbul	Eyüp
	55+750-40+500		Arnavutköy
1	40+500-32+600	İstanbul	Arnavutköy
	32+600-19+000		Çatalca
	19+000-0+000		Silivri

2. APPLICABLE LEGISLATION AND STANDARDS

In Turkey, movable and immovable cultural and natural assets are protected and should be conserved as per the “Law on Preservation of Cultural and Natural Assets”, 2863 (amended by law numbered 3386), published in the Official Gazette numbered 18113 and dated 23 July 1983. According to the Law, essential assets which are identified as cultural and natural heritage under legal protection are defined as follows:

- Natural and immovable cultural assets belonging to 19th Century and before;
- Any immovable cultural asset constructed after the end of the 19th Century but categorized as “a significant asset which requires preservation” by the Ministry of Culture and Tourism;
- Immovable cultural assets located within the Protection Sites (in the Law, Protection Sites are defined as ancient sites and ruins which reflect the main social, economic or architectural characteristics of their era. Protection Sites may also be locations where fundamental historical events took place or areas containing considerable natural or cultural assets with natural or

cultural features requiring preservation); structures, buildings or places that have witnessed significant historical events during the Turkish Independence War or the foundation of the Turkish Republic, regardless of time and registration; and all dwellings and buildings that have been used by Mustafa Kemal ATATURK without considering their time of construction or status of registration.

In addition to the Law on Preservation of Cultural and Natural Assets, some regulations govern the procedures about the protection and preservation of cultural and natural assets. The most predominant one being the Principle Decision (No. 658, issued 5 November 1999) which states that all archaeological sites need to be classified and protected according to their significant features. Three main categories are determined relevant to archaeological sites as:

- **1st Degree Archaeological Sites:** Areas requiring highest level of protection. They should be preserved except for scientific excavations. The area should be free of any type of buildings and construction. All kinds of construction, excavation, and modification activities are prohibited. However, for exceptional cases such as the necessity for essential infrastructure construction, Regional Preservation Boards may permit such activities based on the approval of the relevant museum and the head of the scientific excavation team
- **2nd Degree Archaeological Sites:** Areas requiring medium level of protection. They should be preserved based on the conditions of protection and utilisation set by the Regional Preservation Boards. Additional construction is prohibited. As the 1st Degree Sites, for exceptional cases such as necessity for infrastructure construction among others, Regional Preservation Boards may permit such activities based on the approval of the relevant museum and the head of the scientific excavation team.
- **3rd Degree Archaeological Sites:** Lowest level of protection area. Construction is permitted based on the decisions of Regional Preservation Boards. Before applying for a construction permit, test pit excavations should be conducted and the outcomes of these excavations should be reviewed by the relevant museum and, if present, the head of the scientific excavation team. Reviews should be submitted to Regional Preservation Boards. The Boards may ask for extension of the coverage of test pits before taking any decision.

In addition to the regulations mentioned above, the following guidelines were taken into consideration during the study:

- International Finance Corporation-IFC, Performance Standard 8
- European Bank for Reconstruction and Development- EBRD, Environmental and Social Policy, PR08, Cultural Heritage
- UK Department for Transport, Design Manual for Roads and Bridges Part 2 HA 208/07 Cultural Heritage
- Guidance on Heritage Impact Assessments for Cultural World Heritage Properties, International Council on Monuments and Sites (ICOMOS) January 2011.

3. ROLES AND RESPONSIBILITIES

As mentioned above, according to the Law on the Conservation of Cultural and Natural Assets no: 2863, all cultural and natural properties requiring protection are considered as state property. As stated in the same law, the Ministry of Culture and Tourism and its local branches (Boards for Conservation of Cultural Assets, Museums) are the main national government institutions who have the authority of conducting studies for the identification and registration of cultural assets and defining the conditions of conservation and use of these sites. Within the scope of the North Marmara Motorway Project, regional boards for conservation of cultural assets presented in Table 2 are the sole competent authority in this regard. The project is legally bound to follow the decision taken or shall be taken by the conservation boards.

Table 2: Regional Boards for Conservation of Cultural Assets and Their Areas of Responsibility on the Project Route

NMM PROJECT ROUTE AND RELEVANT AUTHORITIES					
Section	**Km**	**City**	**District**	**Regional Board for Conservation of Cultural Assets**	**Annex**
6	251+143-241+250	Sakarya	Akyazı	Kocaeli Regional Board for Conservation of Cultural Heritage	Annex 1
	241+250-215+500		Adapazarı		
	215+500-187+000	Kocaeli	İzmit		
5	187+000-183+250	Kocaeli	İzmit	Kocaeli Regional Board for Conservation of Cultural Heritage	
	183+250-175+500		Derince		
	175+500-162+500		Körfez		
	162+500-156+500		Gebze		
	156+500-151+500		Dilovası		
4	151+500-139+500	Kocaeli	Gebze	Kocaeli Regional Board for Conservation of Cultural Heritage	
4	139+500-132+750	İstanbul	Tuzla	İstanbul Regional Board No: 5 for Conservation of Cultural Heritage	
	132+751-129+650		Pendik		
7	71+250-69+500	İstanbul	Eyüp	İstanbul Regional Board No:1 for Conservation of Cultural Heritage	
7	69+501-62+500		Sultangazi		
7	62+501-60+400		Esenler		
2	58+000-55+750		Eyüp		
	55+750-40+500		Arnavutköy		
1	40+500-32+600		Arnavutköy		
	32+600-19+000		Çatalca		
	19+000-0+000		Silivri		

As the project management body, the North Marmara Motorway Project is also responsible for conservation of immovable cultural assets in case of discovery, as well as preparation and implementation of plans minimizing the negative impact of the construction activities over these assets and establishing communication with the government institutions. In this respect, the project management is liable to implement a Cultural Heritage Management Plan (ANNEX 1) and a Chance Find Procedure (ANNEX 2) covering the construction activities and their impacts on the archaeological and immovable cultural assets located within the boundaries of the project construction and its impact area.

4. METHODOLOGY

The impact assessment studies considering the archaeological and immovable cultural assets located on the project route and project impact area were conducted in five phases:

a) Desktop Studies,
b) Field Surveys,
c) Archaeological Potential Modelling,
d) Impact Assessment,
e) Reporting.

4.1. Desktop Studies

In this phase of the studies, the archaeological publications on the project route and its impact area were collected and reviewed to assess the archaeological potential of the region where the project route is located. In addition, by contacting relevant regional boards for conservation of cultural assets (Table 2), existence of archaeological or immovable cultural assets, which were previously registered in the project area and its vicinity were examined. The sources of information used during the literature review are as follows:

- Academic publications
- Historic maps
- Reports on the previous Cultural Heritage Studies and Results of Field Surveys
- Inventory records of Museums and Conservation Boards

4.2. Field Surveys

During the field surveys, which were conducted along the North Marmara Motorway Project in order to identify possible archaeological and immovable cultural assets, the methods of “Field(Route) Walking”, “Intensive Field Survey”, and Extensive Field Survey” were implemented. These works were conducted within the 400m corridor, which encompasses the construction impact area, along the motorway project route. The details of the Field (Route) Walking, Intensive Field Survey, and Extensive Field Survey are presented in the following paragraphs.

4.2.1. Field Walking

The “Field Walking” was used as the main research method during the field survey conducted within the 400 m corridor of the Motorway Project route. The field survey was realized mainly within the project construction corridor and the area which is considered as its impact area (400 m corridor in total including the 200m right and 200m left of the construction axis). During the field survey, the field survey team leader walked alongside the main axis of the motorway construction using a GPS device, while the two specialists of the archaeology team walked at both edges of the 400 m corridor. The instant communication between the members of the field team, who moved forward in parallel, was provided by walkie-talkies. During the field walking, all archaeological traces (ceramic shards spread to the surface, architectural elements or traces, graves or traces of graves, mounds, tumuli, etc.) observed on the surface were noted on the Field Find Forms (ANNEX 3) and Archaeological Status Table (ANNEX 4). In case archaeological traces were encountered in a region, the method of Intensive Field Survey, which is defined below, was used to collect the data.

4.2.2. Intensive Field Survey

This method was followed when an archaeological site was encountered within the boundaries of 400 m impact corridor. The aim of this method is to determine the width of the archaeological site, identifying its association with the project route on the map, revealing the area of distribution of archaeological surface findings and completing entire documentation, which would aid in interpreting the history of the site on the basis of archaeological artefacts on the surface. During this activity, by taking sufficient number of GPS coordinates (at least four different points) from each site, surface area of the site in current geography, and its location were determined. Moreover, detailed photographs of each site were taken from different angles and archived to be used in the reports. The area was divided into 10x10 m wide squares in the north-south direction and the samples of archaeological material such as pottery, stone tool shards etc. on the surface were systematically documented (photographing, etc). During all these works, the “Field Find Form” (ANNEX 3) and “Archaeological Status Table” (ANNEX 4), which were prepared by the research team, were filled separately for each site and all information related to the observations made in every site were recorded in these forms. In addition to the daily reports, these forms were also used as reference sources in preparation of the impact assessment report and its annexes after the survey. By processing the GPS ccordinates which were taken on site (WGS 1984, 6 degree TM) in the Esri ArcGIS software, the locations of the sites in association with the motorway construction area were prepared in digital media and used as base in impact assessment studies.

4.2.3. Extensive Field Survey

Greater part of the works for identifying the archaeological and immovable cultural assets within the 400 m corridor alongside the motorway route was completed by using the method of field walking. In cases when walking was not possible (private property requiring permission, flood basins, forested/bush lands and places where walking is impossible due to the geographical features) (Table 3) the method of “Extensive Field Survey” was followed. In this method, in order to determine the presence of archaeological and immovable cultural assets, the archaeological traces on the surface were observed from the most accessible points of the areas, where the field walking could not be conducted. The archaeological data retrieved from desk research and the results of archaeological potential modelling were taken into consideration in estimating the observed areas. For the sections, where the field survey was conducted using this method, the “Archaeological Potential Modelling” works were also implemented in order to develop risk projection for these sections.

4.3. Archaeological Potential Modelling

As mentioned previously, the field surveys were conducted within the 400 m impact corridor alongside the construction axis in the form of field walking as much as possible. However, in the cases, when field walking could not be done due to certain restrictions (such as the areas, which are covered with snow or vegetation; the areas, where water streams block the route etc), “archaeological potential modelling” studies were conducted in the areas that may possess potential archaeological or cultural heritage. The detailed information on the sections where modelling were conducted is given in the Table 3.

Table 3: The Areas where Archaeological Potential Modelling was conducted and Km Intervals

The Areas Where Archaeological Potential Modelling was Conducted and Km Intervals			
Start Km	**Finish Km**	**Start Km**	**Finish Km**
241+000	239+000	187+500	175+500
236+000	234+000	192+000'nin 4km (Access Road)	
230+000	229+500	166+500	150+616
228+500	228+000	149+350	148+500
226+000	225+500	144+500	141+500
226+750	225+000	142+500	142+250
225+000	222+000	137+000	138+500
221+500	220+000	71+256	60+400
218+550	216+580	57+500	47+000
216+580	215+650	47+000	45+300
207+000	205+500	26+100	24+500
202+000	200+000	23+500	21+000
192+500	187+500	15+000	0+000

The possible locations of potential archaeological sites within the project construction and impact area were attempted to be detected by using the modelling maps presented in Annex 5. The model developed was implemented by using the ESRI ArcGIS software for the kilometre intervals given in the Table 3, within a corridor of 400 m wide, which covers the project construction and impact area. Five predictive parameters were taken into consideration in the modelling, namely: existence of water supply and proximity to water supplies, slope of the terrain, land classification (forest land, pasture land, arable land, irrigated farming land etc.), proximity to ancient roads and known archaeological settlements, and proximity to modern settlements. Each parameter was divided into sub-categories and associated with grade points. Positively weighed values were defined as positive impacts and negatively weighed values were identified as negative impacts in the evaluation. For instance, in classification of terrain, while the forest land was graded with -2 point, dry farming land was given +2 point. Because there are many ancient settlements etc around and nearby modern villages at present, this modelling was built upon the hypothesis that the modern inhabited locations have similar environmental conditions with the ancient inhabited locations.

After defining the grade points of sub-categories, the project construction and its impact area was divided into the grids having the sizes of 500X400 m. For each square, the grade points corresponding to the sub-categories associated with the character of the area were summed and, in the end, positive and negative total grade points were obtained for every grid.

The grids with positive grade points were identified as the "Areas of High Archaeological Potential", while those with negative grade points were defined as the "Areas of Low Archaeological Potential". The predictive parameters and sub-categories that were taken into consideration in modelling and corresponding grade points are presented in Table 4:

Table 4: Predictive Parameters and Sub-Categories Taken into Consideration in Modelling

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

4.4. Impact Assessment

The project activities may have certain irreversible impacts on the sites, which were identified within the project route construction and the impact corridor. The influence of the construction activities on the identified sites and the degree of importance of the sites were identified in accordance with the criteria proposed in the "Guidance on Heritage Impact Assessments for Cultural World Heritage Properties", which is also suggested to be used by the Ministry of Culture and Tourism in order to properly assess the impact of the construction projects on cultural heritage sites. The information on the results of assessment are presented in chapter 5 General Evaluation and Conclusion of this report and in table format in Annex 6.

4.5. Reporting

The data about the archaeological or immovable cultural assets located within the motorway route construction site and impact area (400 m) were collected directly from the field surveys and from Regional Boards for Conservation of Cultural Assets (ANNEX 8a, 8b, 8c). These data were evaluated in GIS and the relationship between these sites (including the sites previously registered by the Ministry of Culture and Tourism) and project route construction and impact corridor and other impact areas were investigated; the degree of importance and vulnerability of the sites, impact of the construction activities on these sites and possible mitigation methods to be followed in the construction phase were determined and reporting works were finalized.

5. BASELINE

5.1. Archaeological and Historical Background

The route of the North Marmara Motorway Project is located in a geography, which witnesses almost all historical periods of Anatolia. The exact locations, numbers, and conditions of archaeological and immovable heritage of the region are not clearly known at present because of intense migration, rapid and unplanned urbanization, industrial facilities covering large territories and the limited number of studies on the cultural inventory of the region.

Within the scope of the North Marmara Motorway Project (NMMP) archaeological and cultural impact assessment studies, the historical geography of the project impact area and its close vicinity was studied based on the information retrieved from literature reviews and archives of the regional conservation boards.

According to the ancient sources, the geography which the project route is located covers two different regions. In the ancient sources, the eastern side of the Bosporus was named “Bithynia”, and the western side was called “Thrace”. The Bosporus is the borderline separating the two regions.

For this reason, the historical background of the project route was investigated in accordance with the ancient definitions. (Map 2).

Map 2: North Marmara Motorway Project Route, Archaeological and Historic Sites

THRACE REGION

In general scholarship, Thrace is defined as the region located between Macedonia and Bosporus. The "**1st, 2nd, and 7th Sections**" of NMMP are located within the borders of the Thrace region.

Thrace is composed of large plains and arable lands. Apart from these flatlands, the main heights are Mons Aticus (Istranca Mountains) in the north, Hieron Oros (meaning Holy Mountain, modern name is Ganos Mountain) in the south and Koru Mountains (the ancient name is not known)[1] in the southwest. While the highlands are covered with intense forest vegetation, interior parts and plains near the coastline are covered with steppes. These plains are very inhabitable because of their suitability to agricultural production. Lumber, which is produced in forestlands, is one of the important trade goods.[2] While the eastern part of the region displays Black Sea climatic conditions of heavy rainfall, a very large part near the Marmara Sea features a climate called Marmara transition climate, which resembles the climate of the Mediterranean. In the interior parts between these two climatic belts, which is isolated from the sea, continental climatic conditions are observed.

The rivers of the region, flowing in the north-south direction are Tonzos (Tunca), Ardeskos (Arda), Hebros (Meriç). Agrianes (Ergene) flows in the east-west direction. In addition to these, there are minor rivers. These are: Arzos (Çorlu Stream), Tearos (Kaynarca), Apsinthos (Derbent Creek), Melas (Kavak Stream), Athyra (Çekmece Creek), Kydaris (Alibey Creek), and Barbyses (Kağıthane Creek). Apart from these rivers, the lakes located in the region are Delkos (Terkos) and Stentaris (Gala)[3].

There are important mining areas in the region. It is known since the antiquity that, there are copper and zinc mines in Mons Asticus (Istranca Mountains); copper mines in Dereköy, Şükrüpaşa and Armutveren; iron mines in Demirköy and gold mines near Rezve Creek.

Agricultural production has a crucial role in the economy of the region. Ancient historians Herodotus and Xenophon mention that barley, wheat, and hemp were cultivated in the region.[4] The Thrace region, which was very advanced in viniculture, was also famous for vine production. In terms of livestock, sheep and horse breeding is important in the region.[5] It is known that fishery is an important means of living in the coastal districts. Ancient historian Strabo states that Keras (Haliç) was rich in terms of tuna fish and Atlantic bonito.[6]

[1] Sevin, 2000:18
[2] Sevin, 2000: 19
[3] Sevin, 2000: 19
[4] Sevin, 2000: 19
[5] Sevin, 2000: 19
[6] Sevin, 2000: 19

Important settlements were established in the Palaeolithic, Neolithic and Chalcolithic periods in the Thrace region. Balkan Peninsula is very suitable for human habitation for its climatic and geographical conditions since the 4th geological era (Quaternary).[7] The ancient settlements in Eskice Ridge near Büyükçekmece Lake and Kefken and Gümüş Dere near Kilyos confirm this information. The findings unearthed from those settlements together with those found in Yarımburgaz Cave explain the diffusion of mankind from the Near East to Europe. There were very few settlements in Thrace in the Palaeolithic Period. The most important Palaeolithic settlement is Yarımburgaz Caves, which include a natural place for habitation and defence. Findings belonging to the further phases of the Palaeolithic Period were encountered in Ağaçlı Village located near the Black Sea coastline in the north of Kemerburgaz. These sites are Mesolithic (Epi-Palaeolithic) Period settlements discovered on the fossilized dunes stretching alongside the Black Sea coast.[8] It is revealed that there were a multitude of habitations around the Black Sea, which was a fresh water lake in this period, when the present climatic conditions start to become dominant in the region. The richest findings dated to this period are collections of "small" tools found in the dunes of Ağaçlı. This collection, which is named "Ağaçlı Culture", constitutes the richest finding set belonging to this period in Turkey.[9]

It is known that the number of settlements in Thrace increased after this period. Some of the known prehistoric settlements are Hoca Çeşme Mound, Toptepe, Aşağı Pınar, Kanlıgeçit, and Çardakaltı. During the 7th and 6th millennia, the Balkan Peninsula and Carpathian region were inhabited by the Neolithic farmers coming from the Near East. During this period, Marmara was an important junction point.[10] Menteşe, Ilıpınar, Fikirtepe and Pendik were among the most important archaeological settlements in Marmara dated to this period, which was one of the most important turning points in the human history and named "agricultural revolution".[11]

Scientific literature suggest that a new wave of immigrants from the Central Anatolia and Aegean regions arrived at the region at the end of the Neolithic Period; the local cultures developed and continued their existence but eventually left their place to the newcomers in the beginning of the Chalcolithic Period. It was revealed through the field surveys and excavations conducted in the region that all the settlements in Thrace were demolished by fire at the end of the Chalcolithic Period.[12]

Gladina Locality within the provincial boundaries of Büyükçekmece District, Kanallı Bridge (Kınalı Bridge) near Silivri District and Selimpaşa Mound located within the municipal boundaries of Selimpaşa Municipality, Silivri are among the important Early Bronze Age settlements in Thrace. In addition to that,

[7] Erzen, 1994:35
[8] TAY 1
[9] Özdoğan,2000: 309.
[10] Hoddinott, 1981: 15.
[11] Özdoğan,2000: 310.
[12] Özdoğan, 2000: 310.

traces of the Early Bronze Age were encountered in the necropolis area above İncegiz Caves, which are located in a deep valley in the north of Çatalca District and in Kartepe (Karatepe) Caves, which are located in mountainous and forested terrain in the northeast of Dağyenice Village.[13]

The 2nd Millenium BCE (the Middle and Late Bronze Ages) is the period during which empires such as Hittites and Mycenaean flourished in Anatolia and Aegean region. On the other hand, although it was believed until recently that the entire Thrace was inhabited only by nomadic communities, discovery of ceramics and figurines belonging to the Hittite Period in the excavations conducted in Bathonea (Küçükçekmece, İstanbul) revealed the existence of Hittite civilization in Thrace.[14] In around 1200s BCE Thrace was inhabited by Thracian tribes coming from the north.[15] It is known that, by the 8th century BCE, the Thracian settlements continued their existence as Hellenized colonies.[16] In the 4th century BCE, an independent Thracian state was established in the region.[17] In order to eliminate an unrest that took place in the region, Alexander the Great launched a military campaign in 333 BCE. After Alexander's death, the region became autonomous.[18] In the 1st century BCE, Thrace fell under the Roman influence and eventually became a Roman Province in 45 BCE. In the Roman Period, **"Via Egnatia,"** the main road connecting the centre of the Empire, Rome with Anatolia passed through this region.[19]

In 333 CE, Roman emperor Constantine the Great (Constantine I), with an anticipation that the Empire could not be governed through Rome, renamed Byzantium after his name as Constantinople and declared it the Capital of the empire, and with this act he caused the empire to be divided into two as the Eastern and Western Roman Empires. [20] This division is at the same time considered the most important event in the establishment of the Byzantine Empire. After the division of the Roman Empire, Thrace left in the boundaries of the Eastern Roman Empire (Byzantine Empire). In 394 CE, Theodosius I unified the Eastern and Western Roman Empires for the last time, however, right after the death of Theodosius I, in 395 CE, the Roman Empire was divided into two as the Eastern and Western Roman Empires again for the last time.

In the Byzantine Period, great defensive systems were constructed in the region. Silivri, with its ancient name Selymbria or Selybria, was known as the citadel protecting the Istanbul road throughout the Byzantine Period.[21] In addition to Silivri Citadel, the defensive system named Anastasian Wall were commissioned by the Byzantine Emperor Anastisus I (491-518) in order to protect Constantinople from

[13] Aydıngün, 2014: 22
[14] Aydıngün 2015 b:31
[15] Erzen, 1994: 28-30.
[16] Sevin, 2000: 22
[17] Erzen, 1994: 94 – 98
[18] Sayar, 2008: 61.
[19] Aydıngün, 2015a:164
[20] Sayar, 2008:62.
[21] Eyice, 1969:354

the invasions coming from Thrace. It is known that the Anastasian Wall, which was 56 km long, started in the Black Sea coast, passed through Fenerköy and Kurfalı villages and ended in the Marmara Sea.

Although their traces have not been identified yet, Hagias Spyrion Church and Fatih (Hunkar) Mosque are among the most important Byzantine Period buildings in the region. Fatih (Hunkar) Mosque was the biggest church of the Silivri Citadel but after the conquest of Silivri in 1453 it was converted to a mosque by Sultan Mehmed the Conqueror. Fatih Mosque started to ruin and disappeared after 1920s, its minaret was demolished in 1960s, and its stones were used as spolia in other buildings.[22] Although it is known that important monuments from the Byzantine Period were located in Silivri, Selim Paşa and close vicinity, most of them were demolished because of the rapid urbanization.

The region remained under the control of the Byzantine Empire until the 14th century and then it was taken over by the Ottoman Empire after the conquest of Istanbul in 1453.

Apart from the ancient ruins, there are trenches and military bunkers constructed for defence purposes in the Balkan Wars and the World War II in the region. The “Çatalca Entrenchment Line” which was constructed in 1877 was controlling an area of totally 50km between Terkos in the north and Büyükçekmece Lake in the south, in 35-40 km west of Istanbul. The outposts and fortifications forming the entrenchment line were constructed intermittently in a 6,5 km long corridor. There were 10 redoubts in total through the defence line. The redoubts were equipped with machine guns and light artilleries. The redoubts were constructed on the top of hills. Below the redoubts, armouries were constructed. Underground telephone and telegram lines provided communication between the redoubts and with the hinterland.[23] Another important defence line in the region was “Çakmak Line”. It was constructed as an entrenchment line as a precaution against possible German invasions during the World War II by the government of the period from the Black Sea to Marmara, parallel to the Anastasian Wall and Çatalca Entrenchment Line. It was named “Çakmak Line” after Marshall Fevzi Çakmak, the Chief of General Staff of the period. Çakmak Line was composed of two lines of bunkers, trenches, and outposts starting from Durusu Lake and ending in Büyükçekmece Lake. Some of the bunkers, trenches and outposts are located within the impact area of the NMM project route.

[22] Eyice 1969:355-356

[23] Akyüz 2012:131-136

BITHYNIA REGION

The ancient Bithynia region covered Anatolian side of Istanbul, the provinces of Kocaeli, Yalova, Sakarya, Düzce and Bolu and greater parts of the provinces of Bartın, Zonguldak and Bursa. Kocaeli is located in the centre of the Bithynia region. In the ancient sources, the borders of Bithynia are defined as the Bosporus and the Marmara Sea (Propontis) in the west, Black Sea (Pontus Euxinus) in the north, Bartın Stream (Parthenius) in the east and Orhaneli River (Rhyndacus) in the south.[24] The region was named after "Bithyni Tribe" of Thracian origin, which left the Thrace in order to escape from the Scythians and took shelter in Anatolia.[25] **The 4th, 5th, and 6th sections of the NMM Project are located within the borders of Bithynia Region.**

The traces of the Palaeolithic and subsequently the Mesolithic (Epi-Palaeolithic) Period in the region were discovered in Parganlı-Kerpe (Kocaeli, Kandıra), Kefken-Cebeci (Kocaeli, Kandıra), İbonun Rampası (Yalova, Akköy), Çallıca (Yalova, Çınarcık), İçerenköy (İstanbul, Kadıköy), Göksu (İstanbul, Ümraniye, Dudullu), Hacet Creek (İstanbul, Pendik), Fikirtepe (İstanbul, Kadıköy), Domalı-Alaçalı (İstanbul, Şile), Ağadere (Sakarya, Kaynarca), Dağazlı 1st and 2nd Localities (Sakarya, Kaynarca) and Ayıyatağı Locality (Sakarya, Kaynarca). Stone hand axes and sharp objects were discovered in these settlements.[26]

At present, the traces of the Neolithic Period are accumulated in the coastline leading to the Marmara Sea and around İznik Lake. Fikirtepe, Pendik-Temenye and Tuzla settlements, which were recently discovered to be in association with the European side of Istanbul via the Neolithic Period findings unearthed during the Marmaray construction works, were marine-based, interesting and authentic local civilizations. On the other hand, it was revealed that, there was a unique culture different from previous civilizations in the settlements located around the Iznik Lake despite of certain relationships.[27] The traces of the Neolithic Period in the region and its close vicinity were encountered in Dudullu (İstanbul, Ümraniye), İçerenköy (İstanbul, Kadıköy), Fikirtepe (istanbul, Kadıköy), Tuzla (İstanbul), Temenye (istanbul, Pendik), Göztepe (Yalova), Ilıpınar (Bursa, Orhangazi), Yüğücek (İznik), Barcın Mound (Bursa, Yenişehir), Marmarcık (Bursa, Yenişehir), Menteşe (Bursa,Yenişehir), and Tepetarla (Kartepe, Kocaeli).

Although scarce, findings dated to the Chalcolithic Period and Early Bronze Age were identified in the region. Most of the findings of these periods are from around İznik Lake. In addition to these settlements, findings dated to these periods were discovered in the excavations conducted in the vicinity of Karamursel within the boundaries of Kocaeli and nearby Geyve within the provincial borders of Sakarya. On the other hand, the traces of Chalcolithic Period in the region and its close vicinity were

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[24] Beksaç 2015: 41-45
[25] Güçlü 2007:3
[26] TAY I
[27] Beksaç 2015:43

identified in Ilıpınar (Bursa, Orhangazi). The traces of the Early Bronze Age, which followed the Chalcolithic Period, were detected in Elmabahçesi Locality in Taraklı Distric of Sakarya.[28]

The region was inhabited by the Thracian tribes between 1200 and 700 BCE. The region, which was annexed to Lydia until the 7th century BCE, fell under the Persian rule around 513 BCE. After Alexander the Great defeated the Persian army near river Granicus (Biga River) (334 BCE), the region became independent in 326 BCE. Chalcedon (Kadıköy), Chrysopolis (Üsküdar), Lybissa (Diliskelesi), Dacibyza (Gebze), Nicomedeia (İzmit), Kalpe (Kerpe), Olbia (Başiskele), Astacos (Gölcük), Prainetos (Karamürsel), Pylai-Strobilos (Çiftlikköy/Karakilise), Drepanon (Hersek), Chios-Prusias ad Mare (Gemlik), Apameia/Myrleia (Mudanya), Prusa ad Olympium (Bursa), Helicore-Nikaia (İznik), Prusias ad Hypium (Konuralp), Bithynion-Claudiupolis (Bolu), Dia-Diospolis (Akçakoca), Teion-Tieion-Tion (Filyos/Hisarönü), Herakleia (Ereğli), Otroia (Yenişehir), Modrene (Mudurnu), Malagina (Mekece), Agrilion (Bilecik), and Kabaia (Geyve) were among the most important ancient cities in the region.

Because of the harbours for marine trade, rich water resources, fertile agricultural lands and being located in the vicinity of important trade routes, the region has been intensively inhabited since the ancient periods. Sangarios (Sakarya River), Aisepos (Gönen Stream), Hypios (Melen stream), Makestos (Susurluk-Simav Stream), Parthenios (Bartın Stream), Siberis (Aladağ Stream), Psillis (Ağva), Kalpas (probably Anadere stream near Kefken, Lykos-Rhyndakos (Orhaneli Stream), Rhebas (Riva), Kaleks (Gülünç Stream), Billaios (Filyos Stream), Artanos (Hiciz Creek), Askania (İznik Lake), Sophon /Sunensis (Sapanca Lake), and Apolyont (Ulubat Lake) are among the most important fresh water resources in the region. On the other hand, Olympos of Mysia (Uludağ), Astacus (Samanlı Mountains), and Sophon (Kartepe) are the most prominent heights of the region. In addition to the settlements, there are ruins of road networks, bridges, defensive outposts and fortifications, and harbours belonging to the Roman Period in the region which was annexed to the Roman Empire in 74 BCE. The "Roman Road" ruins, which is located in Yağcılar Village nearby Kandıra District of Kocaeli and also situated on the NMM Project route, is one of the significant remains of this period. In the 6th century, in the reign of the Byzantine emperor Justinian (527-565), important buildings were constructed and development activities were conducted in Sakarya and its vicinity. "Justinian Bridge" (Karaaptiler Köyü, Sakarya), which was constructed on Sakarya River (Sangarios), is one of the most important monuments of this period. In addition, it is known that, during this period important defensive buildings were constructed in

[28] TAY II

settlements such as Çobankale (Geyve, Sakarya) , Paşalar (Pamukova, Adapazarı) and Mekece (Pamukova, Adapazarı) in the region.[29]

The region, which was ruled by the Byzantine Empire between the 5th and 11th centuries, was conquered by Anatolian Seljuk state in 1078. In 1354, except for Istanbul (Constantinople), the entire region came under the control of the Ottoman Empire.

One of the most important settlements in Bithynia region throughout its history has been İzmit (Kocaeli). Izmit has been a centre of attraction in all periods because of its geographical position, its natural harbour (İzmit Bay), forests, and convenience for transportation. There are important Ottoman buildings in İzmit, such as "Orhan Mosque", which was constructed by Suleyman Paşa, son of Orhan Gazi, in the 14th century; "Akçakoca Mosque", which is located in Akçakoca Neigbourhood, Yukarı Pazar and was constructed between 1327 and 1328 by Akçakoca, who conquered İzmit region; and "Imaret Mosque", which was constructed in the city centre in the 16th century. It is known that, following the conquest of İzmit in the 14th century, many military, civil and administrative buildings, majority of which were religious, civil and water structures, were constructed in İzmit and its vicinity in the Ottoman Period.

The NMM Project route also passes through the provincial borders of Sakarya (Adapazarı) that is located in the east of the ancient Bithynia region. In Adapazarı (Sakarya) region, which was limitedly inhabited in the antiquity and medieval periods because Sakarya River frequently changes its bed and because of the marshlands in the area, the number of settlements increased after the 16th century as a result of the removal of forested areas and bush lands. Katip Çelebi in his "Cihannuma", which he wrote in the 17th century, mentions Sakarya as a popular place. It is known that a great devastation took place in the region in 1640 as a result of flooding of Sakarya River. This flood caused disappearing of many historic buildings.[30]

In his famous "Seyahatname", Evliya Çelebi presents information on settlements such as Sapanca and Hendek and describes Sarı Rüstem Paşa Mosque, Pertev Paşa Han in the region and important Ottoman monuments in Geyve. The region, which was occupied by Greek forces in March 1921, was liberated in June 1921.

5.2. Field Survey Findings

The field surveys were conducted in the project route and impact area between January 23rd 2017 and March 2nd 2017. Four different definitions were developed as a result of the observations that were made by taking the surface materials into consideration. The definitions about the sites and general

[29] Çetin, 1999:6
[30] Çetin 1999:7-8

mitigation methods about the sites, which were proposed within the report are presented in the table below:

Table 5: Site Definitions and Proposed General Mitigation Methods

Site Definitions	Type of the Surface Material	Size of the Site Taken into Consideration	Intensity Rate of the Surface Material	Proposed General Mitigation Methods
Potential Archaeological Site	Ceramic, roof tile, architectural stone block, glass object shards, stone object shards, metal object shards, bone etc.	10x10m.	Between 1-10 pieces (Low Intensity)	Archaeological Monitoring
Archaeological Site	* Ceramic, roof tile, architectural stone block, glass object shards, stone object shards, metal object shards, bone etc. **Architectural Remains etc.	10x10m.	*Between 10-100 pieces (High Intensity) ** 1 tumulus, 1 wall, 1 cistern etc.	Archaeological Monitoring Following the decisions of the Conservation Board Avoiding physical intervention Test or salvage excavation
Historic/Other Sites	Sites including the remains of Bridge, Redoubt, Bunker, Entrenchment, Grave etc.			Archaeological Monitoring Following the decisions of the Conservation Board Avoiding physical intervention
Registered Sites/Sites in the Process of Registration	Sites that are protected by the Law no: 2863 or those in the process of being covered by this law.			Following the decisions of Conservation Board Avoiding physical intervention Archaeological Monitoring

In the following paragraphs, the sites which were identified during field surveys are presented in detail by their location. While the sites are described, the decisions of the regional boards for cultural assets related to the registered sites along the project route are also mentioned briefly. In addition to the opinions given by the government institutions, the results of impact assessment analyses were mentioned as recommended preventive mitigation proposals. The decisions of regional boards, which were taken within the scope of the Law no: 2863, are official decisions that are to be compulsorily followed by the project management.

SAKARYA

The interval between 251+143 km and 215+500 km of the Section 6 of the project route is located within the provincial borders of Sakarya (Table 6).

Table 6: North Marmara Motorway Sakarya City Route

NORTH MARMARA MOTORWAY PROJECT ROUTE SAKARYA CITY AND ITS DISTRICTS			
Section	**Km**	**City**	**Districts**
6	251+143-241+250	Sakarya	Akyazı
	241+250-215+500		Adapazarı

8 sites in total were identified in the 35+643 km route and its vicinity within the provincial boundaries of Sakarya. Among those sites, 5 are identified as potential archaeological sites, 2 as archaeological sites and 1 as a historic/other site (Table 7). There is neither a registered site nor a site in registration process within the provincial borders of Sakarya (Annexes 3, 4, 6).

Table 7: Archaeological/Immovable Cultural Heritage Sites in the Province of Sakarya

NAME OF THE SITE	Registration Status		City	District/Neighborhood	Approximate Distance (km)
	Registered	Non-Registered			
Osmanbey Potential Archaeological Site		x	Sakarya	Akyazı/Osmanbey	250+520-246+827
Çayırlar Locality Archaeological Site		x	Sakarya	Adapazarı/Budaklar	238+720-239+127
Budaklar Potential Archaeological Site		x	Sakarya	Adapazarı/Budaklar	236+747-236+850
Çelebiler Potential Archaeological Site		x	Sakarya	Adapazarı/Çelebiler	232+970-233+550
Kömürlük Modern Cemetery		x	Sakarya	Adapazarı/Kömürlük	232+000 access road km 1+500
Kömürlük Potential Archaeological Site		x	Sakarya	Adapazarı/Kömürlük	232+000 access road km 0+250-1+150
Besihane Potential Archaeological Site		x	Sakarya	Adapazarı/Çamyolu	229+000-239+450
Azizbey Hill		x	Sakarya	Adapazarı/Çamyolu	226+550-226+670

The sites named “**Osmanbey**” between the 250+520 and 246+827 km points, “**Budaklar**” between the 236+747 and 236+850 km points, “**Çelebiler**” between the 232+970 and 233+550 km points, “**Kömürlük**” between the 0+250-1+150 km points of the access road belonging to the 232+000 km and “**Besihane**” between the 229+000 and 239+450 km points of the project route were identified. On the surfaces of all these sites, scant number of ceramic shards from the Late Ottoman Period were observed. Because all the sites are located in the construction site or its impact area, archaeological monitoring in the aforesaid kilometre intervals during the project construction activities is suggested as an expert opinion.

Çayırlar Locality is located between the 238+720 and 239+127 km points of the project route, 2 km east of Budaklar neighborhood. Ample amount of glazed and non-glazed ceramic shards and two pieces of glass bracelet from the Byzantine Period were encountered on the surface of the site. The site is located within the construction site of the access road at the 238+700 km point. For this reason, archaeological monitoring in the aforesaid kilometre intervals during the project construction activities is suggested as an expert opinion.

There is a “family cemetery” belonging to “**Turk”** family at 1+500 km point of the access road that is located at the 232+000 km point of the project route. The cemetery is 1 m away from the construction corridor. It is suggested that any physical intervention to the graves should be avoided and if physical intervention is required, the graves should be removed to another place in compliance with legal procedures and religious practices and archaeological monitoring should be conducted around the site throughout the construction activities.

Azizbey Hill, which was discovered around the 226+500 kilometre is most possibly a settlement dated to late 19th century and early 20th century. Ceramic and roof tile shards and remains of the stone foundations of a building, which were possibly dated to this period, were encountered on the surface of the site.

All information about the sites was delivered to Kocaeli Regional Board for Conservation of Cultural Assets but the Conservation Board did not take any conservation or research decision regarding the sites. In spite of this, it is suggested that archaeological monitoring should be conducted around the sites throughout the construction activities.

KOCAELİ

The entire project route between 215+500 km point of the Section 6 and 139+500 km point of the Section 4 is located within the provincial borders of Kocaeli (Table 8).

Table 8: North Marmara Motorway Kocaeli City Route

NORTH MARMARA MOTORWAY PROJECT ROUTE KOCAELİ CITY AND ITS DISTRICTS			
Section	**Km**	**City**	**Districts**
6	215+500-187+000	Kocaeli	İzmit
5	196+700-183+250		İzmit
	183+250-175+500		Derince
	175+500-162+500		Körfez
	162+500-156+500		Gebze
	156+500-151+500		Dilovası
4	151+500-139+500		Gebze

27 sites in total were identified alongside this route, which is 76 km long. Of these sites, 25 were discovered for the first time during the field surveys within the scope of the project and 2 were cultural sites that were registered by the Ministry of Culture and Tourism. Of the 25 sites, which were discovered during the field surveys, 5 are defined as potential archaeological sites, 18 as archaeological sites and 2 as historic/other sites (Table 9) (ANNEX 3, 4, 6).

Table 9: Archaeological/Immovable Cultural Heritage Sites in the City of Kocaeli

NAME OF THE SITE	Registration Status		City	District/Village	Approximate Distance (km)
	Registered	Non-Registered			
Süloğlu Bridge		X	Kocaeli	İzmit/Akmeşe	214+700
Deredağ Potential Archaeological Site		X	Kocaeli	İzmit/Akmeşe	213+750-213+950
Adaparmak Ridge Potential Archaeological Site		X	Kocaeli	İzmit/Akmeşe	212+300-212+600
Kabaklı Locality Potential Archaeological Site		X	Kocaeli	İzmit/Akmeşe	211+950-212+150
Köprübaşı Hill Potential Archaeological Site		X	Kocaeli	İzmit/Akmeşe	210+500-210+550
Mancarcı Locality Potential Archaeological Site		X	Kocaeli	İzmit/Mancarcı	199+560-199+780
Gedikli 1 Archaeological Site		X	Kocaeli	İzmit/Bayraktar	198+950-199+100
Gedikli 2 Archaeological Site		X	Kocaeli	İzmit/Bayraktar	198+600-198+810
Biberoğlu Archaeological Site		X	Kocaeli	İzmit/Bayraktar	197+970-198+060
İğriköz Creek Archaeological Site		X	Kocaeli	İzmit/Bayraktar	197+560-197+640
Doruk Archaeological Site		X	Kocaeli	İzmit/Eseler	195+700-196+000
Kesimahlar Archaeological Site		X	Kocaeli	İzmit/Çayırköy	195+000 access road km 1+000
Solaklar Archaeological Site		X	Kocaeli	İzmit/Eseler	193+460-194+000
Çayırköy Archaeological Site		X	Kocaeli	İzmit/Çayırköy	192+300-192+500
Kocaeli RBCCA Registered Site No: 1	x		Kocaeli	İzmit/Çayırköy	192+000 On the Access Road
Toylar Archaeological Site		X	Kocaeli	Körfez/Toylar	174+150-174+370
Sipahiler 1 Archaeological Site		X	Kocaeli	Körfez/Sipahiler	171+690-171+850
Sipahiler 2 Archaeological Site		X	Kocaeli	Körfez/Sipahiler	171+220-171+330
Kocadere Archaeological Site		X	Kocaeli	Körfez/Sipahiler	170+000-170+100
Martılar Archaeological Site		X	Kocaeli	Körfez/Martılar	169+000 access road km 41+750+ 42+800
Yağcılar Historic Road Remains (Kocaeli RBCCA Registered Site No: 2)	x		Kocaeli	İzmit/Yağcılar Mah.	161+800
Demirciler Archaeological Site		X	Kocaeli	Dilovası/Demirciler	150+000 access road km 1+200
Uluyan 1 Archaeological Site		X	Kocaeli	Gebze/Denizli	149+950-150+000
Uluyan 2 Archaeological Site		X	Kocaeli	Gebze/Denizli	149+700-149+850
Karapınar (Molla Fenari) Archaeological Site		X	Kocaeli	Gebze/Molla Fenari	147+550- 147+900
Cumaköy Cemetery		X	Kocaeli	Gebze/Cumaköy	145+750
Kuzgunçay Tumulus		X	Kocaeli	Gebze/Cumaköy	144+100

Süloğlu Bridge is located nearby 214+700 km point of the project, 4 km west of Akmeşe Atatürk neighbourhood near the provincial borders of Kocaeli and Sakarya. Some of the piers of the bridge are demolished and sunken in the creek. Remains of a masonry stone wall belonging to the bridge were discovered in the North bank of the creek. Moreover, remains of a retaining wall, which was probably built to prevent floods damaging the bridge by decreasing their magnitude, were discovered in the southern bank of the creek. Although no information on the bridge could be retrieved from relevant sources, with respect to its architectural properties, it was dated to the late 19th century and early 20th century. Between the 213+750 and 213+950 km points of the project route the site named "**Deredağ**", between the 212+300 and 212+600 km points "**Adaparmak**", between 211+950 and 212+150 km points "**Kabaklı**", 210+500 and 210+550 km points "**Köprübaşı"** and between 199+560 and 199+780 km points "**Mancarcı**" were discovered. Ample amount of roof tile shards and small quantity of ceramic shards from the Late Ottoman Period were encountered on the surfaces of these sites. Apart from these, no architectural remains were detected in these sites. This situation points to the probability of use of wooden architecture in these sites.

The site named **Gedikli 1** is located between 198+950 and 199+100 km points of the project route. The site is composed of three different hills. Plenty of ceramic and roof tile shards were discovered on the surface of the site. **Gedikli 2,** on the other hand, is located between the 198+600 and 198+810 km points of the project route. Ample number of ceramic shards and roof tile belonging to the ancient period were observed on the surface of the site. Plenty of ceramic and roof tile shards were observed on the surface of **Biberoğlu** archaeological site, which is located between the 197+970 and 198+060 km points of the project route. Similar to other sites, ample amount of ceramic, and roof tile shards were encountered on the surface of **Solaklar** site**,** which is located between 193+460 and 194+000 km points of the project route. Additionally, some cut stone, which might belong to the buildings, were observed. The ceramics encountered on the surface of the site are most probably dated to the Byzantine Period. Human bones, mineral cinders and a bronze coin from the Roman Period were also discovered on the surface of the site. The legend of the coin reads "Caesar Augustus". The coin was delivered to the Directorate of Kocaeli Archaeology and Ethnography Museum on February 3rd 2017against a document of receipt (ANNEX 9, ANNEX 3).

İğriköz Creek is located between the 197+560 and 197+640 km points of the project route. Plenty of ceramic bowl and roof tile shards, which exhibited the features of the Late Roman Period, were observed on the surface of the site. On the other hand, on the surface of **Doruk** archaeological site, which is located between 195+700 and 196+000 km points of the project route, glazed ceramics and capstones for graves that are dated to the Byzantine Period were encountered. **Kesimahlar** archaeological site is, on the other hand, located on the 1st km of the access road at the 195+000 km of the project route. Human carved rock surfaces, rows of stone foundation walls belonging to buildings, ample amount of ceramic, and roof tile shards that are dated to the Roman or Byzantine Period were observed on the surface of the site. **Çayırköy**, another archaeological site, is located between 192+300 and 192+500 km points of the project route. Pieces of terracotta water pipe roof tile and ceramic shards were observed on the surface of the site. Some of the ceramic shards were glazed and dated to the Byzantine Period. There is a well in the southwest of the site.

Glazed and non-glazed ceramic and roof tile shards dated to the Byzantine Period were discovered on the surfaces of the archaeological sites of **"Toylar"** which is located between the 174+150 and 174+370 km points and **Sipahiler 1,** which is located between the 171+690-171+850 km points of the project route. Furthermore, on the surface of **Kocadere** archaeological site, which is located between the 170+000 and 170+100 km points of the project route, plenty of glazed and non-glazed ceramic and roof tile shards, which are dated to the Byzantine Period, were observed. Moreover, mineral cinders were also encountered on the surface of the site. **Martılar** archaeological site is located between the 41+750 and 42+800 km points of the access road that is situated at the 169+000 km point of the project route. Ceramic shards and roof tiles dated to the Byzantine Period were observed on the surface of the site. Moreover, sarcophagi and column parts from the Roman Period, which were used as spolia, were encountered in the Martılar Village that covers the site.

Demirciler archaeological site is located within the construction impact area at the 1+200 km point of the access road nearby the 150+000 km point of the project route. Illegal excavation pits were observed in the northwestern part of the site. Around one of these pits, architectural cut stones and some ceramic and roof tile shards were encountered. The site of **Uluyan 1**, which is located between 149+950 and 150+000 km points of the project route, is probably a "tumulus" type monumental grave. Roof tile and ceramic shards were observed on the surface of the site. It was noted that the top part of the site was damaged as a result of illegal excavations. **Uluyan 2** is located nearby the site of Uluyan 1, between 149+700 and 149+850 km points of the project route. On the surface of the site, which is located within the construction corridor, ample amount of roof tiles and remains of foundations of buildings were observed. On the other hand, in the site of **Karapınar (Molla Fenari),** which is located between the 147+550 and 147+900 km points of the project route, plenty of ceramic shards, remains of a historic road, remains of foundations that were built with brickdust mortar and plenty of roof tiles were encountered. **Kuzgunçay Tumulus** was identied at the 144+100 km point of the project route, within the construction impact area. There are illegal excavation pits on the tumulus.

The information about the sites was evaluated by Kocaeli Regional Board for Conservation of Cultural Assets and with decision no: 2887 dated March 21st 2017, the council decided to conduct excavation, test pit and geophysical studies under the supervision of the Kocaeli Archaeological Museum at the archaeological sites of Gedikli 2, Biberoğlu, Solaklar, Sipahiler 1, Sipahiler 2 and Karapınar (Molla Fenari). The decision says that results of these studies shall be submitted to the board for the final decision and any physical intervention shall be avoided in due course (ANNEX 8).

As an expert opinion, it is suggested to conduct archaeological monitoring in the sites of Deredağ, Adaparmak, Kabaklı, Köprübaşı Tepesi, Mancarcı Mevkii, Gedikli 1, Toylar, Martılar, Uluyan2, Süloğlu Köprüsü, İğriköz Deresi, Doruk, Kesimahlar, Çayırköy, Kocadere, Demirciler and Uluyan; and any physical intervention should be avoided in the Süloğlu Köprüsü, İğriköz Deresi, Doruk, Kesimahlar, Çayırköy, Kocadere, Demirciler and Uluyan archaeological sites which are outside of the project construction corridor and within project impact corridor.

Cumaköy Cemetery, where graves from the 18th and 19th centuries are located was identified during the studies at the 145+750 km point of the project route. The cemetery is located within the project impact area and outside of the project construction corridor. As an expert opinion, conducting archaeological monitoring and avoiding physical intervention to the site are suggested.
There are also two sites, which were previously registered by Kocaeli Regional Board for Conservation of Cultural Assets, in the part of the project remaining within the provincial borders of Kocaeli. Of these sites, the first one is the remains of a "water channel" located in the impact corridor of the access road at 192+000 km point of the project route within the borders of Çayırköy Neigbourhood of Izmit District, Kocaeli. In accordance with the decision no: 2802 of Kocaeli Regional Board for Conservation of Cultural Assets, which was taken on January 24th 2017, the borders of the expropriation area of the motorway project should be revised and removed outside the area of the water channel. Currently, the border of expropriation area of the project is 35 m far from the water canal and the board should be notified accordingly.
Another registered site on the project route is "**Yağcılar Historic Road Remains 1st Degree Archaeological Site"**, which is located between 161+850 and 161+900 km points. The historic site is located in the construction corridor. By the decision no: 2802 of Kocaeli Regional Board for Conservation of Cultural Assets, which was taken on January 24th 2017 it was instructed that the alternative alterations of the project which ensure continuity of the motorway without damaging the historic area should be prepared and officially submitted to the conservation board (ANNEX 8e).

İSTANBUL

Between "139+500 and 129+650 km points" of the Section 4, "71+250 - 60+400 km" points of the Section 7, "58+000 - 40+500 km" points of the Section 2 and 40+500 - 0+000 km" points of the Section 1 of the project route is located within the borders of the districts of Tuzla, Pendik, Eyüp, Sultangazi, Esenler, Arnavutköy, Çatalca and Silivri of the Istabul province (Table 10).

Table 10: North Marmara Motorway Route within İstanbul Province

NORTH MARMARA MOTORWAY PROJECT ISTANBUL CITY AND ITS DISTRICTS			
Section	**Km**	**City**	**Districts**
4	139+500-132+750	İstanbul	Tuzla
	132+751-129+650		Pendik
7	71+250-69+500		Eyüp
	69+501-62+500		Sultangazi
	62+501-60+400		Esenler
2	58+000-55+750		Eyüp
	55+750-40+500		Arnavutköy
1	40+500-32+600		Arnavutköy
	32+600-19+000		Çatalca
	19+000-0+000		Silivri

There are totally 155 sites identified on the project route and within its impact area in Istanbul. Of these sites, 148 were identified for the first time during the field surveys within the scope of the project (non-registered sites), and 7 are cultural assets registered or in the process of registration by the Ministry of Culture. Of the 148 sites, which were discovered for the first time during the field surveys of the project, 5 are defined as potential archaeological sites, 14 as archaeological sites and 129 as historic/other sites (Table 11) (ANNEX 3, 4, 6).

Table 11: Archaeological/Immovable Cultural Heritage Sites in the City of İstanbul

NAME OF THE SITE	Registration Status		City	District/Neighborhood	Approximate Distance (km)
	Registered	Non-Registered			
Akfırat III Archaeological Site		x	İstanbul	Tuzla/Akfırat	138+900-139+180
Akfırat I Archaeological Site		x	İstanbul	Tuzla/Akfırat	135+500-135+900
Akfırat II Archaeological Site		x	İstanbul	Tuzla/Akfırat	135+190-135+450
Tepeören Potential Archaeological Site		x	İstanbul	Tuzla/Tepeören	134+390-134+480
Kırkçeşme Water Tunnel	x		İstanbul	Sultangazi/Gazi	68+900-69+400

Line					
Roman Aquaducts B	x		İstanbul	Sultangazi/Gazi	68+700-68+800
Terkos Kağıthane Water Transmission Line	x		İstanbul	Arnavutköy	57+600-58+850
İhsaniye Cemetery		x	İstanbul	Çatalca/ihsaniye	59+900
Roman Aquaducts A	x			Arnavutköy/Tayakadın	51+300-51+900
Tayakadın Archaeological Site		x	İstanbul	Arnavutköy/Tayakadın	48+800 access road
Baklalı I Archaeological Site		x	İstanbul	Arnavutköy/Baklalı	47+850 access road south section.
Baklalı II Archaeological Site		x	İstanbul	Arnavutköy/Baklalı	47+850 access road north section.
Yassıören I Potential Archaeological Site		x	İstanbul	Arnavutköy/Yassıören	43+100-43+350
Çakmak Line Historic Military Fortifications	x		İstanbul	Arnavutköy/Yassıören, Nakkaş	42+800-32+500
Yassıören II Potential Archaeological Site		x	İstanbul	Arnavutköy/Yassıören	42+350-42+440
Concrete Bunker 1		x	İstanbul	Arnavutköy/Yassıören	40+500
Concrete Bunker 2		x	İstanbul	Arnavutköy/Yassıören	40+500
Concrete Bunker 3		x	İstanbul	Arnavutköy/Yassıören	40+400
Concrete Bunker 4		x	İstanbul	Arnavutköy/Yassıören	40+400
Concrete Bunker 5		x	İstanbul	Arnavutköy/Yassıören	40+171
Concrete Bunker 6		x	İstanbul	Arnavutköy/Yassıören	40+171
Concrete Bunker 7		x	İstanbul	Arnavutköy/Yassıören	40+171
Concrete Bunker 8		x	İstanbul	Arnavutköy/Yassıören	40+171
Nakkaş Military Shooting Range		x	İstanbul	Arnavutköy/Yassıören	39+825-40+116
Concrete Bunker 9		x	İstanbul	Arnavutköy/Yassıören	39+863
Concrete Bunker 10		x	İstanbul	Arnavutköy/Yassıören	39+873
Concrete Bunker 11		x	İstanbul	Arnavutköy/Yassıören	39+850
Concrete Bunker 12		x	İstanbul	Arnavutköy/Yassıören	39+781
Concrete Bunker 13		x	İstanbul	Arnavutköy/Yassıören	39+726
Concrete Bunker 14		x	İstanbul	Arnavutköy/Yassıören	39+720
Concrete Bunker 15		x	İstanbul	Arnavutköy/Yassıören	39+750
Concrete Bunker 16		x	İstanbul	Arnavutköy/Yassıören	39+740
Concrete Bunker 17		x	İstanbul	Arnavutköy/ Yassıören	39+660
Concrete Bunker 18		x	İstanbul	Arnavutköy/Yassıören	39+660
Concrete Bunker 19		x	İstanbul	Arnavutköy/Yassıören	39+660
Nakkaş Potential Archaeological Site		x	İstanbul	Arnavutköy/Nakkaş	39+500-39+600
Nakkaş II Archaeological Site		x	İstanbul	Arnavutköy/Nakkaş	38+150-38+330
Concrete Bunker 20		x	İstanbul	Arnavutköy/Nakkaş	38+000
Nakkaş III Archaeological		x	İstanbul	Arnavutköy/Nakkaş	37+780-37+900

Site					
Concrete Bunker 34		x	İstanbul	Arnavutköy/Nakkaş	37+850
Concrete Bunker 35		x	İstanbul	Arnavutköy/Nakkaş	37+700
Concrete Bunker 21		x	İstanbul	Arnavutköy/Nakkaş	37+400
Örenbayır Archaeological Site		x	İstanbul	Arnavutköy/Nakkaş	36+980-37+360
Concrete Bunker 33		x	İstanbul	Arnavutköy/Nakkaş	37+250
Concrete Bunker 32		x	İstanbul	Arnavutköy/Nakkaş	37+250
Concrete Bunker 31		x	İstanbul	Arnavutköy/Nakkaş	37+250
Concrete Bunker 30		x	İstanbul	Arnavutköy/Nakkaş	37+250
Concrete Bunker 22		x	İstanbul	Arnavutköy/Nakkaş	36+900
Concrete Bunker 29		x	İstanbul	Arnavutköy/Nakkaş	37+000
Concrete Bunker 28		x	İstanbul	Arnavutköy/Nakkaş	36+900
Concrete Bunker 27		x	İstanbul	Arnavutköy/Nakkaş	36+850
Concrete Bunker 26		x	İstanbul	Arnavutköy/Nakkaş	36+800
Concrete Bunker 23		x	İstanbul	Arnavutköy/Nakkaş	36+700
Concrete Bunker 24		x	İstanbul	Arnavutköy/Nakkaş	36+700
Concrete Bunker 25		x	İstanbul	Arnavutköy/Nakkaş	36+700
Concrete Bunker 38		x	İstanbul	Arnavutköy/Nakkaş	36+700
Concrete Bunker 39		x	İstanbul	Arnavutköy/Nakkaş	36+701
Concrete Bunker 40		x	İstanbul	Arnavutköy/Nakkaş	36+702
Concrete Bunker 41		x	İstanbul	Arnavutköy/Nakkaş	36+703
Concrete Bunker 45		x	İstanbul	Arnavutköy/Nakkaş	36+300
Concrete Bunker 44		x	İstanbul	Arnavutköy/Nakkaş	36+270
Concrete Bunker 43		x	İstanbul	Arnavutköy/Nakkaş	36+240
Concrete Bunker 42		x	İstanbul	Arnavutköy/Nakkaş	36+230
Concrete Bunker 46		x	İstanbul	Arnavutköy/Nakkaş	35+700access road
Yeşilbayır – Nakkaş Road Historic Bridge		x	İstanbul	Arnavutköy/Nakkaş	35+701
Concrete Bunker 47		x	İstanbul	Arnavutköy/Nakkaş	35+350
Concrete Bunker 48		x	İstanbul	Arnavutköy/Nakkaş	35+162
Concrete Bunker 49		x	İstanbul	Arnavutköy/Nakkaş	35+120
Concrete Bunker 50		x	İstanbul	Arnavutköy/Nakkaş	35+121
Concrete Bunker 51		x	İstanbul	Arnavutköy/Nakkaş	35+095
Concrete Bunker 52		x	İstanbul	Arnavutköy/Nakkaş	35+036
Concrete Bunker 53		x	İstanbul	Arnavutköy/Nakkaş	35+010
Concrete Bunker 54		x	İstanbul	Arnavutköy/Nakkaş	35+050
Concrete Bunker 55		x	İstanbul	Arnavutköy/Nakkaş	35+050
Yeşilbayır Archaeological Site		x	İstanbul	Arnavutköy/Nakkaş	34+600 on the access road
Concrete Bunker 62		x	İstanbul	Arnavutköy/Nakkaş	34+600 on the access road
Concrete Bunker 61		x	İstanbul	Arnavutköy/Nakkaş	34+600 on the access road
Concrete Bunker 60		x	İstanbul	Arnavutköy/Nakkaş	34+600 on the access road
Concrete Bunker 59		x	İstanbul	Arnavutköy/Nakkaş	34+600 on the access road
Concrete Bunker 58		x	İstanbul	Arnavutköy/Nakkaş	34+600 on the access road
Concrete Bunker 57		x	İstanbul	Arnavutköy/Nakkaş	34+600 on the access road

Warrior Fountain		x	İstanbul	Arnavutköy/Nakkaş	34+600 on the access road
Concrete Bunker 63		x	İstanbul	Arnavutköy/Nakkaş	34+410
Concrete Bunker 64		x	İstanbul	Arnavutköy/Nakkaş	34+230
Concrete Bunker 74		x	İstanbul	Arnavutköy/Nakkaş	34+210
Concrete Bunker 65		x	İstanbul	Arnavutköy/Nakkaş	34+237
Concrete Bunker 66		x	İstanbul	Arnavutköy/Nakkaş	34+230
Concrete Bunker 68		x	İstanbul	Arnavutköy/Nakkaş	34+198
Concrete Bunker 71		x	İstanbul	Arnavutköy/Nakkaş	34+194
Concrete Bunker 76		x	İstanbul	Arnavutköy/Nakkaş	34+170
Concrete Bunker 77		x	İstanbul	Arnavutköy/Nakkaş	34+195
Concrete Bunker 75		x	İstanbul	Arnavutköy/Nakkaş	34+160
Concrete Bunker 67		x	İstanbul	Arnavutköy/Nakkaş	34+195
Concrete Bunker 91		x	İstanbul	Arnavutköy/Nakkaş	34+195
Concrete Bunker 69		x	İstanbul	Arnavutköy/Nakkaş	34+120
Concrete Bunker 70		x	İstanbul	Arnavutköy/Nakkaş	34+115
Concrete Bunker 78		x	İstanbul	Arnavutköy/Nakkaş	34+072
Concrete Bunker 79		x	İstanbul	Arnavutköy/Nakkaş	34+108
Concrete Bunker 72		x	İstanbul	Arnavutköy/Nakkaş	34+073
Concrete Bunker 73		x	İstanbul	Arnavutköy/Nakkaş	34+040
Vault Structure		x	İstanbul	Arnavutköy/Nakkaş	33+950-34+000
Concrete Bunker 80		x	İstanbul	Arnavutköy/Nakkaş	34+000
Concrete Bunker 81		x	İstanbul	Arnavutköy/Nakkaş	34+000
Concrete Bunker 83		x	İstanbul	Arnavutköy/Nakkaş	34+000
Concrete Bunker 90		x	İstanbul	Arnavutköy/Nakkaş	34+000
Concrete Bunker 82		x	İstanbul	Arnavutköy/Nakkaş	33+986
Concrete Bunker 92		x	İstanbul	Arnavutköy/Nakkaş	33+960
Concrete Bunker 93		x	İstanbul	Arnavutköy/Nakkaş	33+941
Concrete Bunker 94		x	İstanbul	Arnavutköy/Nakkaş	33+930
Concrete Bunker 88		x	İstanbul	Arnavutköy/Nakkaş	33+894
Concrete Bunker 89		x	İstanbul	Arnavutköy/Nakkaş	33+930
Concrete Bunker 84		x	İstanbul	Arnavutköy/Nakkaş	33+890
Concrete Bunker 85		x	İstanbul	Arnavutköy/Nakkaş	33+890
Concrete Bunker 86		x	İstanbul	Arnavutköy/Nakkaş	33+880
Concrete Bunker 87		x	İstanbul	Arnavutköy/Nakkaş	33+900
Concrete Bunker 95		x	İstanbul	Arnavutköy/Nakkaş	33+890
Concrete Bunker 96		x	İstanbul	Arnavutköy/Nakkaş	33+880
Concrete Bunker 102		x	İstanbul	Arnavutköy/Nakkaş	33+875
Concrete Bunker 100		x	İstanbul	Arnavutköy/Nakkaş	33+830
Concrete Bunker 101		x	İstanbul	Arnavutköy/Nakkaş	33+856
Concrete Bunker 99		x	İstanbul	Arnavutköy/Nakkaş	33+844
Concrete Bunker 97		x	İstanbul	Arnavutköy/Nakkaş	33+830
Concrete Bunker 98		x	İstanbul	Arnavutköy/Nakkaş	33+567
Concrete Bunker 103		x	İstanbul	Arnavutköy/Nakkaş	33+500
Concrete Bunker 104		x	İstanbul	Arnavutköy/Nakkaş	33+357
Concrete Bunker 108		x	İstanbul	Arnavutköy/Nakkaş	33+340
Concrete Bunker 105		x	İstanbul	Arnavutköy/Nakkaş	33+312

Concrete Bunker 107		x	İstanbul	Arnavutköy/Nakkaş	33+312
Concrete Bunker 106		x	İstanbul	Arnavutköy/Nakkaş	33+313
Concrete Bunker 110		x	İstanbul	Arnavutköy/Nakkaş	33+291
Concrete Bunker 109		x	İstanbul	Arnavutköy/Nakkaş	33+271
Concrete Bunker 111		x	İstanbul	Arnavutköy/Nakkaş	33+258
Concrete Bunker 112		x	İstanbul	Arnavutköy/Nakkaş	33+197
Concrete Bunker 113		x	İstanbul	Arnavutköy/Nakkaş	33+197
Concrete Bunker 114		x	İstanbul	Arnavutköy/Nakkaş	33+122
Concrete Bunker 115		x	İstanbul	Arnavutköy/Nakkaş	33+095
Concrete Bunker 119		x	İstanbul	Arnavutköy/Nakkaş	33+057
Concrete Bunker 117		x	İstanbul	Arnavutköy/Nakkaş	33+020
Concrete Bunker 116		x	İstanbul	Arnavutköy/Nakkaş	33+036
Concrete Bunker 118		x	İstanbul	Arnavutköy/Nakkaş	32+940
Concrete Bunker 120		x	İstanbul	Arnavutköy/Nakkaş	32+855
Concrete Bunker 121		x	İstanbul	Arnavutköy/Nakkaş	32+792
Concrete Bunker 122		x	İstanbul	Arnavutköy/Nakkaş	32+700
Concrete Bunker 123		x	İstanbul	Arnavutköy/Nakkaş	32+643
Concrete Bunker 124		x	İstanbul	Arnavutköy/Nakkaş	32+610
Concrete Bunker 126		x	İstanbul	Arnavutköy/Nakkaş	32+610
Concrete Bunker 125		x	İstanbul	Arnavutköy/Nakkaş	32+580
Concrete Bunker 127 and Fortification Wall		x	İstanbul	Arnavutköy/Nakkaş	32+530
Umurtepe Kartepe 2nd Degree Archaeological Site	x		İstanbul	Çatalca	21+800-21+100
Karamurat Archaeological Site		x	İstanbul	Çatalca/İnceğiz	20+230-19+660
Gedik Ali Paşa Archaeological Site		x	İstanbul	Silivri/Kadıköy	18+500-18+680
Kadıköy Archaeological Site		x	İstanbul	Silivri/Kadıköy	16+850-17+080
Gazitepe Potential Archaeological Site		x	İstanbul	Silivri/Gazitepe	15+920-16+036
Anastasian Walls	x		İstanbul	Silivri/fenerköy	5+000-5+100
Küçükkılıç Tumulus		x	İstanbul	Silivri/Küçükkılıç	2+860-2+940

Akfırat III archaeological site is located between the 138+900 and 139+180 km points, **Akfırat II** is located between 135+190-135+450 km points, and **Akfırat I** is located between 135+500-135+900 km points of the project route. On the surfaces of all sites, ceramic and roof tile shards, which were dated to the Byzantine Period, were observed. In addition, architectural building stones were encountered in the site of Akfırat III. Akfırat I is located within the project impact are while Akfırat III and II are located within the project construction corridor.

Between the 134+390-134+480 km points of the project route the site of **Tepeören** is located**.** Scarce amount of ceramic and roof tile shards from the Byzantine Period were observed on the surface of the site. **İhsaniye Cemetery**, where modern graves in addition to the graves from the 19th century were located was identified nearby 59+900 km point. İhsaniye Cemetery is located under the planned a viaduct and Tepeören site is located within the project construction corridor.

On the surface of **Tayakadın** Archaeological Site, which is located within the project construction corridor, nearby Tayakadın Junction of the access road at 48+800 km point of the project, ample amount of ceramic and roof tile shards were observed. The ceramic shards include glazed and embossed ceramics that may be dated to the Byzantine Period.

Baklalı I site is located in the south and **Baklalı II** in the north of the access road at 47+850 km point of the project route. Ample amount of glazed and non-glazed ceramics from the Byzantine Period and roof tile shards were encountered on the surfaces of both sites. Moreover, cut stones, which might be used in architecture, were discovered on the surfaces of the sites.

Yassıören I potential archaeological site is located between the 43+100 and 43+350 km points, **Yassıören II** is located between the 42+350 and 42+440 km points, and **Nakkaş** is located between 39+500 and 39+600 km points of the project route. All of these sites are located within the construction corridor. Small number of ceramic and roof tile shards, which may be dated to the Byzantine Period, were encountered on their surfaces.

Nakkaş II site is located between the 38+150 and 38+330 km points, **Nakkaş III** is located between 37+780 and 37+900 km points and **Örenbayır** is located between the 36+980 and 37+360 km points of the project route. Nakkaş II ve III are located within the project impact area and ample amount of ceramic and roof tile shards and architectural stones were encountered on their surfaces. Örenbayır, on the other hand, is located within the project construction corridor. Ceramic and roof tile shards, terracotta water pipes and glass object shards from the Byzantine Period were discovered on its surface.

Yeşilbayır-Nakkaş Road Historic Bridge is located nearby 35+700 km point and **Yeşilbayır** site is located nearby the access road at the 34+600 km point of the project route. Both sites are located outside the construction corridor but inside the project impact area. Glazed ceramic shards dated to the Ottoman Period were encountered on the surface of Yeşilbayır site. Yeşilbayır-Nakkaş Road Historic Bridge is partially intact. The bridge was built in the Roman Period with stone masonry. Its length is approximaterly 14,5 m and its width is 4,61 m. The arches of the bridge are single centred semicircles. It is probably a part of the historic road network named "Via Egnetia" connecting Istanbul (Constantinople in antiquity) with Europe, which was commissioned by the Emperor Constantine in the first half of the 4th century CE.[31]

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[31] Kıraç 2015:434-435

Karamurat is located between the 19+660 and 20+230 km points, **Gedik Ali Paşa** is located between the 18+500-18+680 km points, **Kadıköy** is located between 16+850 and 17+080 km points, **Gazitepe** is located between the 15+920 and 16+036 km points and **Küçükkılıç** is located between 2+860 and 2+940 km points of the project route. Of these sites, Karamurat, Gedik Ali Paşa, Gazitepe and Küçükkılıç are located within the construction corridor while Kadıköy is located within the construction impact area. Küçükkılıç is a tumulus type monumental grave. Illegal excavation pits in various sizes were observed on the slopes of the tumulus. Parts of cut stones were encountered around an illegal excavation pit dug on the top of the tumulus. On the surfaces of the other sites plenty of ceramic and roof tile shards dated to the Byzantine Period and architectural stone blocks were observed. In addition, terracotta plates, grindstones pieces, and shards of marble sculptures were encountered. With respect to the surface finds, these sites were identified as settlements from the Byzantine Period.

124 Concrete Bunkers, 1 fountain, 1 vault structure and a historic military shooting range, which are supposed to belong to these bunkers, were identified in the section starting at 40+450 km points and stretching to the 32+400 km point of the project route.

The bunkers were built with different construction styles in different plans. There are bunkers, which are formed with concrete and there are those built with laying rubble stones between the concrete posts. Most of the bunkers are built in square plan with four corners. The bunkers built in this plan are usually sited on a 3x3 m area. There are also bunkers with “T”, “L” and “Trefoil” shaped plans. These bunkers are larger than square ones and include fixatures for artilleries and heavy machine guns. Instruction boards including information on shooting range and angles were encountered in the Bunker no: 46. Certain architectural features such as basements and iron gate systems working with pulleys were observed in some of the larger bunkers. The geographical data about this historic defense line, which was built during the World War II, was collected from field during the field survey. It was identified that, 33 of the bunkers (no: 9, 10, 12, 13, 14, 26, 35, 46, 47, 48, 49, 50, 51, 52, 53, 61, 62, 63, 64, 68, 71, 74, 76, 77, 75, 84, 85, 86, 88, 100, 117, 118 and 122) are located within the construction corridor. Besides, the historic remains named **Concrete Bunker no: 127 and Fortification Wall,** which is located at the 32+500 km point of the project route is also located in the construction corridor.

There are other architectural remains, which are not bunker but part of the Çakmak Line, in this section of the project route. **Nakkaş Military Shooting Range** is located between 39+825 and 40+116 km points of the project route. The site is 240 m in length and 70 m in width. The shooting range is accessed through two concrete stairways located in the western facade. It was most probably used as a military training facility or meeting place during the World War II Period. There is also a historic fountain named “Warrior Fountain” on the access road at the 34+600 km point of the project route. According to its inscription plate, the building was commissioned by one Zeki Sidal in 1942. Another building remains in the area is the **“Vault Structure”**, located between 33+950-34+000 km points. The building is covered with soil. However, its vaulted entrance, which was built with tile, is still visible. There are also 5 registered cultural assets in the parts of project within the borders of Istanbul. These assets are "**Kırkçeşme Water Tunnel Line**" (km 68+900-69+400), "**Roman Aquaducts B**" (km 68+700-68+800), "**Terkos Kağıthane Water Transmission Line**" (km 57+600-58+850), "**Roman Aquaducts A**" (km 51+300-51+900), "**Çakmak Line Historic Military Fortifications**[32]" (km 32+500-42+800), **Umurtepe Kartepe 2nd Degree Archaeological Site**" (km 21+100- 21+800) and "**Anastasian Walls**[33]" (km 5+000-5+100). In compliance with the decisions no: 2203-I and 2003-II of İstanbul Regional Board no: I for Conservation of Cultural Assets, taken on January 12th 2017, physical interventions must be avoided in the sections where these sites overlap with the project construction area. In accordance with the decisions of the Board, it is required that documentation studies about the sites should be conducted under the supervision of relevant museum directorate and the prepared documents should be submitted to the Board for further evaluation. It is strongly suggested that any physical intervention to these sites should be avoided prior to the issuing of the official board decision concerning the aforementioned sites in sections overlapping with the project construction site and all project construction activities should be conducted in accordance with the official decision, which shall be made by the Board following the completion of required documentation. It is also suggested that archaeological monitoring should be conducted during all construction activities around the sites (ANNEX 8c).

Of the sites mentioned previously, Akfırat II and III, Tayakadın, Örenbayır, Concrete Bunkers and Fortifications (no: 9, 10, 12, 13, 14, 26, 35, 46, 47, 48, 49, 50, 51, 52, 53, 61, 62, 63, 64, 68, 71, 74, 76, 77, 75, 84, 85, 86, 88, 100, 117, 118,122 and 127), Nakkaş Military Shooting Range, Vault Structure, Warrior Fountain, Karamurat, Gedik Ali Paşa and Küçükkılıç Tumulus are located within the project construction corridor. It is suggested that the construction activities in these sites should be conducted in compliance with the outcomes of the field surveys, which will be held with Istanbul Regional Board no: 1 for Conservation of Cultural Assets in April 2017. It is suggested that any physical intervention to these sites should be avoided and archaeological monitoring should be conducted during the construction activities around these sites.

As an expert opinion, it is suggested that physical interventions should be avoided and archaeological monitoring should be conducted in Akfırat I, Baklalı I and II, Nakkaş II and III, Yeşilbayır-Nakkaş Historic Bridge, Yeşilbayır, Kadıköy and the sites of Concrete Bunkers and fortifications, which are located outside the construction corridor but inside the project impact area.

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32 Çakmak Line is a defense line, which was built in Çatalca by Fevzi Çakmak for the purpose of resisting a possible German attack in the Thrace border. The line was built before the World War II started. It stretches from Marmara Sea to the Black Sea and was constructed as two lines starting nearby Terkos Lake (Durusu) ending in Büyükçekmece.

33 The Walls were commissioned by the Byzantine Emperor Anastasius I (491-518) in order to protect Istanbul (in antiquity, Constantinople) against the attacks from the Thrace. It is known that the Anastasian Wall, which is 56 km in length, started in the coast of Black Sea, passing through Fenerköy and Kurfalı Villages nearby Silivri District and reached to Marmara Sea.

As an expert opinion, it is suggested that archaeological monitoring should be conducted in the sites of Tepeören, Yasıören I and II, Nakkaş and Gazitepe, which are located in the Istanbul section of the project route.

In addition to modern graves, there are graves from the Ottoman Period in İhsaniye Cemetery, which is located within the project construction corridor. For this reason, it is suggested that any physical intervention to the graves should be avoided. If physical intervention is inevitable, the graves should be moved to a suitable place in accordance with legal procedures and religious customs, and archaeological monitoring should be conducted around the site during the construction activities.

6. GENERAL EVALUATION AND CONCLUSION

The field surveys were started at the 251+143 km point of the project route in Section 6, on January 23rd 2017. The study was suspended due to heavy weather conditions and snow on January 26th 2017 and resumed on February 13th 2017 and finalized at 0+000 km point of the project route in the Section 1, on March 2nd 2017.

As a result of field surveys, presence of **190** sites within the impact corridor of the project route was identified. Among these, **181 new sites, which are not recorded** in the inventories of relevant Regional Boards for Conservation of Cultural Assets, working with the Ministry of Culture, were discovered during the field survey. Of these sites, **128** are military bunkers, fortifications, fountain and similar structures, belonging to the Çakmak Line, and a historic bridge. During the desktop research, the information retrieved from the conservation boards were studied and **9 sites**, which were registered or in registration process by the conservation boards located within the impact area of the project route were identified (ANNEX 3, 4, 6).

Numerical distribution of the sites, which were identified within the impact corridor (400 m) of the project route are presented in the Table 12 with respect to the project sections:

Table 12: The Sites within the Project Impact Corridor and Their Distribution with respect to the Sections

Section	Potential Archaeological Site	Archaeological Site	Registered Sites/Sites in the Process of Registration	Historic/Other Site	Total Number of Sites
6	10	10	1	2	23
5	-	5	1	-	6
4	1	8	-	1	10
7	-	-	2	-	2
2	1	3	2	1	7
1	3	8	3	128	142
TOTAL					**190**

The distribution of the sites, which are located within the project construction area and may be affected negatively by the project activities, are given in the Table 13:

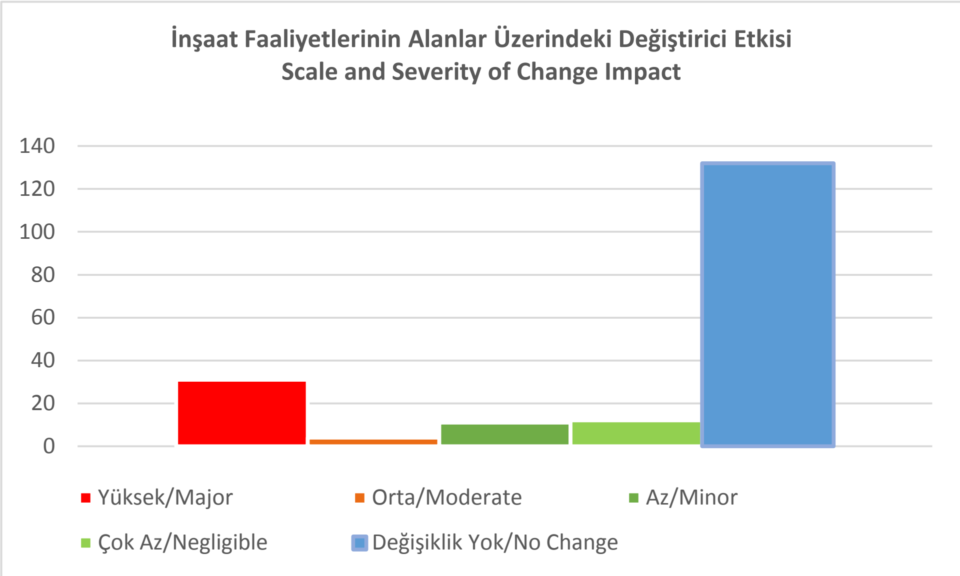
Table 13: The Distribution of Sites that may Directly be Affected Negatively by the Project Construction Activities

Section	Potential Archaeological Site	Archaeological Site	Registered Sites/Sites in the Process of Registration	Historic/Historic/Another Site	Total Number of Sites
6	9	5	-	-	14
5	-	4	1	-	5
4	1	5	-	-	6
7	-	-	2	-	2
2	1	1	2	1	5
1	3	4	3	37	47
TOTAL					**79**

The negative impact of the construction activities on the archaeological and cultural heritage sites which are located within the project construction corridor and impact area were assessed considering sizes of the identified sites and the size of the sections which may be damaged as the result of construction activities in reference to the Guidance on Heritage Impact Assessments for Cultural World Heritage Properties (HIACWHP)[34] and the outcomes of this assessment are presented in ANNEX 7. When the general assessment of the negative impacts of the project on the identified sites are considered; it was identified that the project activities do not cause any change in 132 sites. The proportion of change that is caused by the project construction activities on the sites, which are located on the project route and in the impact corridor was estimated “Negligible” for 12 sites, “Minor” for 11 sites, “Moderate” for 4 sites, and “Major” for 31 sites (Table 14, ANNEX 7).

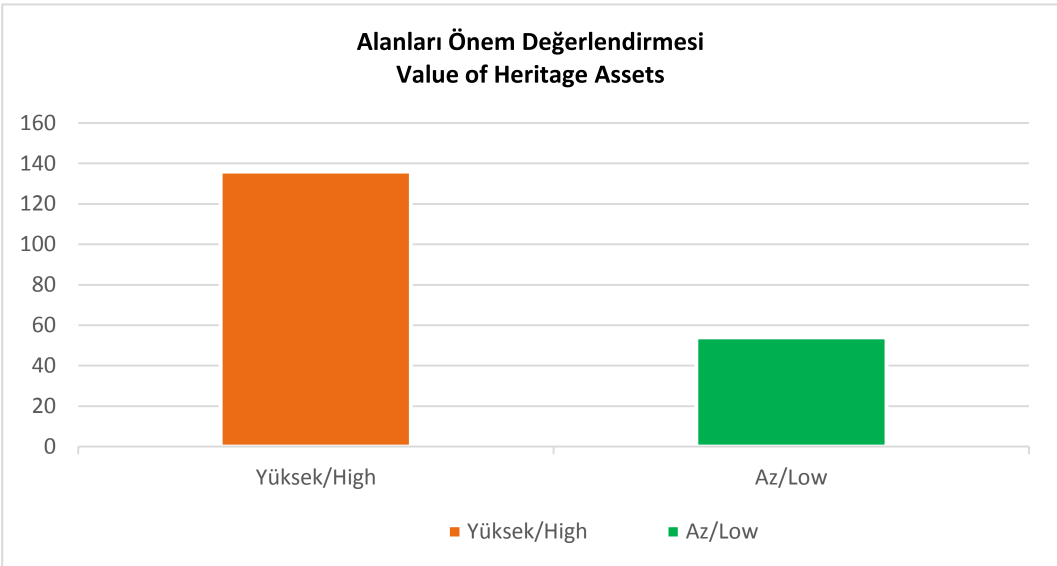
[34] ICOMOS, 2009

Table 14: Sites to be Affected and Impact of Construction Activities on Sites



Among the 190 sites that were identified to be located within the project construction site and construction impact corridor, there are registered sites, there are sites in the process of registration and sites which have potential for archaeological and historic research. As the result of the assessment which was made in accordance with Guidance on Heritage Impact Assessments for Cultural World Heritage Properties (HIACWHP),[35] the value of 136 sites were assessed as "High" while 54 as "Low" (Table 15, ANNEX 7).

Table 15: Assessment of the Sites Located within the Project Construction and Impact Corridor



[35] ICOMOS, 2009

These assessment studies concerning the sites were made taking into consideration all the opinions and information retrieved from relevant regional boards for conservation of cultural assets by April 3rd 2017 (ANNEX 8a-8e).

During the field surveys on the project route, on the areas where field walking method could not be followed due to certain reasons, “Archaeological Potential Modelling” was conducted (see Section 4.3. Archaeological Potential Modelling). The maps indicating the levels of archaeological potential of the sites, where these modelling studies were conducted, were prepared and presented in the ANNEX 5. The probabilities of existence of archaeological or immovable cultural heritage assets, which were estimated as the result of these modelling studies with respect to km intervals are presented in the Table 16. The sites, which were marked “Very High, High and Moderate Risk” are the sections of the project route, where “the probability of encountering with chance finds” is high. It is strongly suggested that the cultural heritage management plan and chance find procedures should be followed especially in these sites during the construction activities.

Table 16: Potential Archaeological Risk Scales for Not Surveyed Sections of the Project Construction and Impact Corridor

[illegible] From KP	[illegible] To KP	[illegible] Risk Scale
[illegible] – SECTION 1		
[illegible]	[illegible]	Düşük / Low
[illegible]	[illegible]	Orta / Moderate
[illegible]	[illegible]	Düşük / Low
[illegible]	[illegible]	Orta / Moderate
[illegible]	[illegible]	Düşük / Low
[illegible]	[illegible]	Orta / Moderate
[illegible]	[illegible]	Düşük / Low
[illegible]	[illegible]	Orta / Moderate
[illegible]	[illegible]	Düşük / Low
[illegible]	[illegible]	Orta / Moderate
[illegible]	[illegible]	Düşük / Low
[illegible]	[illegible]	Orta / Moderate
[illegible]	[illegible]	Düşük / Low

[illegible] From KP	[illegible] To KP	[illegible] Risk Scale
[illegible] – SECTION 2		
[illegible]	[illegible]	Düşük / Low
[illegible]	[illegible]	Orta / Moderate
[illegible]	[illegible]	Düşük / Low
[illegible]	[illegible]	Orta / Moderate
[illegible]	[illegible]	Düşük / Low
[illegible]	[illegible]	Orta / Moderate
[illegible]	[illegible]	Düşük / Low
[illegible]	[illegible]	Orta / Moderate
[illegible]	[illegible]	Düşük / Low
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	Düşük / Low
[illegible]	[illegible]	Yüksek / High
[illegible]	[illegible]	Düşük / Low

[illegible] From KP	[illegible] To KP	[illegible] Risk Scale
[illegible] – SECTION 4		
[illegible]	[illegible]	Düşük / Low
[illegible]	[illegible]	Düşük / Low
[illegible]	[illegible]	Düşük / Low
[illegible]	[illegible]	Düşük / Low

[illegible] From KP	[illegible] To KP	[illegible] Risk Scale
[illegible] – SECTION 5		
[illegible]	[illegible]	Düşük / Low
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	Orta / Moderate
[illegible]	[illegible]	Düşük / Low
[illegible]	[illegible]	Orta / Moderate
[illegible]	[illegible]	Düşük / Low
[illegible]	[illegible]	Orta / Moderate
[illegible]	[illegible]	Düşük / Low
[illegible]	[illegible]	Orta / Moderate
[illegible]	[illegible]	Orta / Moderate
[illegible]	[illegible]	Düşük / Low
[illegible]	[illegible]	Orta / Moderate
[illegible]	[illegible]	Düşük / Low
[illegible]	[illegible]	Orta / Moderate
[illegible]	[illegible]	Yüksek / High
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	Düşük / Low

[illegible] From KP	[illegible] To KP	[illegible] Risk Scale
[illegible] – SECTION 6		
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	Düşük / Low
[illegible]	[illegible]	Orta / Moderate
[illegible]	[illegible]	Düşük / Low
[illegible]	[illegible]	Orta / Moderate
[illegible]	[illegible]	Düşük / Low
[illegible]	[illegible]	Orta / Moderate
[illegible]	[illegible]	Düşük / Low
[illegible]	[illegible]	Düşük / Low
[illegible]	[illegible]	Düşük / Low
[illegible]	[illegible]	Orta / Moderate
[illegible]	[illegible]	Yüksek / High
[illegible]	[illegible]	Orta / Moderate
[illegible]	[illegible]	Düşük / Low
[illegible]	[illegible]	Düşük / Low
[illegible]	[illegible]	Orta / Moderate
[illegible]	[illegible]	Orta / Moderate
[illegible]	[illegible]	Düşük / Low
[illegible]	[illegible]	Orta / Moderate
[illegible]	[illegible]	Düşük / Low
[illegible]	[illegible]	Orta / Moderate
[illegible]	[illegible]	Düşük / Low
[illegible]	[illegible]	Orta / Moderate
[illegible]	[illegible]	Düşük / Low
[illegible]	[illegible]	Yüksek / High
[illegible]	[illegible]	Yüksek / High
[illegible]	[illegible]	Orta / Moderate
[illegible]	[illegible]	Orta / Moderate
[illegible]	[illegible]	Yüksek / High
[illegible]	[illegible]	Orta / Moderate
[illegible]	[illegible]	Yüksek / High

[illegible] From KP	[illegible] To KP	[illegible] Risk Scale
[illegible] – SECTION 7		
[illegible]	[illegible]	Düşük / Low
[illegible]	[illegible]	Yüksek / High
[illegible]	[illegible]	Orta / Moderate
[illegible]	[illegible]	Yüksek / High
[illegible]	[illegible]	Düşük / Low

In compliance with the legislation, the information about the archaeological and historic sites on the project route and within the impact area, which was collected as a result of field surveys, was delivered to relevant conservation boards and the official decision processes for these sites were started. In this respect, all field data were delivered to the Kocaeli[36] Regional Board for Conservation of Cultural Assets and Istanbul Regional Boards no: 1[37] and no: 5[38] for Conservation of Cultural Assets by the Regional Directorate no: 1 of Higways. Immediately after the delivery of field data to the conservation boards, additional field surveys were planned together with Kocaeli Regional Board for Conservation of Cultural Assets and these surveys were realized between March 8th 2017 and March 9th 2017. As the result of these field surveys, the conservation board made assessment on the concerning sites and issued the official decision no: 2887 on March 21st 2017 requiring that that additional research should be conducted in certain sites[39] identified on the project route under the supervision of the Directorate of Kocaeli Museum, the results should be delivered to the conservation board and meantime any physical intervention to the sites should be avoided (ANNEX 9).

During the period when this report was prepared, the additional field surveys with Istanbul Regional Boards no: 1 and 5 had not yet been realized.

[36] Correspondance no: E-62716 of March 22nd 2017.
[37] Correspondance no: E-94335 of March 30th 2017.
[38] Correspondance no: E-94338 of March 30th 2017.
[39] Gedikli, Biberoğlu, Solaklar, Sipahiler 1, Sipahiler 2 ve Karapınar (Molla Fenari)

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Annex 1 - Cultural Heritage Management Plan

REGIO

NORTH MARMARA MOTORWAY PROJECT
CULTURAL HERITAGE MANAGEMENT PLAN

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NORTH MARMARA MOTORWAY PROJECT **CULTURAL HERITAGE MANAGEMENT PLAN**	**23 Pages** **Including Cover Page and Appendices**
Document Number	**ARK-17-4**

Rev	Status	Date	Status Description	Issued by	Checked by	Approved by
Rev B	IDC	02.04.2017	Inter-Discipline Check	OZAH	DAGU	ARAM
Rev 0	**IAA**	**10.04.2017**	**Issued as Approved**	**OZAH**	**DAGU**	**ARAM**

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APPENDIX

Prepared By: Halim ÖZATAY	Controlled By: H. Uğur DAĞ	Approved By: H. Melih ARAL

LIST OF ABBREVIATIONS

CHMP	Cultural Heritage Management Plan
ICOMOS	International Council of Monuments and Sites
IFA	Institute of Field Archaeologists
No	Number
UNESCO	United Nations Educational, Scientific and Cultural Organization

1. INTRODUCTION

North Marmara Motorway Project has carried out an impact assessment for cultural heritage within the project area in line with local legislation and the EBRD's PR 8. The purpose of this Cultural Heritage Management Plan (CHMP) is to **preserve the *archaeological and* cultural heritage** within the scope of the North Marmara Motorway Project and to minimize possible project impacts.

The impact mitigation on the potential and existing archaeological and cultural heritage sites within the project impact area is possible by developing and implementing a management plan. Therefore, the construction activities within the scope of the project should be conducted in compliance with this management plan.

2. SCOPE

This Cultural Heritage Management Plan applies to all project activities that have the potential to cause an impact on the cultural heritage. This includes especially all construction activities of the project and cultural protection measures, such as the Chance Find procedures applicable for the Project.

2.1. Sources of Impact

- General project construction activities (soil stripping, excavation, trenching, cutting, blasting, drilling etc.)
- Construction of motorway, access roads, culverts, tunnels, viaducts and another infrastructure works of the motorway project;
- Site preparation and infrastructure installation;
- Quarries, soil storage, waste storage and similar storage areas construction or their preparation,
- Construction of main or fly camps;
- Site rehabilitation and restatement.

3. OBJECTIVES

The general objectives of this Management Plan are to:

- Outline the applicable standards with regards to the protection of cultural heritage;
- Identify the actual and potential sources of impact on Cultural Heritage;
- Establish effective plans and procedures for managing and mitigating impacts to cultural heritage sites.
- Define roles and responsibilities;
- Define monitoring and reporting procedures;
- Define training requirements.

4. LEGISLATION FRAMEWORK

In this section, the legislation framework related to the management of cultural heritage is summarized.

4.1. Local Laws and Legislation

In Turkey, the movable and immovable cultural and natural assets are under protection as dictated by the "**Law on Preservation of Cultural and Natural Assets", 2863**, which was published in the Official Gazette numbered 18113 and dated 23 July 1983. The cultural and natural heritage, which is protected by the aforementioned Law, are identified as:

- Natural properties which require protection and immovable assets which were built before the end of the 19th century;
- Any immovable cultural asset constructed after the end of the 19th century but categorized as "a significant asset which requires preservation" by the Ministry of Culture and Tourism;
- Immovable cultural assets located within the boundaries of Protection Sites; Structures, buildings or places that have witnessed significant historical events during the Turkish Independence War or the foundation of the Turkish Republic, regardless of their period and registration status; and all dwellings and buildings that have been used by Mustafa Kemal ATATURK without considering their period of construction or registration status.

In addition to Law no: 2863 on Preservation of Cultural and Natural Assets, there are some regulations and principle decisions governing the management of cultural and natural assets. According to the Principle Decision no: 658 taken on November 5th 1999, on "Archaeological Sites, Conditions of Protection and Usage", the archaeological sites are classified into three main categories:

1st Degree Archaeological Sites: Areas requiring highest level of protection, with the exception of scientific excavations aiming their protection. Neither construction nor development are allowed in these sites. All kinds of construction, excavation, and modification activities are prohibited within the boundaries of these sites. However, for exceptional cases such as the necessity for infrastructure construction, Regional Preservation Boards may permit such activities based on the approval of the relevant museum directorate and the head of the scientific excavation team

2nd Degree Archaeological Sites: Sites which require medium level of protection. They should be preserved based on the conditions of protection and utilisation set by the Regional Preservation Boards. Additional construction is prohibited. Similar to the 1st Degree Sites, for exceptional cases such as necessity for infrastructure construction among others, Regional Preservation Boards may permit such activities based on the approval of the relevant museum directorate and the head of the scientific excavation team.

3rd Degree Archaeological Sites: Lowest level of protection area. Construction is permitted based on the decisions of Regional Preservation Boards. Before applying for a construction permit, test pit excavations should be conducted and the outcomes of these excavations should be reviewed by the relevant museum and, if present, the head of the scientific excavation team. Reviews should be submitted to Regional Preservation Boards. The Boards may ask for extension of the scope of test pits before taking any decision.

Furthermore, Implementation Guidelines for Field Surveys, Test Pits and Excavation Works on Cultural and Natural Assets (Ministry approval number 94949537-160.99-51264, dated 13.03.2013) define the procedures for salvage excavations, archaeological test pits and other studies.

4.2. International Standards

EBRD's policy on tangible and intangible cultural heritage is set out in Performance Requirement 8 (PR8). The objectives of PR 8 are:

- To support the conservation of cultural heritage in the context of EBRD-financed projects;
- To protect cultural heritage from adverse impacts of project activities;
- To promote the equitable sharing of benefits from the use of cultural heritage; and
- To promote the awareness of, and appreciation of, cultural heritage where possible.

The cultural heritage findings within the project impact area that were given as Appendix 1 of this plan.

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5. ROLES AND RESPONSIBILITIES

Marmara Otoyol Construction JV. will be responsible for the preparation and implementation of the environmental and social impact assessment based management plans, which are project specific. These plans shall be practical, detailed procedures for use in the field. Marmara Otoyol Construction JV. will ensure the implementation of the commitments stated in the ESIA, project specific plans and also shall comply with all relevant project standards, statutory requirements, permit and licence conditions and secure all applicable permits and licences.

5.1. Management of Cultural Heritage

The basic definitions regarding the management of cultural heritage are given in the following bullets:

- Ministry of Culture and Tourism is the responsible authority.
- Kocaeli Archaeology and Ethnography Museum and İstanbul Archaeological Museum Directorates are responsible to provide experts for the sites within 24 hours after being informed and to officially identify the Chance Find (described in Appendix 2). Museum directorates are responsible for the excavation of chance find areas. Museum Directorates will follow the directions and decisions of the relevant Regional Preservation Boards of Cultural Assets (Table 1).

Table 1: Sections of North Marmara Motorway Project and Responsible Regional Preservation Boards of Cultural Assets and Museums

SECTIONS OF NORTH MARMARA MOTORWAY PROJECT AND RESPONSIBLE REGIONAL PRESERVATION BOARDS OF CULTURAL ASSETS and MUSEUMS					
Section	**Km**	**Province**	**District**	**Regional Preservation Boards**	**Museums**
6	251+143-241+250	Sakarya	Akyazı	Kocaeli Regional Preservation Board of Cultural Assets	Kocaeli Archaeology and Ethnography Museum
	241+250-215+500		Adapazarı		
	215+500-187+000	Kocaeli	İzmit		
5	187+000-183+250	Kocaeli	İzmit		
	183+250-175+500		Derince		
	175+500-162+500		Körfez		
	162+500-156+500		Gebze		
	156+500-151+500		Dilovası		
4	151+500-139+500	Kocaeli	Gebze		

4	139+500-132+750	İstanbul	Tuzla	İstanbul Preservation Board of Cultural Assets No.5	İstanbul Archaeological Museum
	132+751-129+650		Pendik		
7	71+250-69+500	İstanbul	Eyüp	İstanbul Preservation Board of Cultural Assets No.1	
7	69+501-62+500		Sultangazi		
7	62+501-60+400		Esenler		
2	58+000-55+750		Eyüp		
	55+750-40+500		Arnavutköy		
1	40+500-32+600		Arnavutköy		
	32+600-19+000		Çatalca		
	19+000-0+000		Silivri		

- The Preservation Boards of Cultural Assets are the only decision maker on any intervention, which would be made on the site after the chance find.
- Marmara Otoyol Construction JV is responsible for the management of all cultural heritage assets during the construction phase of the Project and implementation of related management plan and the chance find procedure.
- Marmara Otoyol Construction JV should mobilize cultural heritage/archaeological monitoring expert/s for the monitoring of ground disturbance activities within project including impact areas. They are also responsible for the monitoring of the implementation of the Cultural Heritage Management Plan (CHMP) and the Chance Find Procedure.
- Marmara Otoyol Construction JV will ensure that Chance Find Procedure is adequately enforced during all ground disturbance activities.
- In case of any further actions is required to identify the Chance Find (test pit or salvage excavation, other needed services), Marmara Otoyol Construction JV will mobilize an archaeology team (including necessary expertise and other workpower) and provide the necessary equipment.
- Marmara Otoyol Construction JV is responsible for giving necessary training to the field staff about the implementation of the chance find procedure.
- Marmara Otoyol Construction JV will record all chance finds on the Chance Find Report Form and on the Chance Find Register as per the Chance Find Procedure given in Appendix 2.

5.2. Management Structure and Responsibilities

Marmara Otoyol Construction JV is responsible for the management of the plan and implementing of the procedures about cultural heritage and archaeological aspects of the North Marmara Motorway Project. The monitoring archaeologist/s of the project will train the employees about cultural heritage and the chance find procedure. Monitoring of the construction works will also be the responsibility of the monitoring archaeologist/s.

- The Project Manager will be in charge of the all work team.
- • The Environmental Manager will be in charge of the cultural heritage/archaeological monitoring expert/s and their daily, weekly and monthly activities. Cultural heritage and archaeological monitoring reports (daily, weekly and monthly) will be submitted to Environmental Manager by monitoring expert/s.The cultural heritage/archaeological monitoring expert/s will work with the equipment operators and have authority to stop the work. The archaeologist will accompany all ground disturbance activities of the project. The cultural heritage/archaeological monitoring expert/s will instruct the operator to stop the work in case of a chance find. Continuation of the ground disturbance activities after a chance find will also be under the authority of the cultural heritage/archaeological monitoring expert/s. The cultural heritage/archaeological monitoring expert/s will submit scheduled progress reports and special reports of chance finds to the Environmental Manager.

6. TRAINING, REPORTING AND MONITORING

6.1. Training

The cultural heritage/archaeological monitoring expert/s will provide cultural heritage training to all project staff including the implementation of the chance find procedure as part of their Environmental Training.

The expert/s will receive Environmental Training as well as specialized training for the procedures to follow for all ground disturbed activities. These trainings will be repeated periodically. The expert/s and the site management will periodically ***meet*** once a month or when deemed necessary. The records of the training such as attendee list, the presentation made during the training, etc. will be kept by the experts as hard copy and electronical copy.

6.2. Reporting

The cultural heritage/archaeological monitoring expert/s will record all chance finds on the Chance Find Report Form and the Chance Find Register as per the Chance Find Procedure given in Appendix 2. The register will be kept up to date by the experts. The Chance Find Report Form will be kept in hard copy and as electronical copy (scanned version) at the project camp. A summary of the status of chance finds will be reported by the experts to Environmental Manager on a weekly basis.

6.3. Monitoring

The function of the archaeological monitoring process will be as follows:

- Provide advice to define the areas where the construction activities may continue or shall be stopped due to archaeological/movable/immovable cultural heritage findings.
- To record archaeological/cultural heritage features observed on, and close to the existing project related areas.
- To record archaeological/cultural heritage features discovered during project construction activities.
- To provide advice in the form of a ‘preliminary assessment’ to the relevant department on the significance and implications of new archaeological discoveries on the project construction areas.

All ground disturbance activities will be monitored by cultural heritage/archaeological monitoring expert/s during the construction activities. In case of encountering any archaeological/cultural heritage findings, the Chance Find Procedure described in Appendix 2 will be initiated.

The schedule for monitoring will be developed in coordination with the construction schedule. Monitoring activities will be implemented daily. The monitoring schedule will be dictated by the construction schedule as determined by the construction/operation management. There is no sampling based work associated with the Cultural Heritage Management Plan.

7. ARCHAEOLOGICAL/CULTURAL HERITAGE FINDINGS

The procedure given in Appendix 2 that must be followed in case of encountering a chance find is based on national legislation and provisions of international standards and best practices. Description of the significance levels of the findings is given below. The significance of the archaeological/cultural heritage finding may vary upon the assessment of the Kocaeli Archaeology and Ethnography Museum and İstanbul Archaeological Museum Directorates.. Regardless of the level of significance, in case of a finding the construction activities shall be ceased in the field where the finding is discovered and the findings shall be reported to the relevant museum expert. Following the completion of investigation of the relevant Museum Directorate, the necessary arrangements, such as the identification of the boundaries of the archaeological/cultural heritage asset/site (finding), its protection by taking necessary measures, notification of workers in order to prevent any physical intervention, will be implemented.

7.1. Minor Significance

This type of findings is comprised of a finding isolated from its environment or findings in notably small sizes which may be found by chance. In this case, chance find procedure (Appendix 2) will be followed.

7.2. Moderate Significance

This type of findings is small scale findings in groups or single findings with medium size architectural elements such as tombs. In this case, chance find procedure (Appendix 2) will be followed. In order to prevent a possible damage, necessary arrangements must be made to determine the boundaries of the archaeological remains to keep the construction equipment out of access.

7.3. Major Significance

This type of findings is comprised of findings with great importance such as a settlement area, a tumulus, a mound or a big necropolis (wide graveyard areas with archaeological characteristics) and the construction activities must be immediately stopped and chance find procedure (Appendix 2) will be followed. This type of chance find may cover the entire construction site and the relevant project areas such as camp sites, quarries, soil stock area etc. that the entrance and exit of the construction equipment and vehicles cannot be managed without giving any damage to the archaeological remains.

8. REFERENCES

- General Directorate of Preservation of Cultural and Historical Heritage, “Law on Protection of Cultural and Natural Assets (1) Law No. 2863”, 1983.
- ICOMOS (International Council of Monuments and Sites) “Guidance on Impact Assessment for Cultural World Heritage”, January 2011.
- IFA (Institute of Field Archaeologists) Standard and Guidance for the Collection, “Documentation, Conservation and Research of Archaeological Materials”, 2001.
- IFA (Institute of Field Archaeologists) 1994, “Standard and Guidance for an Archaeological Desk Based Assessment” (revised 1999)
- IFA (Institute of Field Archaeologists) 1994, “Standard and Guidance for an Archaeological Watching Brief” (revised 1999)
- IFA (Institute of Field Archaeologists) 1994, “Standard and Guidance for an Archaeological Field Evaluation” (revised 1999)
- UNESCO, “Convention Concerning the Protection of the World Cultural and Natural Heritage”, November 1972.

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Appendix 1.1: Archaeological and Cultural Heritage Site List within Project Construction and Project Impact Area

Prepared By: Halim ÖZATAY	Controlled By: H. Uğur DAĞ	Approved By: H. Melih ARAL

CULTURAL HERITAGE SITE LIST WITHIN PROJECT CONSTRUCTIN AND PROJECT IMPACT AREA											
No.	NAME OF THE SITE	Registration Status		City	Province/ Village	Approximate Distance (km)	On the Main Axis	On the Access Road	Within Construction Cooridor of the Motorway Route	Outside the Construction Corridor, Within the 400 m. Impact Corridor	Approximate Distance to the Construction Impact Area
		Registered	Unregistered								
SECTION 6											
1	Osmanbey Potential Archaeological Site		x	Sakarya	Akyazı/ Osmanbey	250+520-246+827	x		x		0
2	Çayırlar Locality Archaeological Site		x	Sakarya	Adapazarı/ Budaklar	238+720-239+127	x	x	x		0
3	Budaklar Potential Archaeological Site		x	Sakarya	Adapazarı/ Budaklar	236+747-236+850	x		x		0
4	Çelebiler Potential Archaeological Site		x	Sakarya	Adapazarı/ Çelebiler	232+970-233+550	x		x		0
5	Kömürlük Modern Cemetery		x	Sakarya	Adapazarı/ Kömürlük	232+000 access road km 1+500		x		x	1
6	Kömürlük Potential Archaeological Site		x	Sakarya	Adapazarı/ Kömürlük	232+000 access road km 0+250-1+150		x	x		0
7	Besihane Potential Archaeological Site		x	Sakarya	Adapazarı/ Çamyolu	229+000-239+450	x		x		0
8	Azizbey Hill		x	Sakarya	Adapazarı /Çamyolu	226+550-226+670	x			x	17
9	Süloğlu Bridge		x	Kocaeli	İzmit/ Akmeşe	214+700	x			x	58
10	Deredağ Potential Archaeological Site		x	Kocaeli	İzmit/ Akmeşe	213+750-213+950	x		x		0
11	Adaparmak Ridge Potential Archaeological Site		x	Kocaeli	İzmit/ Akmeşe	212+300-212+600	x	x		x	100
12	Kabaklı Locality Potential Archaeological Site		x	Kocaeli	İzmit/ Akmeşe	211+950-212+150	x		x		0
13	KöprübaşıHill Potential Archaeological Site		x	Kocaeli	İzmit/ Akmeşe	210+500-210+550	x		x		0
14	Mancarcı Locality Potential Archaeological Site		x	Kocaeli	İzmit/ Mancarcı	199+560-199+780	x		x		0
15	Gedikli 1 Archaeological Site		x	Kocaeli	İzmit/ Bayraktar	198+950-199+100	x		x		0
16	Gedikli 2 Archaeological Site		x	Kocaeli	İzmit/ Bayraktar	198+600-198+810	x		x		0
17	Biberoğlu Archaeological Site		x	Kocaeli	İzmit/ Bayraktar	197+970-198+060	x		x		0
18	İğriköz Creek Archaeological Site		x	Kocaeli	İzmit/ Bayraktar	197+560-197+640	x			x	2
19	Doruk Archaeological Site		x	Kocaeli	İzmit/ Eseler	195+700-196+000	x			x	32
20	Kesimahlar Archaeological Site		x	Kocaeli	İzmit/ Çayırköy	195+000 access road km 1+000		x	x		7
21	Solaklar Archaeological Site		x	Kocaeli	İzmit/ Eseler	193+460-194+000	x		x		0
22	Çayırköy Archaeological Site		x	Kocaeli	İzmit/ Çayırköy	192+300-192+500	x			x	25

23	Kocaeli RBCCA Registered Site No:1	x		Kocaeli	İzmit/ Çayırköy	192+000 on the access road		x		x	34
Section 5											
24	Toylar Archaeological Site		x	Kocaeli	Körfez/ Toylar	174+150-174+370	x		x		0
25	Sipahiler 1 Archaeological Site		x	Kocaeli	Körfez/ Sipahiler	171+690-171+850	x		x		0
26	Sipahiler 2 Archaeological Site		x	Kocaeli	Körfez/ Sipahiler	171+220-171+330	x		x		0
27	Kocadere Archaeological Site		x	Kocaeli	Körfez/ Sipahiler	170+000-170+100	x			x	87
28	Martılar Archaeological Site		x	Kocaeli	Körfez/ Martılar	169+000 access road km 41+750+ 42+800		x	x		0
29	Yağcılar Historic Road Remains (Registered Site No: 2 of Kocaeli RBCCA)	x		Kocaeli	İzmit/ Yağcılar	161+800	x		x		0
Section 4											
30	Demirciler Archaeological Site		x	Kocaeli	Dilovası/ Demirciler	150+000 Access Road KM 1+200		x		x	75
31	Uluyan 1 Archaeological Site		x	Kocaeli	Gebze/ Denizli	149+950-150+000		x		x	60
32	Uluyan 2 Archaeological Site		x	Kocaeli	Gebze/ Denizli	149+700-149+850		x	x		0
33	Karapınar (Molla Fenari) Archaeological Site		x	Kocaeli	Gebze/ Molla Fenari	147+550-147+900	x		x		0
34	Cumaköy Cemetery		x	Kocaeli	Gebze/ Cumaköy	145+750	x			x	1
35	Kuzgunçay Tumulus		x	Kocaeli	Gebze/ Cumaköy	144+100	x			x	22
36	Akfırat III Archaeological Site		x	İstanbul	Tuzla/ Akfırat	138+900-139+180	x		x		0
37	Akfırat I Archaeological Site		x	İstanbul	Tuzla/ Akfırat	135+500-135+900	x			x	5
38	Akfırat II Archaeological Site		x	İstanbul	Tuzla/ Akfırat	135+190-135+450	x		x		0
39	Tepeören Potential Archaeological Site		x	İstanbul	Tuzla/ Tepeören	134+390-134+480	x	x	x		0
Section 7											
40	Kırkçeşme Water Tunnel Line	x		İstanbul	Sultangazi/ Gazi	68+900-69+400	x		x		0
41	Roman Aqueducts B	x		İstanbul	Sultangazi/ Gazi	68+700-68+800	x		x		0
Section 2											
42	Terkos Kağıthane Water Transmission Line	x		İstanbul	Arnavutköy	57+600-58+850	x		x		0
43	İhsaniye Cemetery		x	İstanbul	Çatalca/ İhsaniye	57+280	x		x		0
44	Roman Aqueducts A	x		İstanbul	Arnavutköy/Tayakadın	51+300-51+900	x		x		0
45	Tayakadın Archaeological Site		x	İstanbul	Arnavutköy/Tayakadın	48+800 access road		x	x		0
46	Baklalı I Archaeological Site		x	İstanbul	Arnavutköy/Baklalı	47+850 access road Southern Part		x		x	99

47	Baklalı II Archaeological Site		x	İstanbul	Arnavutköy/Baklalı	47+850 access road Northern Part		x		x	29
48	Yassıören Potential Archaeological Site		x	İstanbul	Arnavutköy/Yassıören	43+100-43+350	x			x	177
Section 1											
49	Çakmak Line Historic Military Entrenchments	x		İstanbul	Arnavutköy/Yasıören, Nakkaş	42+800-32+500	x		x	x	0
50	Yassıören II Potential Archaeological Site		x	İstanbul	Arnavutköy/Yassıören	42+350-42+440	x		x		0
51	Military Bunker 1		x	İstanbul	Arnavutköy/Yassıören	40+500	x			x	1
52	Military Bunker 2		x	İstanbul	Arnavutköy/Yassıören	40+500	x			x	76
53	Military Bunker 3		x	İstanbul	Arnavutköy/Yassıören	40+400	x			x	134
54	Military Bunker 4		x	İstanbul	Arnavutköy/Yassıören	40+400	x			x	191
55	Military Bunker 5		x	İstanbul	Arnavutköy/Yassıören	40+171				x	193
56	Military Bunker 6		x	İstanbul	Arnavutköy/Yassıören	40+171	x			x	134
57	Military Bunker 7		x	İstanbul	Arnavutköy/Yassıören	40+171	x			x	99
58	Military Bunker 8		x	İstanbul	Arnavutköy/Yassıören	40+171	x			x	11
59	Nakkaş Military Shooting Range		x	İstanbul	Arnavutköy/Yassıören	39+825-40+116	x		x		0
60	Military Bunker 9		x	İstanbul	Arnavutköy/Yassıören	39+863	x		x		0
61	Military Bunker 10		x	İstanbul	Arnavutköy/Yassıören	39+873	x		x		0
62	Military Bunker 11		x	İstanbul	Arnavutköy/Yassıören	39+850	x			x	52
63	Military Bunker 12		x	İstanbul	Arnavutköy/Yassıören	39+781	x		x		0
64	Military Bunker 13		x	İstanbul	Arnavutköy/Yassıören	39+726	x		x		0
65	Military Bunker 14		x	İstanbul	Arnavutköy/Yassıören	39+720	x		x		0
66	Military Bunker 15		x	İstanbul	Arnavutköy/Yassıören	39+750	x			x	4
67	Military Bunker 16		x	İstanbul	Arnavutköy/Yassıören	39+740	x			x	24
68	Military Bunker 17		x	İstanbul	Arnavutköy/ Yassıören	39+660	x			x	72
69	Military Bunker 18		x	İstanbul	Arnavutköy/Yassıören	39+660	x			x	114
70	Military Bunker 19		x	İstanbul	Arnavutköy/Yassıören	39+660	x			x	122
71	Nakkaş Potential Archaeological Site		x	İstanbul	Arnavutköy/Nakkaş	39+500-39+600	x		x		0
72	Nakkaş II Archaeological Site		x	İstanbul	Arnavutköy/Nakkaş	38+150-38+330	x			x	50
73	Military Bunker 20		x	İstanbul	Arnavutköy/Nakkaş	38+000	x			x	179
74	Nakkaş III Archaeological Site		x	İstanbul	Arnavutköy/Nakkaş	37+780-37+900	x			x	176
75	Military Bunker 34		x	İstanbul	Arnavutköy/Nakkaş	37+850	x			x	8
76	Military Bunker 35		x	İstanbul	Arnavutköy/Nakkaş	37+700	x		x		0
77	Military Bunker 21		x	İstanbul	Arnavutköy/Nakkaş	37+400	x			x	260
78	Örenbayır Archaeological Site		x	İstanbul	Arnavutköy/Nakkaş	36+980-37+360	x		x		0
79	Military Bunker 33		x	İstanbul	Arnavutköy/Nakkaş	37+250	x			x	112
80	Military Bunker 32		x	İstanbul	Arnavutköy/Nakkaş	37+250	x			x	114
81	Military Bunker 31		x	İstanbul	Arnavutköy/Nakkaş	37+250	x			x	77
82	Military Bunker 30		x	İstanbul	Arnavutköy/Nakkaş	37+250	x			x	75

83	Military Bunker 22		x	İstanbul	Arnavutköy/Nakkaş	36+900	x			x	124
84	Military Bunker 29		x	İstanbul	Arnavutköy/Nakkaş	37+000	x			x	115
85	Military Bunker 28		x	İstanbul	Arnavutköy/Nakkaş	36+900	x			x	91
86	Military Bunker 27		x	İstanbul	Arnavutköy/Nakkaş	36+850	x			x	10
87	Military Bunker 26		x	İstanbul	Arnavutköy/Nakkaş	36+800	x		x		0
88	Military Bunker 23		x	İstanbul	Arnavutköy/Nakkaş	36+700	x			x	40
89	Military Bunker 24		x	İstanbul	Arnavutköy/Nakkaş	36+700	x			x	49
90	Military Bunker 25		x	İstanbul	Arnavutköy/Nakkaş	36+700	x			x	58
91	Military Bunker 38		x	İstanbul	Arnavutköy/Nakkaş	36+700	x			x	92
92	Military Bunker 39		x	İstanbul	Arnavutköy/Nakkaş	36+701	x			x	103
93	Military Bunker 40		x	İstanbul	Arnavutköy/Nakkaş	36+702	x			x	108
94	Military Bunker 41		x	İstanbul	Arnavutköy/Nakkaş	36+703	x			x	131
95	Military Bunker 45		x	İstanbul	Arnavutköy/Nakkaş	36+300	x			x	118
96	Military Bunker 44		x	İstanbul	Arnavutköy/Nakkaş	36+270	x			x	87
97	Military Bunker 43		x	İstanbul	Arnavutköy/Nakkaş	36+240	x			x	55
98	Military Bunker 42		x	İstanbul	Arnavutköy/Nakkaş	36+230	x			x	30
99	Military Bunker 46		x	İstanbul	Arnavutköy/Nakkaş	35+700 access road		x	x		0
100	Historic Bridge on Yeşilbayır – Nakkaş Road		x	İstanbul	Arnavutköy/Nakkaş	35+701				x	147
101	Military Bunker 47		x	İstanbul	Arnavutköy/Nakkaş	35+350	x	x	x		0
102	Military Bunker 48		x	İstanbul	Arnavutköy/Nakkaş	35+162	x		x		0
103	Military Bunker 49		x	İstanbul	Arnavutköy/Nakkaş	35+120	x		x		0
104	Military Bunker 50		x	İstanbul	Arnavutköy/Nakkaş	35+121	x		x		0
105	Military Bunker 51		x	İstanbul	Arnavutköy/Nakkaş	35+095	x		x		0
106	Military Bunker 52		x	İstanbul	Arnavutköy/Nakkaş	35+036	x		x		0
107	Military Bunker 53		x	İstanbul	Arnavutköy/Nakkaş	35+010	x		x		0
108	Military Bunker 54		x	İstanbul	Arnavutköy/Nakkaş	35+050	x			x	20
109	Military Bunker 55		x	İstanbul	Arnavutköy/Nakkaş	35+050	x			x	54
110	Yeşilbayır Archaeological Site		x	İstanbul	Arnavutköy/Nakkaş	34+600 On the Access Road		x		x	1
111	Military Bunker 62		x	İstanbul	Arnavutköy/Nakkaş	34+600 On the Access Road		x	x		0
112	Military Bunker 61		x	İstanbul	Arnavutköy/Nakkaş	34+600 On the Access Road		x	x		0
113	Military Bunker 60		x	İstanbul	Arnavutköy/Nakkaş	34+600 On the Access Road		x		x	3
114	Military Bunker 59		x	İstanbul	Arnavutköy/Nakkaş	34+600 On the Access Road		x		x	24
115	Military Bunker 58		x	İstanbul	Arnavutköy/Nakkaş	34+600 On the Access Road		x		x	50
116	Military Bunker 57		x	İstanbul	Arnavutköy/Nakkaş	34+600 On the Access Road		x		x	141
117	Savaşçı Fountain		x	İstanbul	Arnavutköy/Nakkaş	34+600 On the Access Road		x	x		0
118	Military Bunker 63		x	İstanbul	Arnavutköy/Nakkaş	34+410	x		x		0
119	Military Bunker 64		x	İstanbul	Arnavutköy/Nakkaş	34+230	x		x		0
120	Military Bunker 74		x	İstanbul	Arnavutköy/Nakkaş	34+210	x		x		0
121	Military Bunker 65		x	İstanbul	Arnavutköy/Nakkaş	34+237	x			x	31
122	Military Bunker 66		x	İstanbul	Arnavutköy/Nakkaş	34+230	x			x	21

123	Military Bunker 68		x	İstanbul	Arnavutköy/Nakkaş	34+198	x		x		0
124	Military Bunker 71		x	İstanbul	Arnavutköy/Nakkaş	34+194	x		x		0
125	Military Bunker 76		x	İstanbul	Arnavutköy/Nakkaş	34+170	x		x		0
126	Military Bunker 77		x	İstanbul	Arnavutköy/Nakkaş	34+195	x		x		0
127	Military Bunker 75		x	İstanbul	Arnavutköy/Nakkaş	34+160	x		x		0
128	Military Bunker 67		x	İstanbul	Arnavutköy/Nakkaş	34+195	x			x	105
129	Military Bunker 91		x	İstanbul	Arnavutköy/Nakkaş	34+195	x			x	172
130	Military Bunker 69		x	İstanbul	Arnavutköy/Nakkaş	34+120	x			x	100
131	Military Bunker 70		x	İstanbul	Arnavutköy/Nakkaş	34+115	x			x	105
132	Military Bunker 78		x	İstanbul	Arnavutköy/Nakkaş	34+072	x			x	3
133	Military Bunker 79		x	İstanbul	Arnavutköy/Nakkaş	34+108	x			x	53
134	Military Bunker 72		x	İstanbul	Arnavutköy/Nakkaş	34+073	x			x	68
135	Military Bunker 73		x	İstanbul	Arnavutköy/Nakkaş	34+040	x			x	43
136	Vaulted Structure		x	İstanbul	Arnavutköy/Nakkaş	33+950-34+000	x		x		0
137	Military Bunker 80		x	İstanbul	Arnavutköy/Nakkaş	34+000	x			x	20
138	Military Bunker 81		x	İstanbul	Arnavutköy/Nakkaş	34+000	x			x	45
139	Military Bunker 83		x	İstanbul	Arnavutköy/Nakkaş	34+000	x			x	90
140	Military Bunker 90		x	İstanbul	Arnavutköy/Nakkaş	34+000	x			x	140
141	Military Bunker 82		x	İstanbul	Arnavutköy/Nakkaş	33+986	x			x	90
142	Military Bunker 92		x	İstanbul	Arnavutköy/Nakkaş	33+960	x			x	148
143	Military Bunker 93		x	İstanbul	Arnavutköy/Nakkaş	33+941	x			x	136
144	Military Bunker 94		x	İstanbul	Arnavutköy/Nakkaş	33+930	x			x	172
145	Military Bunker 88		x	İstanbul	Arnavutköy/Nakkaş	33+894	x		x		0
146	Military Bunker 89		x	İstanbul	Arnavutköy/Nakkaş	33+930	x			x	90
147	Military Bunker 84		x	İstanbul	Arnavutköy/Nakkaş	33+890	x		x		0
148	Military Bunker 85		x	İstanbul	Arnavutköy/Nakkaş	33+890	x		x		0
149	Military Bunker 86		x	İstanbul	Arnavutköy/Nakkaş	33+880	x		x		0
150	Military Bunker 87		x	İstanbul	Arnavutköy/Nakkaş	33+900	x			x	11
151	Military Bunker 95		x	İstanbul	Arnavutköy/Nakkaş	33+890	x			x	165
152	Military Bunker 96		x	İstanbul	Arnavutköy/Nakkaş	33+880	x			x	141
153	Military Bunker 102		x	İstanbul	Arnavutköy/Nakkaş	33+875	x			x	181
154	Military Bunker 100		x	İstanbul	Arnavutköy/Nakkaş	33+830	x		x		0
155	Military Bunker 101		x	İstanbul	Arnavutköy/Nakkaş	33+856	x			x	15
156	Military Bunker 99		x	İstanbul	Arnavutköy/Nakkaş	33+844	x			x	4
157	Military Bunker 97		x	İstanbul	Arnavutköy/Nakkaş	33+830	x			x	127
158	Military Bunker 98		x	İstanbul	Arnavutköy/Nakkaş	33+567	x			x	58
159	Military Bunker 103		x	İstanbul	Arnavutköy/Nakkaş	33+500	x			x	129
160	Military Bunker 104		x	İstanbul	Arnavutköy/Nakkaş	33+357	x			x	128
161	Military Bunker 108		x	İstanbul	Arnavutköy/Nakkaş	33+340	x			x	77
162	Military Bunker 105		x	İstanbul	Arnavutköy/Nakkaş	33+312	x			x	30
163	Military Bunker 107		x	İstanbul	Arnavutköy/Nakkaş	33+312	x			x	11
164	Military Bunker 106		x	İstanbul	Arnavutköy/Nakkaş	33+313	x			x	15
165	Military Bunker 110		x	İstanbul	Arnavutköy/Nakkaş	33+291	x			x	78
166	Military Bunker 109		x	İstanbul	Arnavutköy/Nakkaş	33+271	x			x	61
167	Military Bunker 111		x	İstanbul	Arnavutköy/Nakkaş	33+258	x			x	71

168	Military Bunker 112		x	İstanbul	Arnavutköy/Nakkaş	33+197	x			x	84
169	Military Bunker 113		x	İstanbul	Arnavutköy/Nakkaş	33+197	x			x	30
170	Military Bunker 114		x	İstanbul	Arnavutköy/Nakkaş	33+122	x			x	62
171	Military Bunker 115		x	İstanbul	Arnavutköy/Nakkaş	33+095	x			x	55
172	Military Bunker 119		x	İstanbul	Arnavutköy/Nakkaş	33+057	x			x	26
173	Military Bunker 117		x	İstanbul	Arnavutköy/Nakkaş	33+020	x		x		0
174	Military Bunker 116		x	İstanbul	Arnavutköy/Nakkaş	33+036	x			x	10
175	Military Bunker 118		x	İstanbul	Arnavutköy/Nakkaş	32+940	x		x		0
176	Military Bunker 120		x	İstanbul	Arnavutköy/Nakkaş	32+855	x			x	87
177	Military Bunker 121		x	İstanbul	Arnavutköy/Nakkaş	32+792	x			x	45
178	Military Bunker 122		x	İstanbul	Arnavutköy/Nakkaş	32+700	x		x		0
179	Military Bunker 123		x	İstanbul	Arnavutköy/Nakkaş	32+643	x			x	66
180	Military Bunker 124		x	İstanbul	Arnavutköy/Nakkaş	32+610	x			x	88
181	Military Bunker 126		x	İstanbul	Arnavutköy/Nakkaş	32+610	x			x	127
182	Military Bunker 125		x	İstanbul	Arnavutköy/Nakkaş	32+580	x			x	113
183	Military Bunker 127 and Parapet		x	İstanbul	Arnavutköy/Nakkaş	32+530	x		x		0
184	Umurtepe Kartepe 2nd Degree Archaeological Site	x		İstanbul	Çatalca	21+800-21+100	x		x		0
185	Karamurat Archaeological Site		x	İstanbul	Çatalca/ İnceğiz	20+230-19+660	x		x		0
186	Gedik Ali Paşa Archaeological Site		x	İstanbul	Silivri/ Kadıköy	18+500-18+680	x		x		0
187	Kadıköy Archaeological Site		x	İstanbul	Silivri/ Kadıköy	16+850-17+080	x			x	53
188	Gazitepe Potential Archaeological Site		x	İstanbul	Silivri/ Gazitepe	15+920-16+036	x		x		0
189	Anastasian Walls	x		İstanbul	Silivri/ Fenerköy	5+000-5+100	x		x		0
190	Küçükkılıç Tumulus		x	İstanbul	Silivri/ Küçükkılıç	2+860-2+940	x		x		0

Annex 2 – Chance Find Procedure

CHANCE FIND PROCEDURE	**17 Pages** **Including Cover Page and Appendices**
Document Number	**ARK-17-5**

Rev	Status	Date	Status Description	Issued by	Checked by	Approved by
Rev B	IDC	03.04.2017	Inter-Discipline Check	OZAH	DAGU	ARAM
Rev 0	**IFA**	**10.04.2017**	**Issued as Approved**	**OZAH**	**DAGU**	**ARAM**

Table of Contents

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1. INTRODUCTION

Marmara Otoyol Construction JV. is responsible for the management and protection of archaeological and heritage sites/resources within the North Marmara Motorway Project construction and project impact area. Many archaeological and cultural heritage assets have been encountered within the project construction and impact area during the ESIA studies. Suggestions to protect cultural heritage assets and sites encountered within the project impact area were described on the ESIA. However, there is still a possibility of encountering some unknown archaeological sites and cultural heritage assets as a Chance Find during project activities.

1.1 Purpose

The purpose of this document is to outline the procedure and respective responsibilities in relation to the management of Chance Finds during project construction works.

The procedure applies to all project activities within the project impact areas (main route of motorway, access roads, culverts, tunnel, viaduct, quarries, soil storage areas, waste storages, camp sites etc.) and other project related areas.

1.2 Definitions

CHANCE FIND	Potential cultural heritage objects, features or sites that are identified outside of a formal site reconnaissance, normally as a result of construction monitoring.
MUSEUM DIRECTORATES	Kocaeli Archaeology and Ethnography Museum İstanbul Archaeological Museum
REGIONAL PRESERVATION BOARDS	Kocaeli Regional Preservation Board of Cultural Assets İstanbul Preservation Board of Cultural Assets No.5 İstanbul Preservation Board of Cultural Assets No.1
PROJECT	North Marmara Motorway Project
SHALL AND MUST	Indicates mandatory requirements.
SHOULD	Indicates that a provision is not mandatory, but recommended as good practice.

1.3 Abbreviations

Abbreviation	Definition
CHMP	Cultural Heritage Management Plan
E&S	Environmental and Social
ESIA	Environmental and Social Impact Assessment

1.4 References

STANDARDS, LEGISLATIONS and LAWS
Ministry of Culture and Tourism, Law No:2863, **Preservation of Cultural and Natural Assets**
Ministry of Culture and Tourism, Principle Decision No: 658, **Archaeological Sites, Conditions of Protection and Usage**
European Bank for Reconstruction and Development- EBRD, Environmental and Social Policy, **PR08, Cultural Heritage**

2. ROLES AND RESPONSIBILITIES

Marmara Otoyol Construction JV. is responsible to comply with the procedure with all its units during the project construction activities. All employees involved in construction works will be trained for the implementation of the procedure.

Project Role	Responsibilities
Site Manager	Ensure E&S issues are being adequately addressed on site by all related departments. Support E&S site, provides adequate resources on site to implement E&S monitoring and inspection activities.
E&S Manager	Preparation or revision of E&S documentation, plans and procedures as required. Participation in the identification process of significant impacts for the project, and assisting to develop relevant preventive and corrective actions. Coordination of environmental and social information flow. Ensuring that E&S mitigation measures are implemented and controlled during the project construction activities. Developing and implementation of an environmental and social audit program and sharing lessons learned between all related departments and staff. Manages site based environmental inspectors, community liaison officers and cultural heritage/archaeological monitoring expert/s. Maintain effective communication with the construction and project management team. Ensure the ESIA mitigation measures, through on-site daily inspection, advice and assistance to site construction and project management and personnel on all environmental, social and cultural heritage matters. Day-to-day monitoring of construction activities as they related to E&S performance. Raise NCR or Corrective Actions as required, and track closure. Participate in audits relating to E&S matters. Plan and Manage the environmental and social trainings for all project staff for Cultural Heritage Preservation and related procedures. Daily reporting of E&S issues in construction activities to Site Management.

	Weekly reporting of E&S issues in construction activities to Site Management. Participate to meetings related to Cultural Heritage issues.
Cultural Heritage/Archaeological Monitoring Expert/s	Provides advice in the form of a ‘preliminary assessment’ to the site and E&S managers on the significance and implications of new archaeological discoveries in the project activity areas. Ensures Chance Find Procedure is followed, Conducts and documents pre-construction surveys Records archaeological features discovered during pre-construction and ground disturbance activities. Determines the needs for cultural heritage resources protection and implement mitigation measures. Has the authority to stop ground disturbance activities to investigate potential chance finds. Ensures that the relevant cultural heritage signs are displayed where and when required. Implements chance find procedure and provides expertise during a chance find. Delivers cultural heritage preservation trainings to all project staff. Issues non-compliances when required and ensures all corrective actions are completed in a timely manner Provides daily field and monitoring reports to the E&S manager Conforms to all requirements of the archaeological/cultural heritage assets recommendations in the ESIA

3. CHANCE FIND PROCESS

The following table outlines the step by step process to be followed upon a chance find discovery.

<table>
<tr><td colspan="2">STEP 1 – After the discovery of a chance find:
• All work must cease at the location where discovery is made
• A temporary buffer zone around the chance find will be put in place
• Cultural Heritage/Archaeological Monitoring Expert/s will be on site during all construction or ground disturbance activities
• The Cultural Heritage/Archaeological Monitoring Expert/s contacts site management and museum archaeologist <u>immediately</u>
• The Cultural Heritage/Archaeological Monitoring Expert/s properly secures chance find site: flagging, no-entry signs etc.
• Protection of site: chance find should not be moved, removed or further disturbed</td></tr>
<tr><td colspan="2">STEP 2 - Recording
• The Cultural Heritage/Archaeological Monitoring Expert/s fills out Chance Find Form Part A and sends a copy to E&S manager within 24 hours
• The Cultural Heritage/Archaeological Monitoring Expert/s retains a copy of Chance Find form for his/her record</td></tr>
<tr><td colspan="2">STEP 3 – Contact with local authority
• The Cultural Heritage/Archaeological Monitoring Expert/s notifies the relevant Museum Directorate for the chance find</td></tr>
<tr><td colspan="2">STEP 4 – Authority’s decision
• The relevant Museum archaeologist decides that the following actions for chance find area.</td></tr>
<tr><td>STEP 4 A – No significance to site
• The museum archaeologist declares that the site is considered to be of no significance
• The Cultural Heritage/Archaeological Monitoring Expert/s informs relevant managers
• The Cultural Heritage/Archaeological Monitoring Expert/s records the decision on Part B of Chance Find form and sends a copy to E&S manager within 24 hours
• The Cultural Heritage/Archaeological Monitoring Expert/s retains a copy of Chance Find form for his/her record
• No further actions required
• This step closes out the chance find procedure
• Construction activities may resume</td><td>STEP 4 B – Significance to site
• The museum archaeologist declares that the site is considered to be of significance
• Museum directorate archaeologist decides on further actions and informs the Cultural Heritage/Archaeological Monitoring Expert/s The Cultural Heritage/Archaeological Monitoring Expert/s informs relevant managers.
• Cultural Heritage/Archaeological Monitoring Expert/s records the decision on Part B of Chance Find form
• Proceed to Step 5</td></tr>
</table>

STEP 5 – Site investigation		
• Project personnel follows the relevant Archaeology Museum directorate archaeologist's instructions		
• After field investigation, Museum archaeologist declares **<u>the site has minor significance</u>** • The Cultural Heritage/Archaeological Monitoring Expert/s inform their managers • The Cultural Heritage/Archaeological Monitoring Expert/s records the decision on Chance Find Form Part C and sends a copy to E&S manager within 24 hours • The Cultural Heritage/Archaeological Monitoring Expert/s retains a copy of Chance Find form for his/her records • No further actions required • This step closes out the chance find procedure • ***Construction activities may resume***	• After field investigation, Museum archaeologist declares **<u>the site has moderate significance</u>** • Further studies such as test pit / salvage excavations or remote sensing investigation are to be completed • Museum directorate archaeologist provides instructions, and/or supervision for the studies • The Cultural Heritage/Archaeological Monitoring Expert/s informs their managers • Under the supervision of the museum archaeologist, project management provides a study team. The team will be composed of qualified archaeologists other experts and workers. • Once the excavation is completed, the study team provides a report to the museum directorate, • The museum directorate reports the study outcomes to the relevant Regional Preservation Board of Cultural Assets. • The relevant Regional Preservation Board of Cultural Assets officially confirms completion of recovery and informs the project management. • The Cultural Heritage/Archaeological Monitoring Expert/s records the decision on Chance Find Form Part C and sends a copy to E&S manager within 24 hours • The Cultural Heritage/Archaeological Monitoring Expert/s retains a copy of Chance Find form for his/her record • No further actions required • This step closes out the chance find procedure	• After field investigation, Museum archaeologist declares **<u>the site has major significance</u>** • Salvage excavation is to be completed • Site is to be treated according to Turkish archaeological regulations "Law on the Conservation of Cultural and Natural Property (2863) 21.07.1983 • Museum directorate archaeologist provides instructions, and/or supervision for test pit/salvage archaeological excavation • The Cultural Heritage/Archaeological Monitoring Expert/s inform their managers • Under the supervision of the museum archaeologist, project management provides a salvage excavation team. The team will be composed of qualified archaeologist and workers. • Once the excavation is completed, salvage excavation team provides a report to museum directorate • The relevant Regional Preservation Board of Cultural Assets officially confirms completion of recovery and informs the project management. • Site will be officially recorded and protected according to Turkish regulations • The Cultural Heritage/Archaeological Monitoring Expert/s inform to the related managers. • The Cultural Heritage/Archaeological Monitoring Expert/s records the decision on Chance Find Form Part C and sends a copy to E&S manager within 24 hours

	• ***Construction activities may resume***	• The Cultural Heritage/Archaeological Monitoring Expert/s retains a copy of Chance Find form for his/her record • No further actions required • This step closes out the chance find procedure • ***Construction activities may resume or preventive further actions are need to be taken***

It is important to note that in case human remains are found, all project team and the local authorities will be immediately notified.

4. MONITORING AND REPORTING

The Cultural Heritage/Archaeological Monitoring Expert/s will visually monitor all construction or other ground disturbance activities for evidence of presence of cultural heritage items.

Chance Finds will be recorded on the Chance Find Report form (see Appendix 1). All Chance Find Report forms will be kept in hard copy at the camp and will also be scanned and saved electronically after completion of each section of the form.

Chance Finds will be recorded in the Chance Find Register (see Appendix 2) which will be kept up to date by Cultural Heritage/Archaeological Monitoring Expert/s. It will be reviewed in regular E&S meetings (weekly or monthly).

APPENDIX 2.1 – CHANCE FIND REPORT FORM

RASLANTISAL BULUNTU RAPOR FORMU

<table>
<tr><td colspan="4">PART A
BÖLÜM A</td></tr>
<tr><td>Project Location:
Proje Sahası</td><td>District (İlçe):
Village (Köy):</td><td>Date:
Tarih</td><td>Form No:</td></tr>
<tr><td colspan="4">Name of person reporting chance find:
Rastlantısal buluntuyu rapor eden kişinin ismi</td></tr>
<tr><td colspan="4">Was work stopped in the immediate vicinity of the chance find? ☐ Yes ☐ No
Rastlantısal buluntunun tam çevresinde iş durduruldu mu? Evet Hayır</td></tr>
<tr><td colspan="4">Was a buffer zone created to protect the chance find? ☐ Yes ☐ No
Rastlantısal buluntuyu korumak için tampon bölge oluşturuldu mu? Evet Hayır</td></tr>
<tr><td colspan="4">NOTIFICATION
BİLDİRİM</td></tr>
<tr><td colspan="4">Site manager and E&S manager contacted ☐ Yes ☐ No
Saha Müdürü ve Çevre müdürü ile irtibata geçildi Evet Hayır</td></tr>
<tr><td colspan="4">CHANCE FIND DETAILS
RASLANTISAL BULUNTU AYRINTILARI</td></tr>
<tr><td colspan="2">GPS coordinates
GPS koordinatları</td><td colspan="2">Photo record ☐ Yes ☐ No
(HD quality – no cell phone photos)
Fotoğraf kaydı Evet Hayır
(HD kalitesinde – cep telefonu fotoğrafı değil)

If not, explain why:
Yok ise nedenini açıklayınız

Other records ☐ Yes ☐ No
Specify (drawings, HD quality videos, etc.):
Diğer kayıtlar Evet Hayır
Belirtin (çizimler, HD kalite videolar, vb.)</td></tr>
<tr><td colspan="4">Description of chance find:
Rastlantısal buluntunun tanımı</td></tr>
<tr><td colspan="4">Description of site and vegetation: (e.g. surface sediment type, ground surface visibility, distance to</td></tr>
</table>

closest watercourse, etc.)
Sahanın ve bitki örtüsünün tanımı: (örn. Yüzey sediman türü, yüzey zemin görünürlüğü, en yakın suyoluna olan mesafe, vb.)

PART B
BÖLÜM B

NOTIFICATION OF MUSEUM DIRECTORATE ARCHAEOLOGIST
MÜZE MÜDÜRLÜĞÜ ARKEOLOĞUNA BİLDİRİ

Monitoring archaeologist contacted museum directorate archaeologist ☐ Yes ☐ No
Arkeolog müze müdürlüğü arkeoloğu ile irtibata geçti. *Evet* *Hayır*

Date of notification:
Bildirim tarihi

Name of museum directorate and Name of museum archaeologist:
Müze müdürlüğü ve Müze müdürlüğü arkeoloğunun ismi

Contact number of museum directorate archaeologist:
Müze müdürlüğü arkeoloğunun iletişim numarası

DECISION OF MUSEUM DIRECTORATE ARCHAEOLOGIST
MÜZE MÜDÜRLÜĞÜ KARARI

Date of site visit:
İlk saha ziyaret tarihi:

☐ Site of no significance - Construction to proceed with no further action – End of chance find procedure *Önemsiz saha – İnşaat daha fazla araştırma yapılmadan devam edilebilir – rastlantısal buluntu prosedürün sonu.* Date of notice to resume work: *İşe başlama tarihi bildirisi*	☐ Site of significance - Further actions required *Önemli saha – Ek araştırma gerekmektedir* Please Fill out Part C *Lütfen Bölüm C'yi doldurun.*

Name of museum directorate archaeologist:
Müze müdürlüğü arkeoloğunun ismi
Contact information:
İletişim numarası

Site manager and E&S manager contacted ☐ Yes ☐ No
Saha Müdürü ve Çevre müdürü ile irtibata geçildi Evet Hayır

PART C
BÖLÜM C

<table>
<tr><td colspan="3">FURTHER FIELD INVESTIGATION
EK SAHA ARAŞTIRMASI</td></tr>
<tr><td>☐ Site of minor significance
Önemsiz saha</td><td>☐ Site of moderate significance
Az önemli saha</td><td>☐ Site of major significance
Çok önemli saha</td></tr>
<tr><td colspan="3">Describe additional work to be conducted:
Yapılması gereken ek işlerin tanımları</td></tr>
<tr><td colspan="2">Date started:
Başlangıç tarihi</td><td>Date completed:
Bitiriş tarihi</td></tr>
<tr><td colspan="3">Date of notice to resume work:
İşe başlama tarihi bildirisi</td></tr>
<tr><td colspan="3">Name of museum directorate archaeologist:
Müze müdürlüğü arkeoloğunun ismi:
Contact information:
İletişim numarası</td></tr>
<tr><td colspan="3">Construction manager contacted ☐ Yes ☐ No
İnşaat müdürü ile irtibata geçildi Evet Hayır</td></tr>
</table>

APPENDIX 2.2 – CHANCE FIND REGISTER

DATE OF FIND	SUMMARY OF CHANCE FIND	NAME OF AUTHORITY NOTIFIED	ACTION TAKEN	CHANCE FIND FORM COMPLETED	STATUS OPEN OR CLOSED	REMARKS

APPENDIX 2.3 – CONTACT INFORMATION

Museum Directorate	Address	Phone	Fax	E-Mail
Kocaeli Arkeoloji ve Etnografya Müzesi Kocaeli Archaeology and Ethnography Museum	Eski Gar Binası, Demiryolu Caddesi Kemalpaşa, KOCAELİ	(0262) 321 22 74	(0262) 325 53 54	kocaelimuzesi@kultur.gov.tr
İstanbul Arkeoloji Müzeleri İstanbul Archaeological Museums	İstanbul Arkeoloji Müzeleri Alemdar Cad. Osman Hamdi Bey Yokuşu Sk, 34122, Gülhane / Fatih, İSTANBUL	(0212) 520 77 40	(0212) 527 43 00	info@istanbularkeoloji.gov.tr

PRESERVATION BOARD	RESPONSIBILITY AREAS	ADDRESS	PHONE	FAX	E-MAIL
Kocaeli Regional Preservation Board of Cultural Assets	Düzce, Kocaeli, Sakarya,Yalova	Kozluk Mah. İstasyon Cad. TCDD Eski Gar Binası Kat:2 İzmit / KOCAEL	(0262) 323 29 26 (0262) 321 67 33	(0262) 323 29 36	ktvk41@kultur.gov.tr
İstanbul Preservation Board of Cultural Assets No.5	Adalar, Ataşehir , Çekmeköy , Kadıköy, Kartal, Maltepe, Pendik, Sancaktepe, Sultanbeyli, Tuzla, Ümraniye	Hobyar Mah. Büyük Postane Cad. No:72 Kat:4 Sirkeci-FATİH / İSTANBUL	(0212) 512 09 20 (0212) 528 31 13	(0212) 528 31 13	istanbulkurul5@kultur.gov.tr
İstanbul Preservation Board of Cultural Assets No.1	Arnavutköy, Avcılar, Bağcılar, Bahçelievler, Bakırköy, Başakşehir, Bayrampaşa, Beylikdüzü, Büyükçekmece, Çatalca, Esenler, Esenyurt, Eyüp, Gaziosmanpaşa, Güngören, Kağıthane, Küçükçekmece,Silivri, Sultangazi	Hobyar Mahallesi Büyük Postane Caddesi No:34 Kat:2 Sirkeci/ İSTANBUL	(0212) 512 26 36 (0212) 528 24 78	(0212) 512 26 36	istanbulkurul1@kultur.gov.tr

Annex 3 – Field Survey Forms

NORTH MARMARA MOTORWAY PROJECT

SECTION 6

FIELD SURVEY FORMS

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Osmanbey **Date:** 23.01.2017
CITY: Sakarya **Form No:** 1
PROVINCE: Akyazı
VILLAGE: Osmanbey
SECTION: 6

GPS COORDINATES (WGS 84-6°) UTM: 36

Easting	Northing	Easting	Northing
299946	4513046	298321	4512364
299921	4512389	298112	4513016
296200	4513201	296771	4513948

SITE TYPE: Archaeological Potantial Site

PERIOD: Late Ottoman Period

CODE: CHA005

DESCRIPTION: The site is located at the south of Osmanbey and Kızılcıkorman villages and between 250+520 and 246+827 kilometre points of the project route. It was observed that the surface finds spread to a wide area. Surface finds include glazed ceramic shards from the Late Ottoman Period and several metal nails. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

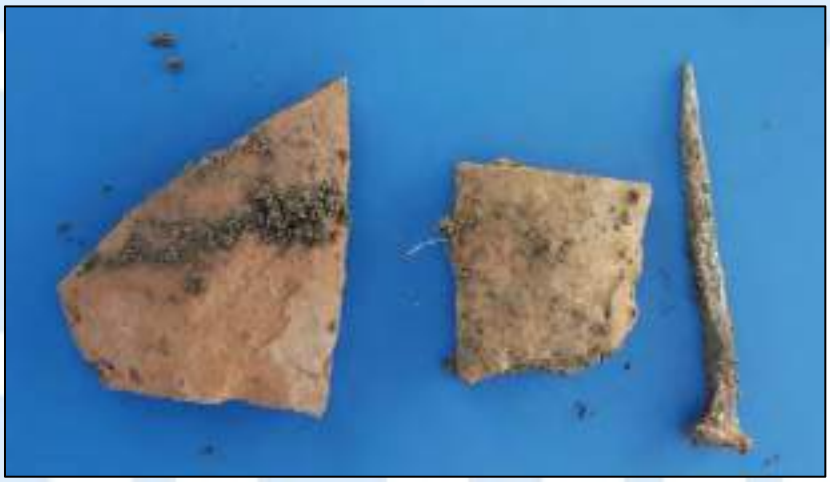
On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√			

FIELD SURVEY FORM

General View From the Site



Archaeological Findings

Glazed Potsherd

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Çayırlar Mevkii
Date: 24.02.2017
CITY: Sakarya
Form No: 2
PROVINCE: Adapazarı
VILLAGE: Budaklar
SECTION: 6

GPS COORDINATES (WGS 84-6°) UTM: 36

Easting	Northing	Easting	Northing
290151 289896	4517940 4517979	289854 290168	4518144 4518147

SITE TYPE: Archaeological Site

PERIOD: Byzantine Period

CODE: CHA005

DESCRIPTION: The site is located 2 km east of Budaklar Village and between the 238+720 and 239+127 kilometre points of the project route. Various glazed and non-glazed ceramic shards and two glass bracelets from the Byzantine Period were discovered on the surface of the site. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any conservation or research decision regarding the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√	√	√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√			

General View From the Site

Archaeological Findings

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Budaklar
Date: 24.01.2017
CITY: Sakarya
Form No: 3
PROVINCE: Adapazarı
VILLAGE: Budaklar

SECTION: 6

GPS COORDINATES (WGS 84-6°) UTM: 36

Easting	Northing	Easting	Northing
288008 288068	4518815 4518846	287972 287996	4518886 4518947

SITE TYPE: Archaeological Potantial Site

PERIOD: Late Ottoman Period

CODE: CHA005

DESCRIPTION: The site is located between the 236+747 and 236+850 kilometre points of the project route. Some ceramic shards, which might be dated to the Late Ottoman Period, were observed on the site surface. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√			

FIELD SURVEY FORM

General View From The Site

Archaeological Findings

FIELD SURVEY FORM

SITE NAME: Çelebiler	**Date:** 24.01.2017
CITY: Sakarya	**Form No:** 4
PROVINCE: Adapazarı	
VILLAGE: Çelebiler	
SECTION: 6	

GPS COORDINATES (WGS 84-6°) UTM: 36

Easting	Northing	Easting	Northing
285231 284736	4520506 4520782	285190 284789	4520626 4520950

SITE TYPE: Archaeological Potantial Site

PERIOD: Ottoman Period

CODE: CHA005

DESCRIPTION: The site is located within the boundaries of Çelebiler Village. Ceramic shards, which might be dated to the Late Ottoman Period, were observed on the site surface. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

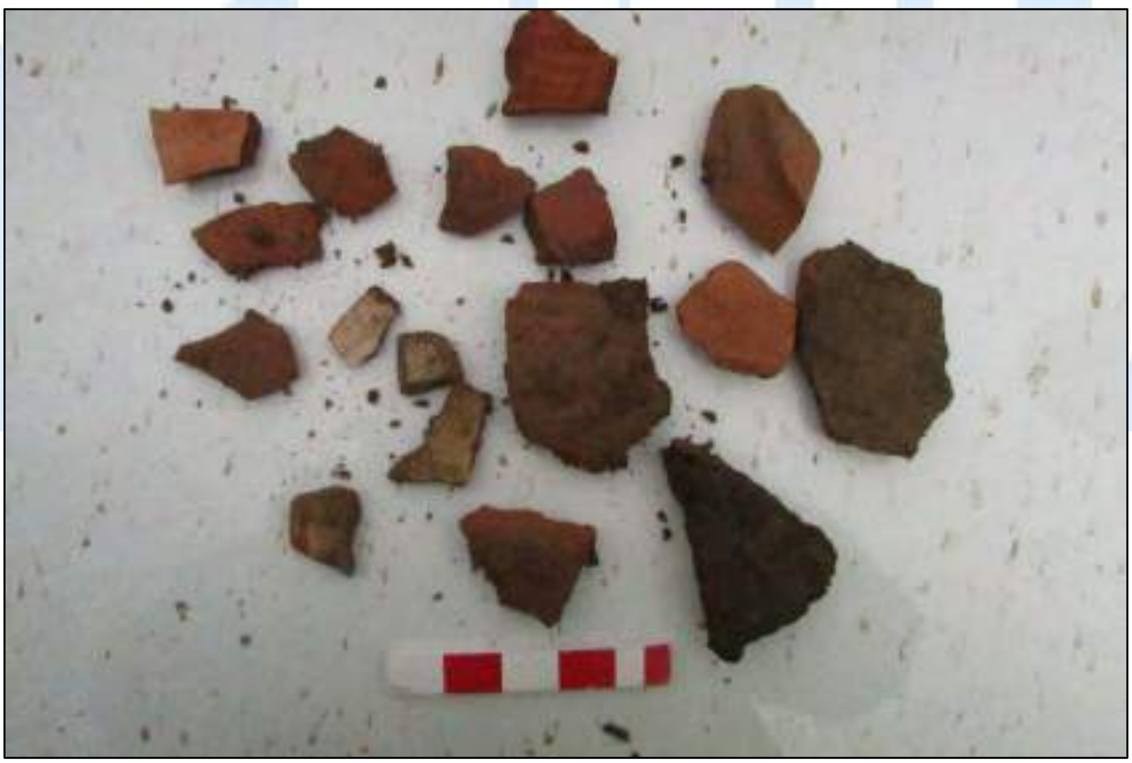
LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√			

General View From the Site



Archaeological Findings

KMO ANADOLU OTOYOL İSLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Kömürlük Modern Cemetery **Date:** 24.01.2017
CITY: Sakarya **Form No:** 5
PROVINCE: Adapazarı
VILLAGE: Kömürlük

SECTION: 6

GPS COORDINATES (WGS 84-6°) UTM: 36

Easting	Northing	Easting	Northing
285229 285236	4522356 4522355	285233 285225	4522369 4522367

SITE TYPE: Modern Cemetry

PERIOD: Modern

CODE: CHA001

DESCRIPTION: The site is a family cemetery located within the boundaries of Kömürlük Village and belongs to "Türk" family. It is located between the point 232+000 of the project route and 1+500 kilometre point of the access road heading to Poyrazlar Village in the north. It is suggested that any physical intervention to the graves should be avoided and if physical intervention is required, the graves should be removed to another place in compliance with legal procedures and religious practices and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
	√		√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From the Modern Cemetery

General View From the Modern Cemetery

FIELD SURVEY FORM

SITE NAME: Kömürlük | **Date:** 24.01.2017
CITY: Sakarya | **Form No:** 6
PROVINCE: Adapazarı
VILLAGE: Kömürlük

SECTION: 6

GPS COORDINATES (WGS 84-6°) UTM: 36

Easting	Northing	Easting	Northing
284142 285001	4521381 4522433	284100 285003	4521910 4521856

SITE TYPE: Archaeological Potantial Site

PERIOD: Late Ottoman Period

CODE: CHA005

DESCRIPTION: The site is located within the boundaries of Kömürlük Village and on the access road starting at the 232+000 kilometre point of the project route and heading to Poyrazlar Village. Ceramic shards, which might be dated to the Ottoman Period, were observed on the site surface. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
	√	√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√			

General View From the Site

Archaeological Findings

KMO ANADOLU OTOYOL İSLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Besihane
Date: 25.01.2017
CITY: Sakarya
Form No: 7
PROVINCE: Adapazarı
VILLAGE: Çamyolu

SECTION: 6

GPS COORDINATES (WGS 84-6°) UTM: 36

Easting	Northing	Easting	Northing
280900 281503	4522090 4522111	281520 281093	4522010 4522204

SITE TYPE: Archaeological Potantial Site

PERIOD: Late Ottoman Period

CODE: CHA005

DESCRIPTION: The site is located 500 m southeast of Çamyolu Village and between 229+450 and 229+000 kilometre points of the project route. Sporadic ceramic shards, which are supposed to belong to the Late Ottoman Period, were encountered in the plains in the site. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√			

General View From the Site

Archaeological Findings

KMO ANADOLU OTOYOL İSLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Azizbey Hill **Date:** 25.01.2017
CITY: Sakarya **Form No:** 8
PROVINCE: Adapazarı
VILLAGE: Çamyolu

SECTION: 6

GPS COORDINATES (WGS 84-6°) UTM: 36

Easting	Northing	Easting	Northing
279699 279677	4524141 4524149	279490 279742	4523949 4523977

SITE TYPE: Archaeological Site

PERIOD: Late Ottoman Period

CODE: CHA005

DESCRIPTION: Some ceramic and roof tile shards and foundation remains of a rectangular building which may be dated to the Late Ottoman Period were encountered on the site surface. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any conservation or research decision regarding the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Süloğlu Bridge
Date: 13.02.2017
CITY: Kocaeli
Form No: 9
PROVINCE: İzmit
VILLAGE: Akmeşe Atatürk
SECTION: 6

GPS COORDINATES (WGS 84-6°) UTM: 36

Easting	Northing	Easting	Northing
267758 267754	4525300 4525274	267738 267766	4525281 4525286

SITE TYPE: Historical Bridge

PERIOD: Late Ottoman/Early Republician Period

CODE: CHA003

DESCRIPTION: The Bridge is located 4 kilometres west of Akmeşe Atatürk neighbourhood and nearby the provincial borders of Kocaeli and Sakarya. Some part of the piers of the bridge is demolished and sunken in the creek. Remains of a wall belonging to the bridge were discovered in the northern bank of the creek. On the other hand, remains of a retaining wall, which was possibly built to decrease the magnitude of flooding, were discovered on the southern bank of the creek. There is a modern bridge approximately 2 m above the level of bridge. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any conservation or research decision regarding the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

FIELD SURVEY FORM

General View From the Bridge

General View From the Bridge

General View From the Bridge

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Deredağ
Date: 13.02.2017
CITY: Kocaeli
Form No: 10
PROVINCE: İzmit
VILLAGE: Akmeşe Atatürk
SECTION: 6

GPS COORDINATES (WGS 84-6°) UTM: 36

Easting	Northing	Easting	Northing
267051 266929	4521469 4525520	266979 267109	4525594 4525525

SITE TYPE: Archaeological Potantial Site

PERIOD: Late Ottoman Period

CODE: CHA005

DESCRIPTION: The site is a potential archaeological site. It is located 4 km west of Akmeşe Atatürk neighbourhood. Some ceramic shards, which ma be dated to the Late Ottoman Period, were discovered on the surface of the site. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√			

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Adaparmak Sırtı **Date:** 14.02.2017
CITY: Kocaeli **Form No:** 11
PROVINCE: İzmit
VILLAGE: Akmeşe Atatürk
SECTION: 6

GPS COORDINATES (WGS 84-6°) UTM: 36

Easting	Northing	Easting	Northing
265545 265572	4525443 4525688	265737 265399	4522647 4525509

SITE TYPE: Archaeological Potantial Site

PERIOD: Late Ottoman Period

CODE: CHA005

DESCRIPTION: The site is located 2,5 kilometres south-east of Akmeşe Atatürk neighbourhood. Plenty of roof tile shards and small amount of ceramic shards dated to the Ottoman Period were observed on the surface of the site. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

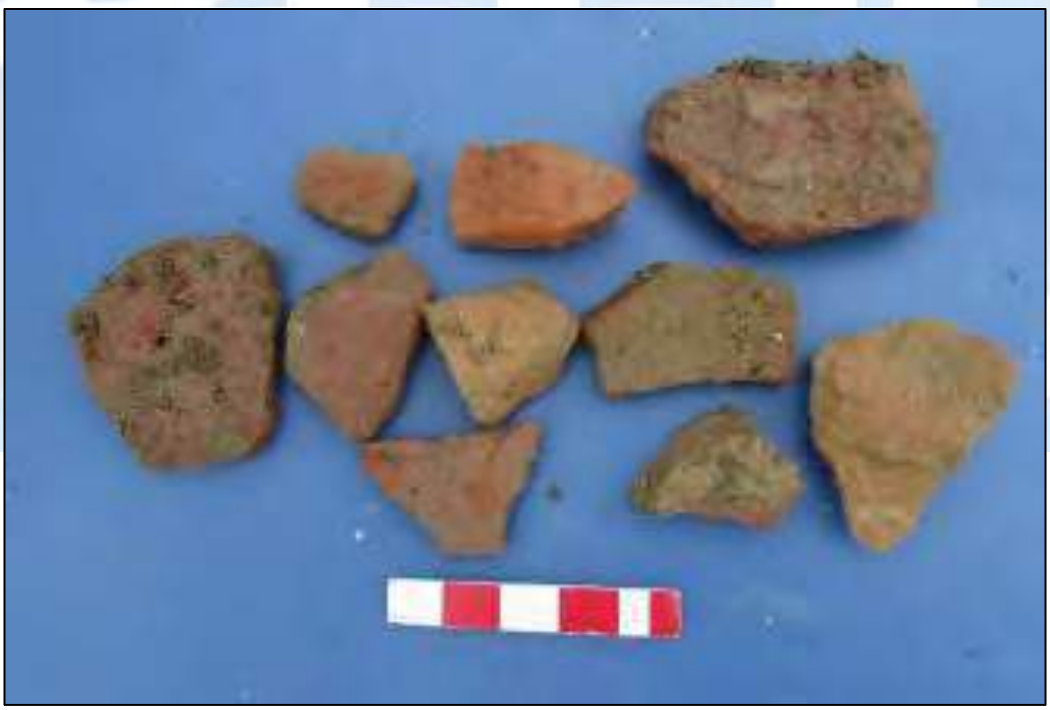
On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√	√		√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√			

FIELD SURVEY FORM

General View From the Site



Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Kabaklı Mevkii **Date:** 14.02.2017
CITY: Kocaeli **Form No:** 12
PROVINCE: İzmit
VILLAGE: Akmeşe Atatürk
SECTION: 6

GPS COORDINATES (WGS 84-6°) UTM: 36

Easting	Northing	Easting	Northing
265353 265178	4525097 4525081	265320 265230	4525170 4525187

SITE TYPE: Archaeological Potantial Site

PERIOD: Late Ottoman Period

CODE: CHA005

DESCRIPTION: The site is located 1 kilometre south-east of Akmeşe Atatürk neighbourhood. Plenty of roof tile shards and small amount of ceramic shards dated to the Ottoman Period were observed on the surface of the site. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√			

General View From the Site

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Köprübaşı Tepesi **Date:** 14.02.2017
CITY: Kocaeli **Form No:** 13
PROVINCE: İzmit
VILLAGE: Akmeşe Atatürk
SECTION: 6

GPS COORDINATES (WGS 84-6°) UTM: 36

Easting	Northing	Easting	Northing
264054 264044	4524293 4524259	264002 263996	4524303 4524272

SITE TYPE: Archaeological Potantial Site

PERIOD: Late Ottoman Period

CODE: CHA005

DESCRIPTION: The site is located 1 kilometre south of Akmeşe Atatürk neighbourhood. Plenty of roof tile shards and small amount of ceramic shards dated to the Ottoman Period were observed on the surface of the site. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√			

General View From the Site

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Mancarcı Mevkii **Date:** 15.02.2017
CITY: Kocaeli **Form No:** 14
PROVINCE: İzmit
VILLAGE: Mancarcı

SECTION: 6

GPS COORDINATES (WGS 84-6°) UTM: 36

Easting	Northing	Easting	Northing
255185 255006	4519839 4519868	255195 255015	4519773 4519767

SITE TYPE: Archaeological Potantial Site

PERIOD: Late Ottoman Period

CODE: CHA005

DESCRIPTION: The site is a potential archaeological site. It is located 1 km south-west of Mancarcı Neighbourhood and 1 km north-east of Bayraktar Neighbourhood. Plenty of ceramic and roof tile shards were discovered on the site surface. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√			

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Gedikli 1
Date: 15.02.2017
CITY: Kocaeli
Form No: 15
PROVINCE: İzmit
VILLAGE: Bayraktar
SECTION: 6

GPS COORDINATES (WGS 84-6°) UTM: 36

Easting	Northing	Easting	Northing
254513	4519857	254423	4519743
254480	4519887	254374	4519747
254423	4519885	254480	4519970
254534	4519998	254600	4519960

SITE TYPE: Archaeological Site

PERIOD: Byzantine Period

CODE: CHA005/CHA006

DESCRIPTION: The site covers three different hills located 500 m north of Bayraktar Neighbourhood. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets. Kocaeli Regional Board for Conservation of Cultural Assets assessed this information in a meeting held on March 21st 2017. In accordance with the official decision no: 2887 of the conservation board, test and salvage excavations should be conducted in the site under the supervision of the Directorate of Kocaeli Museum. According to the results of the excavations, the conservation board will make the decision regarding the progress of the project in the site. It is suggested that the excavation works should be planned immediately and conducted with the support of NMH project and under the supervision of the Directorate of Kocaeli Museum.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√			

General View From the Site

Archaeological Findings

Archaeological Findings

KMO ANADOLU OTOYOL İSLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Gedikli 2 **Date:** 15.02.2017
CITY: Kocaeli **Form No:** 16
PROVINCE: İzmit
VILLAGE: Bayraktar

SECTION: 6

GPS COORDINATES (WGS 84-6°) UTM: 36

Easting	Northing	Easting	Northing
254250 254111	4519960 4519870	254232 254036	4519851 4520012

SITE TYPE: Archaeological Site

PERIOD: Byzantine Period

CODE: CHA005

DESCRIPTION: The site covers three different hills located 500 m north of Bayraktar Neighbourhood. Plenty of roof tile and ceramic shards were encountered on the surface of the site. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets. Kocaeli Regional Board for Conservation of Cultural Assets assessed this information in a meeting held on March 21st 2017. In accordance with the official decision no: 2887 of the conservation board, test and salvage excavations should be conducted in the site under the supervision of the Directorate of Kocaeli Museum. According to the results of the excavations, the conservation board will make the decision regarding the progress of the project in the site. It is suggested that the excavation works should be planned immediately and conducted with the support of NMH project and under the supervision of the Directorate of Kocaeli Museum.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
√	√				

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

FIELD SURVEY FORM

SITE NAME: Biberoğlu **Date:** 15.02.2017

CITY: Kocaeli **Form No:** 17

PROVINCE: İzmit

VILLAGE: Bayraktar

SECTION: 6

GPS COORDINATES (WGS 84-6°) UTM: 36

Easting	Northing	Easting	Northing
253450	4520175	253471	4520044
253491	4520189	253428	4520075
253538	4520197	253571	4520232
253607	4520215		

SITE TYPE: Archaeological Site

PERIOD: Late Ottoman Period

CODE: CHA005

DESCRIPTION: The site is located 1,5 kilometre north-west of Bayraklı Neighbourhood. Plenty of archaeological ceramic bowl and roof tile shards were discovered on the surface of the site. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets. Kocaeli Regional Board for Conservation of Cultural Assets assessed this information in a meeting held on March 21st 2017. In accordance with the official decision no: 2887 of the conservation board, test and salvage excavations should be conducted in the site under the supervision of the Directorate of Kocaeli Museum. According to the results of the excavations, the conservation board will make the decision regarding the progress of the project in the site. It is suggested that the excavation works should be planned immediately and conducted with the support of NMH project and under the supervision of the Directorate of Kocaeli Museum.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
√	√				

FIELD SUSPEY FORM

General View From the Site

KMO ANADOLU OTOYOL İSLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

Archaeological Findings

SITE NAME: İğriköz Deresi — **Date:** 15.02.2017
CITY: Kocaeli — **Form No:** 18
PROVINCE: İzmit
VILLAGE: Bayraktar

SECTION: 6

GPS COORDINATES (WGS 84-6°) UTM: 36

Easting	Northing	Easting	Northing
253125	4520253	253070	4520366
253044	4520274	253084	4520365

SITE TYPE: Archaeological Site

PERIOD: Late Ottoman Period

CODE: CHA005

DESCRIPTION: The site is located 1,5 kilometre north-west of Bayraklı Neighbourhood. Plenty of archaeological ceramic bowl and roof tile shards were discovered on the surface of the site. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any decision regarding conservation or further research in the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

FIELD SURVEY FORM

SITE NAME: Doruk **Date:** 15.02.2017
CITY: Kocaeli **Form No:** 19
PROVINCE: İzmit
VILLAGE: Eseler
SECTION: 6

GPS COORDINATES (WGS 84-6°) UTM: 36

Easting	Northing	Easting	Northing
251470 251170	4520520 4520295	251480 251141	4520358 4520419

SITE TYPE: Archaeological Site

PERIOD: Byzantine - Late Ottoman Period

CODE: CHA005/CHA006

DESCRIPTION: The site is located 200 metre north of Eseler Neighbourhood. Glazed ceramics and stone blocks, which might be grave caps, from the Late Ottoman and Byzantine Periods were discovered on the surface of the site. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any decision regarding conservation or further research in the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

FIELD SURVEY FORM

SITE NAME: Kesimahlar	**Date:** 15.02.2017
CITY: Kocaeli	**Form No:** 20
PROVINCE: İzmit	
VILLAGE: Çayırköy	

SECTION: 6

GPS COORDINATES (WGS 84-6°) UTM: 36

Easting	Northing	Easting	Northing
250917	4518449	251306	4518564
251390	4518494	250920	4518680
251402	4518501	251176	4518465
251366	4518533		

SITE TYPE: Archaeological Site

PERIOD: Roman Period

CODE: CHA005

DESCRIPTION: The site is located 1.5 kilometre east of Ataturk Neighbourhood, west of Kesimahlar Creek and nearby the 1st kilometre of the access road which is located nearby 195+000 kilometre point of the project route. Ample amount of archaeological ceramic and roof tile shards were discovered on the surface of the site. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any decision regarding conservation or further research in the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
	√	√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From the Site

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Solaklar **Date:** 15.02.2017
CITY: Kocaeli **Form No:** 21
PROVINCE: İzmit
VILLAGE: Eseler
SECTION: 6

GPS COORDINATES (WGS 84-6°) UTM: 36

Easting	Northing	Easting	Northing
249498 249024	4519789 4520136	249470 249057	4519926 4519856

SITE TYPE: Archaeological Site

PERIOD: Roman Period

CODE: CHA005/CHA006

DESCRIPTION: The site is located 500 metre southwest of Durhasan Village. Glazed and non-glazed ceramic shards and roof tile shards were observed on the surface of the site. In addition to that, some rubble stones belonging to buildings, human bones and iron droos pieces were encountered. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets. Kocaeli Regional Board for Conservation of Cultural Assets assessed this information in a meeting held on March 21st 2017. In accordance with the official decision no: 2887 of the conservation board, test and salvage excavations should be conducted in the site under the supervision of the Directorate of Kocaeli Museum. According to the results of the excavations, the conservation board will make the decision regarding the progress of the project in the site. It is suggested that the excavation works should be planned immediately and conducted with the support of NMH project and under the supervision of the Directorate of Kocaeli Museum.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
√	√				

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Çayırköy **Date:** 15.02.2017
CITY: Kocaeli **Form No:** 22
PROVINCE: İzmit
VILLAGE: Çayırköy
SECTION: 6

GPS COORDINATES (WGS 84-6°) UTM: 36

Easting	Northing	Easting	Northing
248007 248163	4520533 4520527	248061 247921	4520205 4520392

SITE TYPE: Archaeological Site

PERIOD: Byzantine Period

CODE: CHA005

DESCRIPTION: The site is located 1.3 kilometre east of Çayırköy Neighbourhood. The archaeological materials intensely spread to a large area. Ample amount of terracotta water pipe and ceramic shards were encountered within the site. The ceramic shards also include glazed ceramic shards. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any decision regarding conservation or further research in the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

FIELD SURVEY FORM

SITE NAME: Kocaeli KVKBKM 1 Nolu Tescilli Alan
CITY: Kocaeli
PROVINCE: İzmit
VILLAGE: Çayırköy

Date:
Form No: 23

SECTION: 6

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
751502 751528	4520628 4520615	751502 751473	4520561 4520573

SITE TYPE: Registered Archaeological Site

PERIOD: Byzantine Period

CODE: CHA005

DESCRIPTION: It is the registered water channel remains. In accordance with the decision no: 2802 of Kocaeli Regional Board for Conservation of Cultural Assets taken on January 24th 2017, the water channel remains should be removed outside the boundaries of expropriated land of the Highway project.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
	√		√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From the Site

NORTH MARMARA MOTORWAY PROJECT

SECTION 5

FIELD SURVEY FORMS

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Toylar
Date: 02.03.2017
CITY: Kocaeli
Form No: 24
PROVINCE: Körfez
VILLAGE: Toylar

SECTION: 5

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
738353	4527691	738631	4527542
738535	4527732	738611	4527532
738602	4527704	738426	4527513
738638	4527613		

SITE TYPE: Archaeological Site

PERIOD: Byzantine Period

CODE: CHA005

DESCRIPTION: The archaeological site is located 2 kilometres south-east of Toylar neighbourhood. Glazed and non-glazed ceramic and roof tile shards and cut stone blocks belonging to buildings, which are dated to the Byzantine Period, were encountered on the surface of the site. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any decision regarding conservation or further research in the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√			

General View From the Site

Archaeological Findings

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Sipahiler 1 **Date:** 17.02.2017
CITY: Kocaeli **Form No:** 25
PROVINCE: Körfez
VILLAGE: Sipahiler Mahallesi

SECTION: 5

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
735959	4527577	736034	4527553
735985	4527732	736008	4527773
736102	4527603	736056	4527744

SITE TYPE: Archaeological Site

PERIOD: Late Ottoman Period

CODE: CHA005

DESCRIPTION: The site is located 800 metres north-east of Sıpahiler Neighbourhood and 800 metres south-east of Sıpahiler Pond. Ample amount of ceramic and roof tile shards were observed in the site. On the other hand, in the western part of the site, cut stone blocks, which are supposed to belong to an architectural arrangement were observed. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets. Kocaeli Regional Board for Conservation of Cultural Assets assessed this information in a meeting held on March 21st 2017. In accordance with the official decision no: 2887 of the conservation board, test and salvage excavations should be conducted in the site under the supervision of the Directorate of Kocaeli Museum. According to the results of the excavations, the conservation board will make the decision regarding the progress of the project in the site. It is suggested that the excavation works should be planned immediately and conducted with the support of NMH project and under the supervision of the Directorate of Kocaeli Museum.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
√	√				

General View From the Site

Archaeological Findings

KMO ANADOLU OTOYOL İSLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Sipahiler 2 — **Date:** 17.02.2017
CITY: Kocaeli — **Form No:** 26
PROVINCE: Körfez
VILLAGE: Sipahiler Mahallesi

SECTION: 5

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
735701	4527848	735689	4527887
735634	4527909	735617	4527849
735477	4527835	735651	4527741
735478	4527725	735613	4527732
735489	4527691	735572	4527645
735484	4527633		

SITE TYPE: Archaeological Site

PERIOD: Late Ottoman Period

CODE: CHA005

DESCRIPTION: The site is located 800 metres north-east of Sıpahiler Neighbourhood and 800 metres south-east of Sıpahiler Pond. Ample amount of ceramic and roof tile shards were observed in the site. On the other hand, in the western part of the site, cut stone blocks, which are supposed to belong to an architectural arrangement were observed. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets. Kocaeli Regional Board for Conservation of Cultural Assets assessed this information in a meeting held on March 21st 2017. In accordance with the official decision no: 2887 of the conservation board, test and salvage excavations should be conducted in the site under the supervision of the Directorate of Kocaeli Museum. According to the results of the excavations, the conservation board will make the decision regarding the progress of the project in the site. It is suggested that the excavation works should be planned immediately and conducted with the support of NMH project and under the supervision of the Directorate of Kocaeli Museum.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
√	√				

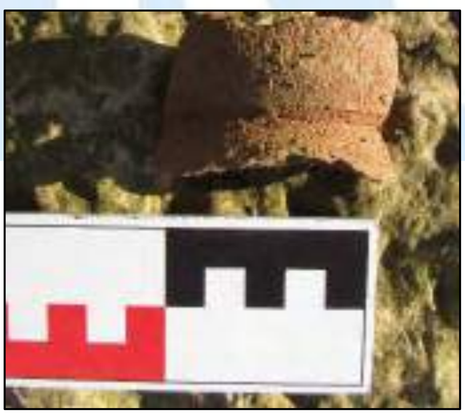
KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

General View From the Site

Archaeological Findings



Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Kocadere **Date:** 02.03.2017
CITY: Kocaeli **Form No:** 27
PROVINCE: Körfez
VILLAGE: Sipahiler

SECTION: 5

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
734319	4527805	734295	4527599
734184	4527764	734296	4527457
734384	4527707	734329	4527567
734171	4527631	734334	4527538
734452	4527641	734252	4527518
734407	4527527		

SITE TYPE: Archaeological Site

PERIOD: Byzantine Period

CODE: CHA005

DESCRIPTION: The archaeological site is located 1.2 kilometre north-west of Sıpahiler Neighbourhood. Plenty of ceramic and roof tile shards and drost pieces were encountered on the surface of the site. Among the ceramic shards, there are glazed ceramics dated to the Byzantine Period. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any decision regarding conservation or further research in the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Martılar **Date:** 16.02.2017
CITY: Kocaeli **Form No:** 28
PROVINCE: Körfez
VILLAGE: Martılar

SECTION: 6

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
734843	4530318	734975	4530280
735070	4530278	735143	4530238
735285	4530166	735409	4530148
735493	4530093	735622	4530062
735763	4530027	735917	4530014
734877	4530567	735888	4530521
735814	4530573	735616	4530576
735427	4530566		

SITE TYPE: Archaeological Site

PERIOD: Roman Period

CODE: CHA005/ CHA006

DESCRIPTION: The site is in the vicinity of Martılar Village that is located 1 kilometre north-east of Karayakuplu Neighbourhood. Architectural material dated to the Roman Period that were also used as spolia were encountered in the vicinity of the village. It was noted that three temple formed sarcophagi were used as basins of the fountains in the village. In addition to that, 2 water cisterns were observed in the village. Moreover, pieces of column drums were encountered in the village. Because the surface was covered with snow during the field excursion, the project route could not be investigated thoroughly in this region. However, glazed ceramic shards were encountered within the project route corridor. Basing on these facts, it is safe to say that there are an ancient settlement and a Necropolis area in the locality. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any decision regarding conservation or further research in the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
	√	√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√			

FIELD SURVEY FORM

General View From the Site






Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Yağcılar Historic Road Remains **Date:**
CITY: Kocaeli **Form No:** 29
PROVINCE: Körfez
VILLAGE: Yağcılar Mahallesi
SECTION: 6

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing	Easting	Northing	Easting	Northing	Easting	Northing
727035	4531324	726069	4532293	726745	4532184	725522	4532719	726697	4532028
727007	4531315	726048	4532322	726693	4532430	725502	4532696	726668	4532038
726978	4531444	726010	4532323	726672	4532389	725376	4532851	726753	4532099
726952	4531429	725990	4532410	726620	4532367	725347	4532839	726726	4532115
726911	4531649	725959	4532408	726645	4532350	725365	4532904	726775	4532190
726888	4531629	725963	4532467	726563	4532301	725338	4532887	725718	4532573
726793	4531700	725939	4532448	726585	4532278	725243	4532993	725650	4532648
726759	4531691	725822	4532589	726404	4532219	725218	4532977	725638	4532620
726709	4531847	725784	4532570	726415	4532191	725145	4533272	725548	4532663
726671	4531849	725725	4532602	726335	4532222	725118	4533257	725516	4532654
725004	4533426	726165	4532366	726329	4532191	725045	4533408	726304	4532292
725000	4533418	726106	4532337	725037	4533440	725048	4533429	726268	4532295
725015	4533398	726187	4532396						

SITE TYPE: Registered Archaeological Site

PERIOD: Roman Period

CODE: CHA003

DESCRIPTION: The NMH project route orthogonally crosses the road. In compliance with the decision no: 2802 of Kocaeli Regional Board for Conservation of Cultural Assets taken on January 24th 2017, project proposals which ensure progressing of the highway project while providing continuity of the historic road for the area, where the Archaeological Site crosses with the project route, should be prepared and submitted to the conservation board through official channels, and then included in the boards agenda and discussed.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√			

NORTH MARMARA MOTORWAY PROJECT

SECTION 4

FIELD SURVEY FORMS

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Demirciler **Date:** 18.02.2017
CITY: Kocaeli **Form No:** 30
PROVINCE: Dilovası
VILLAGE: Demirciler

SECTION: 4

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
714858	4522873	714855	4522648
714993	4522869	714811	4522660
715028	4522764	714773	4522677
714915	4522708	714734	4522746
714896	4522649	714782	4522820
714890	4522643		

SITE TYPE: Archaeological Site

PERIOD: Byzantine Period

CODE: CHA005

DESCRIPTION: The archaeological site is located approximately 1.5 kilometre west of Demirciler Neighbourhood. Some ceramic shards and few amount of roof tile shards belonging to the Ottoman Period were observed on the surface of the site. Moreover, an illegal excavation pit dug by hoarders was noted in the north-western part of the site. Some architectural cut stone blocks were encountered nearby this excavation pit. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any decision regarding conservation or further research in the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
	√		√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		


General View From the Site


Archaeological Findings

Illegal Excavation Trench

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Uluyan 1 — **Date:** 19.02.2017
CITY: Kocaeli — **Form No:** 31
PROVINCE: Gebze
VILLAGE: Denizli

SECTION: 4

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
715042 715014 715007	4529958 4529999 4529960	715039 715990	4529984 4529973

SITE TYPE: Archaeological Site

PERIOD: Roman Period

CODE: CHA006

DESCRIPTION: The site is located approximately 1 kilometre north-east of Denizli Neighbourhood. Due to its form, the site is considered to be a tumulus. Sporadic ceramic shards were encountered on the hill, upon which there is an illegal excavation pit. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any decision regarding conservation or further research in the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
	√		√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

Illegal Excavation Trench

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Uluyan 2 **Date:** 19.02.2017
CITY: Kocaeli **Form No:** 32
PROVINCE: Gebze
VILLAGE: Denizli

SECTION: 4

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
714911	4529995	714931	4530019
714863	4530166	714964	4530134
714958	4530203	715003	4530164

SITE TYPE: Archaeological Site

PERIOD: Roman Period

CODE: CHA005

DESCRIPTION: The site is located approximately 1 kilometre north-east of Denizli Neighbourhood. In addition to the ample amount of ceramic and roof tile shards, remains of foundation walls were observed on the surface of the site. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any decision regarding conservation or further research in the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
	√	√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√			

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

KMO ANADOLU OTOYOL İSLETME A.S.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADI ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Karapanır (Molla Fenari) **Date:** 19.02.2017
CITY: Kocaeli **Form No:** 33
PROVINCE: Gebze
VILLAGE: Molla Fenari

SECTION: 4

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
713484	4531384	713431	4531509
713330	4531386	713323	4531578
713268	4531562	713240	4531533
713265	4531414	713174	4531443
713144	4531497	713163	4531558
713202	4531583		

SITE TYPE: Archaeological Site

PERIOD: Roman Period

CODE: CHA005

DESCRIPTION: The site is located approximately 800 metres north of Molla Fenari Neighbourhood. In addition to ceramic and roof tile shards, traces of a road and remains of foundation walls were observed on the surface of the site. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets. Kocaeli Regional Board for Conservation of Cultural Assets assessed this information in a meeting held on March 21st 2017. In accordance with the official decision no: 2887 of the conservation board, test and salvage excavations should be conducted in the site under the supervision of the Directorate of Kocaeli Museum. According to the results of the excavations, the conservation board will make the decision regarding the progress of the project in the site. It is suggested that the excavation works should be planned immediately and conducted with the support of NMH project and under the supervision of the Directorate of Kocaeli Museum.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Archaeological Monitoring	The Decisions of the Conservation Board Should be Followed		Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
√	√				

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

Ancient Road

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Cumaköy Cemetery — **Date:** 19.02.2017
CITY: Kocaeli — **Form No:** 34
PROVINCE: Gebze
VILLAGE: Cumaköy
SECTION: 4

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
711463	4532340	711311	4532102
711493	4532306	711283	4532151
711544	4532151	711288	4532205
711458	4532110		

SITE TYPE: Cemetery

PERIOD: Old/Modern Period

CODE: CHA001/CHA002

DESCRIPTION: The site is located approximately 1.5 kilometre north-east of Cumaköy Neighbourhood. In addition to modern graves, there are graves from the Ottoman Period in the cemetery. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any decision regarding conservation or further research in the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View

General View

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Kuzgunçay Tumuli — **Date:** 19.02.2017
CITY: Kocaeli — **Form No:** 35
PROVINCE: Gebze
VILLAGE: Cumaköy

SECTION: 4

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
710018 710013 710025	4532837 4532817 4532825	710009 710027	4532831 4532837

SITE TYPE: Archaeological Site

PERIOD: Roman Period

CODE: CHA006

DESCRIPTION: The site is located approximately 1.5 kilometre north of Denizli Neighbourhood. Due to its form, the site is considered to be a tumulus. Sporadic ceramic shards were encountered on the hill, upon which there is an illegal excavation pit. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any decision regarding conservation or further research in the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

FIELD SURVEY FORM

General View

Illegal Excavation Trench

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Akfırat III **Date:** 22.02.2017
CITY: İstanbul **Form No:** 36
PROVINCE: Tuzla
VILLAGE: Akfırat

SECTION: 4

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
705098 704971 705108 705216	4533547 7533559 4533780 4533651	705023 704924 705171	4533476 4533632 4533771

SITE TYPE: Archaeological Site

PERIOD: Late Ottoman Period

CODE: CHA005

DESCRIPTION: The site is located in the east of Akfırat Neighbourhood. The northern and southern slopes of the site are surrounded by small creeks. Ceramic and roof tile shards dated to the Medieval Period were observed on the surface of the site. In addition to that, some stones, which were most possibly used in the building construction, were discovered on the southern slope of the site. The works should be continued in accordance with the official decision, which will be made by Istanbul 5th Board for Conservation of Cultural Assets, regarding the site. It is suggested that, any physical intervention to the site should be avoided and all activities around the site should be conducted under the supervision of an archaeologist.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

FIELD SURVEY FORM

General View From the Siteü

Archaeological Findings

FIELD SURVEY FORM

SITE NAME: Akfırat I	**Date:** 21.02.2017
CITY: İstanbul	**Form No:** 37
PROVINCE: Tuzla	
VILLAGE: Akfırat	

SECTION: 4

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
701667	4534145	701993	4534132
701815	4534033	702033	4534191
701980	4534053	701950	4534268

SITE TYPE: Archaeological Site

PERIOD: Late Ottoman Period

CODE: CHA005

DESCRIPTION: The site is located in the west of Akfırat Neighbourhood. Ceramic shards and mineral drost pieces dated to the Medieval or Ottoman Period were observed on its surface. It is strongly suggested that archaeological monitoring should be conducted during all construction activities in the site and its close vicinity and any physical intervention should be avoided.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From the Site

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Akfırat II
Date: 21.02.2017
CITY: İstanbul
Form No: 38
PROVINCE: Tuzla
VILLAGE: Akfırat
SECTION: 4

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
701650 701603 701409 701331	4533756 4533663 4534027 4533849	701531 701451 701406	4534111 4534026 4533617

SITE TYPE: Archaeological Site

PERIOD: Late Ottoman Period

CODE: CHA005

DESCRIPTION: The site is located in the west of Akfırat Neighbourhood. Ample amount of ceramic shards and mineral drost pieces dated to the Medieval or Ottoman Period were observed on its surface. There is a water source, which is still in use, in its north-eastern part. The activities should be conducted in accordance with the official decision, which will be made by Istanbul 5th Board for Conservation of Cultural Assets. It is strongly suggested that prior to the decision of the conservation board any physical intervention should be avoided and all activities should be conducted under the supervision of an archaeologist.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

FIELD SURVEY FORM

SITE NAME: Tepeören	**Date:** 21.02.2017
CITY: İstanbul	**Form No:** 39
PROVINCE: Tuzla	
VILLAGE: Tepeören	

SECTION: 4

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
700636 700564	4534002 4534061	700685 700605	4534153 4534176

SITE TYPE: Archaeological Site

PERIOD: Late Ottoman Period

CODE: CHA005

DESCRIPTION: The site is located within the boundaries of Tepeören Neighbourhood, Tuzla District. Ceramic shards, which are most possibly dated to the Medieval Period, were observed on its surface. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√	√	√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√			

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

NORTH MARMARA MOTORWAY PROJECT

SECTION 7

FIELD SURVEY FORMS

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Kırkçeşme Water Tunnel Line **Date:**
CITY: İstanbul **Form No:** 40
PROVINCE: Sultangazi
VILLAGE: Gazi

SECTION: 7

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing

The documentation still continues in order to understand the extent of the archaeological site.

SITE TYPE: Water Tunnel Line (Registered)

PERIOD: Late Ottoman

CODE: CHA003

DESCRIPTION: The water tunnel line is registered by Istanbul Board for Conservation of Cultural Assets no: 1. When the Geographical Information Systems data about the water tunnel, which was retrieved from the Ministry of Culture, is regarded, it can be deduced that the water tunnel line crosses with the project route in the north-south direction between 68+900 and 69+400 kilometre points. It is required that any physical intervention around the section where the water tunnel line crosses with the project route must be avoided; the activities should be undertaken in accordance with the decisions of the conservation board (date January 12th 2017, no: 2203) under the supervision of concerning museum directorate; current state maps of identified areas should be drawn; 3D modelling works should be conducted; and related documentation should be prepared and submitted to the Conservation Board through official channels. It is strongly advised that after completion of these activities, the project should be implemented in compliance with the official decision, which will be made by the Conservation Board. It is also suggested that archaeological monitoring should be conducted during all construction activities in the site and its close vicinity.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From the Tunnel Line

Tunnel Line

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Roman Aqueducts B
Date:
CITY: İstanbul
Form No: 41
PROVINCE: Sultangazi
VILLAGE: Gazi
SECTION: 7

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing

The documentation still continues in order to understand the extent of the archaeological site.

SITE TYPE: Registered Archaeological Site (Aqueducts)

PERIOD: Roman Period

CODE: CHA005

DESCRIPTION: Su Yolu, İstanbul I Numaralı Kültür Varlıklarını Koruma Bölge Kurulu tarafından tescil aşamasındadır. Su Yoluna ait Kültür Bakanlığından elde edilen coğrafi bilgi sistemi verileri dikkate alındığında, Alibeyköy Barajının güneyindeki kısmında projenin 68+500 - 69+500 kilometreleri arasında yer aldığı belirlenmiştir. Su yolunun proje inşaat sahası ile çakıştığı kesimlerde, alana fiziki müdahalede bulunulmaması ve kurulun almış olduğu kararlar (12.01.2017 gün ve 2203 sayılı) doğrultusunda hareket edilerek ilgili Müze denetiminde tespit çalışmalarının yapılması, tespitli alanların onaylı halihazırlarının çıkarılarak paftalara işlenmesi, 3 boyutlu modelleme çalışmaların yapılması ve ilgili dökümantasyonun hazırlanarak resmi yollardan kurula iletilmesi gerekmektedir. Bu çalışmaların tamamlanmasından sonra kurul tarafından alınacak resmi karara uygun olarak projenin uygulanması önemle tavsiye edilmektedir. Ayrıca alan çevresinde yürütülecek her türlü inşaat çalışması süresince arkeolojik nitelikli izleme çalışmalarının yürütülmesi de önerilmektedir.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

NORTH MARMARA MOTORWAY PROJECT

SECTION 2

FIELD SURVEY FORMS

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Terkos Kağıthane Water Transmission Line

Date:

CITY: İstanbul

Form No: 42

PROVINCE: Arnavutköy

VILLAGE:

SECTION: 2

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
Please check the MoCT Data			

SITE TYPE: Registered Archaeological Site (Water Transmission Line)

PERIOD:

CODE: CHA003

DESCRIPTION: The water transmission line isregistered by Istanbul Board for Conservation of Cultural Assets no: 1. When the Geographical Information Systems data, which was retrieved from the Ministry of Culture, is regarded, it can be deduced that the water transmission line crosses with the project route in the northwest-southeast direction between 54+500 and 56+500 kilometre points. It is required that any physical intervention around the section where the water tunnel line crosses with the project route must be avoided; the activities should be undertaken in accordance with the decisions of the conservation board (date January 12th 2017, no: 2203) under the supervision of concerning museum directorate; current state maps of identified areas should be drawn; 3D modelling works should be conducted; and related documentation should be prepared and submitted to the Conservation Board through official channels. It is strongly advised that after completion of these activities, the project should be implemented in compliance with the official decision, which will be made by the Conservation Board. It is also suggested that archaeological monitoring should be conducted during all construction activities in the site and its close vicinity.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: İhsaniye Cemetery **CITY:** İstanbul **PROVINCE:** Çatalca **VILLAGE:** İhsaniye	**Form No:** 43
SECTION: 2	

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
651456 651497	4566674 4566733	651519 651540	4566698 4566787

SITE TYPE: Cemetery

PERIOD: Old/ Modern

CODE: CHA001

DESCRIPTION: The cemetery is located approximately 500 m south of İhsaniye Neighbourhood, nearby 59+900 kilometre point of the project route. In addition to modern graves, there are graves dated to the Ottoman Period in the cemetery. It is suggested that any physical intervention to the graves should be avoided and if physical intervention is required, the graves should be removed to another place in accordance with the legal procedures and religious practices. It is also suggested that archaeological monitoring should be implemented in the site during the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

FIELD SURVEY FORM

General View

General View

FIELD SURVEY FORM

SITE NAME: Roma Aqueducts A	**Date:**
CITY: İstanbul	**Form No:** 44
PROVINCE: Arnavutköy	
VILLAGE: Tayakadın	

SECTION: 2

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing

The documentation still continues in order to understand the extent of the archaeological site.

SITE TYPE: Registered Site

PERIOD: Roman Period

CODE: CHA005

DESCRIPTION: The aqueducts are registered by Istanbul Board for Conservation of Cultural Assets no: 1. When the Geographical Information Systems data about the water tunnel, which was retrieved from the Ministry of Culture, is regarded, it can be deduced that the aqueducts are located between 51+300 and 51+900 kilometre points of the project route. It is required that any physical intervention around the section where the water tunnel line crosses with the project route must be avoided; the activities should be undertaken in accordance with the decisions of the conservation board (date January 12th 2017, no: 2203) under the supervision of concerning museum directorate; current state maps of identified areas should be drawn; 3D modelling works should be conducted; and related documentation should be prepared and submitted to the Conservation Board through official channels. It is strongly advised that after completion of these activities, the project should be implemented in compliance with the official decision, which will be made by the Conservation Board. It is also suggested that archaeological monitoring should be conducted during all construction activities in the site and its close vicinity.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Tayakadın **Date:** 23.02.2017
CITY: İstanbul **Form No:** 45
PROVINCE: Arnavutköy
VILLAGE: Tayakadın

SECTION: 2

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
640753 640684 640643	4568995 4569032 4569268	670729 640724 640555	4569004 4569096 4569114

SITE TYPE: Archaeological Site

PERIOD: Byzantine Period

CODE: CHA005

DESCRIPTION: Ample amount of ceramic and roof tile shards were encountered in Tayakadın Archaeological Site, which is located in Tayakadın junction (nearby 48+800 access road). Amon the ceramic shards, there are those, which are glazed and reliefed. It is required that the activities should be carried on in accordance with the official decision, which will be taken by İstanbul Regional Board No: 1 for Conservation of Cultural Assets. It is suggested that any physical intervention to the site should be avoided prior to the decision of the Conservation Board and all activities in the site should be implemented under the supervision of an archaeologist.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
	√	√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From the Site

General View From the Site

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Baklalı I — **Date:** 24.02.2017
CITY: İstanbul — **Form No:** 46
PROVINCE: Arnavutköy
VILLAGE: Baklalı
SECTION: 2

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
639633 639685 639581	4567176 4567211 4567018	639762 639599 639776	4567215 4566983 4567043

SITE TYPE: Archaeological Site

PERIOD: Byzantine Period

CODE: CHA005

DESCRIPTION: The site is located in the southern part of the access road at 47+850 kilometres of the project route. Ample amount of glazed ceramic shards, limestone blocks that were supposed to belong to buildings and human bones, which are dated to the Byzantine Period, were observed on its surface. It is strongly suggested that archaeological monitoring should be conducted during all construction activities in the site and its close vicinity and any physical intervention should be avoided.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
	√		√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From the Siteü

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Baklalı II | **Date:** 24.02.2017
CITY: İstanbul | **Form No:** 47
PROVINCE: Arnavutköy
VILLAGE: Baklalı

SECTION: 2

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
639436 639516 639279	4567791 4567911 4567991	639497 639509	4568064 4567804

SITE TYPE: Archaeological Site

PERIOD: Byzantine Period

CODE: CHA005

DESCRIPTION: The site is located in the northern part of the access road at the 47+850 kilometre point of the project route. Ample amount of glazed ceramic and roof tile shards were encountered on the surface of the site. In addition to that, better preserved roof tiles, pithoi shards and cut lime stone blocks were observed in the eastern part of the site. There are two fountains in the north-eastern part of the site. All information about the site will be delivered to Istanbul Regional Board for Conservation of Cultural Assets No: 1. For this reason, the project activities should be implemented in accordance with the decisions, which will be taken by the Conservation Board regarding the site. It is suggested that archaeological monitoring should be conducted during all construction activities in the site and its close vicinity and any physical intervention should be avoided.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
	√		√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From the Site

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Yassıören **Date:** 24.02.2017
CITY: İstanbul **Form No:** 48
PROVINCE: Arnavutköy
VILLAGE: Yassıören

SECTION: 2

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
635307 635327	4565958 4565889	635157 635208	4565841 4565738

SITE TYPE: Archaeological Potantial Site

PERIOD: Byzantine Period

CODE: CHA005

DESCRIPTION: The site is located 2 kilometre south-east of Yassıören Neighbourhood. Ceramic and roof tile shards were observed on its surface. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√			

General View From the Site

Archaeological Findings

NORTH MARMARA MOTORWAY PROJECT

SECTION 1

FIELD SURVEY FORMS

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Çakmak Line Historic Military Entrenchments

Date:

CITY: İstanbul

Form No: 49

PROVINCE: Arnavutköy

VILLAGE: Yassıören/Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing

The documentation still continues in order to understand the extent of the archaeological site.

SITE TYPE: Registered Historical Site

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: The historic defence line (redoubts and Military Bunkers) was constructed during the World War II. It is registered by Istanbul Board for Conservation of Cultural Assets no: 1. The geographical information regarding the historic defence line, which is composed of the data collected by REGİO during the field surveys and the data retrieved from the related conservation board, was evaluated together. According to the studies, it was revealed out that there are 127 different Bunkers, redoubts and fortification structures located within the project impact corridor. Within the scope of this report, detailed information about the elements of this defence system are given below. All data regarding the sites will also be delivered to Istanbul Regional Board No: 1 for Conservation of Cultural Properties. In accordance with the decision no: 2203 of Istanbul Regional Board No: 1 for Conservation of Cultural Properties taken on January 12th 2017 regarding the historic defence line, it is required that any physical intervention around the section where the it crosses with the project route must be avoided; approved current state maps of identified areas should be drawn; 3D modelling works should be conducted; and related documentation should be prepared and submitted to the Conservation Board through official channels. It is strongly advised that after completion of these activities, the project should be implemented in compliance with the official decision, which will be made by the Conservation Board. It is also suggested that archaeological monitoring should be conducted during all construction activities in the site and its close vicinity.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√	√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Yassıören II
Date: 24.02.2017
CITY: İstanbul
Form No: 50
PROVINCE: Arnavutköy
VILLAGE: Yassıören
SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
635035 635131	4564929 4565021	634886 634895	4565015 4565094

SITE TYPE: Archaeological Potantial Site

PERIOD: Byzantine Period

CODE: CHA005

DESCRIPTION: The site is located 1.9 kilometre south-east of Yassıören Neighbourhood. Large lime stone blocks, which might belong to architectural elements and ceramic and roof tile shards, which are most possibly dated to the Byzantine Period, were observed on the surface of the site. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√			

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş. AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş. MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker 1 **Date:** 24.02.2017
CITY: İstanbul **Form No:** 51
PROVINCE: Arnavutköy
VILLAGE: Yassıören

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
633494 633496	4563681 4563684	633499 633500	4563682 4563685

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: The site is located 1.9 kilometre south-east of Yassıören Neighbourhood. Large lime stone blocks, which might belong to architectural elements and ceramic and roof tile shards, which are most possibly dated to the Byzantine Period, were observed on the surface of the site. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker 2 **Date:** 24.02.2017
CITY: İstanbul **Form No:** 52
PROVINCE: Arnavutköy
VILLAGE: Yassıören

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
633530 633537	4563608 4563608	633536 633529	4563602 4563601

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 5x5m. It was built with concrete frame and stone masonry. The stone walls are demolished. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

FIELD SURVEY FORM

General View From Bunker

FIELD SURVEY FORM

SITE NAME: Military Bunker3 **Date:** 24.02.2017
CITY: İstanbul **Form No:** 53
PROVINCE: Arnavutköy
VILLAGE: Yassıören

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
633528 633536	4563545 4563544	633534 633529	4563534 4563534

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 5x5m. It was built with concrete frame and stone masonry. The stone walls are demolished. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

FIELD SURVEY FORM

SITE NAME: Military Bunker4	**Date:** 24.02.2017
CITY: İstanbul	**Form No:** 54
PROVINCE: Arnavutköy	
VILLAGE: Yassıören	

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
633510 633506	4563473 4563473	633505 633512	4563467 4563466

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 5x5m. It was built with concrete frame and stone masonry. The stone walls are demolished. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker5 **Date:** 24.02.2017
CITY: İstanbul **Form No:** 55
PROVINCE: Arnavutköy
VILLAGE: Yassıören

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
633109 633108	4563791 4563796	633102 633104	4563797 4563791

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Bunker was built with concrete frame and stone masonry. It has one entrance and a window. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker6 **Date:** 24.02.2017
CITY: İstanbul **Form No:** 56
PROVINCE: Arnavutköy
VILLAGE: Yassıören

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
633133 633136	4563745 4563737	633620 633136	4563744 4563754

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Bunker was built with concrete frame and stone masonry. It has one entrance and a window. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker7 **Date:** 24.02.2017
CITY: İstanbul **Form No:** 57
PROVINCE: Arnavutköy
VILLAGE: Yassıören

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
633144 633139	4563711 4563710	633141 633145	4563703 4563703

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Bunker was built with concrete frame and stone masonry. It has one entrance and a window. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

FIELD SURVEY FORM

SITE NAME: Military Bunker8 **Date:** 24.02.2017
CITY: İstanbul **Form No:** 58
PROVINCE: Arnavutköy
VILLAGE: Yassıören

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
633175 633179	4563632 4563633	633182 633177	4563628 4563625

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Bunker was built with concrete frame and stone masonry. It has one entrance and a window. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

FIELD SURVEY FORM

General View From Bunker

This form was developed by REGIO Archaeology Team for North Marmara Motorway Project

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Nakkaş Military Shooting Range **Date:** 24.02.2017
CITY: İstanbul **Form No:** 59
PROVINCE: Arnavutköy
VILLAGE: Yassıören

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
633048 633067	4563293 4563234	633256 633263	4563438 4563361

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Shooting Range, which is thought to be a part of the Çakmak Line. It is approximately in the sizes of 150x80 metre. There is a stairway and a stone wall attached to this stairway in the upper part of the shooting range. It is suggested that the decisions that will be made or have been made by the Conservation Board should be followed. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

FIELD SURVEY FORM

General View

General View

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker9 **Date:** 24.02.2017
CITY: İstanbul **Form No:** 60
PROVINCE: Arnavutköy
VILLAGE: Yassıören

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
633006 633000	4563413 4563409	633002 633007	4563401 4563402

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker10 **Date:** 24.02.2017
CITY: İstanbul **Form No:** 61
PROVINCE: Arnavutköy
VILLAGE: Yassıören

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
633022 633028	4563391 4563389	633021 633021	4563401 4563401

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker11 **Date:** 24.02.2017
CITY: İstanbul **Form No:** 62
PROVINCE: Arnavutköy
VILLAGE: Yassıören

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
633072 633066	4563225 4563223	633065 633062	4563226 4563229

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker is currently demolished. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

FIELD SURVEY FORM

SITE NAME: Military Bunker12	**Date:** 24.02.2017
CITY: İstanbul	**Form No:** 63
PROVINCE: Arnavutköy	
VILLAGE: Yassıören	

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
632934 632929	4563374 4563386	632919 632923	4563380 4563369

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 25 square meters and polygonal shaped. The frame of the Military Bunker is entirely built with concrete. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker13
Date: 24.02.2017
CITY: İstanbul
Form No: 64
PROVINCE: Arnavutköy
VILLAGE: Yassıören

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
632886 632877	4563351 4563348	632875 632889	4563339 4563339

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker14 **Date:** 24.02.2017
CITY: İstanbul **Form No:** 065
PROVINCE: Arnavutköy
VILLAGE: Yassıören
SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
632886 632877	4563330 4563326	632883 632890	4563319 4563323

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

FIELD SURVEY FORM

SITE NAME: Military Bunker15 **Date:** 24.02.2017
CITY: İstanbul **Form No:** 66
PROVINCE: Arnavutköy
VILLAGE: Yassıören

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
640753	4568995	670729	4569004
640684	4569032	640724	4569096
640643	4569268	640555	4569114

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA005

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker16 **Date:** 24.02.2017
CITY: İstanbul **Form No:** 67
PROVINCE: Arnavutköy
VILLAGE: Yassıören

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
632953 632960	4563175 4563178	632961 632954	4563171 4563167

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker17 **Date:** 24.02.2017
CITY: İstanbul **Form No:** 68
PROVINCE: Arnavutköy
VILLAGE: Yassıören

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
632960 632957	4563126 4563118	632961 632970	4563114 4563119

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. Different from other Bunkers, the Military Bunker is in triangular shape and has larger window openings. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the site should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker18 **Date:** 24.02.2017
CITY: İstanbul **Form No:** 69
PROVINCE: Arnavutköy
VILLAGE: Yassıören

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
632981 632988	4563099 4563095	632983 632978	4563092 4563094

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker19 **Date:** 24.02.2017
CITY: İstanbul **Form No:** 70
PROVINCE: Arnavutköy
VILLAGE: Yassıören

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
632997 632999	4563095 4563091	633003 633001	4563093 4563095

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Nakkaş **Date:** 24.02.2017
CITY: İstanbul **Form No:** 71
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
632761 632840	4563181 4563182	632849 632757	4563148 4563128

SITE TYPE: Archaeological Potantial Site

PERIOD: Late Ottoman Period

CODE: CHA005

DESCRIPTION: Sporadic ceramic and roof tile shards, which are dated to the Byzantine Period, were observed on the surface of the site. These archaeological materials might be transported here from another site via soil erosion etc. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√			

General View From the Site

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Nakkaş II — **Date:** 25.02.2017

CITY: İstanbul — **Form No:** 72

PROVINCE: Arnavutköy

VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631879	4562298	631894	4562169
631957	4562254	631804	4562138
631790	4562289	631860	4562110

SITE TYPE: Archaeological Site

PERIOD: Byzantine Period

CODE: CHA005

DESCRIPTION: The archaeological site is located 1.7 kilometre north-east of Baklalı Neighbourhood. ceramic and roof tile shards, which are dated to the Byzantine Period, were observed on the top of the site. It is suggested that any physical intervention to the site should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From the Site

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker20 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 73
PROVINCE: Arnavutköy
VILLAGE: Nakkaş
SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631680 631678	4562008 4562004	631672 631674	4562007 4562001

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş. AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş. MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Nakkaş III **Date:** 25.02.2017
CITY: İstanbul **Form No:** 74
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631633 631600 631584	4561917 4561952 4561793	631560 631519	4561908 4561895

SITE TYPE: Archaeological Site

PERIOD: Byzantine Period

CODE: CHA005

DESCRIPTION: The archaeological site is located 1.5 kilometre north-east of Baklalı Neighbourhood. Ceramic and roof tile shards and some lime stone blocks, which are dated to the Byzantine Period, were observed on the surface of the site. It is suggested that any physical intervention to the site should be avoided during the construction activities and archaeological monitoring should be conducted in this location throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

FIELD SURVEY FORM

General View From the Site

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker34 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 75
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631861 631861	4561751 4561755	631856 631855	4561752 4561756

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker35 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 76
PROVINCE: Arnavutköy
VILLAGE: Nakkaş
SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631742 631741	4561666 4561677	631732 631730	4561677 4561664

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

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General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker21 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 77
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631441 631444	4561411 4561411	631444 631441	4561407 4561407

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Örenbayır
Date: 25.02.2017
CITY: İstanbul
Form No: 78
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631319	4561340	631563	4561063
631294	4561284	631613	4561198
631331	4561152	631674	4561280
631333	4561044	631703	4561382

SITE TYPE: Archaeological Site

PERIOD: Byzantine Period

CODE: CHA005

DESCRIPTION: The archaeological site is located 1 kilometre east of Nakkaş Neighbourhood. Ceramic, roof tile, terracotta water pipe and glass bracelet shards and some architectural cut lime stone blocks, which may be dated to the Byzantine Period, were observed on the surface of the site. All information about the site will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker33 — **Date:** 25.02.2017
CITY: İstanbul — **Form No:** 79
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631779 631780	4561194 4561191	631782 631776	4561190 4561188

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker32 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 80
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631772 631775	4561173 4561174	631776 631773	4561171 4561169

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker31 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 81
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631724	4561117	631718	4561117
631723	4561121	631719	4561115

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş. AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş. MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker30	**Date:** 25.02.2017
CITY: İstanbul	**Form No:** 82
PROVINCE: Arnavutköy	
VILLAGE: Nakkaş	

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631711 631712	4561102 4561104	631709 631711	4561104 4561110

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker that belongs to the Çakmak Line. Its sizes are approximately 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker22 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 83
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631340 631345	4560949 4560950	631338 631343	4560957 4560959

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 4x3m. The Military Bunker is "L" shaped. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker29 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 84
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631681 631683	4560903 4560902	631682 631677	4560894 4560892

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		


General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker28 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 85
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631639 631646	4560863 4560865	631648 631639	4560863 4560858

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker27 | **Date:** 25.02.2017
CITY: İstanbul | **Form No:** 86
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631525 631528	4560805 4560804	631529 631523	4560800 4560799

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

FIELD SURVEY FORM

SITE NAME: Military Bunker26 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 87
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631511 631509	4560797 4560794	631514 631514	4560791 4560794

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker23 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 88
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631396 631399	4560766 4560769	631402 631399	4560764 4560762

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		


General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker24 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 89
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631380 631385	4560745 4560742	631384 631379	4560740 4560741

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker25 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 90
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631369 631365	4560736 4560737	631367 631372	4560740 4560738

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

FIELD SURVEY FORM

SITE NAME: Military Bunker38	**Date:** 25.02.2017
CITY: İstanbul	**Form No:** 91
PROVINCE: Arnavutköy	
VILLAGE: Nakkaş	

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631592 631601	4560672 4560675	631606 631598	4560666 4560661

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker39 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 92
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631612 631607	4560636 4560640	631606 631601	4560636 4560635

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

FIELD SURVEY FORM

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker40 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 93
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631604 631610	4560614 4560616	631612 631606	4560610 4560607

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker41 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 94
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631618 631625	4560586 4560589	631629 631619	4560589 4560579

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker45 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 95
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631128 631137	4560376 4560384	631144 631134	4560360 4560356

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker44 — **Date:** 25.02.2017
CITY: İstanbul — **Form No:** 96
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631156 631145	4560331 4560332	631143 631152	4560340 4560345

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker43 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 97
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631176 631169	4560306 4560318	631158 631162	4560314 4560305

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker42 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 98
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631186 631173	4560278 4560277	631167 631181	4560288 4560291

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. The gaps of the frame are built with stone masonry. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		


General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker46 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 99
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
630863 630892	4559918 4559901	630900	4559945

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. Interior dimensions of the Bunker areapproximately 7x7m. There are configurations, which allow installing of canons and machine guns inside the building. In addition to that, air ventilation channels can be observed inside the two-storied Bunker. The ground floor of the building was most possibly an ammunition storage and it is linked to the upstairs via elevators working with pulley system. Interior and exterior doors of the building are made of iron. There are still "Shooting Plans", which were prepared to provide orientation for the soldiers using the cannons and machine guns, in the upstairs. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
	√	√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

Koruganın İç Mekânından Genel Görünüm

Koruganın İç Mekanda Bulunan Atış Planı

FIELD SURVEY FORM

SITE NAME: Historic Bridge on Yeşilbayır – Nakkaş Road	**Date:** 25.02.2017
CITY: İstanbul	**Form No:** 100
PROVINCE: Arnavutköy	
VILLAGE: Nakkaş	

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631161 631157	4559616 4559612	631174 631170	4559603 4559597

SITE TYPE: Historical/Other

PERIOD: 19-20. Century

CODE: CHA003

DESCRIPTION: This well preserved, historic, arched bridge is located 1 kilometre south of Nakkaş Neighbourhood,within the construction impact area. The bridge, which was constructed in the Roman Period is stone masonry. Its length is around 14,5 m and width is 4,61 m. The arches of the bridge are in the form of single-centred semicircles. It is a part of the historic road network, named "Via Egnatia", which was most possibly constructed by Emperor Constantine in the first half of the 4th century CE and connected İstanbul (ancient Constantinople) with Europe. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View

General View

FIELD SURVEY FORM

SITE NAME: Military Bunker47 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 101
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
630694 630717	4559613 4559625	630729 630707	4559603 4559589

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. Interior dimensions of the Bunker areapproximately 7x7m. There are configurations, which allow installing of canons and machine guns inside the building. In addition to that, air ventilation channels can be observed inside the two-storied Bunker. The ground floor of the building was most possibly an ammunition storage and it is linked to the upstairs via elevators working with pulley system. Interior and exterior doors of the building are made of iron. There are still "Shooting Plans", which were prepared to provide orientation for the soldiers using the cannons and machine guns, in the upstairs. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√	√	√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker48 — **Date:** 25.02.2017
CITY: İstanbul — **Form No:** 102
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
630597 630600	4559452 4559452	630600 630597	4559456 4559456

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker, which belongs to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker49 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 103
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
630630 630625	4559353 4559342	630634 630641	4559338 4559347

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

FIELD SURVEY FORM

REGIO

General View From Bunker

KMO ANADOLU OTOYOL İSLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADI ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker50
Date: 25.02.2017
CITY: İstanbul
Form No: 104
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
630580 630580	4551431 4559434	630575 630574	4559433 4559429

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and its gaps were filled with stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş. AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş. MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker51 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 105
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
630561 630557	4559397 4559392	630531 630554	4559394 4559399

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker52
Date: 25.02.2017
CITY: İstanbul
Form No: 106
PROVINCE: Arnavutköy
VILLAGE: Nakkaş
SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
630509 630513	4559364 4559361	630505	4559358

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

FIELD SURVEY FORM

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş. AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş. MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker53 **Date:** 25.02.2017

CITY: İstanbul **Form No:** 107

PROVINCE: Arnavutköy

VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
630475 630481	4559363 4559361	630479 630473	4559357 4559360

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker54
Date: 25.02.2017
CITY: İstanbul
Form No: 108
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
630450 630460	4559434 4559440	630464 630456	4559434 4559428

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker55 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 109
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
630454 630458	4559473 4559475	630461 630457	4559472 4559470

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker, which belongs to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

FIELD SURVEY FORM

General View From Bunker

FIELD SURVEY FORM

SITE NAME: Yeşilbayır **Date:** 25.02.2017
CITY: İstanbul **Form No:** 110
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
630383 630483	4558526 4558554	630504 630412	4558477 4558468

SITE TYPE: Archaeological Site

PERIOD: Ottoman Period

CODE: CHA005

DESCRIPTION: The site is located 2 km south of Nakkaş Neighbourhood. Ample amount of ceramic and roof tile shards and architectural cut lime stone blocks, which may be dated to the Ottoman Period, were observed on the surface of the site. It was revealed out that the site stretches through the slopes and most possibly belonged to the Ottoman Period. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
	√		√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From the Site

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker62 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 111
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631618 631619	4557570 4557564	631624 631624	4557565 4557569

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker, which belongs to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The Military Bunker was built with concrete frame and the gaps of the frame were filled with stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
	√	√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker61 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 112
PROVINCE: Arnavutköy
VILLAGE: Nakkaş
SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631595 631601	4557547 4557548	631602 631597	4557553 4557553

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker that belongs to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
	√	√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker60 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 113
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631582 631584	4557498 4557495	631588 631588	4557496 4557500

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
	√		√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker59 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 114
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631581 631585	4557478 4557470	631582 631576	4557468 4557473

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker, which is a part of the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
	√		√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker58 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 115
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631585 631592	4557435 4557428	631591 631584	4557417 4557422

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
	√		√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker57 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 116
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631602 631588	4557305 4557290	631610 631618	4557274 4557292

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker that belongs to the Çakmak Line. The Military Bunker is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
	√		√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Savaşçı Fountain
Date: 25.02.2017
CITY: İstanbul
Form No: 117
PROVINCE: Arnavutköy
VILLAGE: Nakkaş
SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
630048 630043	4558892 4558900	630051 630045	4558899 4558904

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: The historic fountain is located 2 kilometres south-west of Nakkaş Neighbourhood. The fountain was built on a water spring and bears the construction date and the name of the commissioner. Accordingly, the fountain was built by Zeki Sidal in 1942. In addition to these inscriptions, the fountain also bears the inscription of "Warrior's Fountain". The fountain is constructed with concrete rubble stones. All information about the fountain will be delivered to Istanbul Regional Board no 1 for Conservation of Cultural Assets. Therefore, the project activities around the fountain should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
	√	√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From the Front side

General View From the Back side

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker63 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 118
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629995	4559023	629991	4559026
629995	4559027	629991	4559020

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

FIELD SURVEY FORM

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker64 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 119
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629789 629785	4559015 4559008	629792 629795	4559004 4559011

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

FIELD SURVEY FORM


General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker74 — **Date:** 25.02.2017
CITY: İstanbul — **Form No:** 120
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629783 629796	4558981 4558973	629801 629789	4558980 4558987

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

FIELD SURVEY FORM

General View From Bunker

FIELD SURVEY FORM

SITE NAME: Military Bunker65 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 121
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629764 629761	4559039 4559044	629755 629758	4559042 4559033

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. Tjhe Military Bunker is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

FIELD SURVEY FORM

SITE NAME: Military Bunker66 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 122
PROVINCE: Arnavutköy
VILLAGE: Nakkaş
SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629749 629745	4559041 4559037	629737 629741	4559042 4559050

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker68 | **Date:** 25.02.2017
CITY: İstanbul | **Form No:** 123
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629748 629752	4559013 4559003	629760 629754	4559008 4559016

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker71 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 124
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629760 629773	4558974 4558967	629769 629755	4558960 4558968

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker76 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 125
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629768 629773	4558905 4558903	629775 629771	4558909 4558910

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker, which is belonging to the Çakmak Line. The Military Bunker is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

FIELD SURVEY FORM

SITE NAME: Military Bunker77 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 126
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629759 629754	4558887 4558888	629759 629763	4558875 4558875

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		


General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker75 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 127
PROVINCE: Arnavutköy
VILLAGE: Nakkaş
SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629735 629751	4558909 4558902	629751 629755	4558907 4558915

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İSLETME A.S.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İSLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker67 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 128
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629676 629677	4559085 4559091	629664 629663	4559099 4559086

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: The structure is a Military Bunker, which belongs to the Çakmak Line. The Military Bunker is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM


General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker91 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 129
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629627 629633	4559166 4559173	629639 629632	4559168 4559162

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 5x5m. The Bunker is in triangular shape. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker69 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 130
PROVINCE: Arnavutköy
VILLAGE: Nakkaş
SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629623 629618	4559085 4559082	629619 629613	4559088 4559087

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker70 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 131
PROVINCE: Arnavutköy
VILLAGE: Nakkaş
SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629608 629606	4559087 4559089	629598 629601	4559084 4559081

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İSLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker78 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 132
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629704 629699	4558841 4558845	629693 629696	4558839 4558935

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker79 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 133
PROVINCE: Arnavutköy
VILLAGE: Nakkaş
SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629716 629721	4558797 4558793	629716 629709	4558786 4558792

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. The Military Bunker is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		


General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker72 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 134
PROVINCE: Arnavutköy
VILLAGE: Nakkaş
SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629595 629599	4559039 4559046	629595 629590	4559049 4559045

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker73 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 135
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629547	4558993	629553	4558999
629551	4558992	629547	4559000

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Vaulted Structure
Date: 25.02.2017
CITY: İstanbul
Form No: 136
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629579 629600	4558891 4558876	629557 629584	4558870 4558850

SITE TYPE: Historical/Other

PERIOD: 19-20. Century

CODE: CHA003

DESCRIPTION: The structure is located 2 kilometres south-west of Nakkaş Neighbourhood. It is placed at the 34+000 kilometre point of the project route, within the boundaries of the construction area. The structure appears as a little hill, covered with soil, in the plain land. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General Wiew

Detail From Entrance

FIELD SURVEY FORM

SITE NAME: Military Bunker80 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 137
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629599 629601	4558793 4558793	629606 629603	4558797 4558799

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		


General View From Bunker

FIELD SURVEY FORM

SITE NAME: Military Bunker81 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 138
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629613 629615	4558776 4558775	629614 629610	4558768 4558772

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker83 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 139
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629614 629617	4558728 4558724	629625 629621	4558728 4558732

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

FIELD SURVEY FORM

SITE NAME: Military Bunker90 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 140
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629481 629475	4559066 4559069	629477 629484	4559073 4559074

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

FIELD SURVEY FORM

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker82 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 141
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629599 629599	4558727 4558721	629604 629604	4558722 4558728

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker92 **Date:** 25.02.2017

CITY: İstanbul **Form No:** 142

PROVINCE: Arnavutköy

VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629447 629443	4559059 4559061	629439 629444	4559057 4559054

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker, which belongs to the Çakmak Line.The sizes of of the Military Bunker are approximately 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker93 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 143
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629434 629425	4559037 4559041	629421 629432	4559035 4559032

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker94 — **Date:** 25.02.2017
CITY: İstanbul — **Form No:** 144
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629396 629398	4559053 4559058	629393 629390	4559060 4559055

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker88 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 145
PROVINCE: Arnavutköy
VILLAGE: Nakkaş
SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629470 629469	4548902 4548897	629477 629476	4548896 4548903

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker89 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 146
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629431 629430	4558988 4558979	629422 629426	4558982 4558991

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker that belongs to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		


General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker84 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 147
PROVINCE: Arnavutköy
VILLAGE: Nakkaş
SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629507 629514	4558822 4558818	629511 629503	4558811 4558816

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker, which is a part of the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker85
Date: 25.02.2017
CITY: İstanbul
Form No: 148
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629492 629503	4558856 4558851	629497 629484	4558840 4558848

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker that belongs to the Çakmak Line. It is approximately in the size of 5x5m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

View From the Bunker Entrance

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker86 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 149
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629460 629455	4558886 4558883	629453 629458	4558890 4558892

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker87 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 150
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629448 629443	4558901 4558904	629440 629443	4558901 4558897

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker95
Date: 25.02.2017
CITY: İstanbul
Form No: 151
PROVINCE: Arnavutköy
VILLAGE: Nakkaş
SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629361 629359	4559028 4559031	629354 629354	4559029 4559026

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker96 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 152
PROVINCE: Arnavutköy
VILLAGE: Nakkaş
SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629350 629353	4559001 4558996	629349 629343	4558992 4558995

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker that is a part of the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m.. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker102 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 153
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629546 629555	4558616 4558608	629552 629544	4558602 4558607

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker100 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 154
PROVINCE: Arnavutköy
VILLAGE: Nakkaş
SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629459 629464	4558781 4558781	629467 629462	4558786 4558789

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker, which belongs to the Çakmak Line. It is in the "T" form. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker101 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 155
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629456 629462	4558763 4558760	629463 629456	4558754 4558753

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker99 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 156
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629438 629440	4558769 4558765	629444 629444	4558766 4558770

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker97 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 157
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629342 629337	4558970 4558974	629341 629346	4558978 4558973

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		


General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker98 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 158
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629145 629129	4558832 4558845	629119 629140	4558827 4558819

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. Air ventilation channels were observed inside the Bunker. There is a trench wall constructed with rubble stones for defensive purposes in the north side of the Bunker. This trench stretches to the north for approximately 3 km. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker103 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 159
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629142	4558543	629129	4558550
629146	4558538	629119	4558534
629140	4558528	629130	4558523
629147	4558488	629135	4558474

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: The Military Bunker is located 2.5 kilometres southwest of Nakkaş Neighbourhood. The frame of the Military Bunker was built entirely with concrete. There are architectural configurations for installing cannons and machine guns inside the building. There is a reinforced stone wall trench in the south of the building, which is constructed for defensive purposes. This trench heads to the south for approximately 2.5 km. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

Stone wall trench in the south of the building

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker104 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 160
PROVINCE: Arnavutköy
VILLAGE: Nakkaş
SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629019 629014	4558514 4558518	629009 629015	4558512 4558508

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker, which belongs to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. The Military Bunker is "L" shaped. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker108 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 161
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
628910 628907	4558757 4558763	628901 628904	4558762 4558754

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

FIELD SURVEY FORM

SITE NAME: Military Bunker105 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 162
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
628938 628940	4558589 4558592	628938 628935	4558593 4558589

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

FIELD SURVEY FORM

SITE NAME: Military Bunker107	**Date:** 25.02.2017
CITY: İstanbul	**Form No:** 163
PROVINCE: Arnavutköy	
VILLAGE: Nakkaş	

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
628929 628933	4558605 4558605	628933 628929	4558609 4558609

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker, which is a part of the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker106 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 164
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
628925 628922	4558595 4558595	628919 628926	4558601 4558602

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker that belongs to the Çakmak Line. The frame of the Military Bunker, which is "T" shaped, was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

FIELD SURVEY FORM

SITE NAME: Military Bunker110	**Date:** 25.02.2017
CITY: İstanbul	**Form No:** 165
PROVINCE: Arnavutköy	
VILLAGE: Nakkaş	

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
628930 628934	4558533 4558529	628938 628935	4558533 4558538

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker109 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 166
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
628921 628622	4558546 4558539	628915 628914	4558539 4558548

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker111
Date: 25.02.2017
CITY: İstanbul
Form No: 167
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
628906 628903	4558528 4558530	628902 628904	4558527 4558525

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker that belong to the Çakmak Line. The Military Bunker is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

KMO ANADOLU OTOYOL İŞLETME A.Ş. AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş. MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

General View From Bunker

KMO ANADOLU OTOYOL İSLETME A.S.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker112 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 168
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
628855 628849	4558494 4558495	628851 628853	4558490 4558490

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker, which belongs to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İSLETME A.S.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker113 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 169
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
628834 628831	4558539 4558546	628825 628826	4558545 4558539

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker, which is a part of the Çakmak Line. The Military Bunker is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

FIELD SURVEY FORM

General View From Bunker

KMO ANADOLU OTOYOL İSLETME A.S.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker114 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 170
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
628777 628773	4558492 4558490	628773 628775	4558492 4558495

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker, which belongs to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

FIELD SURVEY FORM

SITE NAME: Military Bunker115 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 171
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
628745 628743	4558492 4558495	628739 628742	4558491 4558488

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker, which belongs to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker119 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 172
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
628642 628642	4558631 4558627	628652 628653	4558632 4558624

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

FIELD SURVEY FORM

SITE NAME: Military Bunker117 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 173
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
628676 628678	4558548 4558545	628678 628680	4558550 4558549

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker116
Date: 25.02.2017
CITY: İstanbul
Form No: 174
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
628675 628672	4558518 4558523	628675 628668	4558524 4558518

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker that belongs to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker118 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 175
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
628620 628618	4558529 4558533	628614 628616	4558532 4558529

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker120 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 176
PROVINCE: Arnavutköy
VILLAGE: Nakkaş
SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
628428 628426	4558627 4558639	628436 628436	4558635 4558632

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker, which belongs to the Çakmak Line. It is approximately in the size of 6x6m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

FIELD SURVEY FORM

SITE NAME: Military Bunker121	**Date:** 25.02.2017
CITY: İstanbul	**Form No:** 177
PROVINCE: Arnavutköy	
VILLAGE: Nakkaş	

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
628418 628414	4558576 4558587	628399 628396	4558588 4558572

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker, which is a part of the Çakmak Line. It is approximately in the size of 4x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker122 — **Date:** 25.02.2017
CITY: İstanbul — **Form No:** 178
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
628378 628376	4558437 4558436	628374 628374	4558436 4558438

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker123 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 179
PROVINCE: Arnavutköy
VILLAGE: Nakkaş
SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
628306 628304	4558375 4558375	628303 628305	4558378 4558379

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. The Military Bunker is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

FIELD SURVEY FORM

General View From Bunker

FIELD SURVEY FORM

SITE NAME: Military Bunker124 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 180
PROVINCE: Arnavutköy
VILLAGE: Nakkaş
SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
628284 628287	4558300 4558298	628289 628288	4558301 4558303

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker that belongs to to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

FIELD SURVEY FORM

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker126 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 181
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
628302 628305	4558268 4558267	628303 628299	4558263 4558263

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker125 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 182
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
628275 628279	4558272 4558274	628277 628276	4558269 4558271

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker, which belongs to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		


General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker 127 and Parapet **Date:** 26.02.2017
CITY: İstanbul **Form No:** 183
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
628173	4558167	628255	4558700
628163	4558168	628263	4558699
628163	4558175	628172	4558180
628177	4558179		

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker, which is a part of the Çakmak Line. Interior dimensions of the Bunker areapproximately 7x7m. Inside the Bunker, which is triangular, air ventilation channels are observable. There are configurations, which allow installing of canons and machine guns inside the building. There is a parapet heading in the north-south direction for approximately 2 km in the north of the Bunker. There are niches with approximately 2 m intervals on the western facade of this wall. This entrenchment wall is located within the project construction corridor. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is strongly suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

Military Bunker& Parapet

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Umurtepe Kartepe 2nd Degree Archaeological Site

Date:

CITY: İstanbul

Form No: 184

PROVINCE: Çatalca

VILLAGE:

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing	Easting	Northing
617157	4558192	617692	4558433	617627	4557863
617126	4558252	617747	4558369	617592	4557846
617088	4558287	617780	4558320	617502	4557767
617087	4558330	617801	4558278	617419	4557750
617144	4558385	617812	4558201	617357	4557761
617171	4558457	617842	4558178	617265	4557820
617217	4558541	617865	4558143	617207	4557934
617284	4558568	617855	4558110	617181	4558027
617358	4558577	617813	4558078	617177	4558137
617479	4558561	617775	4557969		
617563	4558505	617667	4557895		

SITE TYPE: Registered Archaeological Site

PERIOD:

CODE: CHA005

DESCRIPTION: The site was registered as a 2nd Degree Archaeological Site by İstanbul Regional Board no: 2 for Conservation of Cultural Assets in accordance with the decision no: 4540 of the conservation Board, which was taken on August 21st 1997. According to the decision no 2203-II of Istanbul Regional Board no: 2 for Conservation of Cultural Assets taken on January 12th 2017, it is required that the technical documentation regarding the site should be prepared immediately; and project activities should be implemented in accordance with the decision, which will be made by the conservation board, after the assessment of the concerning technical documentation. In addition to that, It is strongly suggested that prior to the decision of the conservation board any physical intervention should be avoided and all activities should be conducted under the supervision of an archaeologist.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Kara Murat **Date:** 27.02.2017
CITY: İstanbul **Form No:** 185
PROVINCE: Çatalca
VILLAGE: İnceğiz

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
616197	4558219	615956	4558025
615996	4558274	615846	4558221
616199	4558184	615645	4558216
616060	4558070	615620	4558052

SITE TYPE: Archaeological Site

PERIOD: Byzantine Period

CODE: CHA005

DESCRIPTION: Ample amount of glazed and non-glazed ceramic shards and cut stone blocks, which are dated to the Byzantine Period, were observed on the surface of the site. It is supposed that the site, which stretches alongside the slope, is a settlement from the Byzantine Period. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. It is strongly suggested that prior to the decision of the conservation board any physical intervention should be avoided and all activities should be conducted under the supervision of an archaeologist.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From the Site

Archaeological Findings

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Gedik Ali Paşa — **Date:** 27.02.2017
CITY: İstanbul — **Form No:** 186
PROVINCE: Silivri
VILLAGE: Kadıköy

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
614728	4557838	614598	4557753
614733	4557722	614543	4557928
614682	4557929	614524	4557820

SITE TYPE: Archaeological Site

PERIOD: Byzantine Period

CODE: CHA005

DESCRIPTION: Ample amount of glazed and non-glazed ceramic shards and cut stone blocks, which are dated to the Byzantine Period, were observed on the surface of the site. It is supposed that the site, which stretches alongside the slope, is a settlement from the Byzantine Period. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. It is strongly suggested that prior to the decision of the conservation board any physical intervention should be avoided and all activities should be conducted under the supervision of an archaeologist.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From the Site

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Kadıköy **Date:** 27.02.2017
CITY: İstanbul **Form No:** 187
PROVINCE: Silivri
VILLAGE: Kadıköy

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
613301 613207	4556953 4556805	613394 613289	4556900 4556755

SITE TYPE: Archaeological Site

PERIOD: Byzantine Period

CODE: CHA005

DESCRIPTION: The site is most probably a settlement from the Byzantine Period. Ample amount of ceramic and roof tile shards, terracotta plates, and grinding stone pieces were encountered on the surface of the site. In addition to that, cut stone blocks and architectural elements made of marble, which belonged to the buildings, were observed. It is suggested that any physical intervention should be avoided and all activities should be conducted under the supervision of an archaeologist.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From the Siteü

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Gazitepe **Date:** 27.02.2017
CITY: İstanbul **Form No:** 188
PROVINCE: Silivri
VILLAGE: Gazitepe

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
612342 612430	4556564 4556532	612316 612399	4556515 4556453

SITE TYPE: Archaeological Potantial Site

PERIOD: Byzantine Period

CODE: CHA005

DESCRIPTION: The site is located 2.5 kilometres north-east of Kadıköy Neighbourhood. Sporadically spread ceramic shards from the Byzantine Period were observed on the surface of the site. It is strongly suggested all activities should be conducted under the supervision of an archaeologist.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√			

General View From the Site

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Anastasian Walls
Date: 28.02.2017
CITY: İstanbul
Form No: 189
PROVINCE: Silivri
VILLAGE: Fenerköy

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing

The documentation still continues in order to understand the extent of the archaeological site.

SITE TYPE: Sur Duvarı

PERIOD: Byzantine Period

CODE: CHA005

DESCRIPTION: The Walls were commissioned by the Byzantine Emperor Anastasius I (491-518) in order to protect Istanbul (in antiquity, Constantinople) against the attacks from the Thrace. It is known that the Anastasian Wall, which is 56 km in length, started in the coast of Black Sea, passing through Fenerköy and Kurfalı Villages nearby Silivri District and reached to Marmara Sea. According to the decision no 2203-II of Istanbul Regional Board no: 1 for Conservation of Cultural Assets taken on January 12th 2017, it is required that the technical documentation regarding the site should be prepared immediately; and project activities should be implemented in accordance with the decision, which will be made by the conservation board, after the assessment of the concerning technical documentation. In addition to that, during the Conservation Boards decision making process, it is strongly suggested that any physical intervention to the site should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From the Site

General View From the Site

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Küçükkılıç Tumulus

Date: 28.02.2017

CITY: İstanbul

Form No: 190

PROVINCE: Silivri

VILLAGE: Küçük Kılıç

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
600049	4553149	600054	4553103
600033	4553139	600065	4553111
600024	4553121	600072	4553124
600033	4553104	600070	4553134

SITE TYPE: Archaeological Site

PERIOD: Roman Period

CODE: CHA005

DESCRIPTION: The structure is most probably a Thracian Tumulus. Illegal excavation trenches in various sizes were observed on its surface. Around the illegal excavation trench on the top, pieces of cut stone blocks were encountered. All information regarding the structure will be delivered to Istanbul Regional Board No: 1 for Conservation of Cultural Assets. It is suggested that prior to the decision of the conservation board any physical intervention should be avoided and all activities should be conducted under the supervision of an archaeologist.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

FIELD SURVEY FORM

General View From the Tumulus

Illegal Excavations on the Tumulus

Archaeological Findings

Annex 4 – Archeological Baseline Table

No.	GIS CODE	NAME OF THE SITE	Field Survey Data	Information from the Ministry	Registration Status		City	Province/Village/ Neighborhood	Approximate Distance (km)	LOCATION OF SITES IN WITHIN THE PROJECT AREA					SUGGESTIONS						TYPE OF THE ARCHAEOLOGICAL TRACES			DESCRIPTION OF THE SITE
					Registered	Unregistered				On the Main Axis	On the Access Road	Within Construction Corridor of the Motorway Route	Outside the Construction Corridor, Within the 400 m. Impact Corridor	Approximate Distance to the Construction Impact Area	Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed	Ceramic Shards	Architectural Remains	Other (Bone, Stone Tool, etc.)	
Section 6																								
1	CHA005	Osmanbey Potential Archaeological Site	x			x	Sakarya	Akyazı/Osmanbey	250+520-246+827	x		x		0			x				x		x	The site is located at the south of Osmanbey and Kızılcıkorman villages and between 250+520 and 246+827 kilometre points of the project route. It was observed that the surface finds spread to a wide area. Surface finds include glazed ceramic shards from the Late Ottoman Period and several metal nails. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
2	CHA005	Çayırlar Locality Archaeological Site	x			x	Sakarya	Adapazarı/Budaklar	238+720-239+127	x	x	x		0			x				x		x	The site is located 2 km east of Budaklar Village and between the 238+720 and 239+127 kilometre points of the project route. Various glazed and non-glazed ceramic shards and two glass bracelets from the Byzantine Period were discovered on the surface of the site. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any conservation or research decision regarding the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
3	CHA005	Budaklar Potential Archaeological Site	x			x	Sakarya	Adapazarı/Budaklar	236+747-236+850	x		x		0			x				x			The site is located between the 236+747 and 236+850 kilometre points of the project route. Some ceramic shards, which might be dated to the Late Ottoman Period, were observed on the site surface. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
4	CHA005	Çelebiler Potential Archaeological Site	x			x	Sakarya	Adapazarı/Çelebiler	232+970-233+550	x		x		0			x				x			The site is located within the boundaries of Çelebiler Village. Ceramic shards, which might be dated to the Late Ottoman Period, were observed on the site surface. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
5	CHA001	Kömürlük Modern Cemetery	x			x	Sakarya	Adapazarı/Kömürlük	232+000 access road km 1+500		x		x	1			x	x					x	The site is a family cemetery located within the boundaries of Kömürlük Village and belongs to "Türk" family. It is located between the point 232+000 of the project route and 1+500 kilometre point of the access road heading to Poyrazlar Village in the north. It is suggested that any physical intervention to the graves should be avoided and if physical intervention is required, the graves should be removed to another place in compliance with legal procedures and religious practices and archaeological monitoring should be conducted around the site throughout the construction activities.
6	CHA005	Kömürlük Potential Archaeological Site	x			x	Sakarya	Adapazarı/Kömürlük	232+000 access road km 0+250-1+150		x	x		0			x				x			The site is located within the boundaries of Kömürlük Village and on the access road starting at the 232+000 kilometre point of the project route and heading to Poyrazlar Village. Ceramic shards, which might be dated to the Ottoman Period, were observed on the site surface. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
7	CHA005	Besihane Potential Archaeological Site	x			x	Sakarya	Adapazarı/Çamyolu	229+000-239+450	x		x		0			x				x			The site is located 500 m southeast of Çamyolu Village and between 229+450 and 229+000 kilometre points of the project route. Sporadic ceramic shards, which are supposed to belong to the Late Ottoman Period, were encountered in the plains in the site. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
8	CHA005/004	Azizbey Hill	x			x	Sakarya	Adapazarı/Çamyolu	226+550-226+670	x			x	17			x	x			x	x		Some ceramic and roof tile shards and foundation remains of a rectangular building which may be dated to the Late Ottoman Period were encountered on the site surface. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any conservation or research decision regarding the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
9	CHA003	Süloğlu Bridge	x			x	Kocaeli	İzmit/Akmeşe	214+700	x			x	58			x	x				x		The Bridge is located 4 kilometres west of Akmeşe Atatürk neighbourhood and nearby the provincial borders of Kocaeli and Sakarya. Some part of the piers of the bridge is demolished and sunken in the creek. Remains of a wall belonging to the bridge were discovered in the northern bank of the creek. On the other hand, remains of a retaining wall, which was possibly built to decrease the magnitude of flooding, were discovered on the southern bank of the creek. There is a modern bridge approximately 2 m above the level of bridge. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any conservation or research decision regarding the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
10	CHA005	Deredağ Potential Archaeological Site	x			x	Kocaeli	İzmit/Akmeşe	213+750-213+950	x		x		0			x				x			The site is a potential archaeological site. It is located 4 km west of Akmeşe Atatürk neighbourhood. Some ceramic shards, which ma be dated to the Late Ottoman Period, were discovered on the surface of the site. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
11	CHA005	Adaparmak Ridge Potential Archaeological Site	x			x	Kocaeli	İzmit/Akmeşe	212+300-212+600	x	x		x	100			x				x			The site is located 2,5 kilometres south-east of Akmeşe Atatürk neighbourhood. Plenty of roof tile shards and small amount of ceramic shards dated to the Ottoman Period were observed on the surface of the site. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
12	CHA005	Kabaklı Locality Potential Archaeological Site	x			x	Kocaeli	İzmit/Akmeşe	211+950-212+150	x		x		0			x				x			The site is located 1 kilometre south-east of Akmeşe Atatürk neighbourhood. Plenty of roof tile shards and small amount of ceramic shards dated to the Ottoman Period were observed on the surface of the site. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
13	CHA005	KöprübaşıHill Potential Archaeological Site	x			x	Kocaeli	İzmit/Akmeşe	210+500-210+550	x		x		0			x				x			The site is located 1 kilometre south of Akmeşe Atatürk neighbourhood. Plenty of roof tile shards and small amount of ceramic shards dated to the Ottoman Period were observed on the surface of the site. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
14	CHA005	Mancarcı Locality Potential Archaeological Site	x			x	Kocaeli	İzmit/Mancarcı	199+560-199+780	x		x		0			x				x			The site is a potential archaeological site. It is located 1 km south-west of Mancarcı Neighbourhood and 1 km north-east of Bayraktar Neighbourhood. Plenty of ceramic and roof tile shards were discovered on the site surface. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
15	CHA005/ CHA006	Gedikli 1 Archaeological Site	x			x	Kocaeli	İzmit/Bayraktar	198+950-199+100	x		x		0			x				x			The site covers three different hills located 500 m north of Bayraktar Neighbourhood. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets. Kocaeli Regional Board for Conservation of Cultural Assets assessed this information in a meeting held on March 21st 2017. In accordance with the official decision no: 2887 of the conservation board, test and salvage excavations should be conducted in the site under the supervision of the Directorate of Kocaeli Museum. According to the results of the excavations, the conservation board will make the decision regarding the progress of the project in the site. It is suggested that the excavation works should be planned immediately and conducted with the support of NMH project and under the supervision of the Directorate of Kocaeli Museum.
16	CHA005	Gedikli 2 Archaeological Site	x			x	Kocaeli	İzmit/Bayraktar	198+600-198+810	x		x		0	x	x					x			The site covers three different hills located 500 m north of Bayraktar Neighbourhood. Plenty of roof tile and ceramic shards were encountered on the surface of the site. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets. Kocaeli Regional Board for Conservation of Cultural Assets assessed this information in a meeting held on March 21st 2017. In accordance with the official decision no: 2887 of the conservation board, test and salvage excavations should be conducted in the site under the supervision of the Directorate of Kocaeli Museum. According to the results of the excavations, the conservation board will make the decision regarding the progress of the project in the site. It is suggested that the excavation works should be planned immediately and conducted with the support of NMH project and under the supervision of the Directorate of Kocaeli Museum.
17	CHA005	Biberoğlu Archaeological Site	x			x	Kocaeli	İzmit/Bayraktar	197+970-198+060	x		x		0	x	x					x			The site is located 1,5 kilometre north-west of Bayraklı Neighbourhood. Plenty of archaeological ceramic bowl and roof tile shards were discovered on the surface of the site. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets. Kocaeli Regional Board for Conservation of Cultural Assets assessed this information in a meeting held on March 21st 2017. In accordance with the official decision no: 2887 of the conservation board, test and salvage excavations should be conducted in the site under the supervision of the Directorate of Kocaeli Museum. According to the results of the excavations, the conservation board will make the decision regarding the progress of the project in the site. It is suggested that the excavation works should be planned immediately and conducted with the support of NMH project and under the supervision of the Directorate of Kocaeli Museum.
18	CHA005	İğriköz Creek Archaeological Site	x			x	Kocaeli	İzmit/Bayraktar	197+560-197+640	x			x	2			x	x			x			The site is located 1,5 kilometre north-west of Bayraklı Neighbourhood. Plenty of archaeological ceramic bowl and roof tile shards were discovered on the surface of the site. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any decision regarding conservation or further research in the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
19	CHA005/ CHA006	Doruk Archaeological Site	x			x	Kocaeli	İzmit/Eseler	195+700-196+000	x			x	32			x	x			x		x	The site is located 200 metre north of Eseler Neighbourhood. Glazed ceramics and stone blocks, which might be grave caps, from the Late Ottoman and Byzantine Periods were discovered on the surface of the site. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any decision regarding conservation or further research in the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
20	CHA005	Kesimahlar Archaeological Site	x			x	Kocaeli	İzmit/Çayırköy	195+000 access road km 1+000		x	x		7			x	x			x	x	x	The site is located 1.5 kilometre east of Ataturk Neighbourhood, west of Kesimahlar Creek and nearby the 1st kilometre of the access road which is located nearby 195+000 kilometre point of the project route. Ample amount of archaeological ceramic and roof tile shards were discovered on the surface of the site. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any decision regarding conservation or further research in the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
21	CHA005/ CHA006	Solaklar Archaeological Site	x			x	Kocaeli	İzmit/Eseler	193+460-194+000	x		x		0	x	x					x		x	The site is located 500 metre southwest of Durhasan Village. Glazed and non-glazed ceramic shards and roof tile shards were observed on the surface of the site. In addition to that, some rubble stones belonging to buildings, human bones and iron droos pieces were encountered. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets. Kocaeli Regional Board for Conservation of Cultural Assets assessed this information in a meeting held on March 21st 2017. In accordance with the official decision no: 2887 of the conservation board, test and salvage excavations should be conducted in the site under the supervision of the Directorate of Kocaeli Museum. According to the results of the excavations, the conservation board will make the decision regarding the progress of the project in the site. It is suggested that the excavation works should be planned immediately and conducted with the support of NMH project and under the supervision of the Directorate of Kocaeli Museum.
22	CHA005	Çayırköy Archaeological Site	x			x	Kocaeli	İzmit/Çayırköy	192+300-192+500	x			x	25			x	x			x			The site is located 1.3 kilometre east of Çayırköy Neighbourhood. The archaeological materials intensely spread to a large area. Ample amount of terracotta water pipe and ceramic shards were encountered within the site. The ceramic shards also include glazed ceramic shards. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any decision regarding conservation or further research in the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
23	CHA005	Kocaeli KVKBKM Registered Site No:1		x	x		Kocaeli	İzmit/Çayırköy	192+000 on the access road		x		x	34			x	x			x	x	x	It is the registered water channel remains. In accordance with the decision no: 2802 of Kocaeli Regional Board for Conservation of Cultural Assets taken on January 24th 2017, the water channel remains should be removed outside the boundaries of expropriated land of the Highway project.
Section 5																								
24	CHA005	Toylar Archaeological Site	x			x	Kocaeli	Körfez/Toylar	174+150-174+370	x		x		0			x				x		x	The archaeological site is located 2 kilometres south-east of Toylar neighbourhood. Glazed and non-glazed ceramic and roof tile shards and cut stone blocks belonging to buildings, which are dated to the Byzantine Period, were encountered on the surface of the site. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any decision regarding conservation or further research in the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
25	CHA005	Sipahiler 1 Archaeological Site	x			x	Kocaeli	Körfez/Sipahiler	171+690-171+850	x		x		0	x	x					x	x		The site is located 800 metres north-east of Sıpahiler Neighbourhood and 800 metres south-east of Sıpahiler Pond. Ample amount of ceramic and roof tile shards were observed in the site. On the other hand, in the western part of the site, cut stone blocks, which are supposed to belong to an architectural arrangement were observed. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets. Kocaeli Regional Board for Conservation of Cultural Assets assessed this information in a meeting held on March 21st 2017. In accordance with the official decision no: 2887 of the conservation board, test and salvage excavations should be conducted in the site under the supervision of the Directorate of Kocaeli Museum. According to the results of the excavations, the conservation board will make the decision regarding the progress of the project in the site. It is suggested that the excavation works should be planned immediately and conducted with the support of NMH project and under the supervision of the Directorate of Kocaeli Museum.
26	CHA005	Sipahiler 2 Archaeological Site	x			x	Kocaeli	Körfez/Sipahiler	171+220-171+330	x		x		0	x	x					x	x	x	The site is located 800 metres north-east of Sıpahiler Neighbourhood and 800 metres south-east of Sıpahiler Pond. Ample amount of ceramic and roof tile shards were observed in the site. On the other hand, in the western part of the site, cut stone blocks, which are supposed to belong to an architectural arrangement were observed. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets. Kocaeli Regional Board for Conservation of Cultural Assets assessed this information in a meeting held on March 21st 2017. In accordance with the official decision no: 2887 of the conservation board, test and salvage excavations should be conducted in the site under the supervision of the Directorate of Kocaeli Museum. According to the results of the excavations, the conservation board will make the decision regarding the progress of the project in the site. It is suggested that the excavation works should be planned immediately and conducted with the support of NMH project and under the supervision of the Directorate of Kocaeli Museum.
27	CHA005	Kocadere Archaeological Site	x			x	Kocaeli	Körfez/Sipahiler	170+000-170+100	x			x	87			x	x			x	x		The archaeological site is located 1.2 kilometre north-west of Sıpahiler Neighbourhood. Plenty of ceramic and roof tile shards and drost pieces were encountered on the surface of the site. Among the ceramic shards, there are glazed ceramics dated to the Byzantine Period. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any decision regarding conservation or further research in the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
28	CHA005/ CHA006	Martılar Archaeological Site	x			x	Kocaeli	Körfez/Martılar	169+000 access road km 41+750+ 42+800		x	x		0			x				x	x	x	The site is in the vicinity of Martılar Village that is located 1 kilometre north-east of Karayakuplu Neighbourhood. Architectural material dated to the Roman Period that were also used as spolia were encountered in the vicinity of the village. It was noted that three temple formed sarcophagi were used as basins of the fountains in the village. In addition to that, 2 water cisterns were observed in the village. Moreover, pieces of column drums were encountered in the village. Because the surface was covered with snow during the field excursion, the project route could not be investigated thoroughly in this region. However, glazed ceramic shards were encountered within the project route corridor. Basing on these facts, it is safe to say that there are an ancient settlement and a Necropolis area in the locality. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any decision regarding conservation or further research in the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

29	CHA003	Yağcılar Historic Road Remains		x	x		Kocaeli	İzmit/Yağcılar Neighbourhood	161+800	x		x		0		x	x						x	The NMH project route orthogonally crosses the road. In compliance with the decision no: 2802 of Kocaeli Regional Board for Conservation of Cultural Assets taken on January 24th 2017, project proposals which ensure progressing of the highway project while providing continuity of the historic road for the area, where the Archaeological Site crosses with the project route, should be prepared and submitted to the conservation board through official channels, and then included in the boards agenda and discussed.
Section 4																								
30	CHA005	Demirciler Archaeological Site	x			x	Kocaeli	Dilovası/Demirciler	150+000 Access Road KM 1+200		x		x	75			x	x			x	x		The archaeological site is located approximately 1.5 kilometre west of Demirciler Neighbourhood. Some ceramic shards and few amount of roof tile shards belonging to the Ottoman Period were observed on the surface of the site. Moreover, an illegal excavation pit dug by hoarders was noted in the north-western part of the site. Some architectural cut stone blocks were encountered nearby this excavation pit. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any decision regarding conservation or further research in the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
31	CHA006	Uluyan 1 Archaeological Site	x			x	Kocaeli	Gebze/Denizli	149+950-150+000		x		x	60			x	x					x	The site is located approximately 1 kilometre north-east of Denizli Neighbourhood. Due to its form, the site is considered to be a tumulus. Sporadic ceramic shards were encountered on the hill, upon which there is an illegal excavation pit. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any decision regarding conservation or further research in the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
32	CHA005	Uluyan 2 Archaeological Site	x			x	Kocaeli	Gebze/Denizli	149+700-149+850		x	x		0			x				x	x		The site is located approximately 1 kilometre north-east of Denizli Neighbourhood. In addition to the ample amount of ceramic and roof tile shards, remains of foundation walls were observed on the surface of the site. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any decision regarding conservation or further research in the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
33	CHA005	Karapınar (Molla Fenari) Archaeological Site	x			x	Kocaeli	Gebze/Molla Fenari	147+550- 147+900	x		x		0	x	x					x	x	x	The site is located approximately 800 metres north of Molla Fenari Neighbourhood. In addition to ceramic and roof tile shards, traces of a road and remains of foundation walls were observed on the surface of the site. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets. Kocaeli Regional Board for Conservation of Cultural Assets assessed this information in a meeting held on March 21st 2017. In accordance with the official decision no: 2887 of the conservation board, test and salvage excavations should be conducted in the site under the supervision of the Directorate of Kocaeli Museum. According to the results of the excavations, the conservation board will make the decision regarding the progress of the project in the site. It is suggested that the excavation works should be planned immediately and conducted with the support of NMH project and under the supervision of the Directorate of Kocaeli Museum.
34	CHA001/ CHA002	Cumaköy Cemetery	x			x	Kocaeli	Gebze/Cumaköy	145+750	x			x	1			x	x					x	The site is located approximately 1.5 kilometre north-east of Cumaköy Neighbourhood. In addition to modern graves, there are graves from the Ottoman Period in the cemetery. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any decision regarding conservation or further research in the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
35	CHA006	Kuzgunçay Tumulus	x			x	Kocaeli	Gebze/Cumaköy	144+100	x			x	22			x	x					x	The site is located approximately 1.5 kilometre north of Denizli Neighbourhood. Due to its form, the site is considered to be a tumulus. Sporadic ceramic shards were encountered on the hill, upon which there is an illegal excavation pit. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any decision regarding conservation or further research in the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
36	CHA005	Akfırat III Archaeological Site	x			x	İstanbul	Tuzla/Akfırat	138+900-139+180	x		x		0		x	x	x			x			The site is located in the east of Akfırat Neighbourhood. The northern and southern slopes of the site are surrounded by small creeks. Ceramic and roof tile shards dated to the Medieval Period were observed on the surface of the site. In addition to that, some stones, which were most possibly used in the building construction, were discovered on the southern slope of the site. The works should be continued in accordance with the official decision, which will be made by Istanbul 5th Board for Conservation of Cultural Assets, regarding the site. It is suggested that, any physical intervention to the site should be avoided and all activities around the site should be conducted under the supervision of an archaeologist.
37	CHA005	Akfırat I Archaeological Site	x			x	İstanbul	Tuzla/Akfırat	135+500-135+900	x			x	5			x	x			x	x		The site is located in the west of Akfırat Neighbourhood. Ceramic shards and mineral drost pieces dated to the Medieval or Ottoman Period were observed on its surface. It is strongly suggested that archaeological monitoring should be conducted during all construction activities in the site and its close vicinity and any physical intervention should be avoided.
38	CHA005	Akfırat II Archaeological Site	x			x	İstanbul	Tuzla/Akfırat	135+190-135+450	x		x		0		x	x	x			x	x		The site is located in the west of Akfırat Neighbourhood. Ample amount of ceramic shards and mineral drost pieces dated to the Medieval or Ottoman Period were observed on its surface. There is a water source, which is still in use, in its north-eastern part. The activities should be conducted in accordance with the official decision, which will be made by Istanbul 5th Board for Conservation of Cultural Assets. It is strongly suggested that prior to the decision of the conservation board any physical intervention should be avoided and all activities should be conducted under the supervision of an archaeologist.
39	CHA005	Tepeören Potential Archaeological Site	x			x	İstanbul	Tuzla/Tepeören	134+390-134+480	x	x	x		0			x				x			The site is located within the boundaries of Tepeören Neighbourhood, Tuzla District. Ceramic shards, which are most possibly dated to the Medieval Period, were observed on its surface. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
Section 7																								
40	CHA003	Kırkçeşme Water Tunnel Line		x	x		İstanbul	Sultangazi/Gazi	68+900-69+400	x		x		0		x	x	x				x		The water tunnel line is registered by Istanbul Board for Conservation of Cultural Assets no: 1. When the Geographical Information Systems data about the water tunnel, which was retrieved from the Ministry of Culture, is regarded, it can be deduced that the water tunnel line crosses with the project route in the north-south direction between 68+900 and 69+400 kilometre points. It is required that any physical intervention around the section where the water tunnel line crosses with the project route must be avoided; the activities should be undertaken in accordance with the decisions of the conservation board (date January 12th 2017, no: 2203) under the supervision of concerning museum directorate; current state maps of identified areas should be drawn; 3D modelling works should be conducted; and related documentation should be prepared and submitted to the Conservation Board through official channels. It is strongly advised that after completion of these activities, the project should be implemented in compliance with the official decision, which will be made by the Conservation Board. It is also suggested that archaeological monitoring should be conducted during all construction activities in the site and its close
41	CHA005	Roman Aqueducts B		x	x		İstanbul	Sultangazi/Gazi	68+700-68+800	x		x		0		x	x	x					x	The water tunnel line is registered by Istanbul Board for Conservation of Cultural Assets no: 1. When the Geographical Information Systems data about the water tunnel, which was retrieved from the Ministry of Culture, is regarded, it can be deduced that the water tunnel line crosses with the project route in the north-south direction between 68+500 and 69+500 kilometre points. It is required that any physical intervention around the section where the water tunnel line crosses with the project route must be avoided; the activities should be undertaken in accordance with the decisions of the conservation board (date January 12th 2017, no: 2203) under the supervision of concerning museum directorate; current state maps of identified areas should be drawn; 3D modelling works should be conducted; and related documentation should be prepared and submitted to the Conservation Board through official channels. It is strongly advised that after completion of these activities, the project should be implemented in compliance with the official decision, which will be made by the Conservation Board. It is also suggested that archaeological monitoring should be conducted during all construction activities in the site and its close
Section 2																								
42	CHA003	Terkos Kağıthane Water Transmission Line		x	x		İstanbul	Arnavutköy	57+600-58+850	x		x		0		x	x	x						The water transmission line isregistered by Istanbul Board for Conservation of Cultural Assets no: 1. When the Geographical Information Systems data, which was retrieved from the Ministry of Culture, is regarded, it can be deduced that the water transmission line crosses with the project route in the northwest-southeast direction between 54+500 and 56+500 kilometre points. It is required that any physical intervention around the section where the water tunnel line crosses with the project route must be avoided; the activities should be undertaken in accordance with the decisions of the conservation board (date January 12th 2017, no: 2203) under the supervision of concerning museum directorate; current state maps of identified areas should be drawn; 3D modelling works should be conducted; and related documentation should be prepared and submitted to the Conservation Board through official channels. It is strongly advised that after completion of these activities, the project should be implemented in compliance with the official decision, which will be made by the Conservation Board. It is also suggested that archaeological monitoring should be conducted during all construction activities in the site
43	CHA001	İhsaniye Cemetery	x			x	İstanbul	Çatalca/ihsaniye	59+900	x		x		0		x	x	x					x	The cemetery is located approximately 500 m south of İhsaniye Neighbourhood, nearby 59+900 kilometre point of the project route. However, the Cemetery is located under the planned a viaduct. In addition to modern graves, there are graves dated to the Ottoman Period in the cemetery. It is suggested that any physical intervention to the graves should be avoided and if physical intervention is required, the graves should be removed to another place in accordance with the legal procedures and religious practices. It is also suggested that archaeological monitoring should be implemented in the site during the construction activities
44	CHA005	Roman Aqueducts A		x	x		İstanbul	Arnavutköy/Tayakadın	51+300-51+900	x		x		0		x	x	x						The aqueducts are registered by Istanbul Board for Conservation of Cultural Assets no: 1. When the Geographical Information Systems data about the water tunnel, which was retrieved from the Ministry of Culture, is regarded, it can be deduced that the aqueducts are located between 51+300 and 51+900 kilometre points of the project route. It is required that any physical intervention around the section where the water tunnel line crosses with the project route must be avoided; the activities should be undertaken in accordance with the decisions of the conservation board (date January 12th 2017, no: 2203) under the supervision of concerning museum directorate; current state maps of identified areas should be drawn; 3D modelling works should be conducted; and related documentation should be prepared and submitted to the Conservation Board through official channels. It is strongly advised that after completion of these activities, the project should be implemented in compliance with the official decision, which will be made by the Conservation Board. It is also suggested that archaeological monitoring should be conducted during all construction activities in the site and its close vicinity.
45	CHA005	Tayakadın Archaeological Site	x			x	İstanbul	Arnavutköy/Tayakadın	48+800 access road		x	x		0		x	x	x			x			Ample amount of ceramic and roof tile shards were encountered in Tayakadın Archaeological Site, which is located in Tayakadın junction (nearby 48+800 access road). Amon the ceramic shards, there are those, which are glazed and reliefed. It is required that the activities should be carried on in accordance with the official decision, which will be taken by İstanbul Regional Board No: 1 for Conservation of Cultural Assets. It is suggested that any physical intervention to the site should be avoided prior to the decision of the Conservation Board and all activities in the site should be implemented under the supervision of an archaeologist
46	CHA005	Baklalı I Archaeological Site	x			x	İstanbul	Arnavutköy/Baklalı	47+850 access road Southern Part		x		x	99			x	x			x	x	x	The site is located in the southern part of the access road at 47+850 kilometres of the project route. Ample amount of glazed ceramic shards, limestone blocks that were supposed to belong to buildings and human bones, which are dated to the Byzantine Period, were observed on its surface. It is strongly suggested that archaeological monitoring should be conducted during all construction activities in the site and its close vicinity and any physical intervention should be avoided
47	CHA005	Baklalı II Archaeological Site	x			x	İstanbul	Arnavutköy/Baklalı	47+850 access road Northern Part		x		x	29			x	x			x	x	x	The site is located in the northern part of the access road at the 47+850 kilometre point of the project route. Ample amount of glazed ceramic and roof tile shards were encountered on the surface of the site. In addition to that, better preserved roof tiles, pithoi shards and cut lime stone blocks were observed in the eastern part of the site. There are two fountains in the north-eastern part of the site. All information about the site will be delivered to Istanbul Regional Board for Conservation of Cultural Assets No: 1. For this reason, the project activities should be implemented in accordance with the decisions, which will be taken by the Conservation Board regarding the site. It is suggested that archaeological monitoring should be conducted during all construction activities in the site and its close vicinity and any physical intervention should be avoided.
48	CHA005	Yassıören Potential Archaeological Site	x			x	İstanbul	Arnavutköy/Yassıören	43+100-43+350	x			x	177			x				x			The site is located 2 kilometre south-east of Yassıören Neighbourhood. Ceramic and roof tile shards were observed on its surface. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
Section 1																								
49	CHA003	Çakmak Line Historic Military Entrenchments		x	x		İstanbul	Arnavutköy/Yasıören, Nakkaş	42+800-32+500	x		x	x	0		x	x	x				x		The historic defence line (redoubts and Military Bunkers) was constructed during the World War II. It is registered by Istanbul Board for Conservation of Cultural Assets no: 1. The geographical information regarding the historic defence line, which is composed of the data collected by REGİO during the field surveys and the data retrieved from the related conservation board, was evaluated together. According to the studies, it was revealed out that there are 127 different Bunkers, redoubts and fortification structures located within the project impact corridor. Within the scope of this report, detailed information about the elements of this defence system are given below. All data regarding the sites will also be delivered to Istanbul Regional Board No: 1 for Conservation of Cultural Properties. In accordance with the decision no: 2203 of Istanbul Regional Board No: 1 for Conservation of Cultural Properties taken on January 12th 2017 regarding the historic defence line, it is required that any physical intervention around the section where the it crosses with the project route must be avoided; approved current state maps of identified areas should be drawn; 3D modelling works should be conducted; and related
50	CHA005	Yassıören II Potential Archaeological Site	x			x	İstanbul	Arnavutköy/Yassıören	42+350-42+440	x		x		0			x				x	x		The site is located 1.9 kilometre south-east of Yassıören Neighbourhood. Large lime stone blocks, which might belong to architectural elements and ceramic and roof tile shards, which are most possibly dated to the Byzantine Period, were observed on the surface of the site. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
51	CHA003	Military Bunker 1	x			x	İstanbul	Arnavutköy/Yassıören	40+500	x			x	1			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 5x5m. It was built with concrete frame and stone masonry. The stone walls are demolished. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
52	CHA003	Military Bunker 2	x			x	İstanbul	Arnavutköy/Yassıören	40+500	x			x	76			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 5x5m. It was built with concrete frame and stone masonry. The stone walls are demolished. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
53	CHA003	Military Bunker 3	x			x	İstanbul	Arnavutköy/Yassıören	40+400	x			x	134			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 5x5m. It was built with concrete frame and stone masonry. The stone walls are demolished. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
54	CHA003	Military Bunker 4	x			x	İstanbul	Arnavutköy/Yassıören	40+400	x			x	191			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 5x5m. It was built with concrete frame and stone masonry. The stone walls are demolished. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
55	CHA003	Military Bunker 5	x			x	İstanbul	Arnavutköy/Yassıören	40+171				x	193			x	x		x		x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Bunker was built with concrete frame and stone masonry. It has one entrance and a window. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
56	CHA003	Military Bunker 6	x			x	İstanbul	Arnavutköy/Yassıören	40+171	x			x	134			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Bunker was built with concrete frame and stone masonry. It has one entrance and a window. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
57	CHA003	Military Bunker 7	x			x	İstanbul	Arnavutköy/Yassıören	40+171	x			x	99			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Bunker was built with concrete frame and stone masonry. It has one entrance and a window. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
58	CHA003	Military Bunker 8	x			x	İstanbul	Arnavutköy/Yassıören	40+171	x			x	11			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Bunker was built with concrete frame and stone masonry. It has one entrance and a window. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

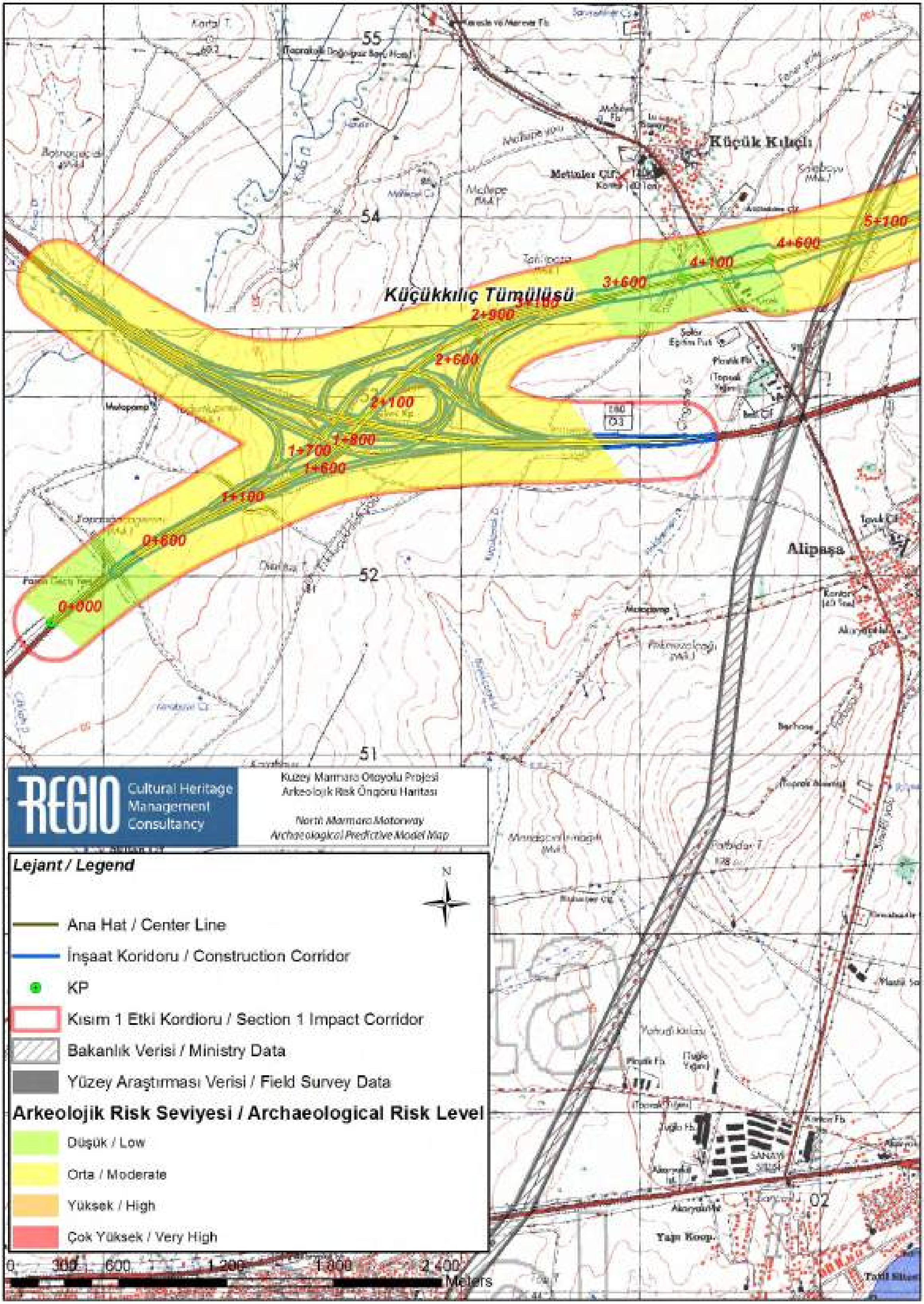
59	CHA003	Nakkaş Military Shooting Range	x			x	İstanbul	Arnavutköy/Yassıören	39+825-40+116	x		x		0		x	x	x				x		It is a Military Shooting Range, which is thought to be a part of the Çakmak Line. It is approximately in the sizes of 240x70 metre. There is a stairway and a stone wall attached to this stairway in the upper part of the shooting range. It is suggested that the decisions that will be made or have been made by the Conservation Board should be followed. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
60	CHA003	Military Bunker 9	x			x	İstanbul	Arnavutköy/Yassıören	39+863	x		x		0		x	x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
61	CHA003	Military Bunker 10	x			x	İstanbul	Arnavutköy/Yassıören	39+873	x		x		0		x	x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
62	CHA003	Military Bunker 11	x			x	İstanbul	Arnavutköy/Yassıören	39+850	x			x	52			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker is currently demolished. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
63	CHA003	Military Bunker 12	x			x	İstanbul	Arnavutköy/Yassıören	39+781	x		x		0		x	x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 25 square meters and polygonal shaped. The frame of the Military Bunker is entirely built with concrete. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
64	CHA003	Military Bunker 13	x			x	İstanbul	Arnavutköy/Yassıören	39+726	x		x		0		x	x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
65	CHA003	Military Bunker 14	x			x	İstanbul	Arnavutköy/Yassıören	39+720	x		x		0		x	x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
66	CHA003	Military Bunker 15	x			x	İstanbul	Arnavutköy/Yassıören	39+750	x			x	4			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
67	CHA003	Military Bunker 16	x			x	İstanbul	Arnavutköy/Yassıören	39+740	x			x	24			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
68	CHA003	Military Bunker 17	x			x	İstanbul	Arnavutköy/Yassıören	39+660	x			x	72			x	x				x		It is a Military Bunker belonging to the Çakmak Line. Different from other Bunkers, the Military Bunker is in triangular shape and has larger window openings. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the site should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
69	CHA003	Military Bunker 18	x			x	İstanbul	Arnavutköy/Yassıören	39+660	x			x	114			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
70	CHA003	Military Bunker 19	x			x	İstanbul	Arnavutköy/Yassıören	39+660	x			x	122			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
71	CHA005	Nakkaş Potential Archaeological Site	x			x	İstanbul	Arnavutköy/Nakkaş	39+500-39+600	x		x		0			x				x			Sporadic ceramic and roof tile shards, which are dated to the Byzantine Period, were observed on the surface of the site. These archaeological materials might be transported here from another site via soil erosion etc. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
72	CHA005	Nakkaş II Archaeological Site	x			x	İstanbul	Arnavutköy/Nakkaş	38+150-38+330	x			x	50			x	x			x			The archaeological site is located 1.7 kilometre north-east of Baklalı Neighbourhood. ceramic and roof tile shards, which are dated to the Byzantine Period, were observed on the top of the site. It is suggested that any physical intervention to the site should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
73	CHA003	Military Bunker 20	x			x	İstanbul	Arnavutköy/Nakkaş	38+000	x			x	179			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
74	CHA005	Nakkaş III Archaeological Site	x			x	İstanbul	Arnavutköy/Nakkaş	37+780-37+900	x			x	176			x	x			x			The archaeological site is located 1.5 kilometre north-east of Baklalı Neighbourhood. Ceramic and roof tile shards and some lime stone blocks, which are dated to the Byzantine Period, were observed on the surface of the site. It is suggested that any physical intervention to the site should be avoided during the construction activities and archaeological monitoring should be conducted in this location throughout the construction activities.
75	CHA003	Military Bunker 34	x			x	İstanbul	Arnavutköy/Nakkaş	37+850	x			x	8			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
76	CHA003	Military Bunker 35	x			x	İstanbul	Arnavutköy/Nakkaş	37+700	x		x		0		x	x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
77	CHA003	Military Bunker 21	x			x	İstanbul	Arnavutköy/Nakkaş	37+400	x			x	260			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
78	CHA005	Örenbayır Archaeological Site	x			x	İstanbul	Arnavutköy/Nakkaş	36+980-37+360	x		x		0		x	x	x			x	x	x	The archaeological site is located 1 kilometre east of Nakkaş Neighbourhood. Ceramic, roof tile, terracotta water pipe and glass bracelet shards and some architectural cut lime stone blocks, which may be dated to the Byzantine Period, were observed on the surface of the site. All information about the site will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
79	CHA003	Military Bunker 33	x			x	İstanbul	Arnavutköy/Nakkaş	37+250	x			x	112			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
80	CHA003	Military Bunker 32	x			x	İstanbul	Arnavutköy/Nakkaş	37+250	x			x	114			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
81	CHA003	Military Bunker 31	x			x	İstanbul	Arnavutköy/Nakkaş	37+250	x			x	77			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
82	CHA003	Military Bunker 30	x			x	İstanbul	Arnavutköy/Nakkaş	37+250	x			x	75			x	x				x		It is a Military Bunker that belongs to the Çakmak Line. Its sizes are approximately 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
83	CHA003	Military Bunker 22	x			x	İstanbul	Arnavutköy/Nakkaş	36+900	x			x	124			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 4x3m. The Military Bunker is "L" shaped. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
84	CHA003	Military Bunker 29	x			x	İstanbul	Arnavutköy/Nakkaş	37+000	x			x	115			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
85	CHA003	Military Bunker 28	x			x	İstanbul	Arnavutköy/Nakkaş	36+900	x			x	91			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
86	CHA003	Military Bunker 27	x			x	İstanbul	Arnavutköy/Nakkaş	36+850	x			x	10			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
87	CHA003	Military Bunker 26	x			x	İstanbul	Arnavutköy/Nakkaş	36+800	x		x		0		x	x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
88	CHA003	Military Bunker 23	x			x	İstanbul	Arnavutköy/Nakkaş	36+700	x			x	40			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
89	CHA003	Military Bunker 24	x			x	İstanbul	Arnavutköy/Nakkaş	36+700	x			x	49			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
90	CHA003	Military Bunker 25	x			x	İstanbul	Arnavutköy/Nakkaş	36+700	x			x	58			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
91	CHA003	Military Bunker 38	x			x	İstanbul	Arnavutköy/Nakkaş	36+700	x			x	92			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
92	CHA003	Military Bunker 39	x			x	İstanbul	Arnavutköy/Nakkaş	36+701	x			x	103			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
93	CHA003	Military Bunker 40	x			x	İstanbul	Arnavutköy/Nakkaş	36+702	x			x	108			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
94	CHA003	Military Bunker 41	x			x	İstanbul	Arnavutköy/Nakkaş	36+703	x			x	131			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
95	CHA003	Military Bunker 45	x			x	İstanbul	Arnavutköy/Nakkaş	36+300	x			x	118			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
96	CHA003	Military Bunker 44	x			x	İstanbul	Arnavutköy/Nakkaş	36+270	x			x	87			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

97	CHA003	Military Bunker 43	x			x	İstanbul	Arnavutköy/Nakkaş	36+240	x			x	55			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
98	CHA003	Military Bunker 42	x			x	İstanbul	Arnavutköy/Nakkaş	36+230	x			x	30			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. The gaps of the frame are built with stone masonry. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
99	CHA003	Military Bunker 46	x			x	İstanbul	Arnavutköy/Nakkaş	35+700 access road		x	x		0		x	x	x				x		It is a Military Bunker belonging to the Çakmak Line. Interior dimensions of the Bunker areapproximately 7x7m. There are configurations, which allow installing of canons and machine guns inside the building. In addition to that, air ventilation channels can be observed inside the two-storied Bunker. The ground floor of the building was most possibly an ammunition storage and it is linked to the upstairs via elevators working with pulley system. Interior and exterior doors of the building are made of iron. There are still "Shooting Plans", which were prepared to provide orientation for the soldiers using the cannons and machine guns, in the upstairs. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
100	CHA003	Historic Bridge on Yeşilbayır – Nakkaş Road	x			x	İstanbul	Arnavutköy/Nakkaş	35+701				x	147			x	x				x		This well preserved, historic, arched bridge is located 1 kilometre south of Nakkaş Neighbourhood,within the construction impact area. The bridge, which was constructed in the Roman Period is stone masonry. Its length is around 14,5 m and width is 4,61 m. The arches of the bridge are in the form of single-centred semicircles. It is a part of the historic road network, named "Via Egnatia", which was most possibly constructed by Emperor Constantine in the first half of the 4th century CE and connected İstanbul (ancient Constantinople) with Europe. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
101	CHA003	Military Bunker 47	x			x	İstanbul	Arnavutköy/Nakkaş	35+350	x	x	x		0		x	x	x				x		It is a Military Bunker belonging to the Çakmak Line. Interior dimensions of the Bunker areapproximately 7x7m. There are configurations, which allow installing of canons and machine guns inside the building. In addition to that, air ventilation channels can be observed inside the two-storied Bunker. The ground floor of the building was most possibly an ammunition storage and it is linked to the upstairs via elevators working with pulley system. Interior and exterior doors of the building are made of iron. There are still "Shooting Plans", which were prepared to provide orientation for the soldiers using the cannons and machine guns, in the upstairs. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
102	CHA003	Military Bunker 48	x			x	İstanbul	Arnavutköy/Nakkaş	35+162	x		x		0		x	x	x				x		It is a Military Bunker, which belongs to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
103	CHA003	Military Bunker 49	x			x	İstanbul	Arnavutköy/Nakkaş	35+120	x		x		0		x	x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
104	CHA003	Military Bunker 50	x			x	İstanbul	Arnavutköy/Nakkaş	35+121	x		x		0		x	x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and its gaps were filled with stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
105	CHA003	Military Bunker 51	x			x	İstanbul	Arnavutköy/Nakkaş	35+095	x		x		0		x	x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
106	CHA003	Military Bunker 52	x			x	İstanbul	Arnavutköy/Nakkaş	35+036	x		x		0		x	x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
107	CHA003	Military Bunker 53	x			x	İstanbul	Arnavutköy/Nakkaş	35+010	x		x		0		x	x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
108	CHA003	Military Bunker 54	x			x	İstanbul	Arnavutköy/Nakkaş	35+050	x			x	20			x	x						It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
109	CHA003	Military Bunker 55	x			x	İstanbul	Arnavutköy/Nakkaş	35+050	x			x	54			x	x						It is a Military Bunker, which belongs to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
110	CHA005	Yeşilbayır Archaeological Site	x			x	İstanbul	Arnavutköy/Nakkaş	34+600 On the Access Road		x		x	1			x	x			x	x		The site is located 2 km south of Nakkaş Neighbourhood. Ample amount of ceramic and roof tile shards and architectural cut lime stone blocks, which may be dated to the Ottoman Period, were observed on the surface of the site. It was revealed out that the site stretches through the slopes and most possibly belonged to the Ottoman Period. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
111	CHA003	Military Bunker 62	x			x	İstanbul	Arnavutköy/Nakkaş	34+600 On the Access Road		x	x		0		x	x	x				x		It is a Military Bunker, which belongs to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The Military Bunker was built with concrete frame and the gaps of the frame were filled with stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
112	CHA003	Military Bunker 61	x			x	İstanbul	Arnavutköy/Nakkaş	34+600 On the Access Road		x	x		0		x	x	x				x		It is a Military Bunker that belongs to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
113	CHA003	Military Bunker 60	x			x	İstanbul	Arnavutköy/Nakkaş	34+600 On the Access Road		x		x	3			x	x				x		It is a Military Bunker belonging to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
114	CHA003	Military Bunker 59	x			x	İstanbul	Arnavutköy/Nakkaş	34+600 On the Access Road		x		x	24			x	x				x		It is a Military Bunker, which is a part of the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
115	CHA003	Military Bunker 58	x			x	İstanbul	Arnavutköy/Nakkaş	34+600 On the Access Road		x		x	50			x	x				x		It is a Military Bunker belonging to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
116	CHA003	Military Bunker 57	x			x	İstanbul	Arnavutköy/Nakkaş	34+600 On the Access Road		x		x	141			x	x				x		It is a Military Bunker that belongs to the Çakmak Line. The Military Bunker is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
117	CHA003	Savaşçı Fountain	x			x	İstanbul	Arnavutköy/Nakkaş	34+600 On the Access Road		x	x		0		x	x	x				x		The historic fountain is located 2 kilometres south-west of Nakkaş Neighbourhood. The fountain was built on a water spring and bears the construction date and the name of the commissioner. Accordingly, the fountain was built by Zeki Sidal in 1942. In addition to these inscriptions, the fountain also bears the inscription of "Warrior's Fountain". The fountain is constructed with concrete rubble stones. All information about the fountain will be delivered to Istanbul Regional Board no 1 for Conservation of Cultural Assets. Therefore, the project activities around the fountain should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
118	CHA003	Military Bunker 63	x			x	İstanbul	Arnavutköy/Nakkaş	34+410	x		x		0		x	x	x						It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
119	CHA003	Military Bunker 64	x			x	İstanbul	Arnavutköy/Nakkaş	34+230	x		x		0		x	x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
120	CHA003	Military Bunker 74	x			x	İstanbul	Arnavutköy/Nakkaş	34+210	x		x		0		x	x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
121	CHA003	Military Bunker 65	x			x	İstanbul	Arnavutköy/Nakkaş	34+237	x			x	31			x	x				x		It is a Military Bunker belonging to the Çakmak Line. Tjhe Military Bunker is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
122	CHA003	Military Bunker 66	x			x	İstanbul	Arnavutköy/Nakkaş	34+230	x			x	21			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
123	CHA003	Military Bunker 68	x			x	İstanbul	Arnavutköy/Nakkaş	34+198	x		x		0		x	x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
124	CHA003	Military Bunker 71	x			x	İstanbul	Arnavutköy/Nakkaş	34+194	x		x		0		x	x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
125	CHA003	Military Bunker 76	x			x	İstanbul	Arnavutköy/Nakkaş	34+170	x		x		0		x	x	x				x		It is a Military Bunker, which is belonging to the Çakmak Line. The Military Bunker is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
126	CHA003	Military Bunker 77	x			x	İstanbul	Arnavutköy/Nakkaş	34+195	x		x		0		x	x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
127	CHA003	Military Bunker 75	x			x	İstanbul	Arnavutköy/Nakkaş	34+160	x		x		0		x	x	x				x		It is a Military Bunker belonging to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
128	CHA003	Military Bunker 67	x			x	İstanbul	Arnavutköy/Nakkaş	34+195	x			x	105			x	x				x		The structure is a Military Bunker, which belongs to the Çakmak Line. The Military Bunker is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
129	CHA003	Military Bunker 91	x			x	İstanbul	Arnavutköy/Nakkaş	34+195	x			x	172			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 5x5m. The Bunker is in triangular shape. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
130	CHA003	Military Bunker 69	x			x	İstanbul	Arnavutköy/Nakkaş	34+120	x			x	100			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
131	CHA003	Military Bunker 70	x			x	İstanbul	Arnavutköy/Nakkaş	34+115	x			x	105			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

132	CHA003	Military Bunker 78	x			x	İstanbul	Arnavutköy/Nakkaş	34+072	x			x	3			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
133	CHA003	Military Bunker 79	x			x	İstanbul	Arnavutköy/Nakkaş	34+108	x			x	53			x	x				x		It is a Military Bunker belonging to the Çakmak Line. The Military Bunker is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
134	CHA003	Military Bunker 72	x			x	İstanbul	Arnavutköy/Nakkaş	34+073	x			x	68			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
135	CHA003	Military Bunker 73	x			x	İstanbul	Arnavutköy/Nakkaş	34+040	x			x	43			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
136	CHA003	Vaulted Structure	x			x	İstanbul	Arnavutköy/Nakkaş	33+950-34+000	x		x		0		x	x	x				x		The structure is located 2 kilometres south-west of Nakkaş Neighbourhood. It is placed at the 34+000 kilometre point of the project route, within the boundaries of the construction area. The structure appears as a little hill, covered with soil, in the plain land. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
137	CHA003	Military Bunker 80	x			x	İstanbul	Arnavutköy/Nakkaş	34+000	x			x	20			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
138	CHA003	Military Bunker 81	x			x	İstanbul	Arnavutköy/Nakkaş	34+000	x			x	45			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
139	CHA003	Military Bunker 83	x			x	İstanbul	Arnavutköy/Nakkaş	34+000	x			x	90			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
140	CHA003	Military Bunker 90	x			x	İstanbul	Arnavutköy/Nakkaş	34+000	x			x	140			x	x				x		It is a Military Bunker belonging to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
141	CHA003	Military Bunker 82	x			x	İstanbul	Arnavutköy/Nakkaş	33+986	x			x	90			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
142	CHA003	Military Bunker 92	x			x	İstanbul	Arnavutköy/Nakkaş	33+960	x			x	148			x	x				x		It is a Military Bunker, which belongs to the Çakmak Line.The sizes of of the Military Bunker are approximately 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
143	CHA003	Military Bunker 93	x			x	İstanbul	Arnavutköy/Nakkaş	33+941	x			x	136			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
144	CHA003	Military Bunker 94	x			x	İstanbul	Arnavutköy/Nakkaş	33+930	x			x	172			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
145	CHA003	Military Bunker 88	x			x	İstanbul	Arnavutköy/Nakkaş	33+894	x		x		0		x	x	x				x		It is a Military Bunker belonging to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
146	CHA003	Military Bunker 89	x			x	İstanbul	Arnavutköy/Nakkaş	33+930	x			x	90			x	x				x		It is a Military Bunker that belongs to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
147	CHA003	Military Bunker 84	x			x	İstanbul	Arnavutköy/Nakkaş	33+890	x		x		0		x	x	x				x		It is a Military Bunker, which is a part of the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
148	CHA003	Military Bunker 85	x			x	İstanbul	Arnavutköy/Nakkaş	33+890	x		x		0		x	x	x				x		It is a Military Bunker that belongs to the Çakmak Line. It is approximately in the size of 5x5m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
149	CHA003	Military Bunker 86	x			x	İstanbul	Arnavutköy/Nakkaş	33+880	x		x		0		x	x	x				x		It is a Military Bunker belonging to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
150	CHA003	Military Bunker 87	x			x	İstanbul	Arnavutköy/Nakkaş	33+900	x			x	11			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
151	CHA003	Military Bunker 95	x			x	İstanbul	Arnavutköy/Nakkaş	33+890	x			x	165			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
152	CHA003	Military Bunker 96	x			x	İstanbul	Arnavutköy/Nakkaş	33+880	x			x	141			x	x				x		It is a Military Bunker that is a part of the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m.. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
153	CHA003	Military Bunker 102	x			x	İstanbul	Arnavutköy/Nakkaş	33+875	x			x	181			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
154	CHA003	Military Bunker 100	x			x	İstanbul	Arnavutköy/Nakkaş	33+830	x		x		0		x	x	x				x		It is a Military Bunker, which belongs to the Çakmak Line. It is in the "T" form. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
155	CHA003	Military Bunker 101	x			x	İstanbul	Arnavutköy/Nakkaş	33+856	x			x	15			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
156	CHA003	Military Bunker 99	x			x	İstanbul	Arnavutköy/Nakkaş	33+844	x			x	4			x	x				x		It is a Military Bunker belonging to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
157	CHA003	Military Bunker 97	x			x	İstanbul	Arnavutköy/Nakkaş	33+830	x			x	127			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
158	CHA003	Military Bunker 98	x			x	İstanbul	Arnavutköy/Nakkaş	33+567	x			x	58			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. Air ventilation channels were observed inside the Bunker. There is a trench wall constructed with rubble stones for defensive purposes in the north side of the Bunker. This trench stretches to the north for approximately 3 km. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
159	CHA003	Military Bunker 103	x			x	İstanbul	Arnavutköy/Nakkaş	33+500	x			x	129			x	x				x		The Military Bunker is located 2.5 kilometres southwest of Nakkaş Neighbourhood. The frame of the Military Bunker was built entirely with concrete. There are architectural configurations for installing cannons and machine guns inside the building. There is a reinforced stone wall trench in the south of the building, which is constructed for defensive purposes. This trench heads to the south for approximately 2.5 km. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
160	CHA003	Military Bunker 104	x			x	İstanbul	Arnavutköy/Nakkaş	33+357	x			x	128			x	x				x		It is a Military Bunker, which belongs to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. The Military Bunker is "L" shaped. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
161	CHA003	Military Bunker 108	x			x	İstanbul	Arnavutköy/Nakkaş	33+340	x			x	77			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
162	CHA003	Military Bunker 105	x			x	İstanbul	Arnavutköy/Nakkaş	33+312	x			x	30			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
163	CHA003	Military Bunker 107	x			x	İstanbul	Arnavutköy/Nakkaş	33+312	x			x	11			x	x				x		It is a Military Bunker, which is a part of the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
164	CHA003	Military Bunker 106	x			x	İstanbul	Arnavutköy/Nakkaş	33+313	x			x	15			x	x				x		It is a Military Bunker that belongs to the Çakmak Line. The frame of the Military Bunker, which is "T" shaped, was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
165	CHA003	Military Bunker 110	x			x	İstanbul	Arnavutköy/Nakkaş	33+291	x			x	78			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
166	CHA003	Military Bunker 109	x			x	İstanbul	Arnavutköy/Nakkaş	33+271	x			x	61			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
167	CHA003	Military Bunker 111	x			x	İstanbul	Arnavutköy/Nakkaş	33+258	x			x	71			x	x				x		It is a Military Bunker that belong to the Çakmak Line. The Military Bunker is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
168	CHA003	Military Bunker 112	x			x	İstanbul	Arnavutköy/Nakkaş	33+197	x			x	84			x	x				x		It is a Military Bunker, which belongs to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
169	CHA003	Military Bunker 113	x			x	İstanbul	Arnavutköy/Nakkaş	33+197	x			x	30			x	x				x		It is a Military Bunker, which is a part of the Çakmak Line. The Military Bunker is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
170	CHA003	Military Bunker 114	x			x	İstanbul	Arnavutköy/Nakkaş	33+122	x			x	62			x	x				x		It is a Military Bunker, which belongs to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
171	CHA003	Military Bunker 115	x			x	İstanbul	Arnavutköy/Nakkaş	33+095	x			x	55			x	x				x		It is a Military Bunker, which belongs to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
172	CHA003	Military Bunker 119	x			x	İstanbul	Arnavutköy/Nakkaş	33+057	x			x	26			x	x				x		It is a Military Bunker belonging to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
173	CHA003	Military Bunker 117	x			x	İstanbul	Arnavutköy/Nakkaş	33+020	x		x		0		x	x	x				x		It is a Military Bunker belonging to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
174	CHA003	Military Bunker 116	x			x	İstanbul	Arnavutköy/Nakkaş	33+036	x			x	10			x	x				x		It is a Military Bunker that belongs to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
175	CHA003	Military Bunker 118	x			x	İstanbul	Arnavutköy/Nakkaş	32+940	x		x		0		x	x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

176	CHA003	Military Bunker 120	x			x	İstanbul	Arnavutköy/Nakkaş	32+855	x			x	87			x	x				x		It is a Military Bunker, which belongs to the Çakmak Line. It is approximately in the size of 6x6m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
177	CHA003	Military Bunker 121	x			x	İstanbul	Arnavutköy/Nakkaş	32+792	x			x	45			x	x				x		It is a Military Bunker, which is a part of the Çakmak Line. It is approximately in the size of 4x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
178	CHA003	Military Bunker 122	x			x	İstanbul	Arnavutköy/Nakkaş	32+700	x		x		0		x	x	x				x		It is a Military Bunker belonging to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
179	CHA003	Military Bunker 123	x			x	İstanbul	Arnavutköy/Nakkaş	32+643	x			x	66			x	x				x		It is a Military Bunker belonging to the Çakmak Line. The Military Bunker is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
180	CHA003	Military Bunker 124	x			x	İstanbul	Arnavutköy/Nakkaş	32+610	x			x	88			x	x				x		It is a Military Bunker that belongs to to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
181	CHA003	Military Bunker 126	x			x	İstanbul	Arnavutköy/Nakkaş	32+610	x			x	127			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
182	CHA003	Military Bunker 125	x			x	İstanbul	Arnavutköy/Nakkaş	32+580	x			x	113			x	x				x		It is a Military Bunker, which belongs to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
183	CHA003	Military Bunker 127 and Parapet	x			x	İstanbul	Arnavutköy/Nakkaş	32+530	x		x		0		x	x	x				x		It is a Military Bunker, which is a part of the Çakmak Line. Interior dimensions of the Bunker areapproximately 7x7m. Inside the Bunker, which is triangular, air ventilation channels are observable. There are configurations, which allow installing of canons and machine guns inside the building. There is a parapet heading in the north-south direction for approximately 2 km in the north of the Bunker. There are niches with approximately 2 m intervals on the western facade of this wall. This entrenchment wall is located within the project construction corridor. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is strongly suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
184	CHA005	Umurtepe Kartepe 2nd Degree Archaeological Site		x	x		İstanbul	Çatalca	21+800-21+100	x		x		0		x	x	x						The site was registered as a 2nd Degree Archaeological Site by İstanbul Regional Board no: 2 for Conservation of Cultural Assets in accordance with the decision no: 4540 of the conservation Board, which was taken on August 21st 1997. According to the decision no 2203-II of Istanbul Regional Board no: 2 for Conservation of Cultural Assets taken on January 12th 2017, it is required that the technical documentation regarding the site should be prepared immediately; and project activities should be implemented in accordance with the decision, which will be made by the conservation board, after the assessment of the concerning technical documentation. In addition to that, It is strongly suggested that prior to the decision of the conservation board any physical intervention should be avoided and all activities should be conducted under the supervision of an archaeologist.
185	CHA005	Karamurat Archaeological Site	x			x	İstanbul	Çatalca/İnceğiz	20+230-19+660	x		x		0		x	x	x			x		x	Ample amount of glazed and non-glazed ceramic shards and cut stone blocks, which are dated to the Byzantine Period, were observed on the surface of the site. It is supposed that the site, which stretches alongside the slope, is a settlement from the Byzantine Period. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. It is strongly suggested that prior to the decision of the conservation board any physical intervention should be avoided and all activities should be conducted under the supervision of an archaeologist.
186	CHA005	Gedik Ali Paşa Archaeological Site	x			x	İstanbul	Silivri/Kadıköy	18+500-18+680	x		x		0		x	x	x			x		x	Ample amount of glazed and non-glazed ceramic shards and cut stone blocks, which are dated to the Byzantine Period, were observed on the surface of the site. It is supposed that the site, which stretches alongside the slope, is a settlement from the Byzantine Period. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. It is strongly suggested that prior to the decision of the conservation board any physical intervention should be avoided and all activities should be conducted under the supervision of an archaeologist.
187	CHA005	Kadıköy Archaeological Site	x			x	İstanbul	Silivri/Kadıköy	16+850-17+080	x			x	53			x	x			x	x	x	The site is most probably a settlement from the Byzantine Period. Ample amount of ceramic and roof tile shards, terracotta plates, and grinding stone pieces were encountered on the surface of the site. In addition to that, cut stone blocks and architectural elements made of marble, which belonged to the buildings, were observed. It is suggested that any physical intervention should be avoided and all activities should be conducted under the supervision of an archaeologist.
188	CHA005	Gazitepe Potential Archaeological Site	x			x	İstanbul	Silivri/Gazitepe	15+920-16+036	x		x		0			x				x			The site is located 2.5 kilometres north-east of Kadıköy Neighbourhood. Sporadically spread ceramic shards from the Byzantine Period were observed on the surface of the site. It is strongly suggested all activities should be conducted under the supervision of an archaeologist.
189	CHA005	Anastasian Walls		x	x		İstanbul	Silivri/fenerköy	5+000-5+100	x		x		0		x	x	x			x	x		The Walls were commissioned by the Byzantine Emperor Anastasius I (491-518) in order to protect Istanbul (in antiquity, Constantinople) against the attacks from the Thrace. It is known that the Anastasian Wall, which is 56 km in length, started in the coast of Black Sea, passing through Fenerköy and Kurfalı Villages nearby Silivri District and reached to Marmara Sea. According to the decision no 2203-II of Istanbul Regional Board no: 1 for Conservation of Cultural Assets taken on January 12th 2017, it is required that the technical documentation regarding the site should be prepared immediately; and project activities should be implemented in accordance with the decision, which will be made by the conservation board, after the assessment of the concerning technical documentation. In addition to that, during the Conservation Boards decision making process, it is strongly suggested that any physical intervention to the site should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
190	CHA005	Küçükkılıç Tumulus	x			x	İstanbul	Silivri/Küçükkılıç	2+860-2+940	x		x		0		x	x	x			x		x	The structure is most probably a Thracian Tumulus. Illegal excavation trenches in various sizes were observed on its surface. Around the illegal excavation trench on the top, pieces of cut stone blocks were encountered. All information regarding the structure will be delivered to Istanbul Regional Board No: 1 for Conservation of Cultural Assets. It is suggested that prior to the decision of the conservation board any physical intervention should be avoided and all activities should be conducted under the supervision of an archaeologist.

Annex 5 – Predictions Model Maps of Archaeological Potential



Kuzey Marmara Otoyolu Projesi
Arkeolojik Risk Öngörü Haritası
North Marmara Motorway
Archaeological Predictive Model Map
REGIO Cultural Heritage Management Consultancy
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 1 Etki Kordioru / Section 1 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
Arkeolojik Risk Seviyesi / Archaeological Risk Level
Düşük / Low
Orta / Moderate
Yüksek / High
Çok Yüksek / Very High
0 300 600 1.200 1.800 2.400
Meters
Küçükkılıç Tümülüsü
Küçük Kılıçlı
Alipaşa
0+000
0+600
1+100
1+600
1+700
1+800
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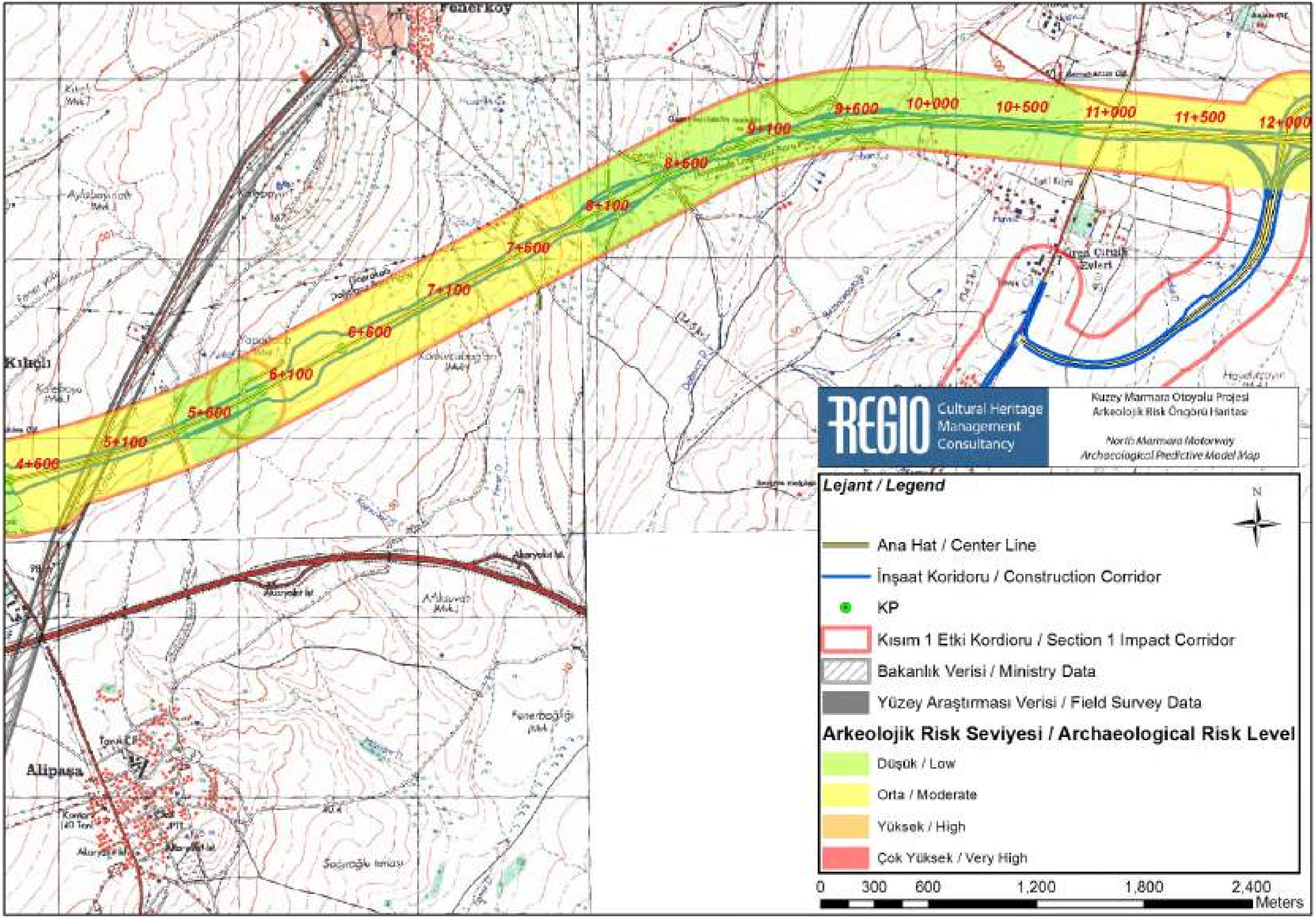
2+900
3+100
3+600
4+100
4+600
5+100
55
54
52
51
02


Fenerköy
Kılıçlı
Alipaşa
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5+100
5+600
6+100
6+600
7+100
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8+100
8+600
9+100
9+600
10+000
10+500
11+000
11+500
12+000
REGIO
Cultural Heritage
Management
Consultancy
Kuzey Marmara Otoyolu Projesi
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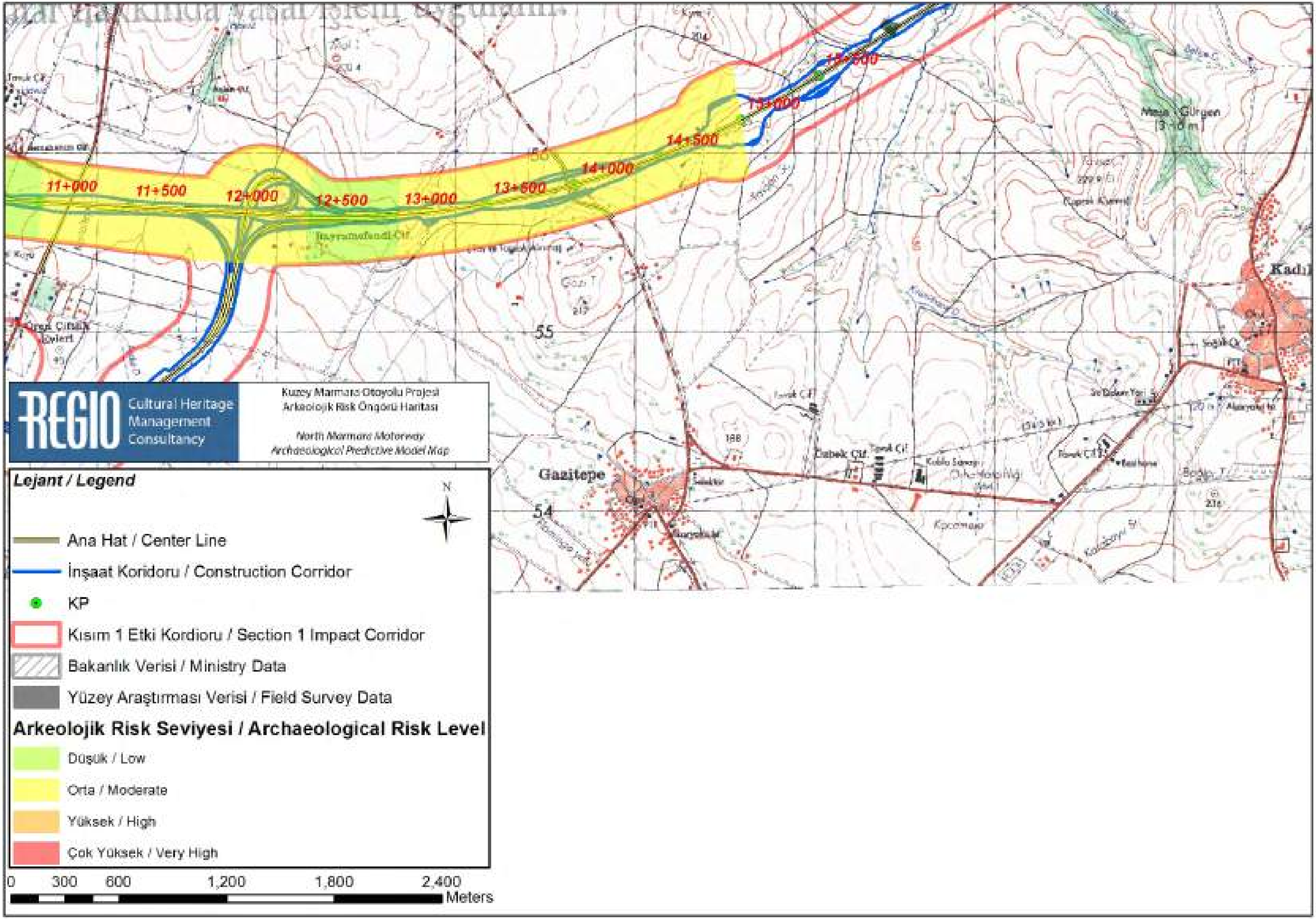
Arkeolojik Risk Seviyesi / Archaeological Risk Level
Düşük / Low
Orta / Moderate
Yüksek / High
Çok Yüksek / Very High
0
300
600
1,200
1,800
2,400
Meters


REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Risk Öngörü Haritası
North Marmara Motorway
Archaeological Predictive Model Map
Lejant / Legend
N
Ana Hat / Center Line
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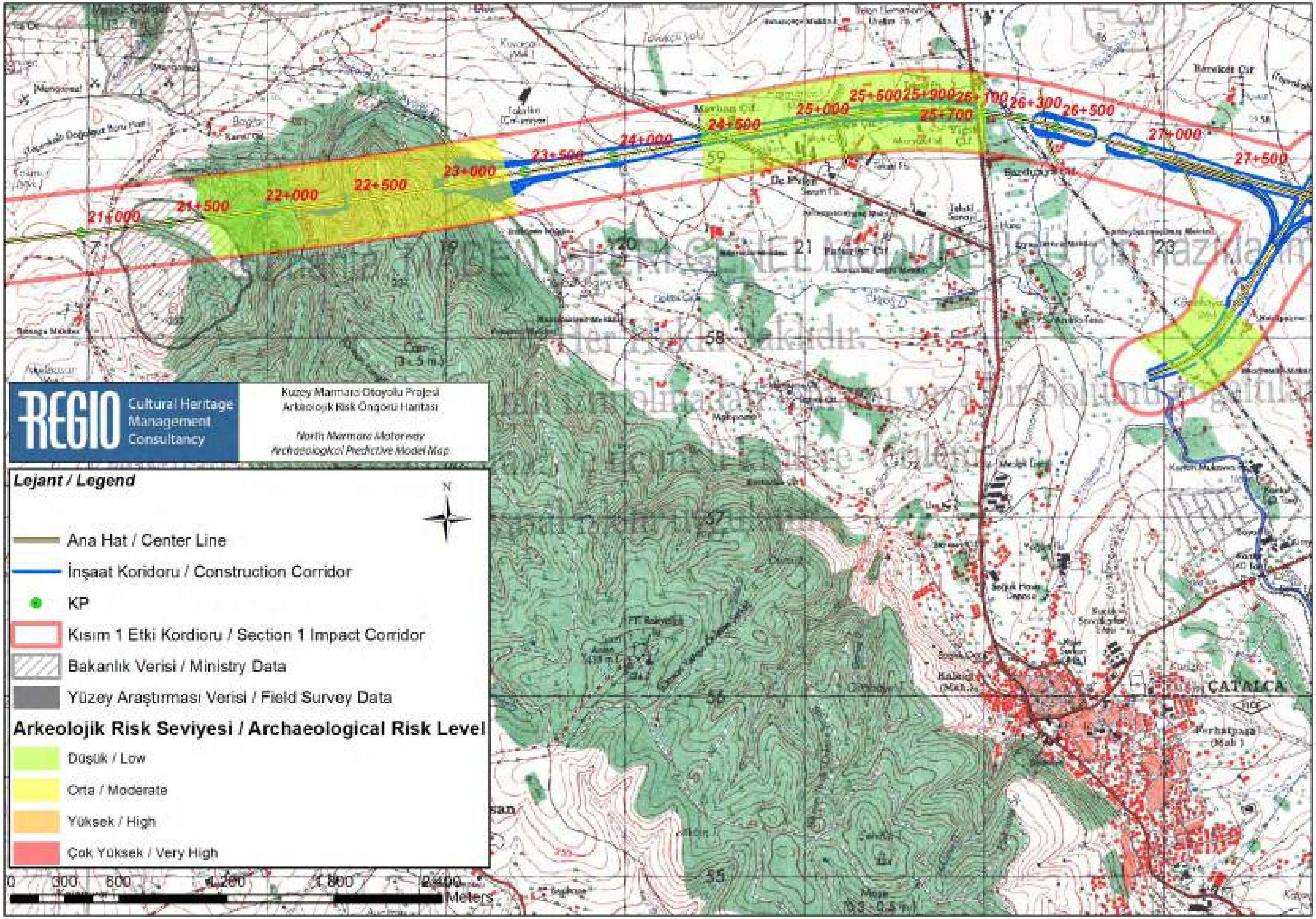
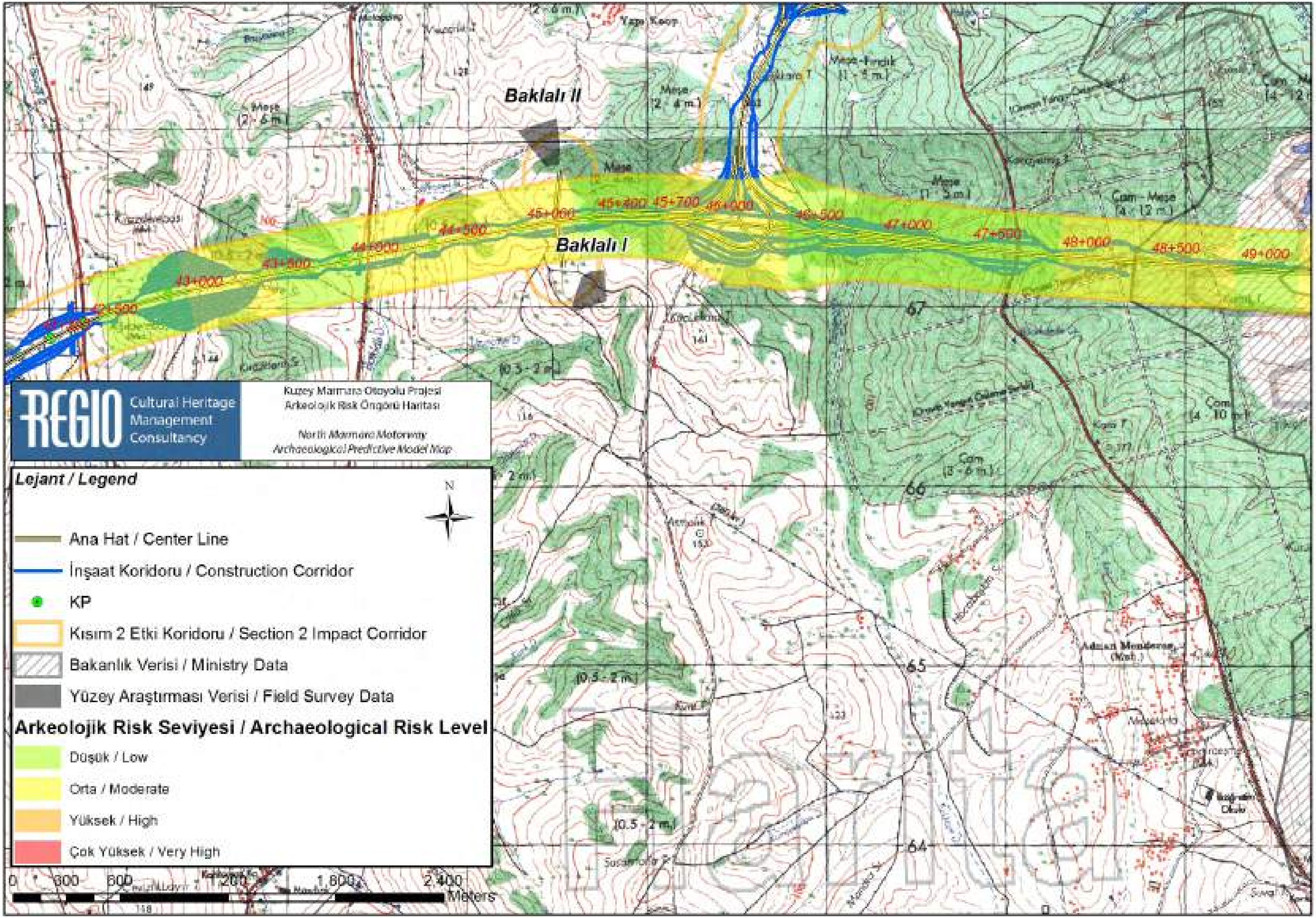
Kısım 1 Etki Kordioru / Section 1 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
Arkeolojik Risk Seviyesi / Archaeological Risk Level
Düşük / Low
Orta / Moderate
Yüksek / High
Çok Yüksek / Very High
0 300 600 1,200 1,800 2,400
Meters
11+000
11+500
12+000
12+500
13+000
13+500
14+000
14+500
Gazitepe
55
54


REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Risk Öngörü Haritası
North Marmara Motorway
Archaeological Predictive Model Map
Lejant / Legend
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 1 Etki Kordioru / Section 1 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
Arkeolojik Risk Seviyesi / Archaeological Risk Level
Düşük / Low
Orta / Moderate
Yüksek / High
Çok Yüksek / Very High
N
0 300 600 1.200 1.800 2.400
Meters
21+000
21+500
22+000
22+500
23+000
23+500
24+000
24+500
25+000
25+500
25+700
25+900
26+100
26+300
26+500
27+000
27+500
ÇATALCA



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Kuzey Marmara Otoyolu Projesi
Arkeolojik Risk Öngörü Haritası
North Marmara Motorway
Archaeological Predictive Model Map
Lejant / Legend
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 2 Etki Koridoru / Section 2 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
Arkeolojik Risk Seviyesi / Archaeological Risk Level
Düşük / Low
Orta / Moderate
Yüksek / High
Çok Yüksek / Very High
N
0 300 600 1,200 1,800 2,400
Meters
Baklalı II
Baklalı I
42+500
43+000
43+500
44+000
44+500
45+000
45+400
45+700
46+000
46+500
47+000
47+500
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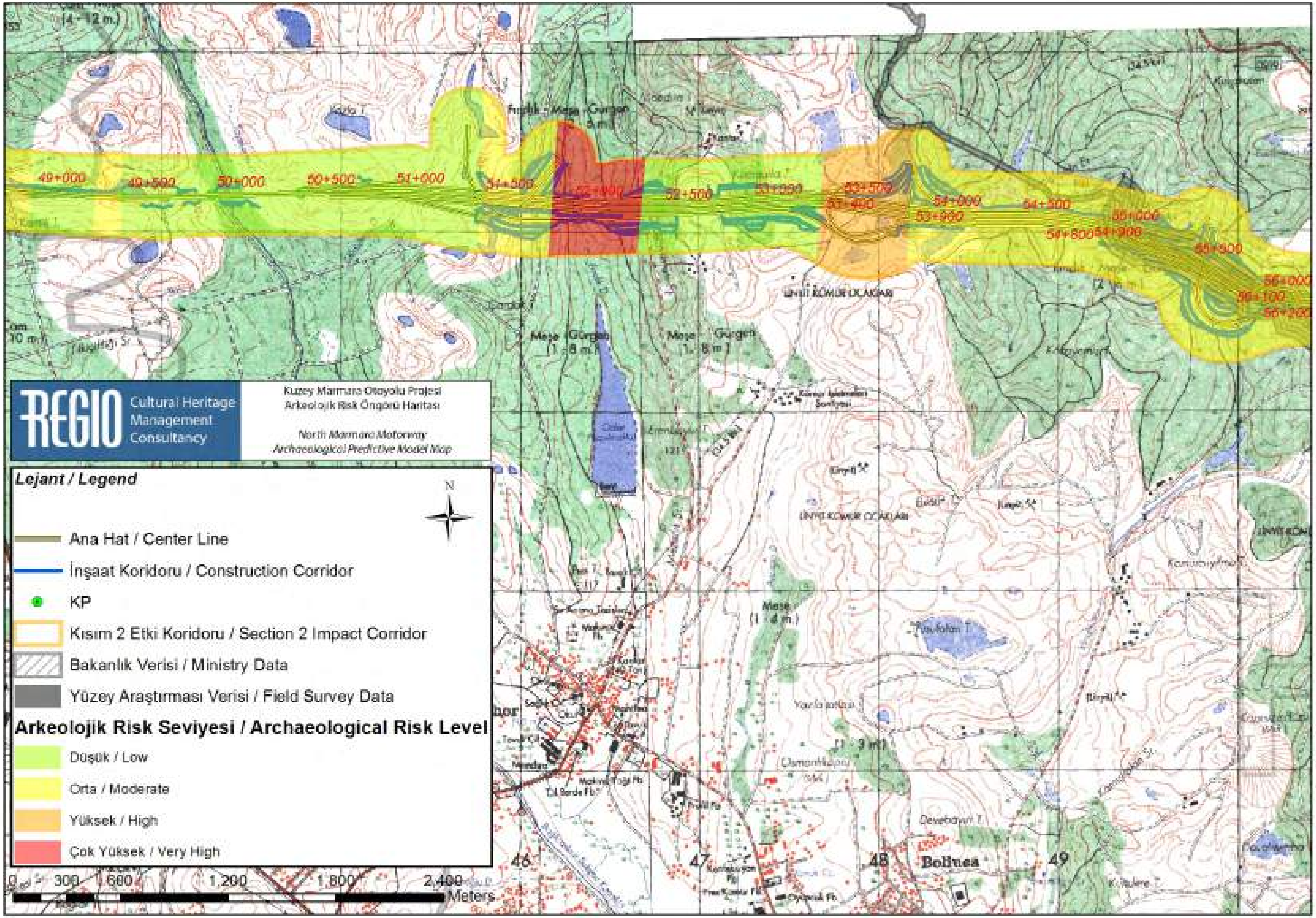
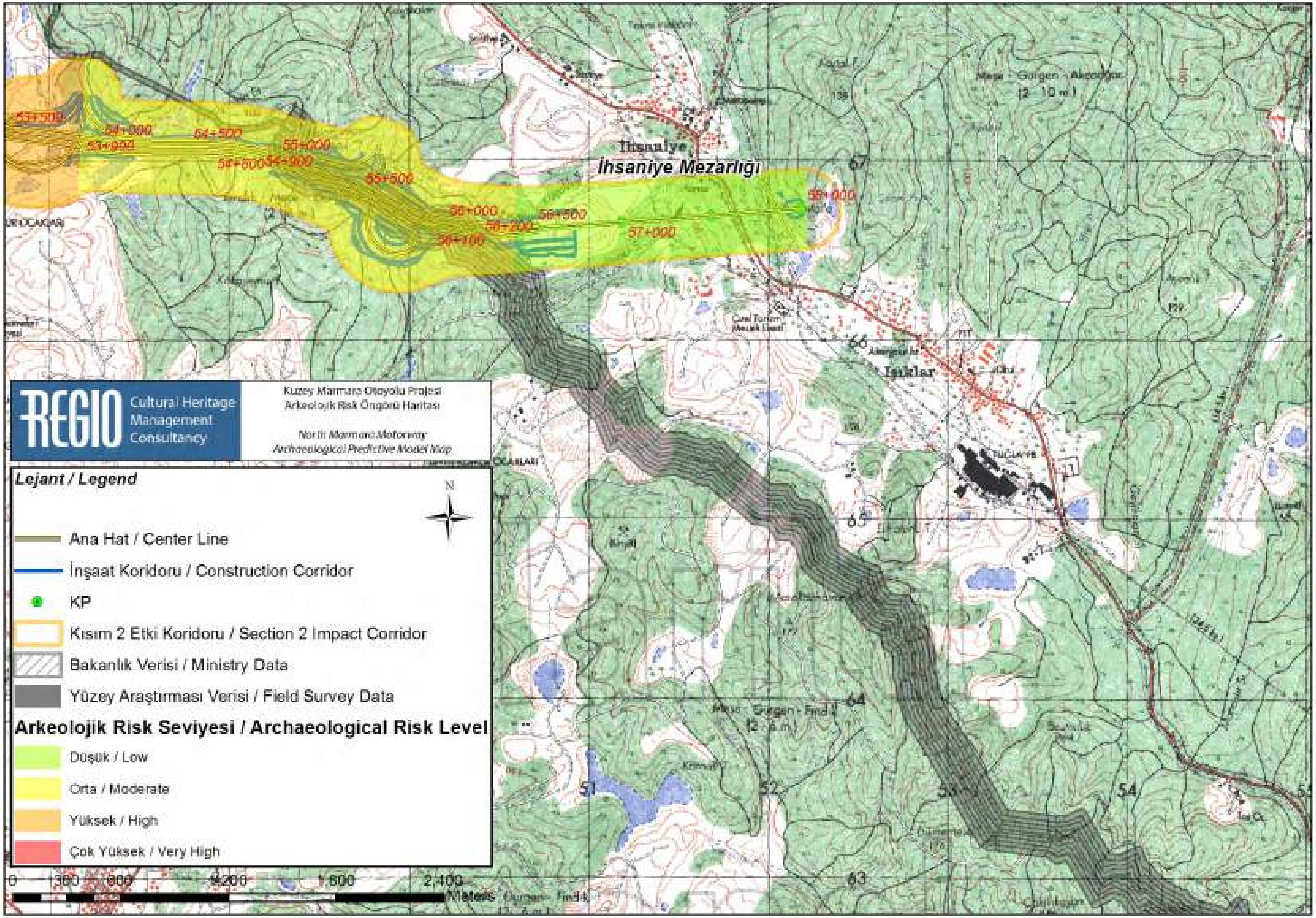
49+000
67
66
65
64


REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Risk Öngörü Haritası
North Marmara Motorway
Archaeological Predictive Model Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 2 Etki Koridoru / Section 2 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
Arkeolojik Risk Seviyesi / Archaeological Risk Level
Düşük / Low
Orta / Moderate
Yüksek / High
Çok Yüksek / Very High
49+000
49+500
50+000
50+500
51+000
52+500
53+000
53+500
54+000
54+500
55+000
55+500
0 300 600 1,200 1,800 2,400
Meters
46
47
48
49
Bollucа



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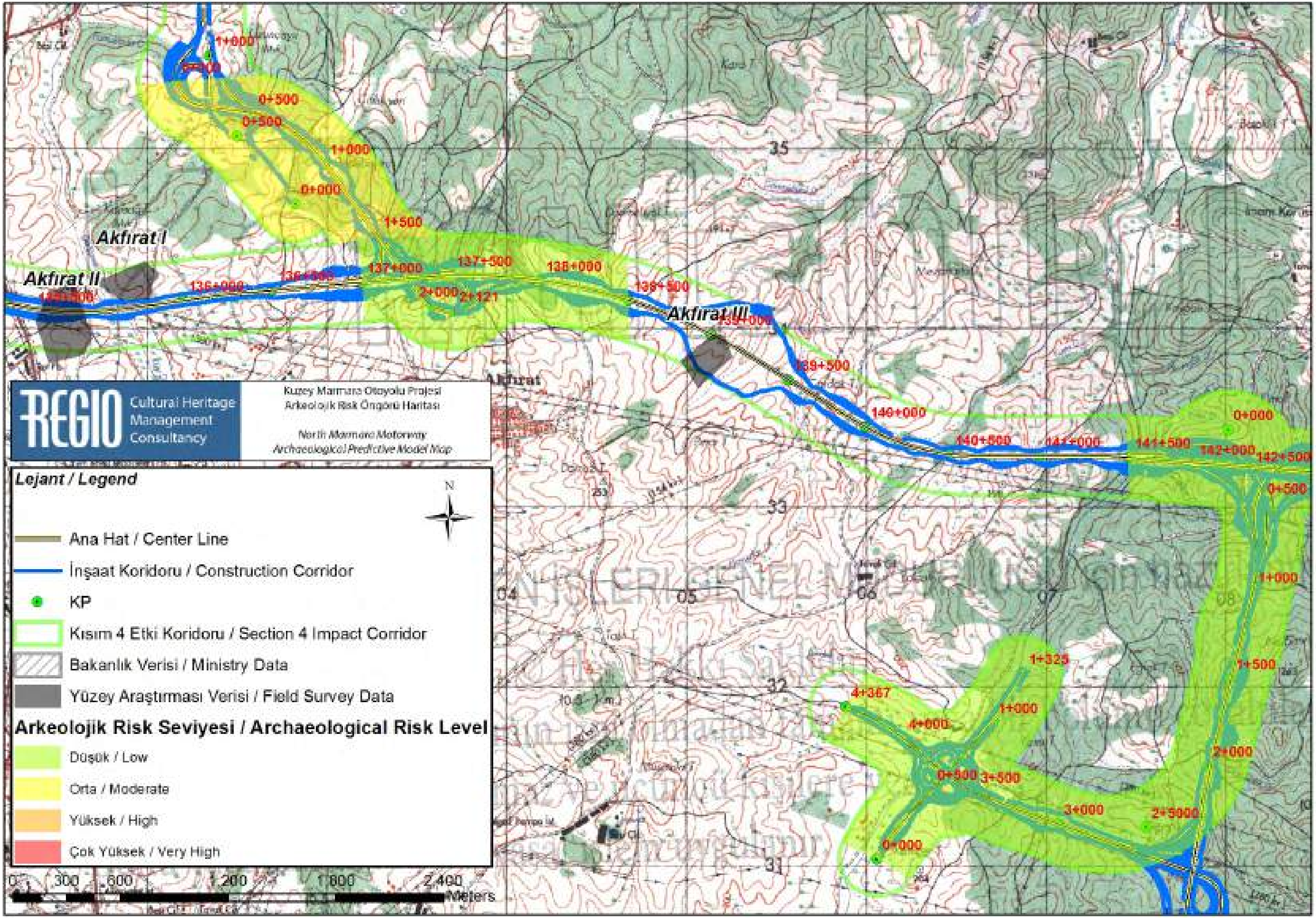
Kuzey Marmara Otoyolu Projesi
Arkeolojik Risk Öngörü Haritası
North Marmara Motorway
Archaeological Predictive Model Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 2 Etki Koridoru / Section 2 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
Arkeolojik Risk Seviyesi / Archaeological Risk Level
Düşük / Low
Orta / Moderate
Yüksek / High
Çok Yüksek / Very High
0 300 600 1,200 1,800 2,400
Meters
İhsaniye
İhsaniye Mezarlığı
Işıklar
54+000
53+900
54+500
54+600
54+900
55+000
55+500
56+000
56+100
56+200
56+500
57+000



Akfırat I
Akfırat II
Akfırat III
Akfırat
136+000
136+500
137+000
137+500
138+000
138+500
139+000
139+500
140+000
140+500
141+000
141+500
142+000
142+500
1+000
0+500
0+000
1+500
2+000
2+121
4+367
4+000
3+500
3+000
2+5000
1+325
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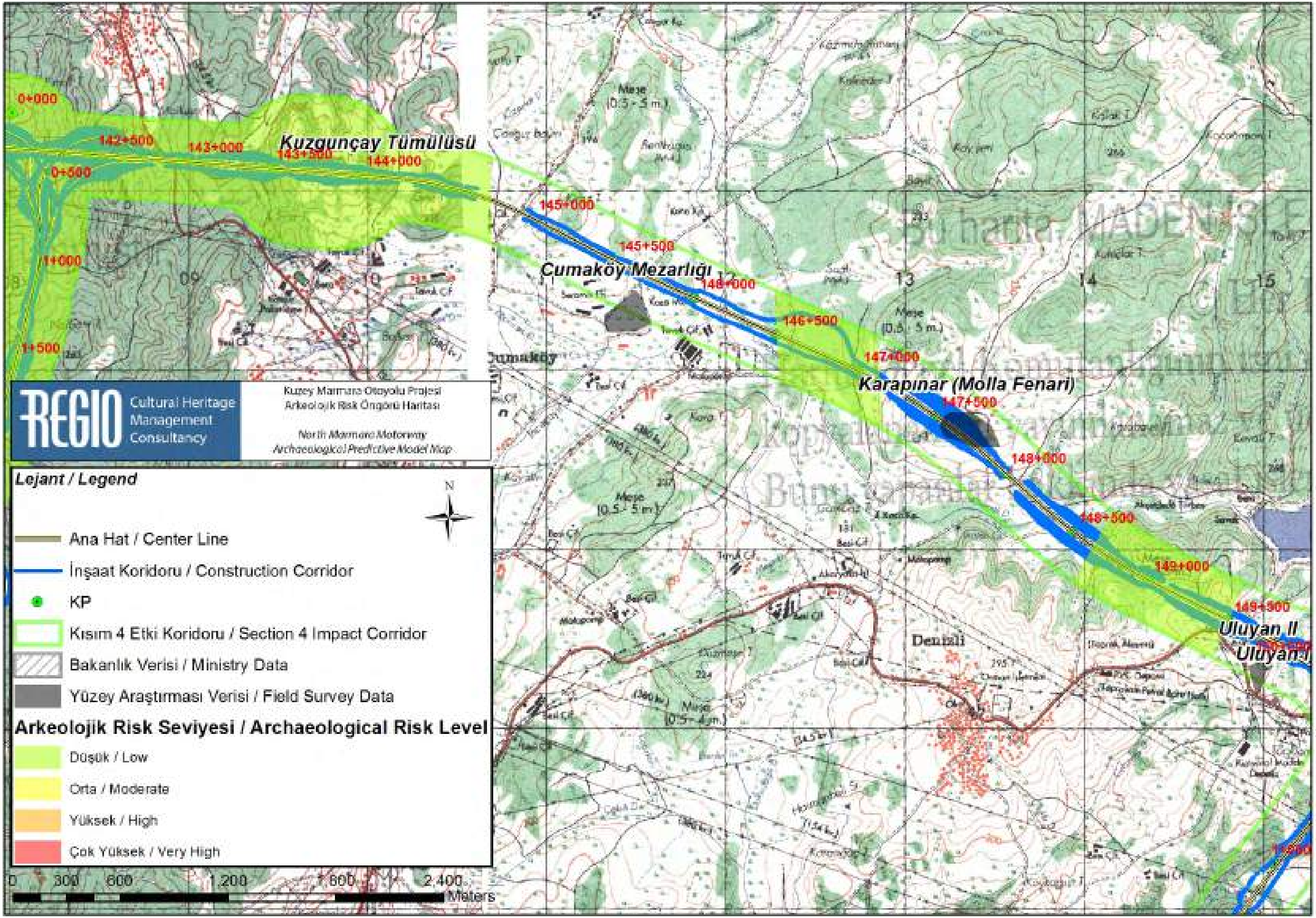
Kuzey Marmara Otoyolu Projesi
Arkeolojik Risk Öngörü Haritası
North Marmara Motorway
Archaeological Predictive Model Map
Lejant / Legend
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 4 Etki Koridoru / Section 4 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
Arkeolojik Risk Seviyesi / Archaeological Risk Level
Düşük / Low
Orta / Moderate
Yüksek / High
Çok Yüksek / Very High
0 300 600 1.200 1.800 2.400
Meters



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Kuzey Marmara Otoyolu Projesi
Arkeolojik Risk Öngörü Haritası
North Marmara Motorway
Archaeological Predictive Model Map
Lejant / Legend
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 4 Etki Koridoru / Section 4 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
Arkeolojik Risk Seviyesi / Archaeological Risk Level
Düşük / Low
Orta / Moderate
Yüksek / High
Çok Yüksek / Very High
0 300 600 1,200 1,800 2,400
Meters
Kuzgunçay Tümülüsü
Cumaköy Mezarlığı
Karapınar (Molla Fenari)
Uluyan II
Cumaköy
Denizli
0+000
0+500
1+000
1+500
142+500
143+000
143+500
144+000
145+000
145+500
146+000
146+500
147+000
147+500
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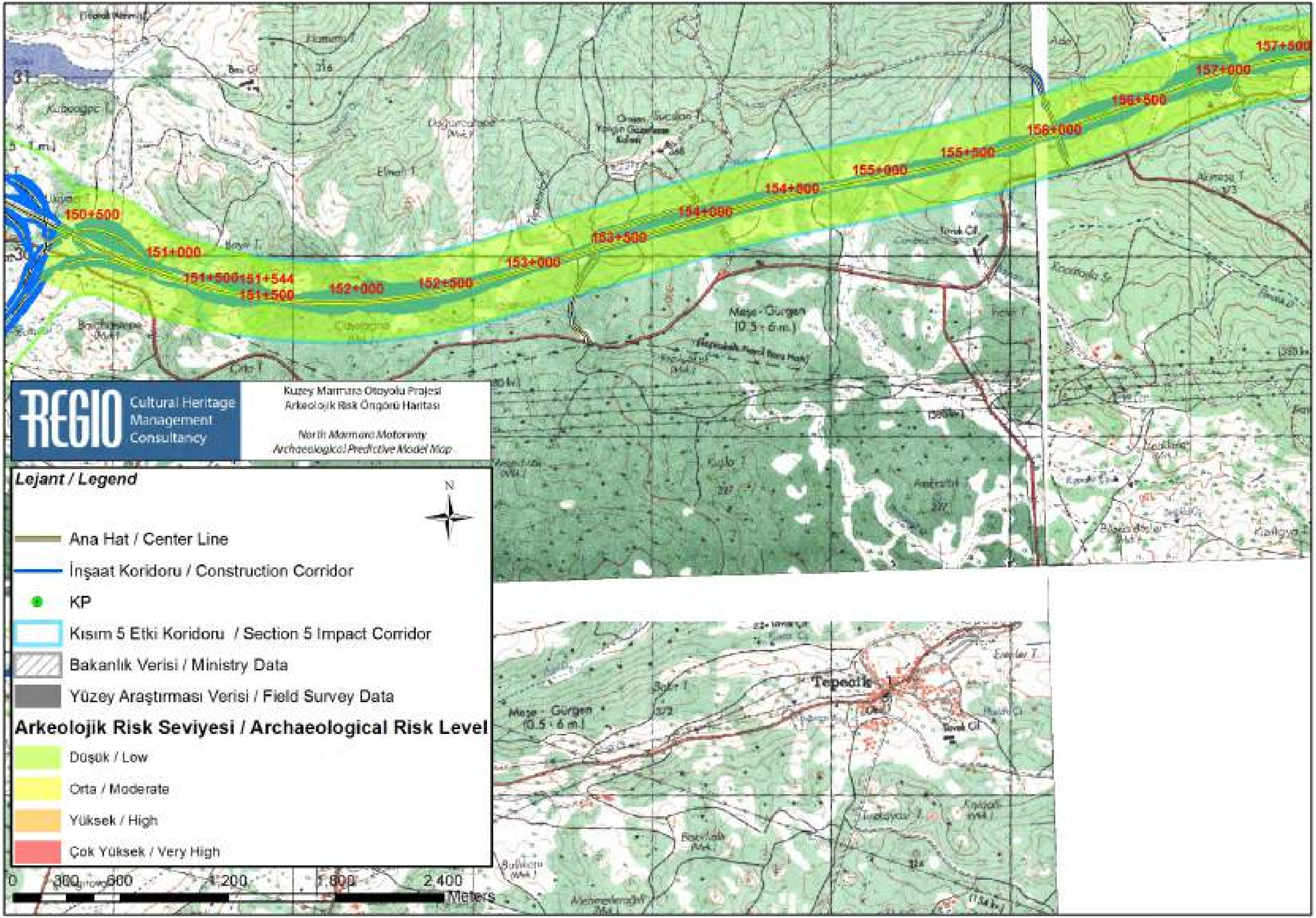
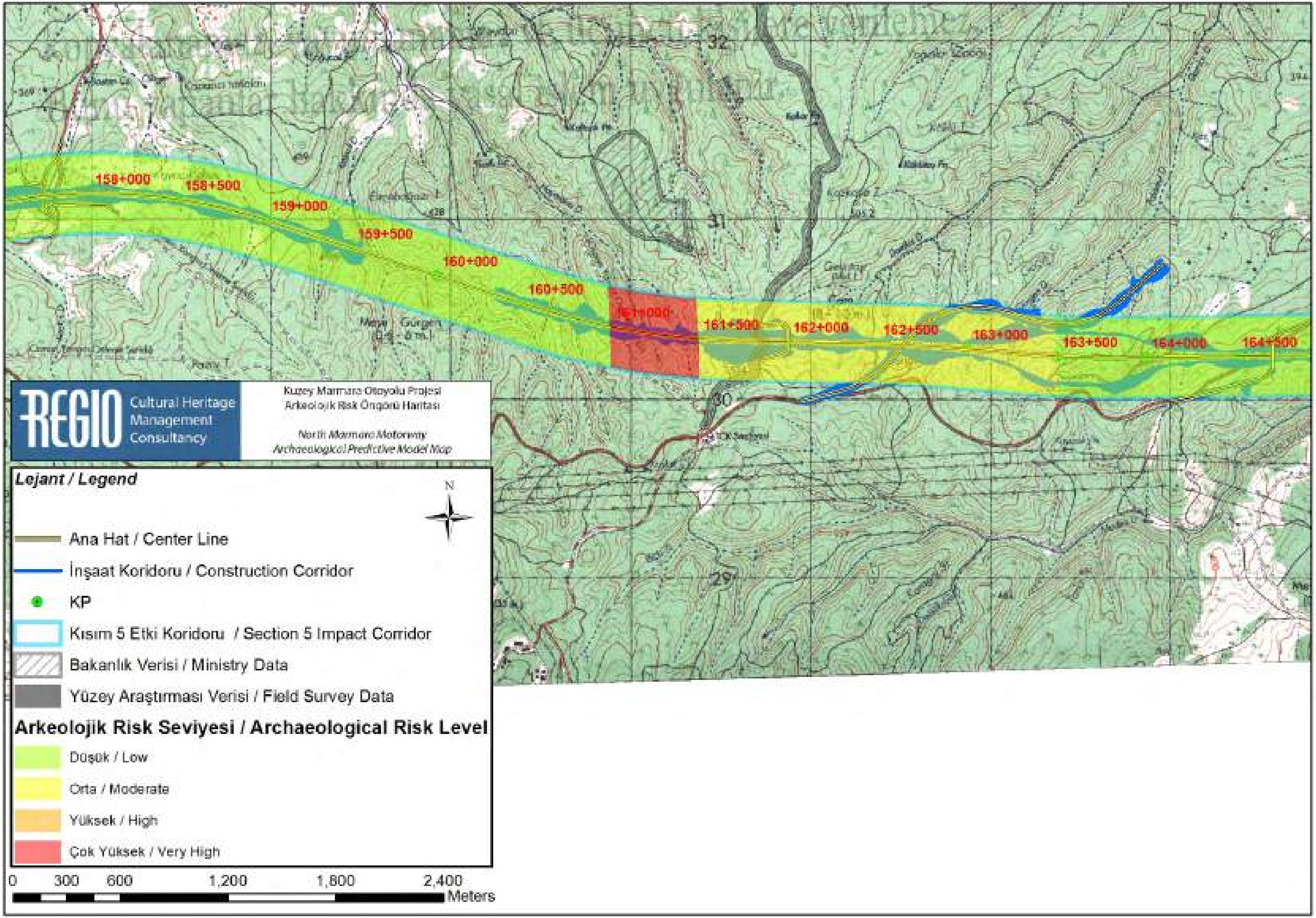
148+500
149+000
149+500


REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Risk Öngörü Haritası
North Marmara Motorway
Archaeological Predictive Model Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 5 Etki Koridoru / Section 5 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
Arkeolojik Risk Seviyesi / Archaeological Risk Level
Düşük / Low
Orta / Moderate
Yüksek / High
Çok Yüksek / Very High
0 300 600 1.200 1.800 2.400
Meters
150+500
151+000
151+500
151+544
151+500
152+000
152+500
153+000
153+500
154+000
154+500
155+000
155+500
156+000
156+500
157+000
157+500
Meşe - Gürgen
(0.5 - 6 m.)
Tepecik



158+000
158+500
159+000
159+500
160+000
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161+000
161+500
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163+000
163+500
164+000
164+500
32
31
30
29
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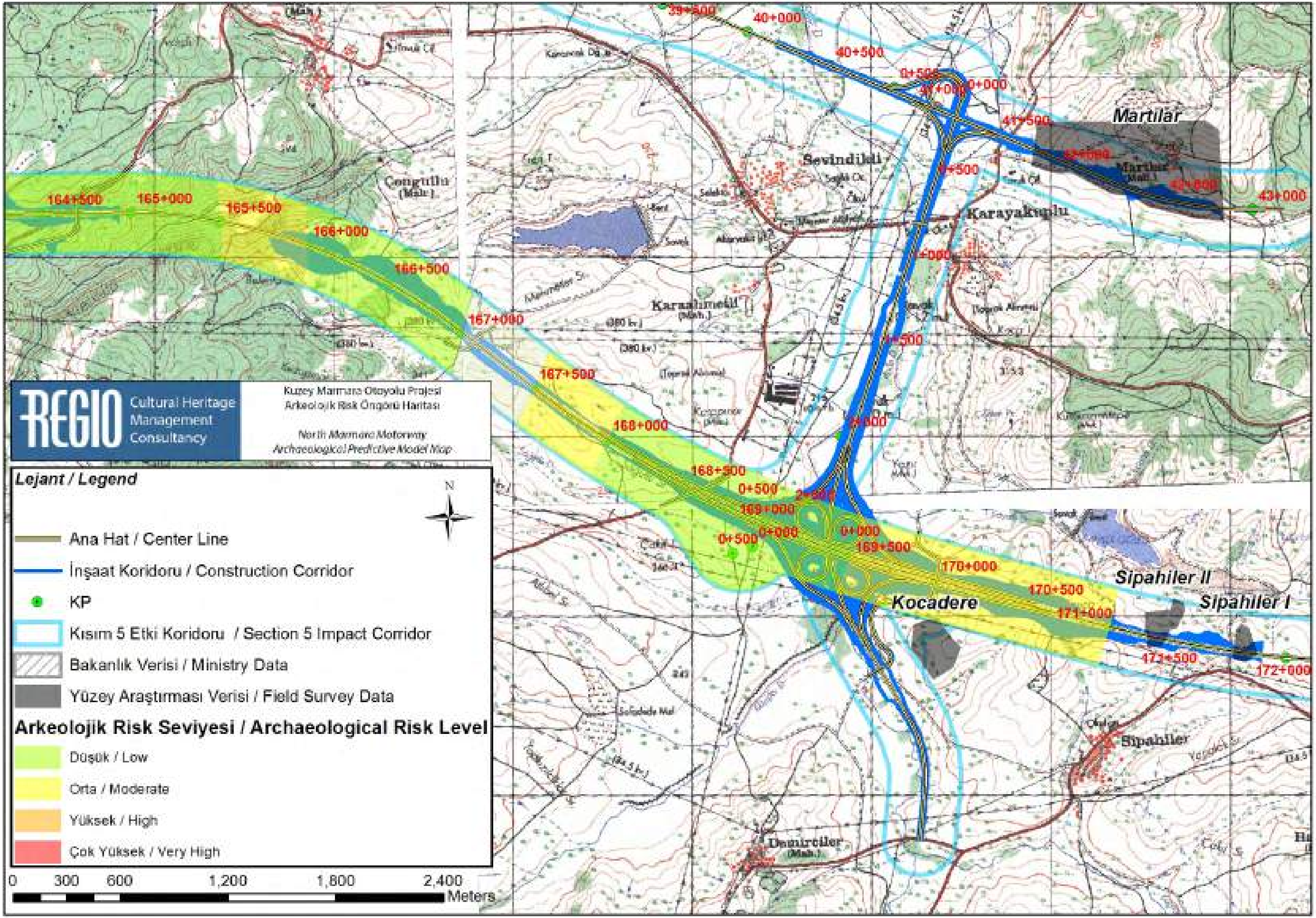
Kuzey Marmara Otoyolu Projesi
Arkeolojik Risk Öngörü Haritası
North Marmara Motorway
Archaeological Predictive Model Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 5 Etki Koridoru / Section 5 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
Arkeolojik Risk Seviyesi / Archaeological Risk Level
Düşük / Low
Orta / Moderate
Yüksek / High
Çok Yüksek / Very High
0 300 600 1,200 1,800 2,400
Meters



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Kuzey Marmara Otoyolu Projesi
Arkeolojik Risk Öngörü Haritası
North Marmara Motorway
Archaeological Predictive Model Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 5 Etki Koridoru / Section 5 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
Arkeolojik Risk Seviyesi / Archaeological Risk Level
Düşük / Low
Orta / Moderate
Yüksek / High
Çok Yüksek / Very High
0 300 600 1,200 1,800 2,400
Meters
Martılar
Sevindikli
Çengüllü
Karayakuplu
Karaahmetli
Kocadere
Sipahiler II
Sipahiler I
Sipahiler
Demirciler
164+500
165+000
165+500
166+000
166+500
167+000
167+500
168+000
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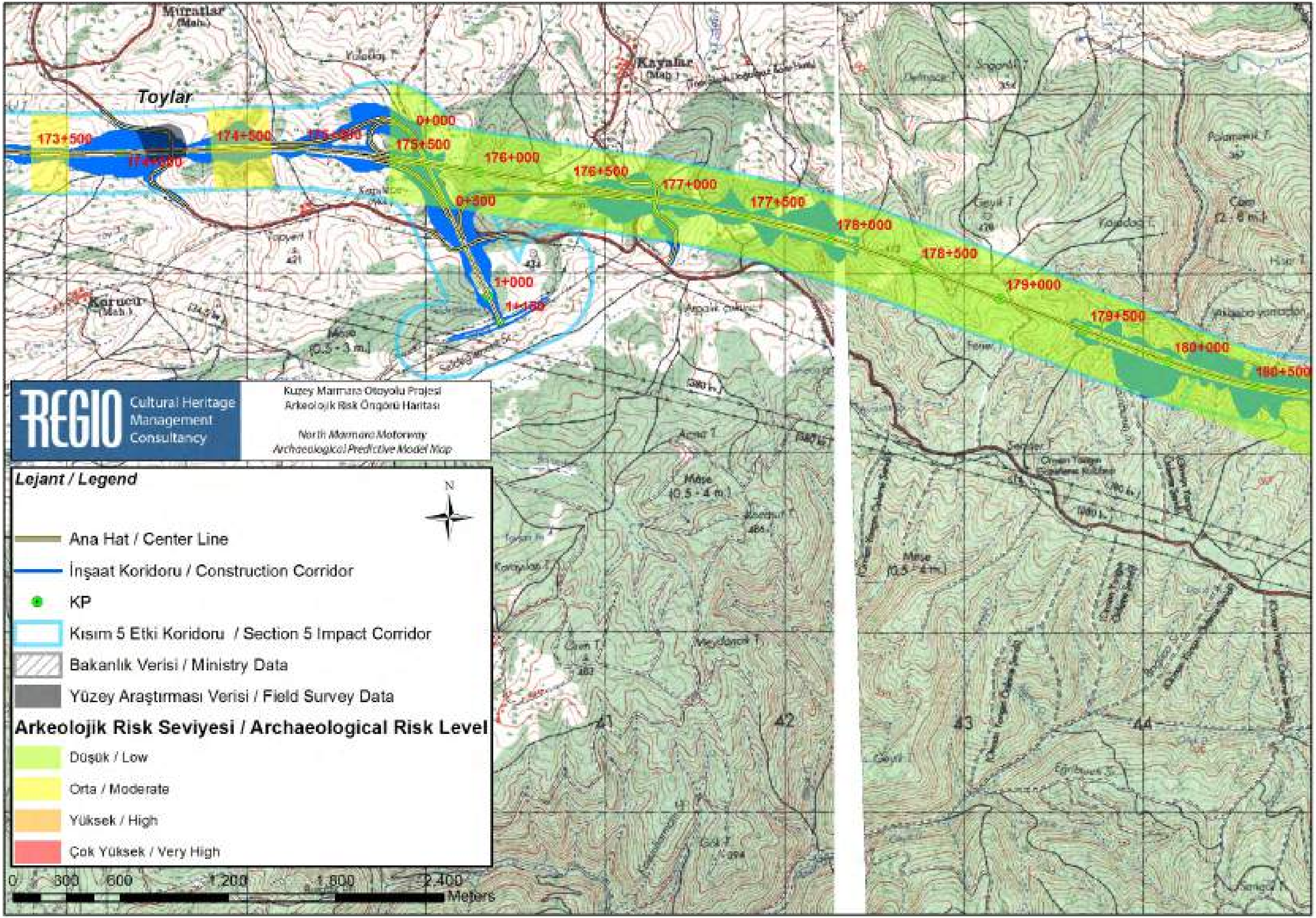
170+000
170+500
171+000
171+500
172+000
40+000
40+500
41+500
43+000



Toylar
Kayalar
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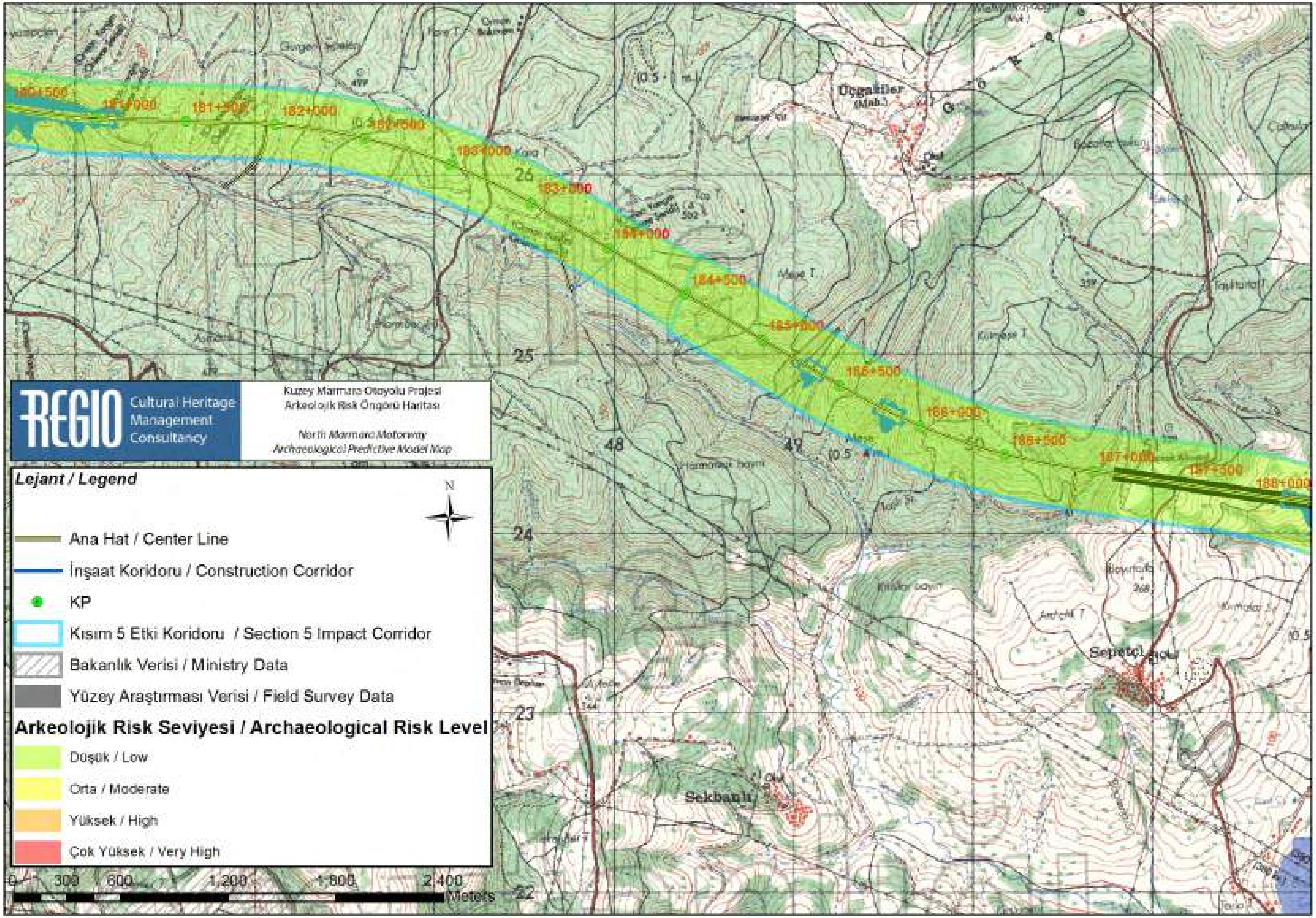
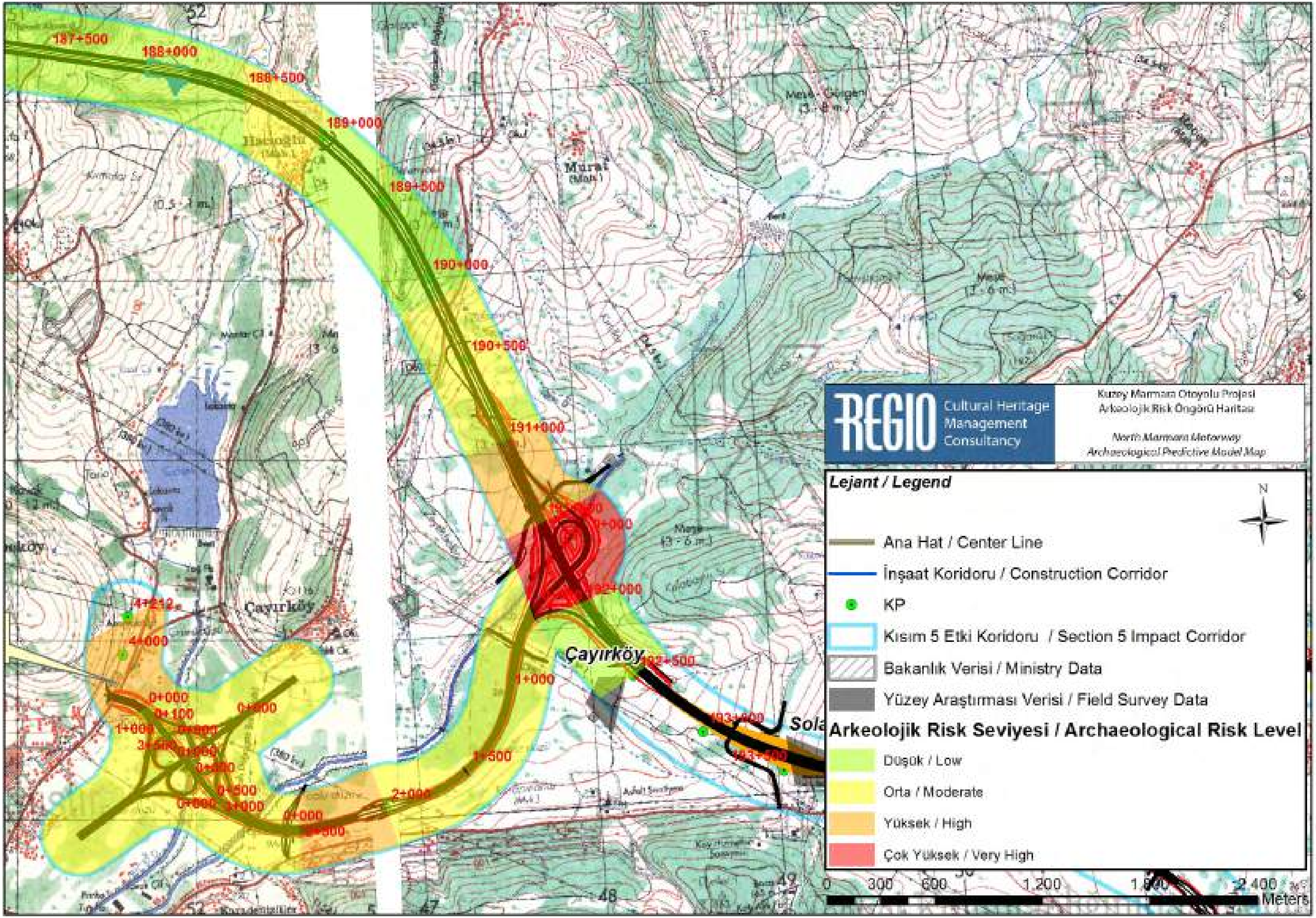
174+000
174+500
175+000
175+500
176+000
176+500
177+000
177+500
178+000
178+500
179+000
179+500
180+000
180+500
0+000
0+500
1+000
1+150
Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi Arkeolojik Risk Öngörü Haritası
North Marmara Motorway Archaeological Predictive Model Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 5 Etki Koridoru / Section 5 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
Arkeolojik Risk Seviyesi / Archaeological Risk Level
Düşük / Low
Orta / Moderate
Yüksek / High
Çok Yüksek / Very High
0 300 600 1.200 1.800 2.400
Meters


REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Risk Öngörü Haritası
North Marmara Motorway
Archaeological Predictive Model Map
Lejant / Legend
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 5 Etki Koridoru / Section 5 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
Arkeolojik Risk Seviyesi / Archaeological Risk Level
Düşük / Low
Orta / Moderate
Yüksek / High
Çok Yüksek / Very High
0 300 600 1,200 1,800 2,400
Meters
N
182+000
183+500
184+500
185+000
186+500
186+000
187+500
188+000
Üçgaziler
Sepetçi
Sekbanlı
26
25
24
23
22
48
49



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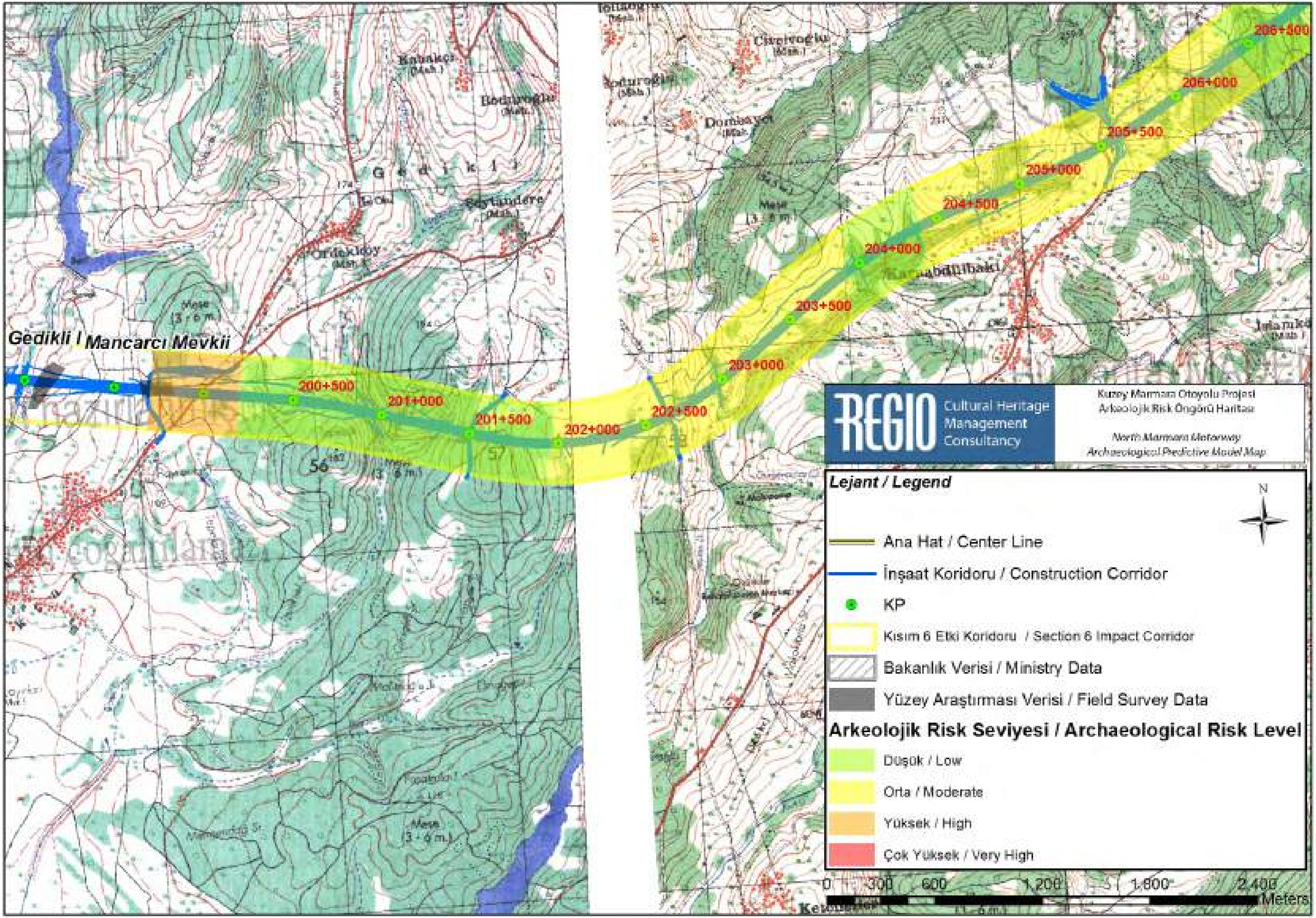
Kuzey Marmara Otoyolu Projesi
Arkeolojik Risk Öngörü Haritası
North Marmara Motorway
Archaeological Predictive Model Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 5 Etki Koridoru / Section 5 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
Arkeolojik Risk Seviyesi / Archaeological Risk Level
Düşük / Low
Orta / Moderate
Yüksek / High
Çok Yüksek / Very High
0 300 600 1.200 1.800 2.400
Meters
187+500
188+000
188+500
189+000
189+500
190+000
190+500
191+000
192+000
192+500
1+000
1+500
2+000
4+000
4+212
Çayırköy
Murat


Gedikli / Mancarcı Mevkii
200+500
201+000
201+500
202+000
202+500
203+000
203+500
204+000
204+500
205+000
205+500
206+000
206+500
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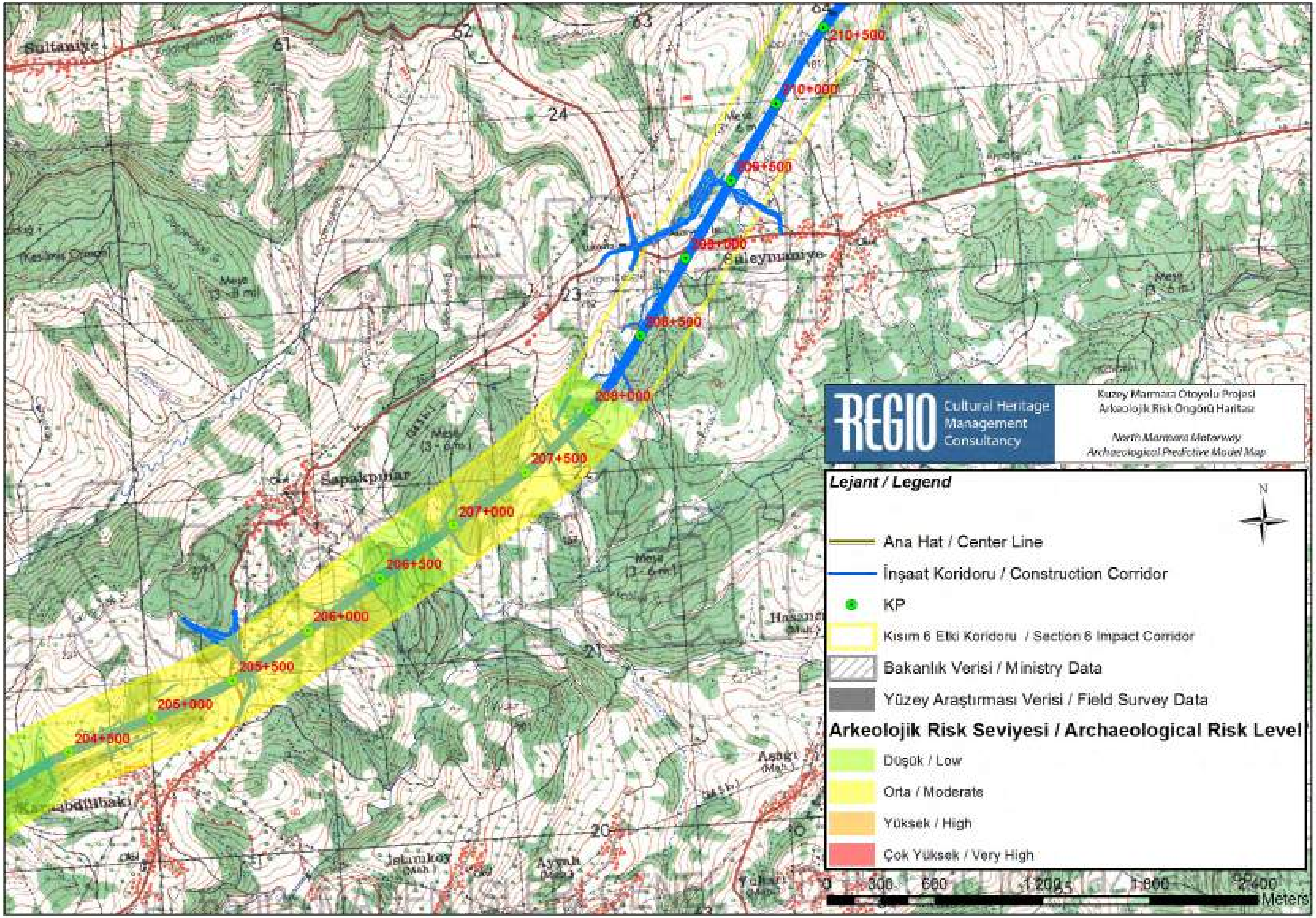
Kuzey Marmara Otoyolu Projesi
Arkeolojik Risk Öngörü Haritası
North Marmara Motorway
Archaeological Predictive Model Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 6 Etki Koridoru / Section 6 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
Arkeolojik Risk Seviyesi / Archaeological Risk Level
Düşük / Low
Orta / Moderate
Yüksek / High
Çok Yüksek / Very High
0 300 600 1,200 1,800 2,400
Meters



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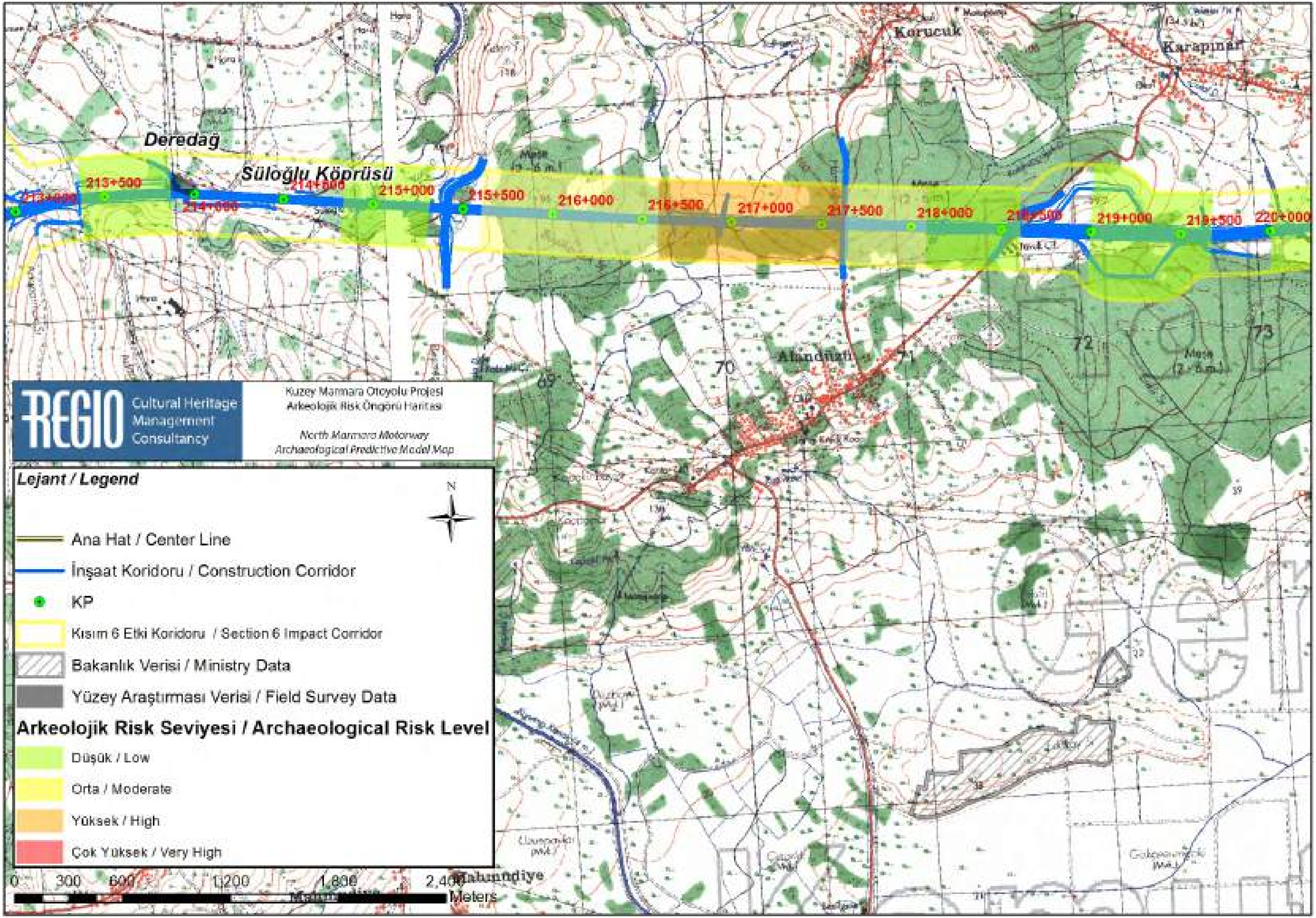
Arkeolojik Risk Öngörü Haritası
North Marmara Motorway
Archaeological Predictive Model Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 6 Etki Koridoru / Section 6 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
Arkeolojik Risk Seviyesi / Archaeological Risk Level
Düşük / Low
Orta / Moderate
Yüksek / High
Çok Yüksek / Very High
0 300 600 1.200 1.800 2.400
Meters
204+500
205+000
205+500
206+000
206+500
207+000
207+500
208+000
208+500
209+000
209+500
210+000
210+500
Sultaniye
Süleymaniye
Şapakpınar


Deredağ
Süloğlu Köprüsü
213+000
213+500
214+000
214+500
215+000
215+500
216+000
216+500
217+000
217+500
218+000
218+500
219+000
219+500
220+000
Korucuk
Karapınar
Alandüzü
69
70
71
72
73
Mahmudiye
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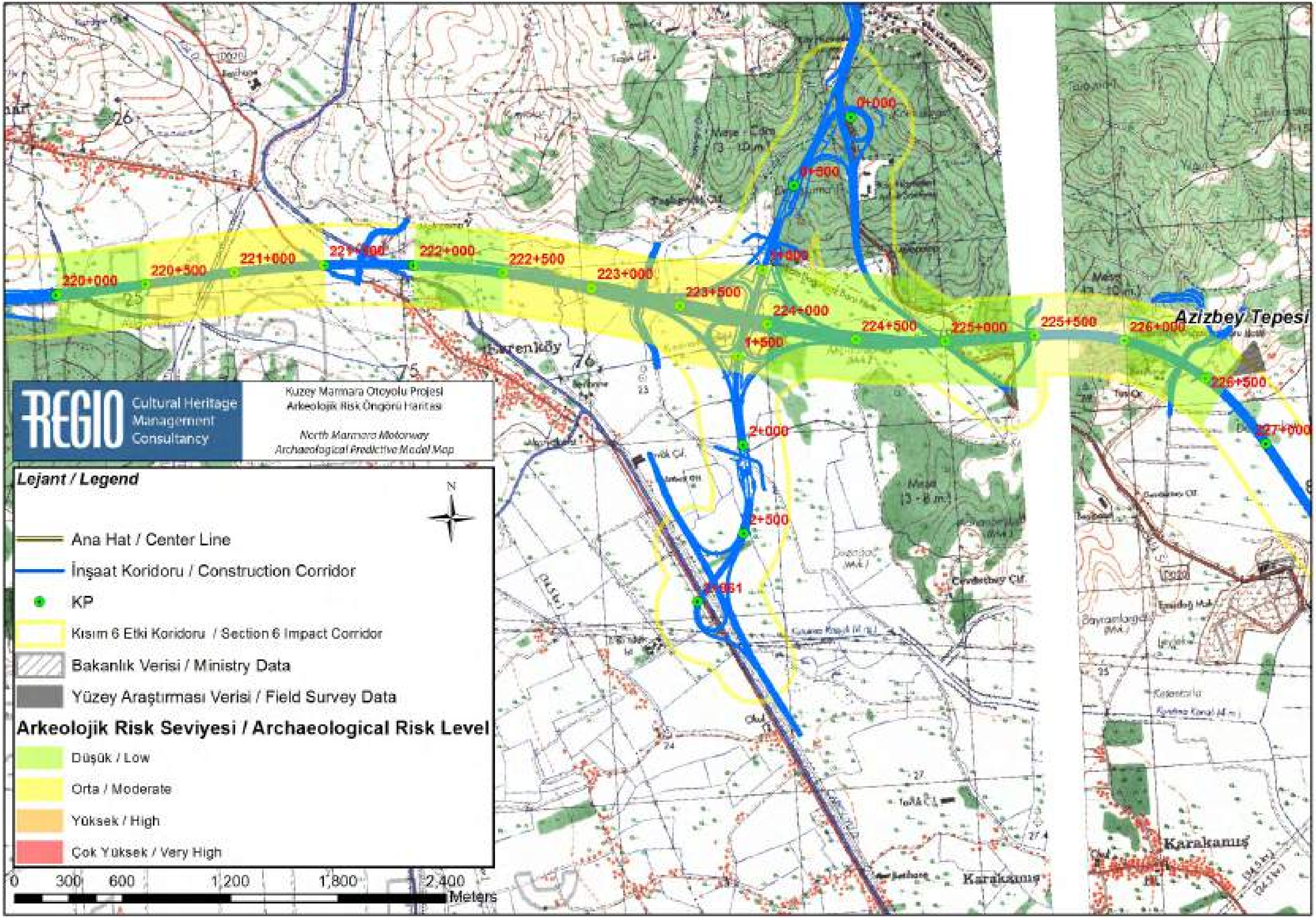
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 6 Etki Koridoru / Section 6 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
Arkeolojik Risk Seviyesi / Archaeological Risk Level
Düşük / Low
Orta / Moderate
Yüksek / High
Çok Yüksek / Very High
0 300 600 1,200 1,800 2,400
Meters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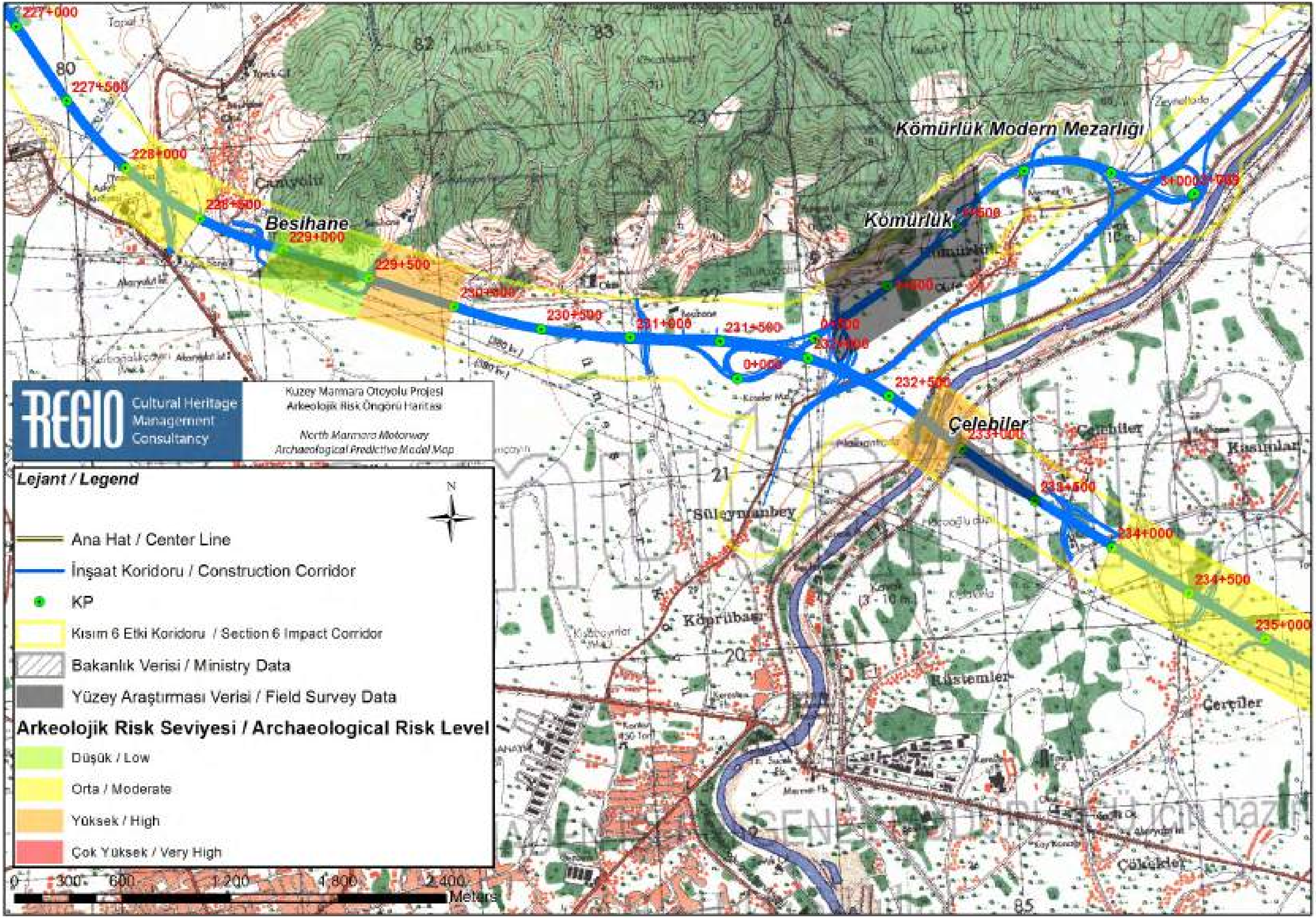
Kuzey Marmara Otoyolu Projesi
Arkeolojik Risk Öngörü Haritası
North Marmara Motorway
Archaeological Predictive Model Map
Lejant / Legend
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 6 Etki Koridoru / Section 6 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
Arkeolojik Risk Seviyesi / Archaeological Risk Level
Düşük / Low
Orta / Moderate
Yüksek / High
Çok Yüksek / Very High
N
0 300 600 1,200 1,800 2,400
Meters
220+000
220+500
221+000
221+500
222+000
222+500
223+000
223+500
224+000
224+500
225+000
225+500
226+000
226+500
227+000
0+000
0+500
1+000
1+500
2+000
2+500
2+861
Azizbey Tepesi
Karakamış



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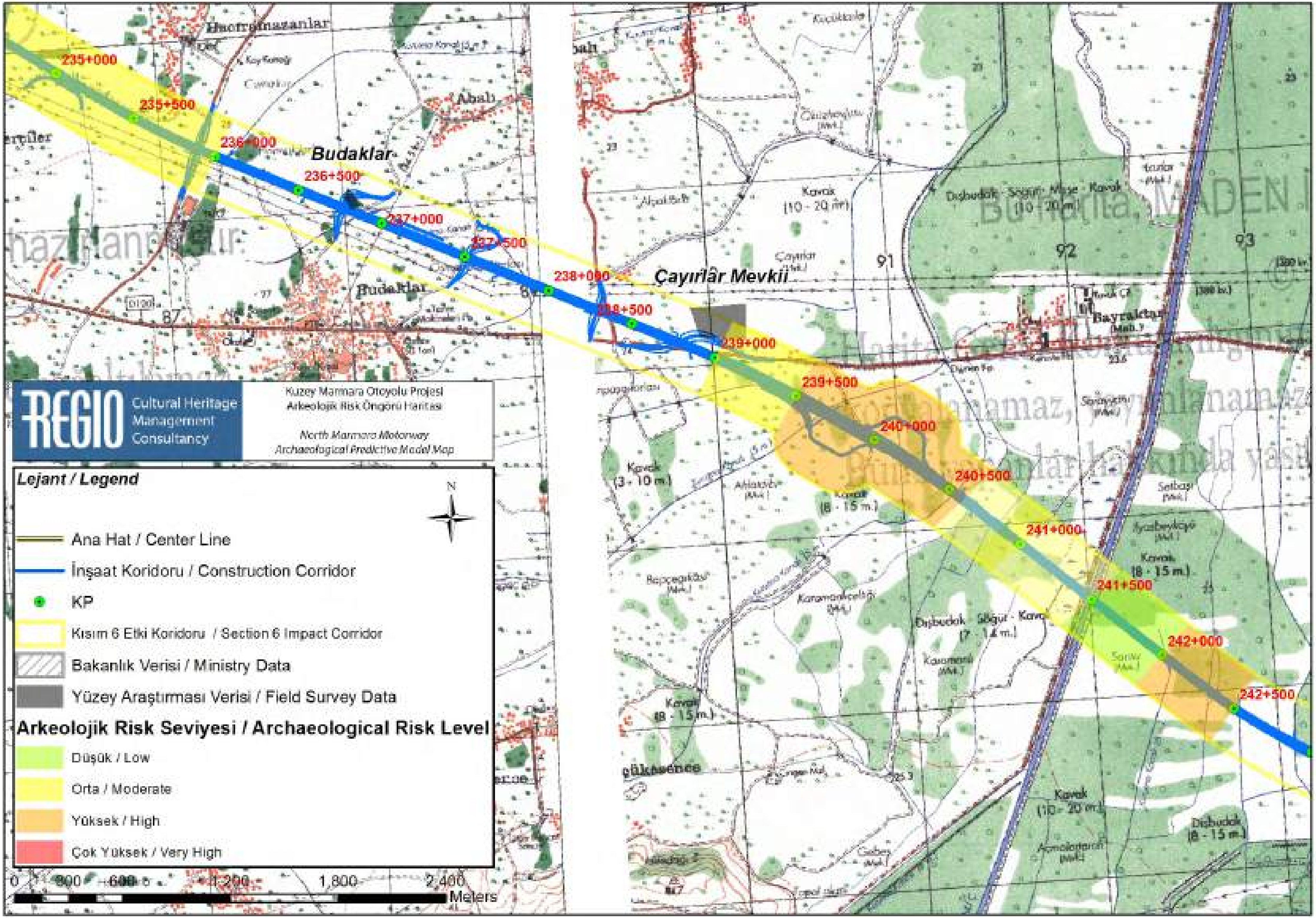
Kuzey Marmara Otoyolu Projesi
Arkeolojik Risk Öngörü Haritası
North Marmara Motorway
Archaeological Predictive Model Map
Lejant / Legend
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 6 Etki Koridoru / Section 6 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
Arkeolojik Risk Seviyesi / Archaeological Risk Level
Düşük / Low
Orta / Moderate
Yüksek / High
Çok Yüksek / Very High
Besihane
Kömürlük Modern Mezarlığı
Kömürlük
Çelebiler
Süleymanbey
Köprübaşı
Rüstemler
Çerçiler
Kasımlar
Çamyolu
227+000
227+500
228+000
228+500
229+000
229+500
230+000
230+500
231+000
231+500
232+000
232+500
233+000
233+500
234+000
234+500
235+000
0+000
0+500
Meters



Kuzey Marmara Otoyolu Projesi
Arkeolojik Risk Öngörü Haritası
North Marmara Motorway
Archaeological Predictive Model Map
REGIO
Cultural Heritage Management Consultancy
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 6 Etki Koridoru / Section 6 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
Arkeolojik Risk Seviyesi / Archaeological Risk Level
Düşük / Low
Orta / Moderate
Yüksek / High
Çok Yüksek / Very High
0 300 600 1,200 1,800 2,400
Meters
235+000
235+500
236+000
236+500
237+000
237+500
238+000
238+500
239+000
239+500
240+000
240+500
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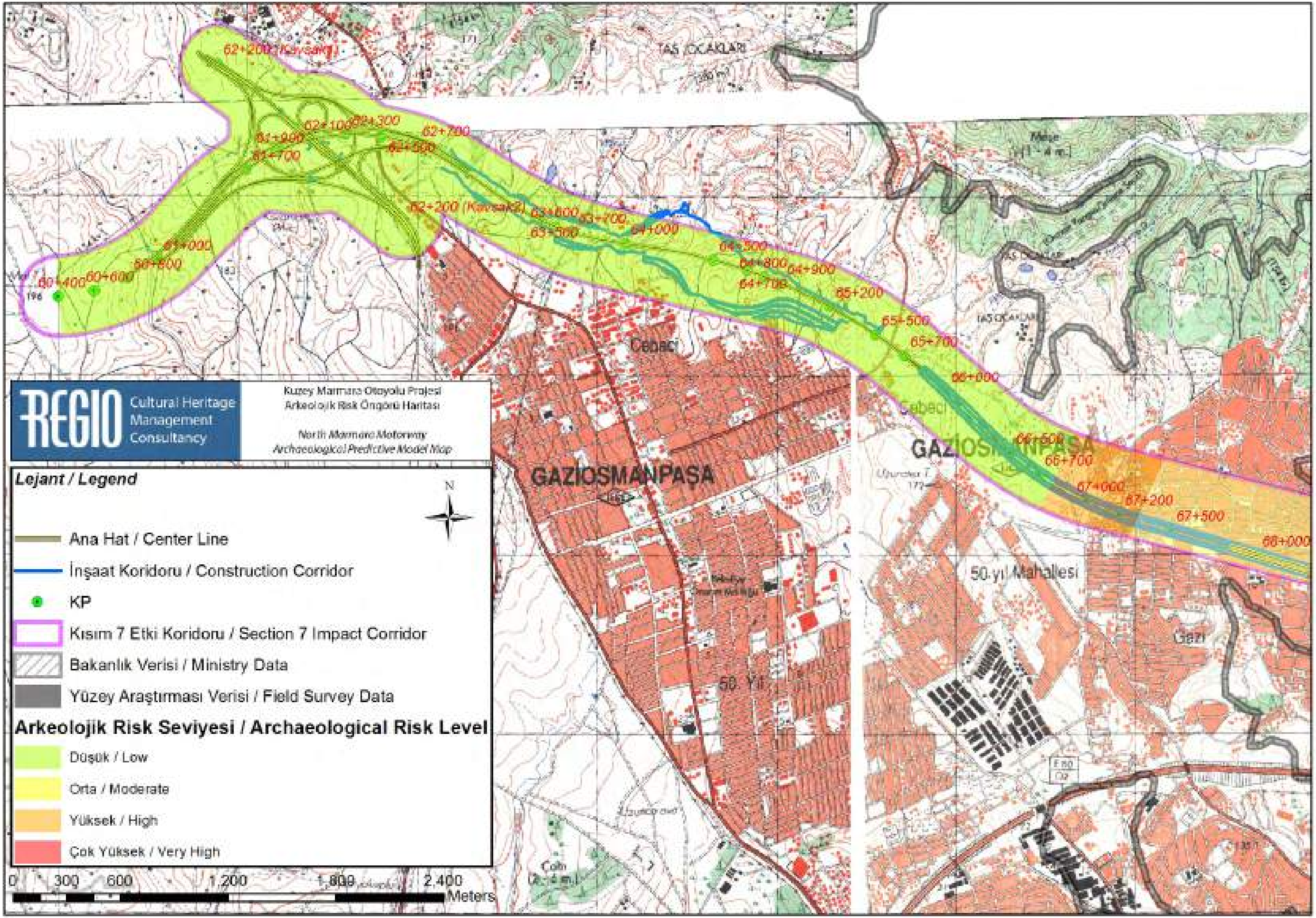
242+500
Budaklar
Çayırlar Mevkii
Bayraktar
91
92
93
87



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Kuzey Marmara Otoyolu Projesi
Arkeolojik Risk Öngörü Haritası
North Marmara Motorway
Archaeological Predictive Model Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 7 Etki Koridoru / Section 7 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
Arkeolojik Risk Seviyesi / Archaeological Risk Level
Düşük / Low
Orta / Moderate
Yüksek / High
Çok Yüksek / Very High
0 300 600 1,200 1,800 2,400
Meters
GAZIOSMANPAŞA
Cebeci
50. Yıl
50. yıl Mahallesi
Gazi
TAŞ OCAKLARI
62+200 (Kavşak)
62+100
62+300
62+500
62+700
61+900
61+700
61+000
60+400
60+600
60+800
63+800
63+700
63+500
64+000
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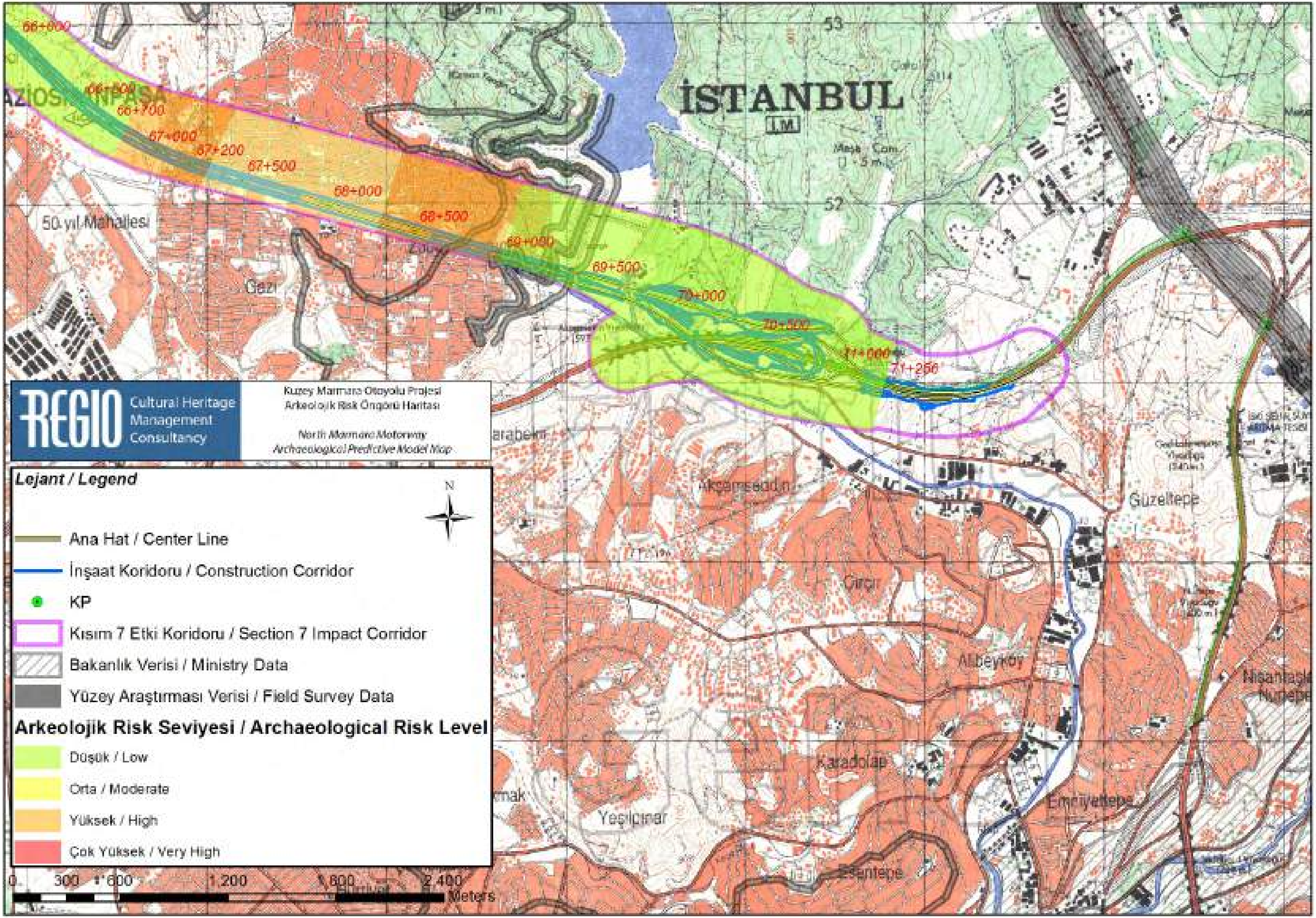
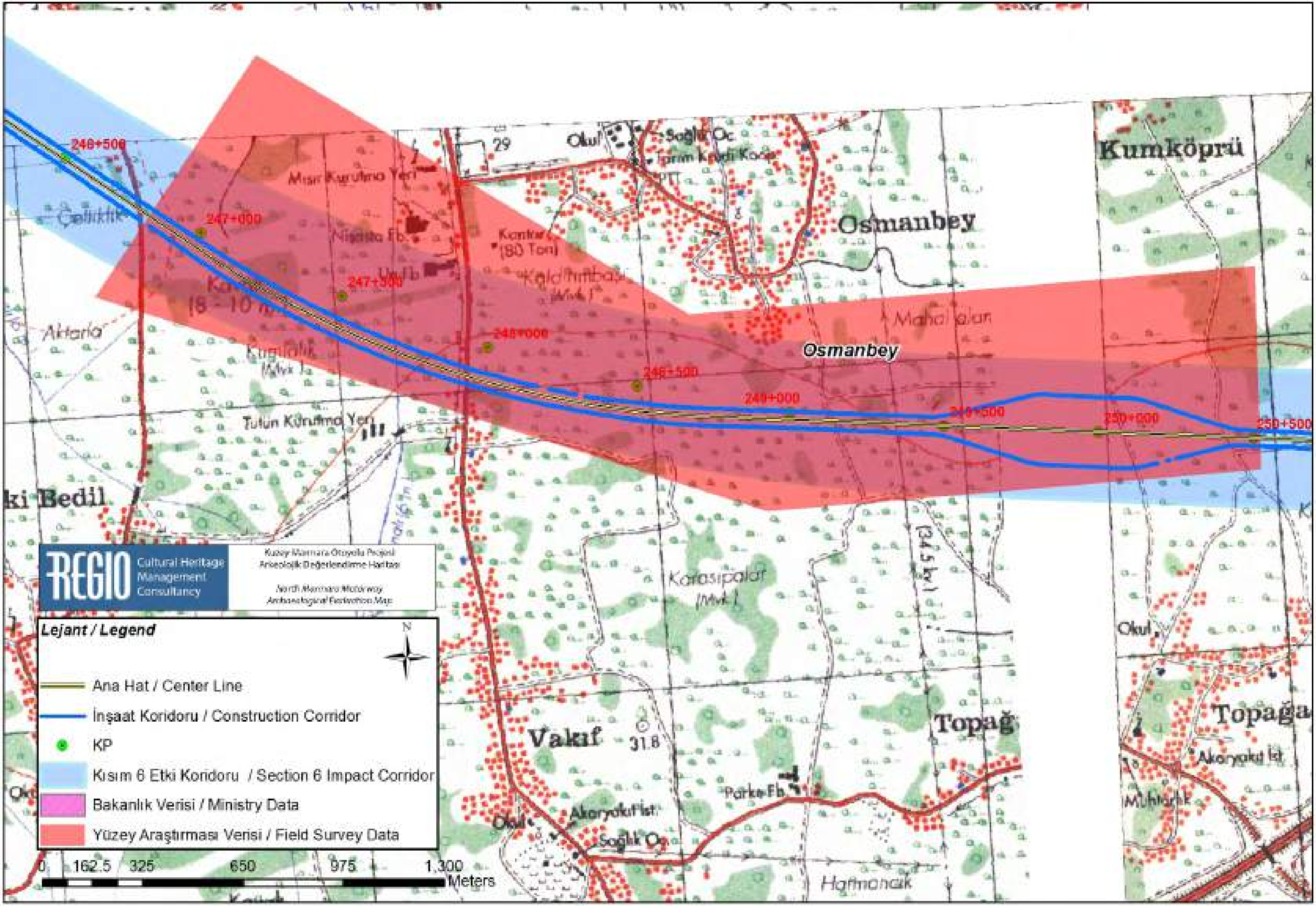
64+800
64+900
64+700
65+200
65+500
65+700
66+000
66+500
66+700
67+000
67+200
67+500
68+000

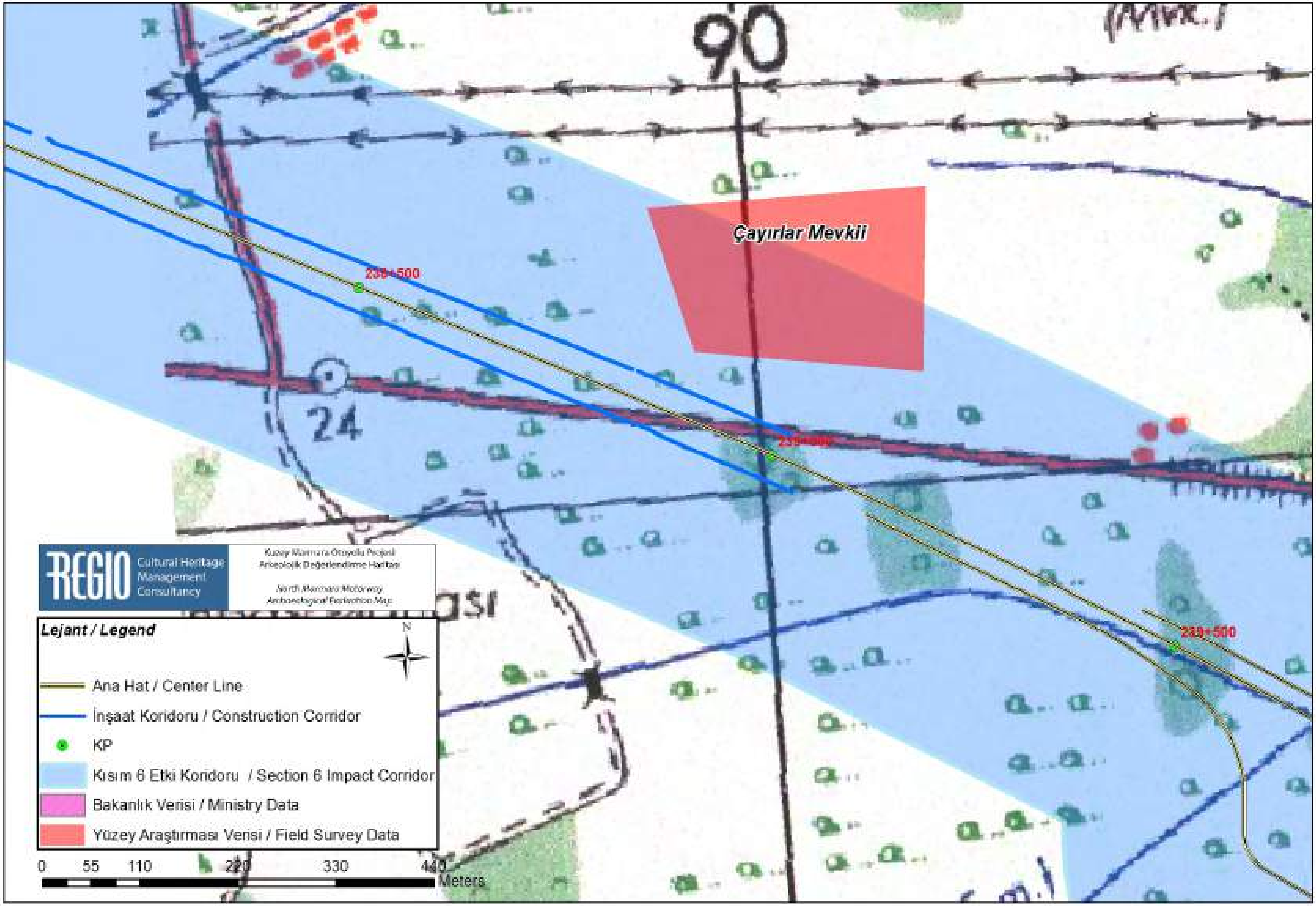


İSTANBUL
50. yıl Mahallesi
Gazi
Akçamescid
Güzeltepe
Çırçır
Alibeyköy
Karadolap
Emniyettepe
Yeşilpınar
Esentepe
66+000
66+500
66+700
67+000
67+200
67+500
68+000
68+500
69+000
69+500
70+000
70+500
71+000
71+256
Kuzey Marmara Otoyolu Projesi
Arkeolojik Risk Öngörü Haritası
North Marmara Motorway
Archaeological Predictive Model Map
REGIO Cultural Heritage Management Consultancy
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 7 Etki Koridoru / Section 7 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
Arkeolojik Risk Seviyesi / Archaeological Risk Level
Düşük / Low
Orta / Moderate
Yüksek / High
Çok Yüksek / Very High
0 300 600 1,200 1,800 2,400
Meters

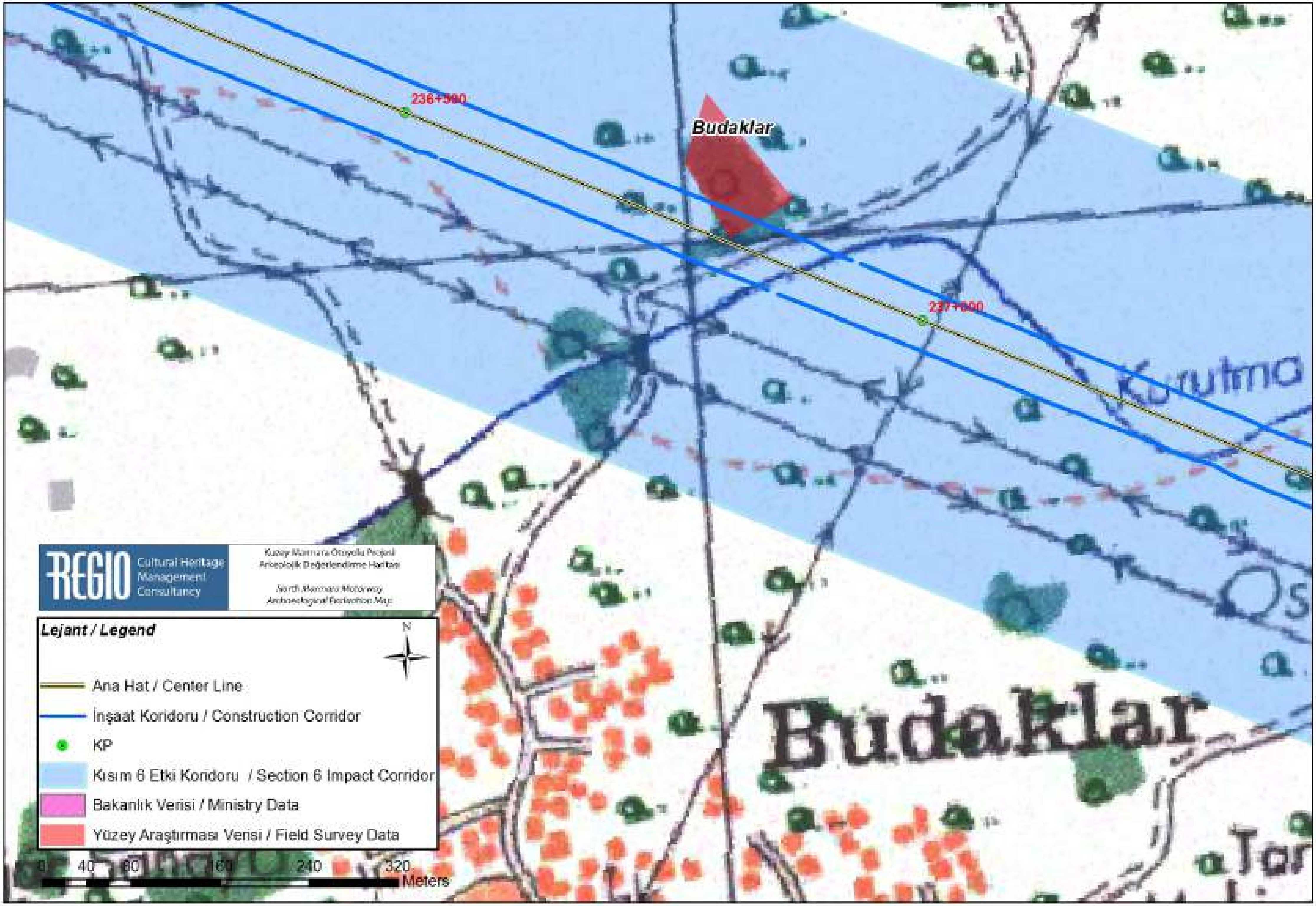
Annex 6 – Site Layouts



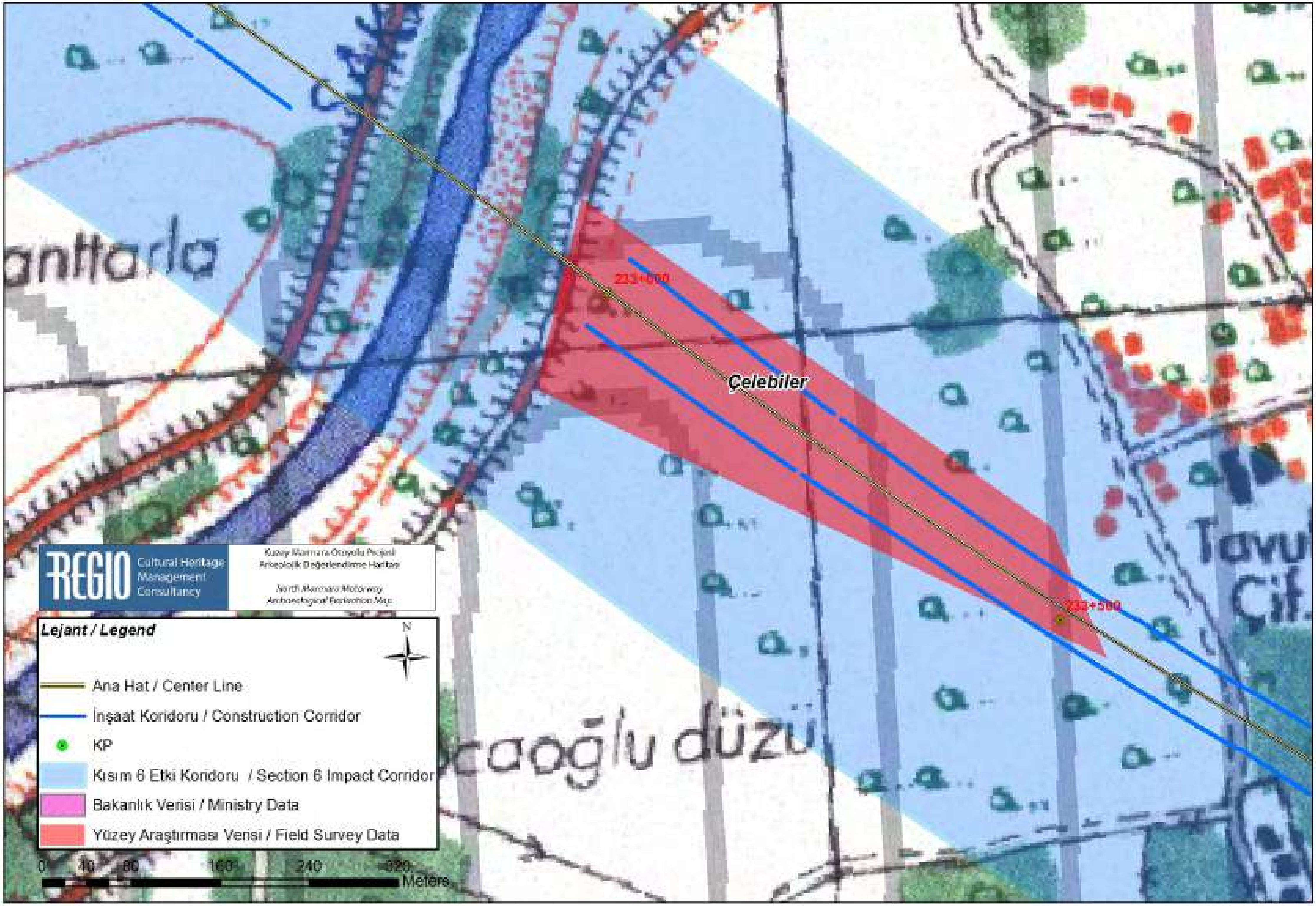
Kumköprü
Osmanbey
Osmanbey
Okul
Sağlık Oc.
Mısır Kurutma Yeri
Çeliktik
Aktarla
Kuştalık (Mvk.)
Tutun Kurutma Yeri
ki Bedil
Karasıpalat (Mvk.)
Vakıf
31.8
Topağ
Topağa
Okul
Akaryakıt İst.
Muhtarlık
Parke Fb.
Akaryakıt İst.
Okul
Sağlık Oc.
Harmanalık
Mahallelar
246+500
247+000
247+500
248+000
248+500
249+000
249+500
250+000
250+500
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 6 Etki Koridoru / Section 6 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 162.5 325 650 975 1,300
Meters



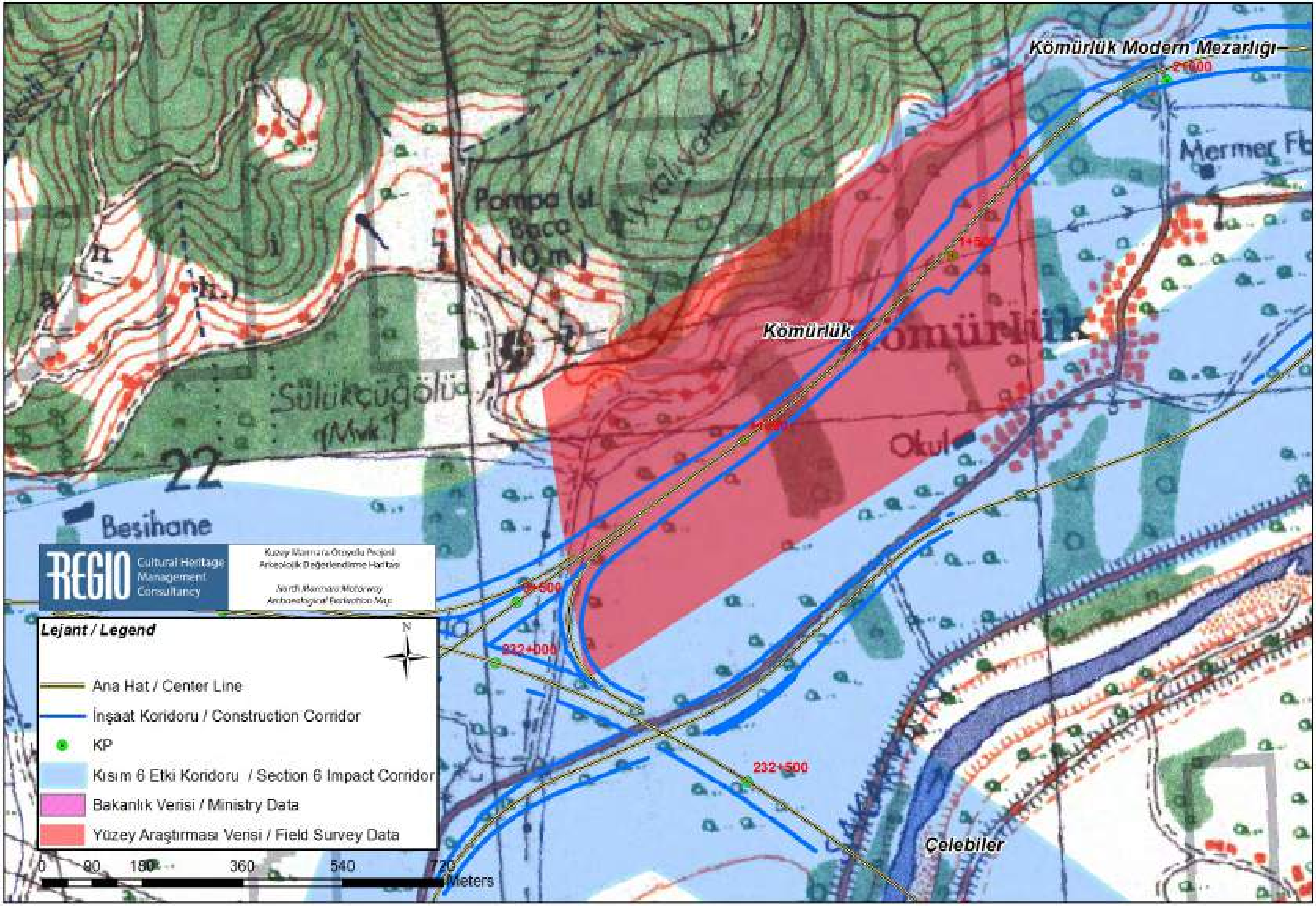
90
Çayırlar Mevkii
24
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 6 Etki Koridoru / Section 6 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 55 110 220 330 440
Meters

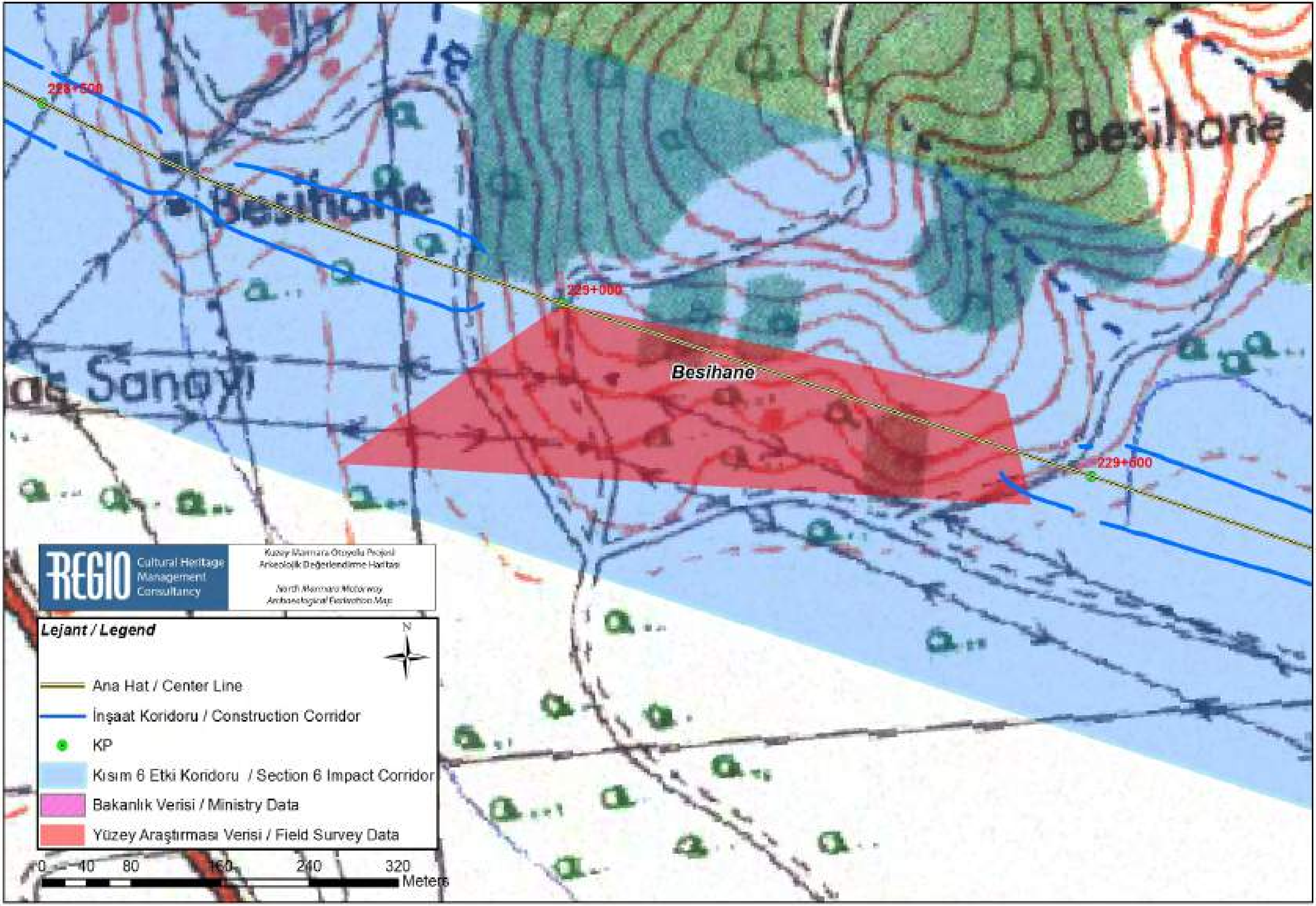


236+500
Budaklar
237+000
Kurutma
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 6 Etki Koridoru / Section 6 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 40 80 160 240 320
Meters
Budaklar

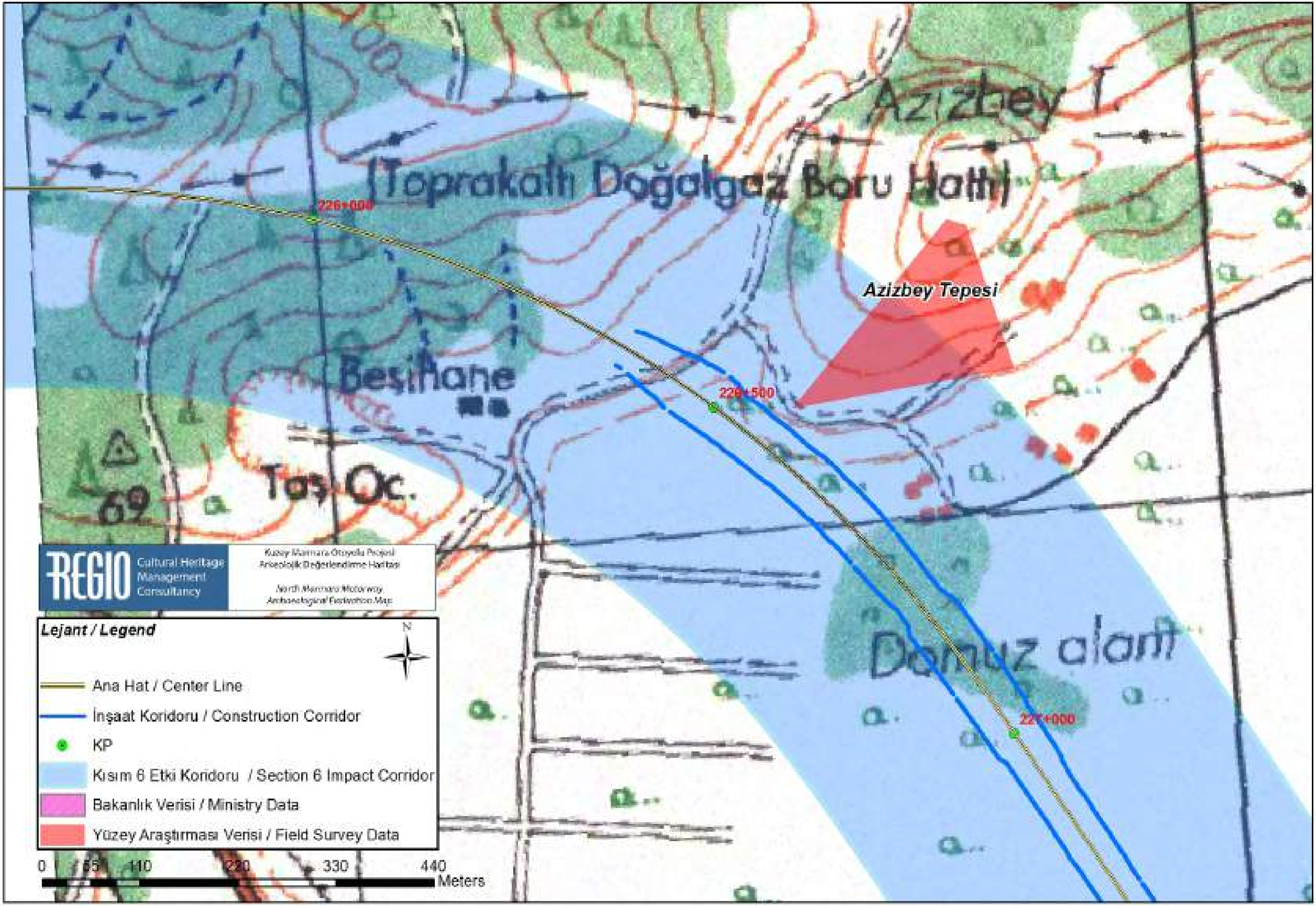


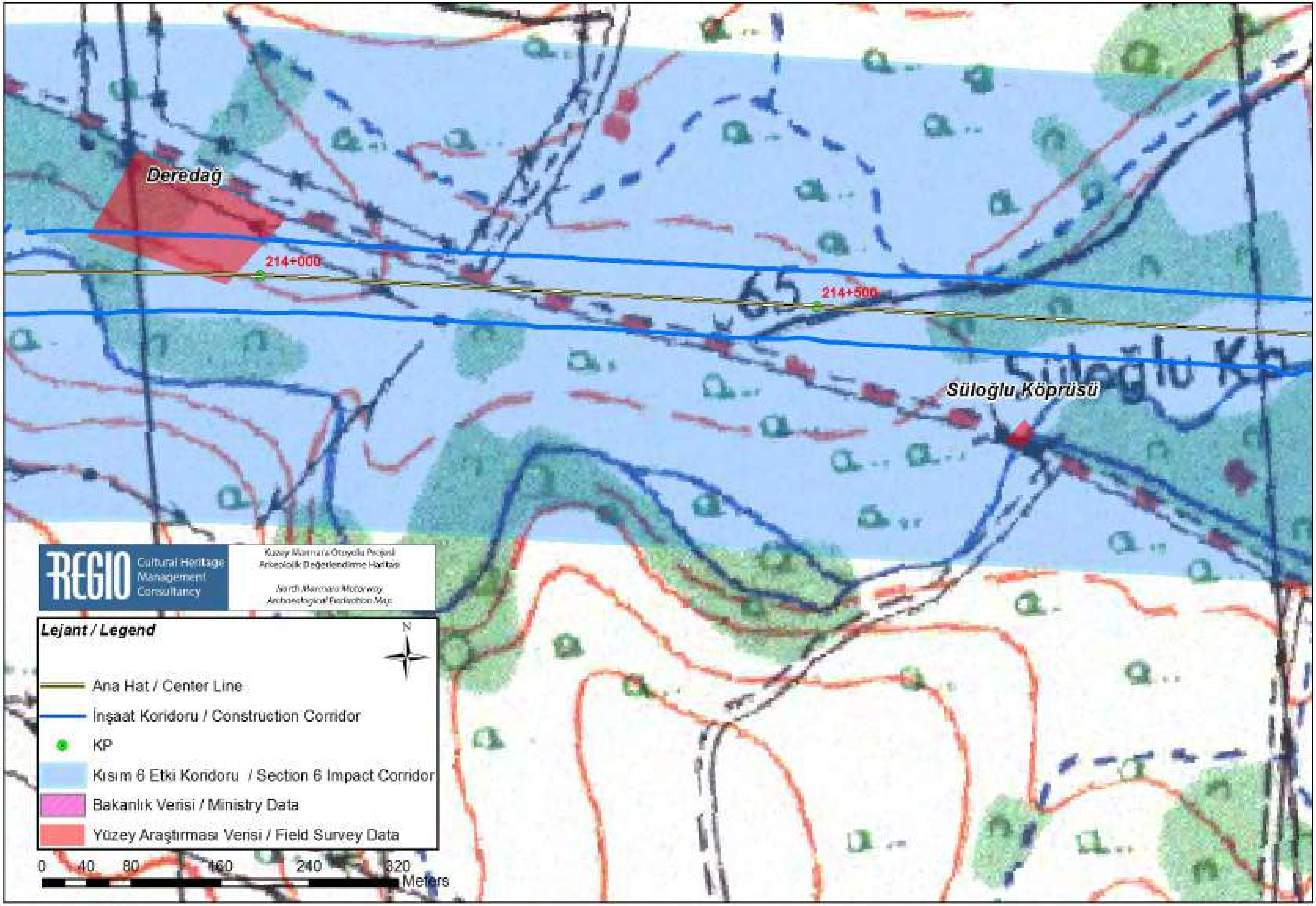
Çelebiler
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 6 Etki Koridoru / Section 6 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 40 80 160 240 320
Meters

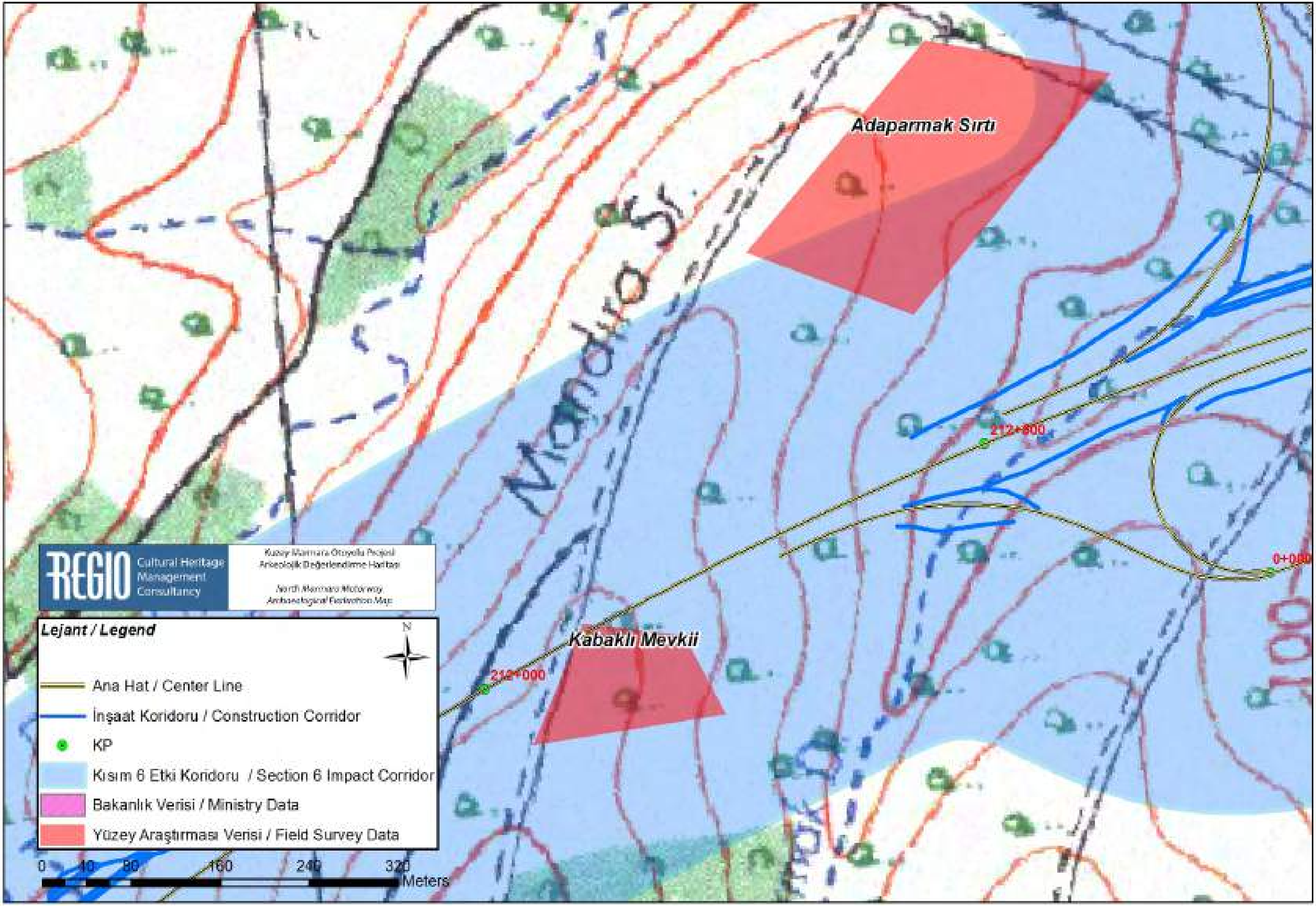

Kömürlük Modern Mezarlığı
Kömürlük
Pompa İst.
Baca
(10 m)
Sülükçügölü
Besihane
Mermer Fb
Okul
Çelebiler
22
1+500
1+000
0+500
232+000
232+500
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 6 Etki Koridoru / Section 6 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 90 180 360 540 720
Meters



228+500
229+000
229+500
Besihone
Besihane
Besihane
Sanayi
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 6 Etki Koridoru / Section 6 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 40 80 160 240 320
Meters

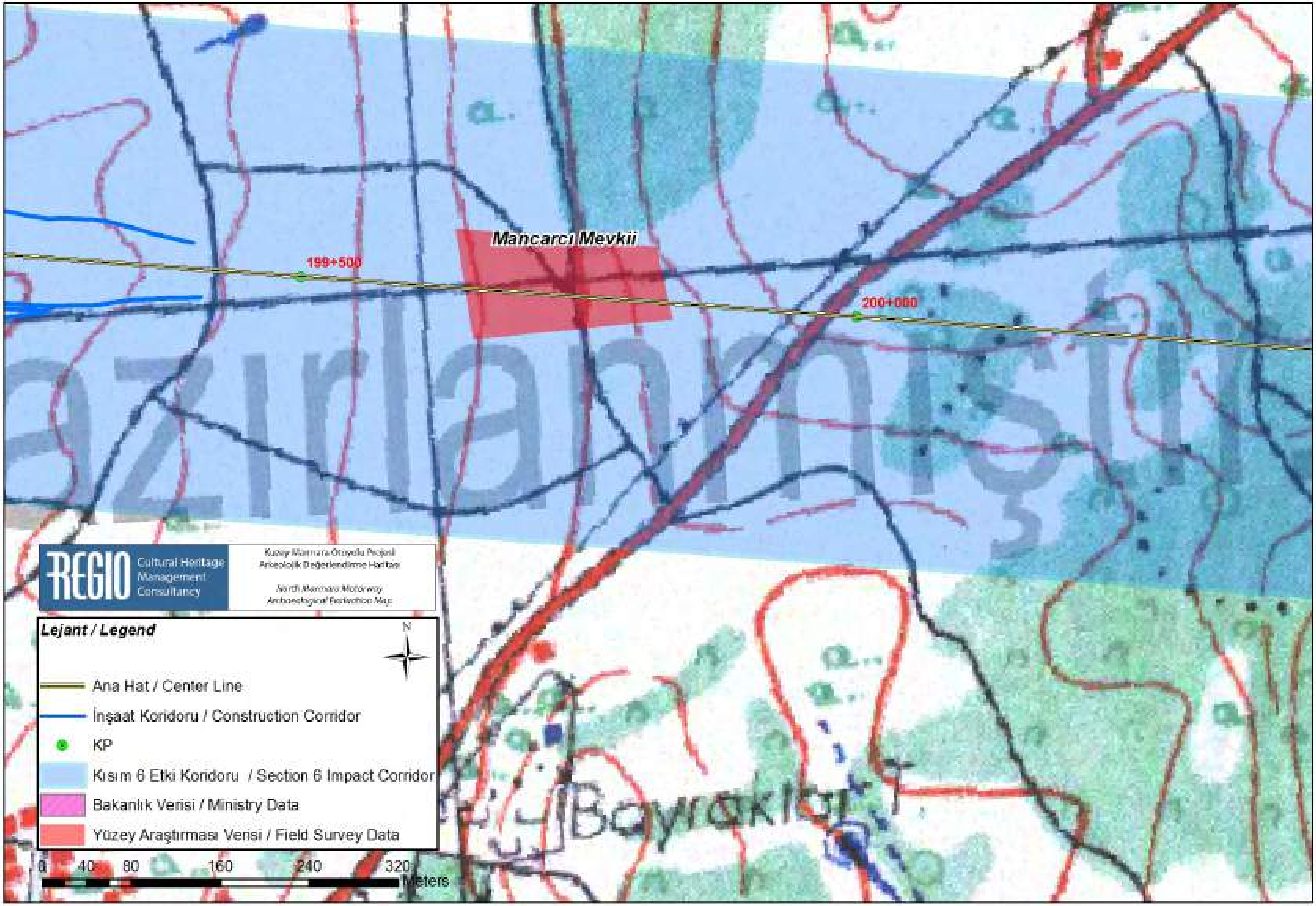

Azizbey T.
(Toprakalı Doğalgaz Boru Hattı)
226+000
Azizbey Tepesi
Besihane
226+500
Taş Oc.
69
Domuz alanı
227+000
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 6 Etki Koridoru / Section 6 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 55 110 220 330 440
Meters


Deredağ
214+000
214+500
65
Süloğlu Kp
Süloğlu Köprüsü
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 6 Etki Koridoru / Section 6 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 40 80 160 240 320
Meters

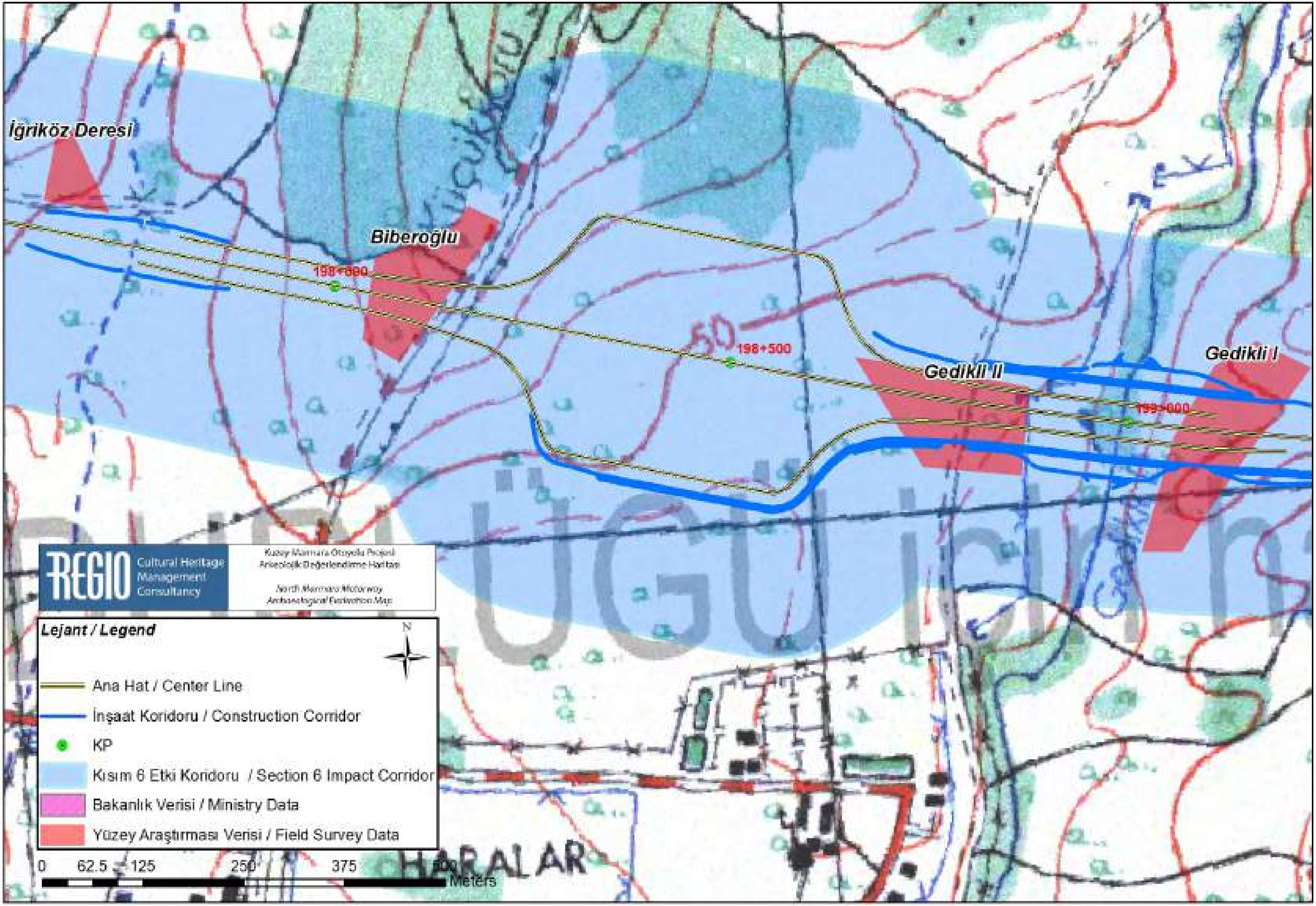


Adaparmak Sırtı
Mandıra Sr.
212+800
0+000
Kabaklı Mevkii
212+000
100
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 6 Etki Koridoru / Section 6 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 40 80 160 240 320
Meters

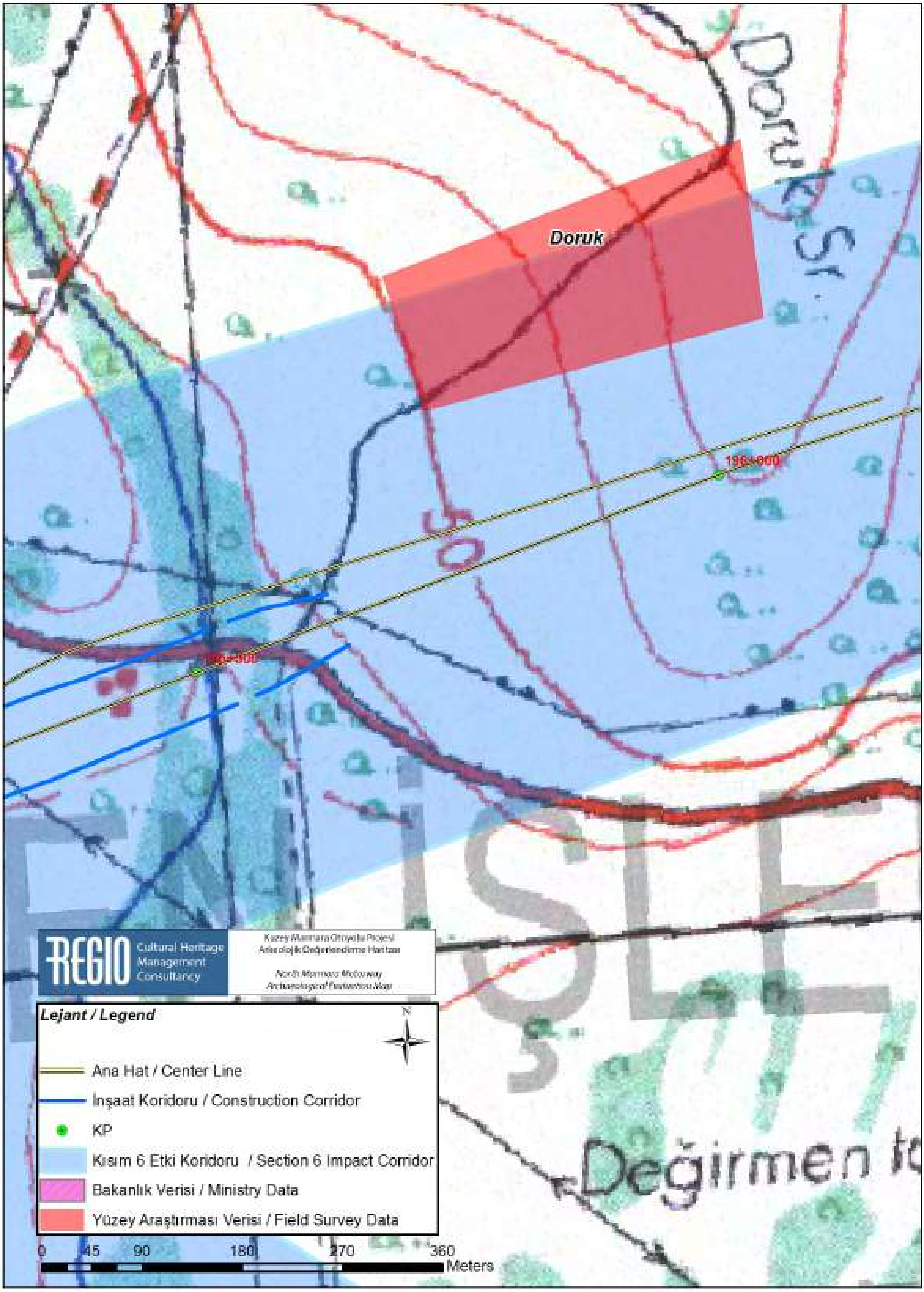
Köprübaşı Tepesi
64
REGIO
Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 6 Etki Koridoru / Section 6 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 30 60 120 180 240
Meters



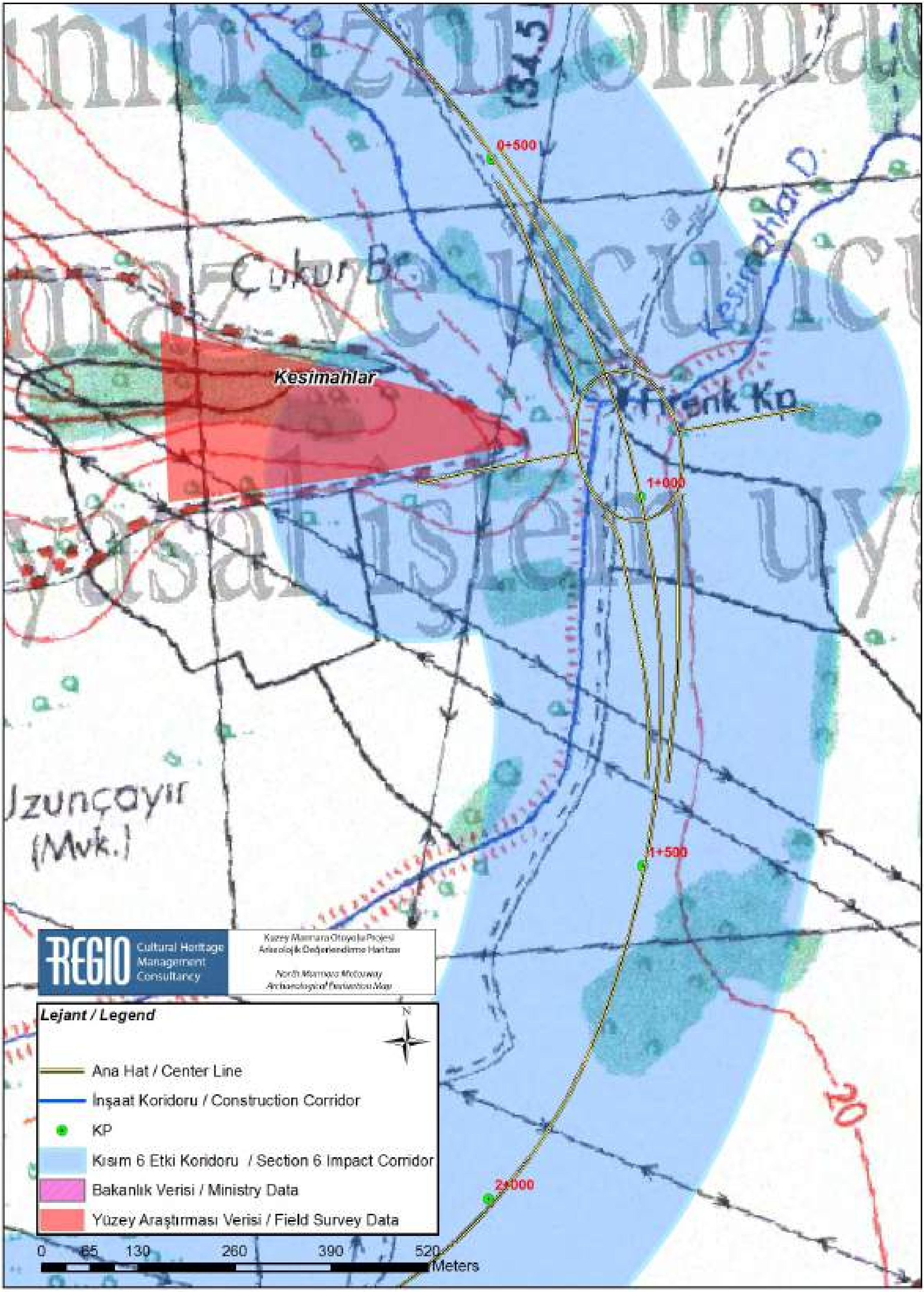
Mancarcı Mevkii
199+500
200+000
Bayraklar
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 6 Etki Koridoru / Section 6 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 40 80 160 240 320
Meters

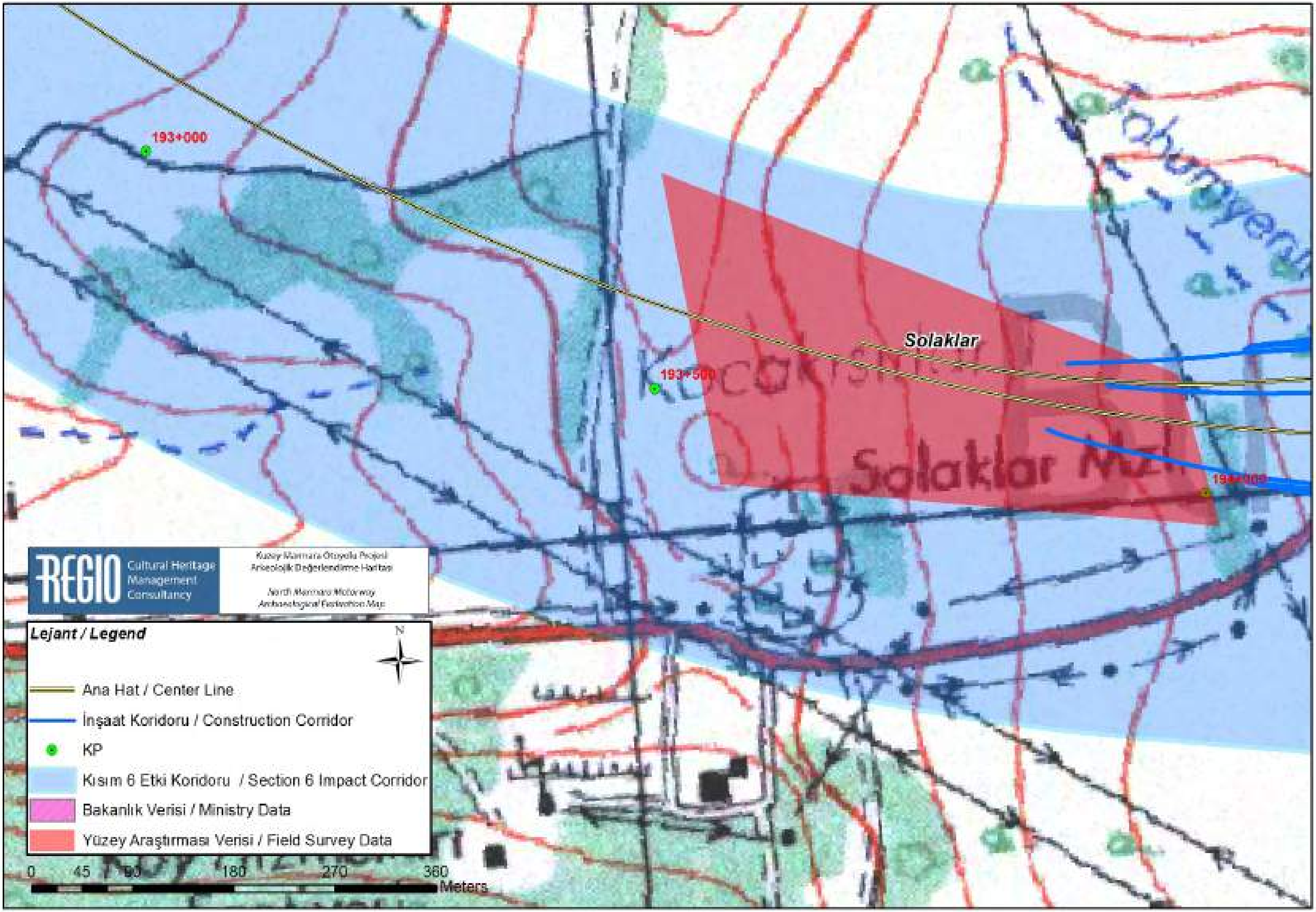


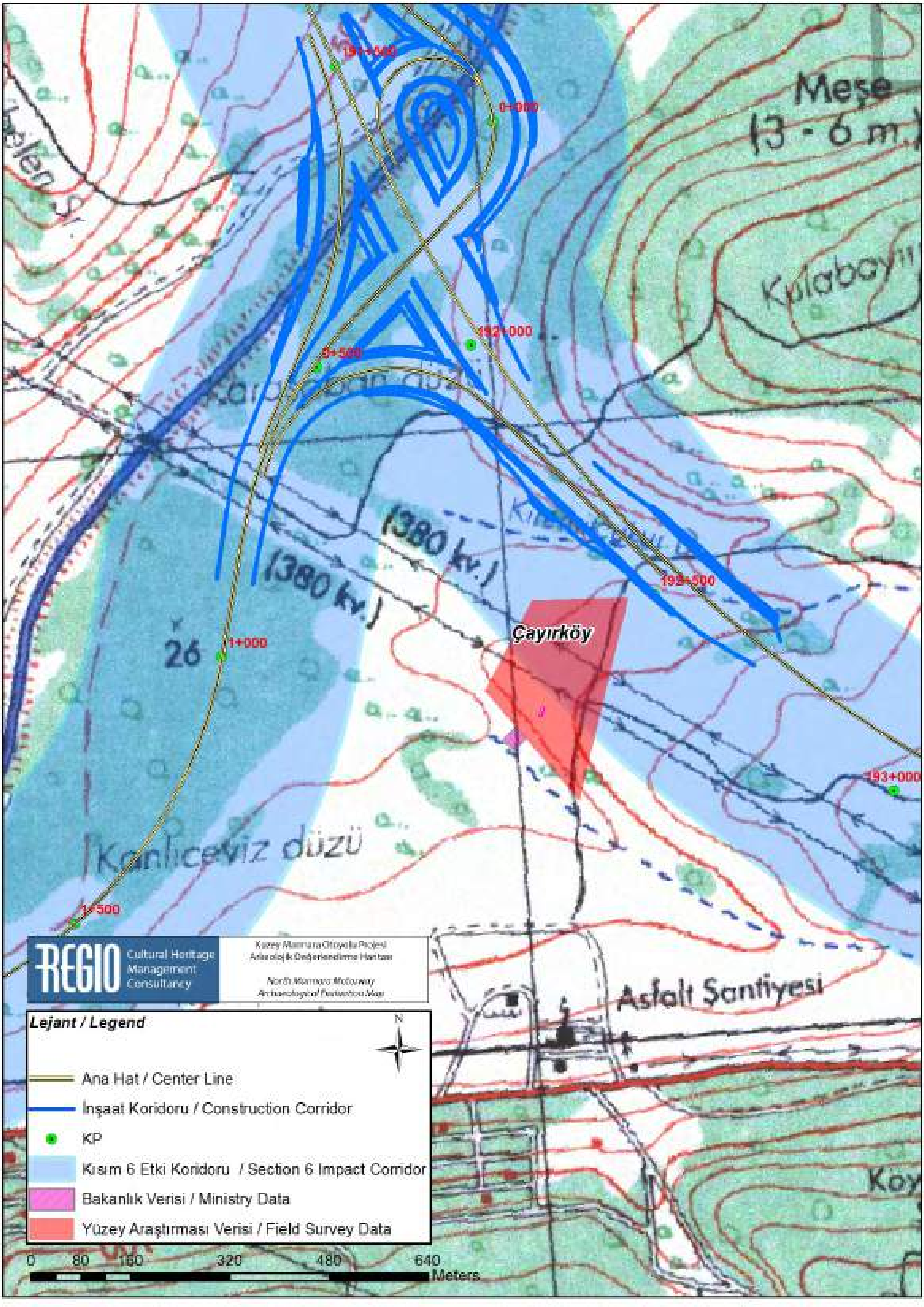
İgriköz Deresi
Biberoğlu
Gedikli II
Gedikli I
198+500
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 6 Etki Koridoru / Section 6 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0
62.5
125
250
375
500
Meters
HARALAR

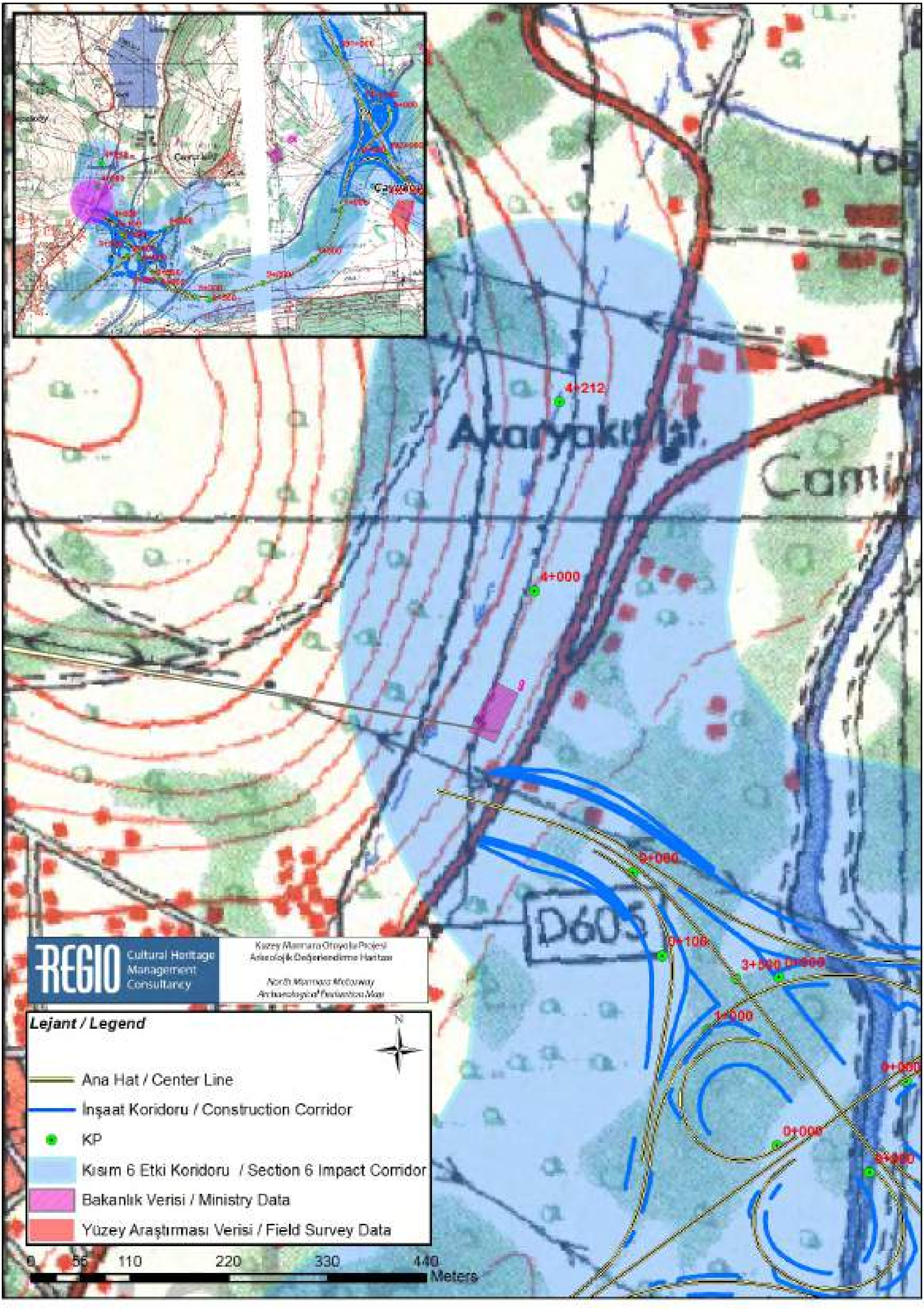


Doruk
Doruk Sr.
Değirmen
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 6 Etki Koridoru / Section 6 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 45 90 180 270 360
Meters

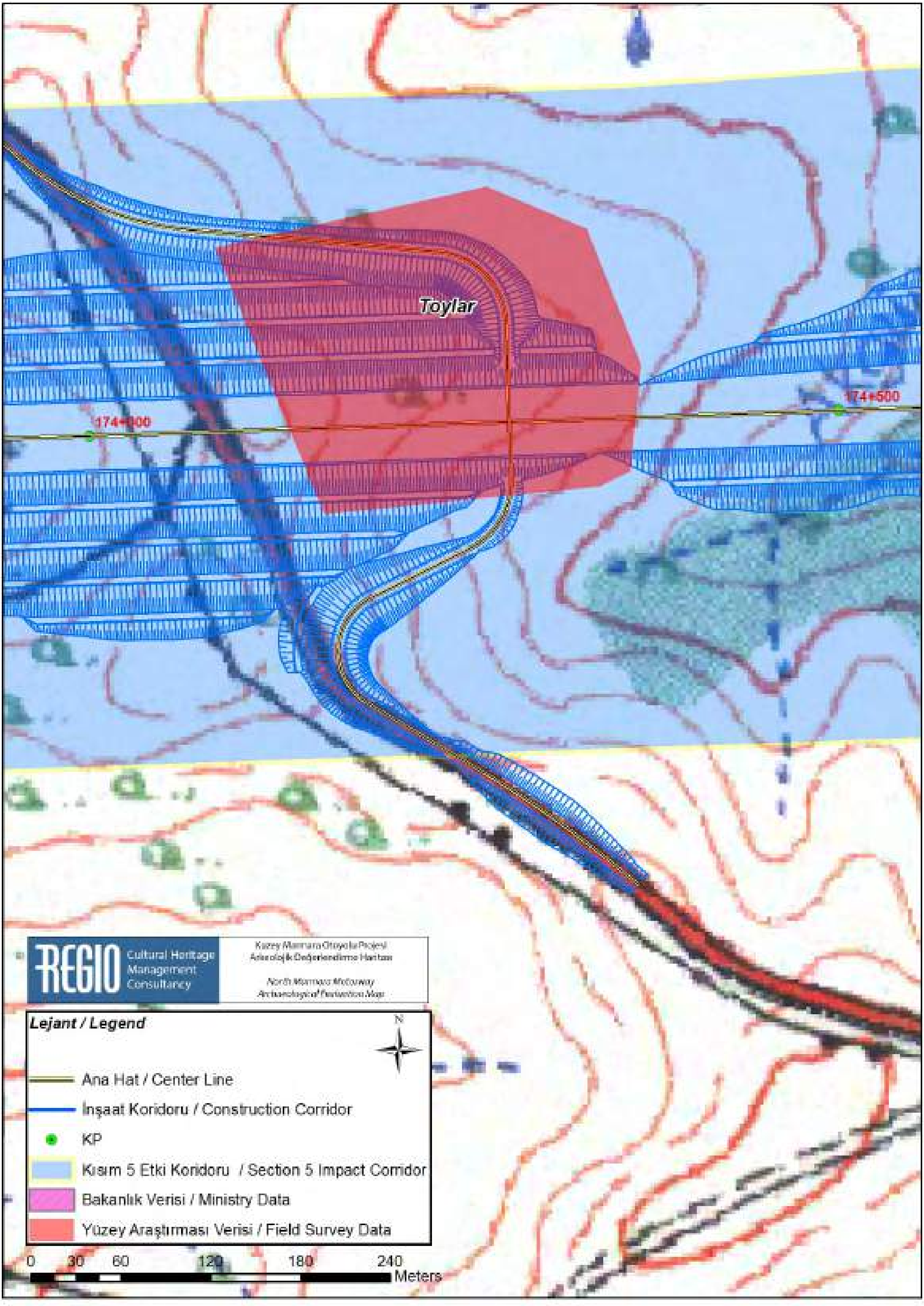

0+500
Çukur Br.
Kesimahlar D.
Kesimahlar
Frenk Kp.
1+000
Uzunçayır
(Mvk.)
1+500
2+000
20
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 6 Etki Koridoru / Section 6 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0
65
130
260
390
520
Meters


193+000
193+500
194+000
Solaklar
Solaklar Mzl.
REGIO
Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi Arkeolojik Değerlendirme Haritası
North Marmara Motorway Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 6 Etki Koridoru / Section 6 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0
45
90
180
270
360
Meters

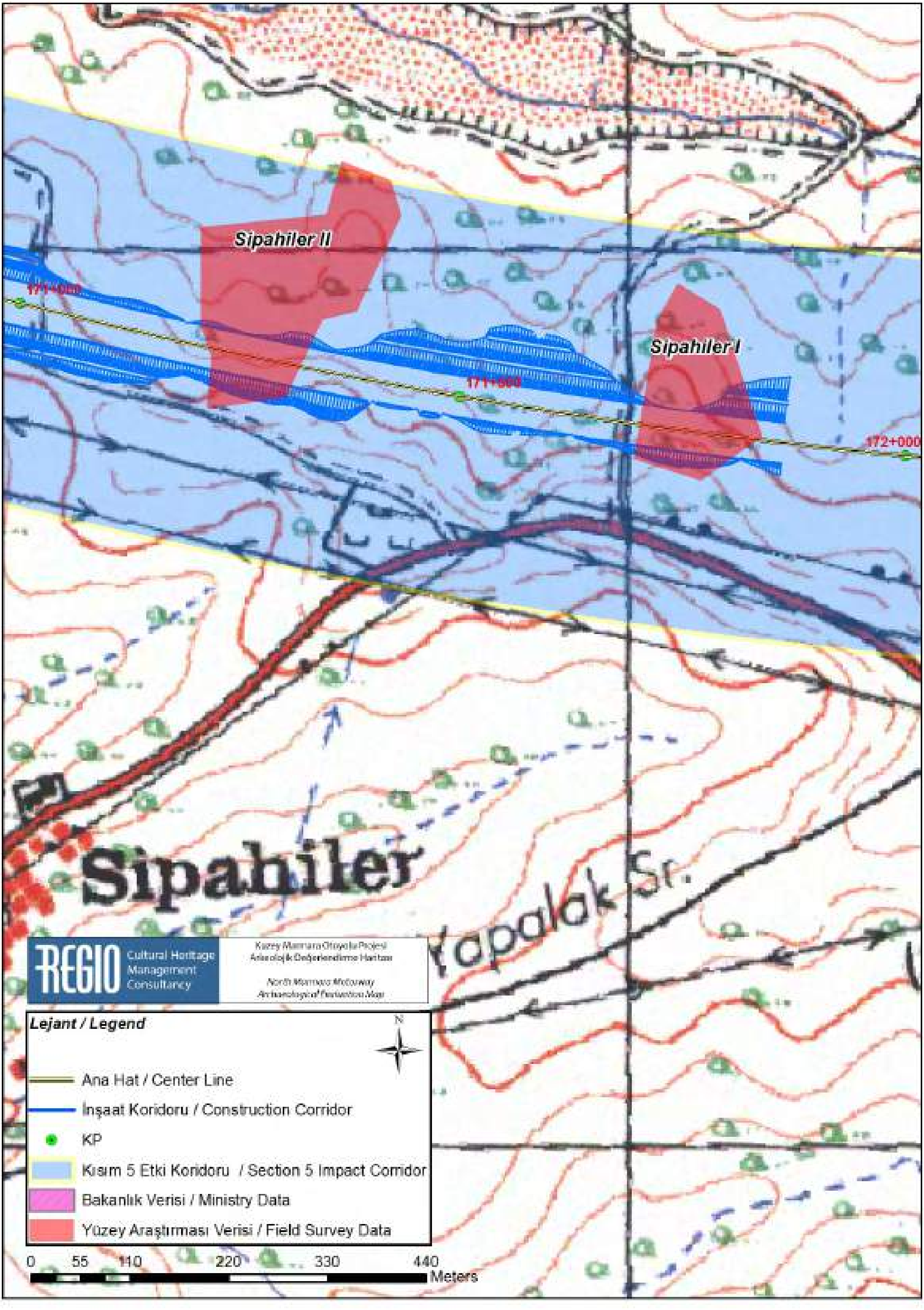

191+500
0+000
Meşe
(13 - 6 m.)
192+000
0+500
(380 kv.)
(380 kv.)
192+500
Çayırköy
26
1+000
193+000
Kanlıceviz düzü
1+500
REGIO
Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Asfalt Şantiyesi
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 6 Etki Koridoru / Section 6 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 80 160 320 480 640
Meters

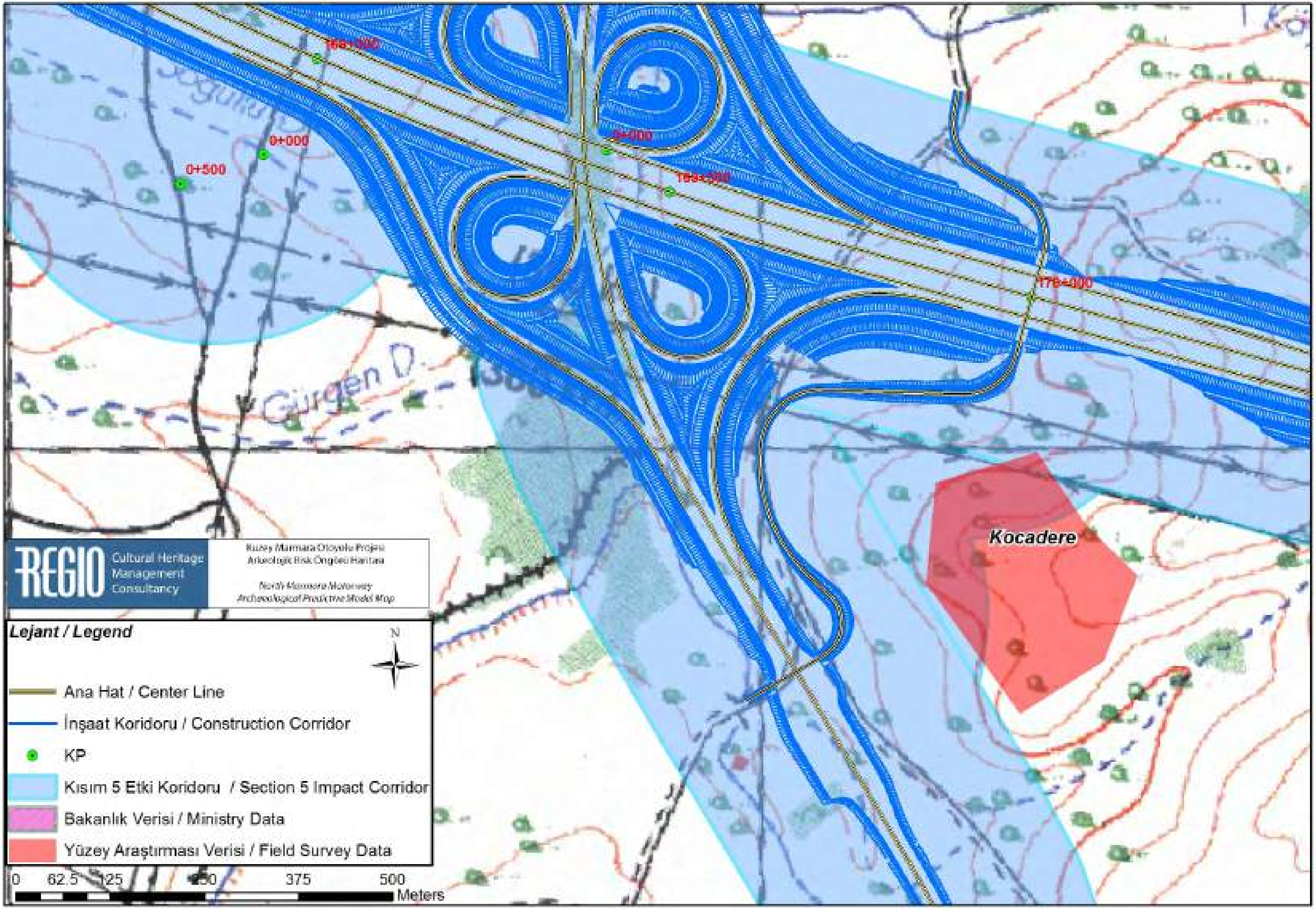


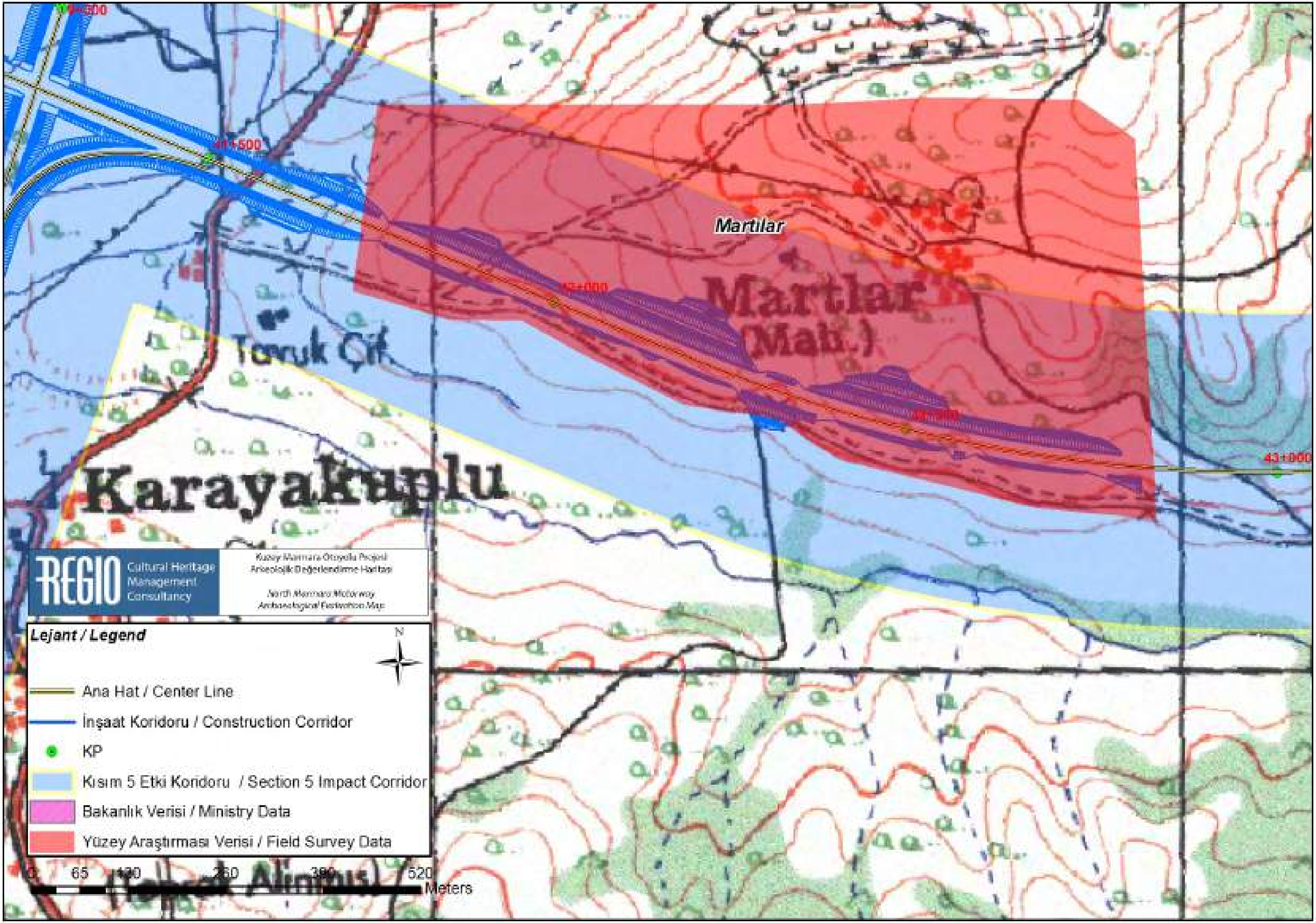
4+212
Akaryakıt İst.
4+000
D605
0+100
3+000
1+000
0+000
REGIO
Cultural Heritage
Management
Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 6 Etki Koridoru / Section 6 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0
55
110
220
330
440
Meters

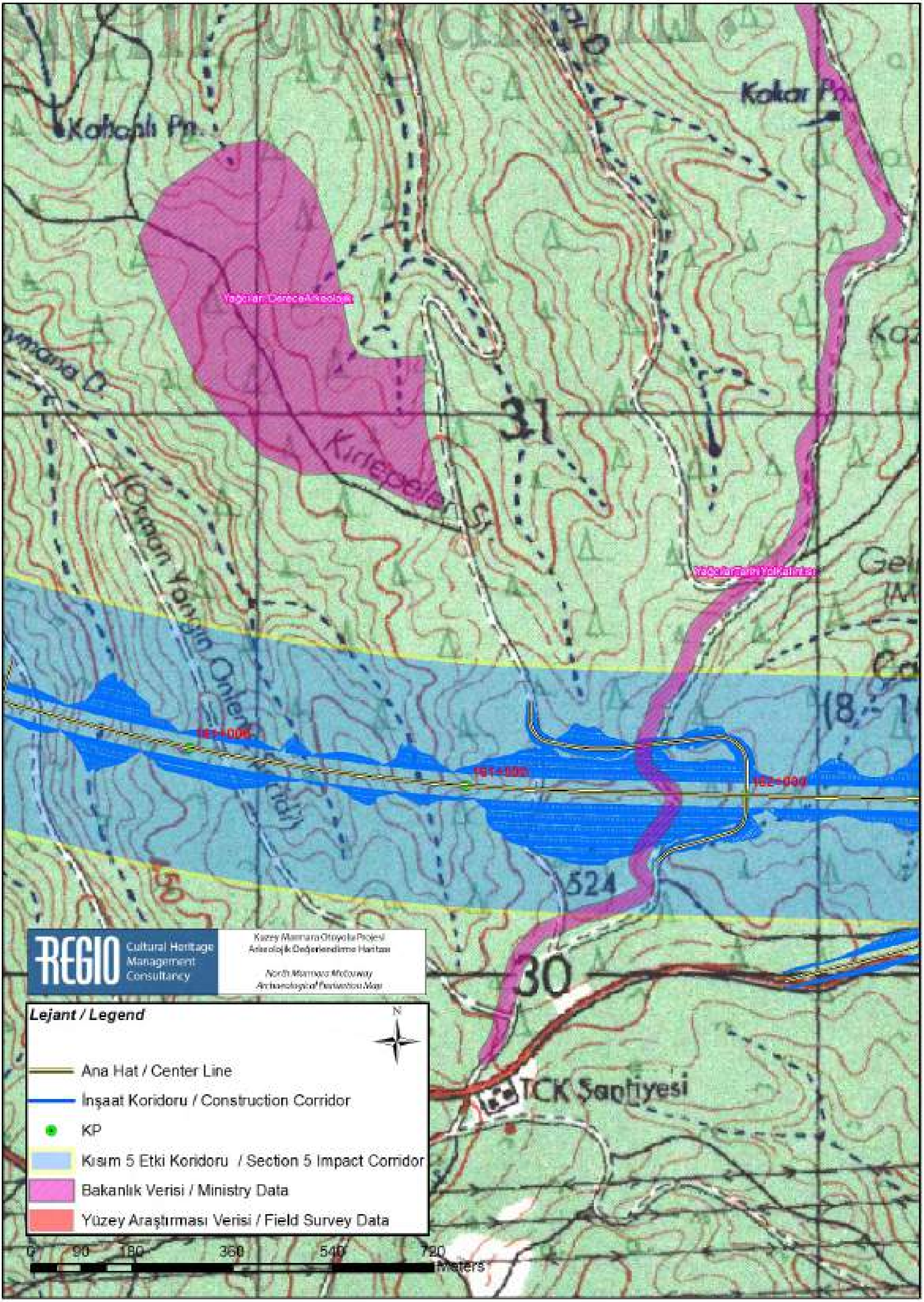


Toylar
174+500
174+500
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 5 Etki Koridoru / Section 5 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 30 60 120 180 240
Meters

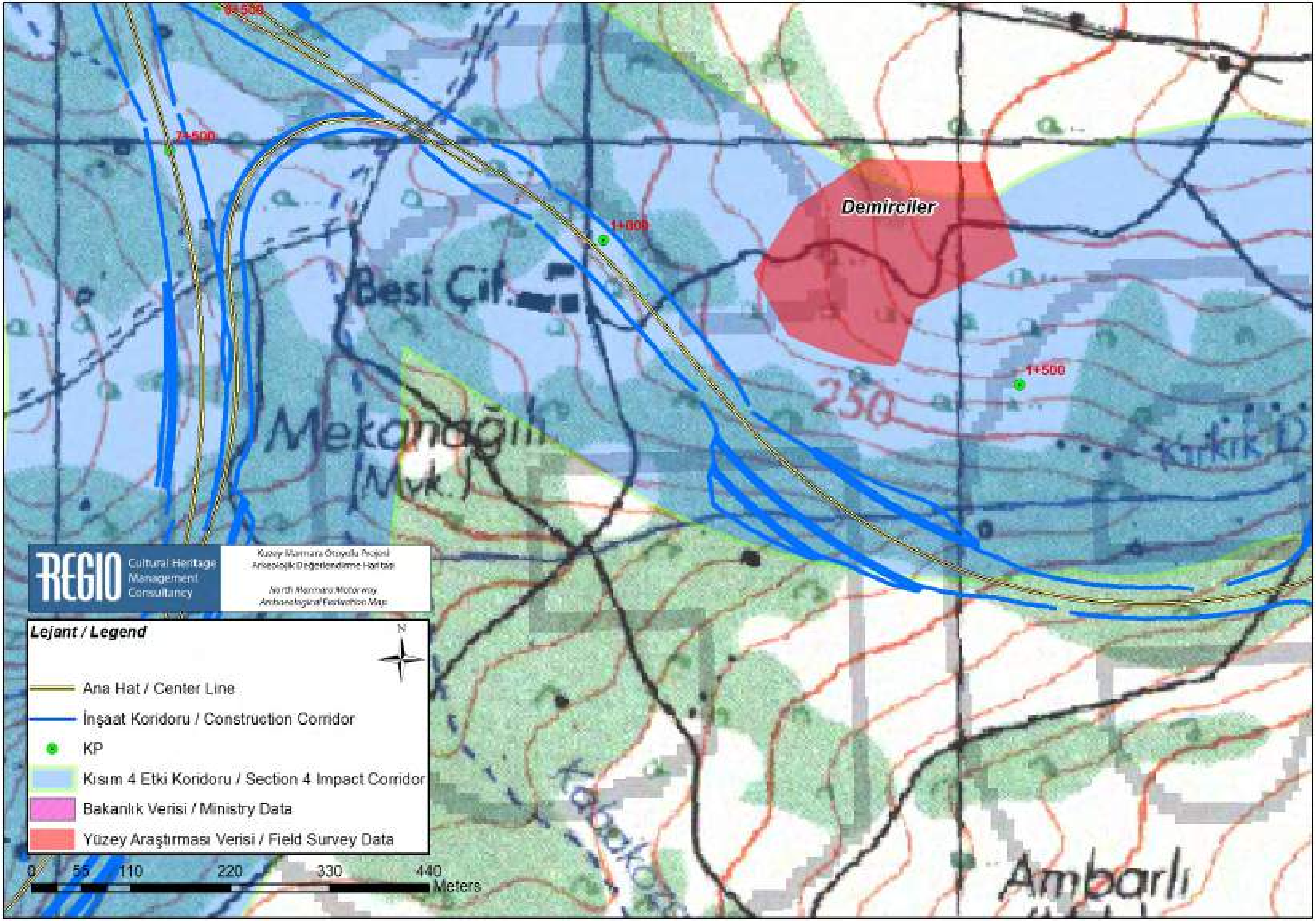

Sipahiler II
Sipahiler I
171+000
171+500
172+000
Sipahiler
Yapalak Sr.
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 5 Etki Koridoru / Section 5 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 55 110 220 330 440
Meters


REGIO
Cultural Heritage
Management
Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Risk Öngörü Haritası
North Marmara Motorway
Archaeological Predictive Model Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 5 Etki Koridoru / Section 5 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0
62.5
125
250
375
500
Meters
Kocadere
Gürgen D.
0+000
0+500
170+000

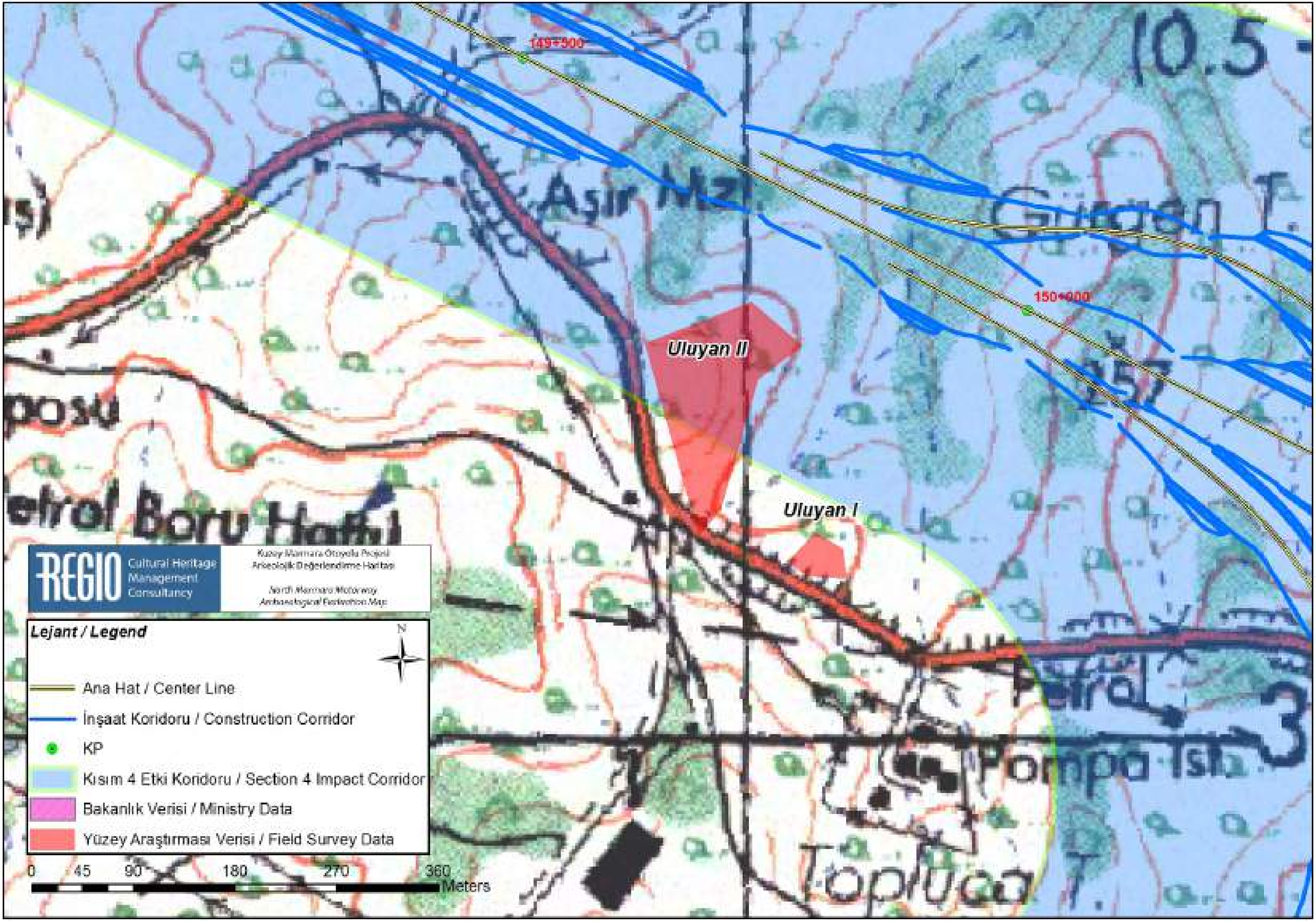

41+500
42+000
43+000
Martılar
Martlar
(Mah.)
Karayakuplu
Cultural Heritage
Management
Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 5 Etki Koridoru / Section 5 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 65 130 260 390 520
Meters



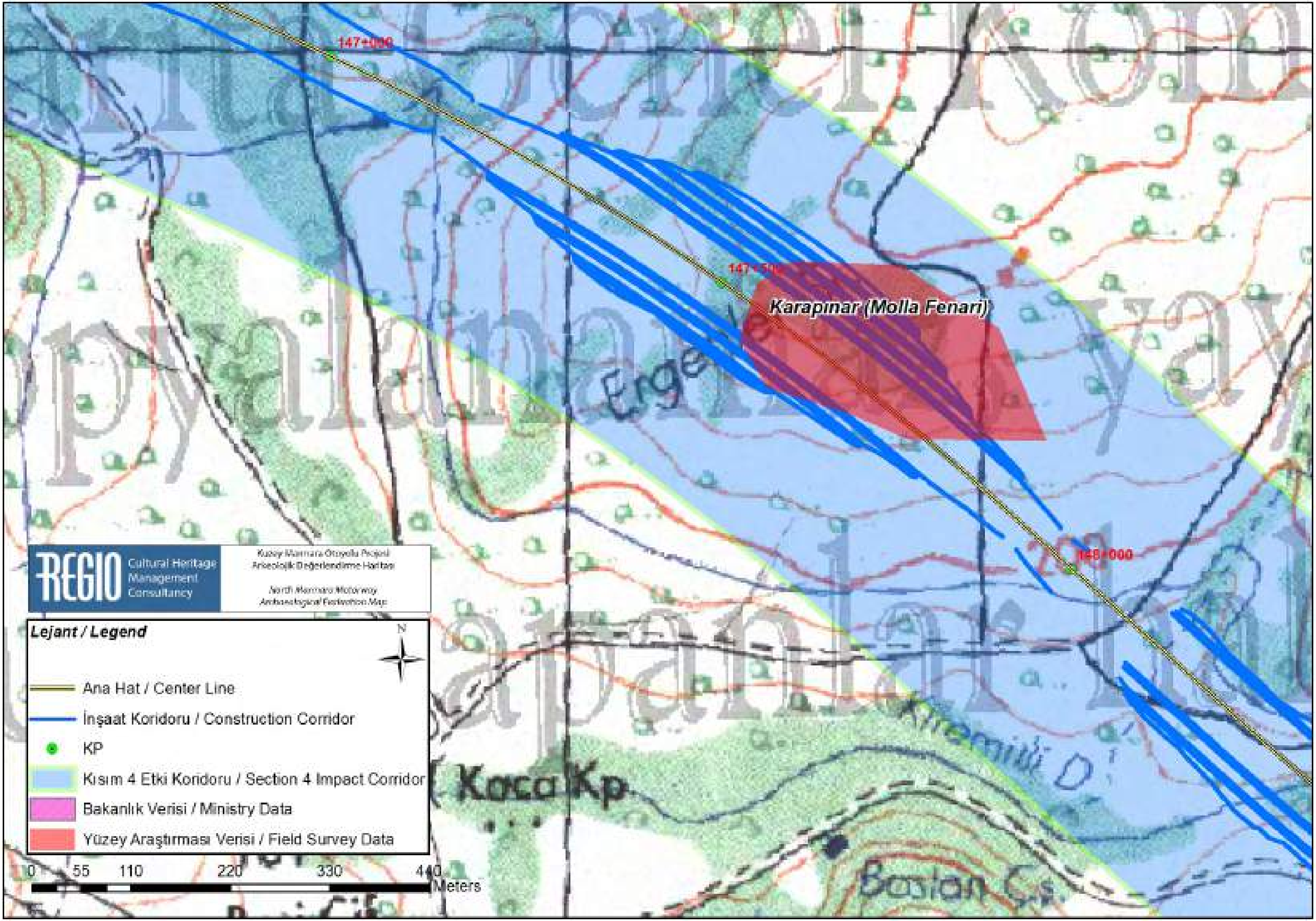
Kabaklı Pn.
Kokar Pn.
31
Kırtepeler Sr.
524
30
TCK Şantiyesi
REGIO
Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 5 Etki Koridoru / Section 5 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0
90
180
360
540
720
Meters

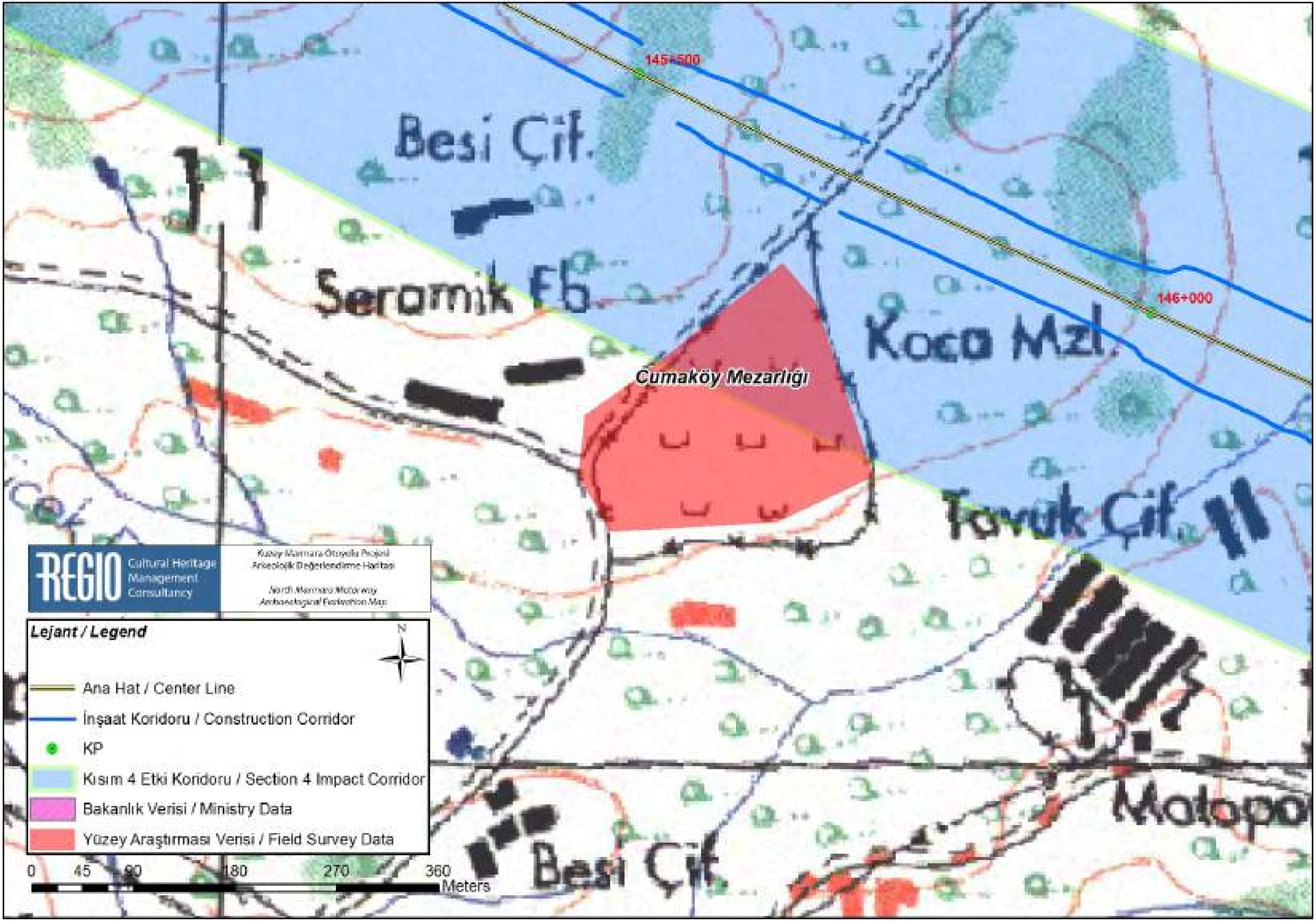


Demirciler
Besi Çif.
Mekanağılı
(Mvk.)
Ambarlı
250
7+500
1+000
1+500
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 4 Etki Koridoru / Section 4 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0
55
110
220
330
440
Meters

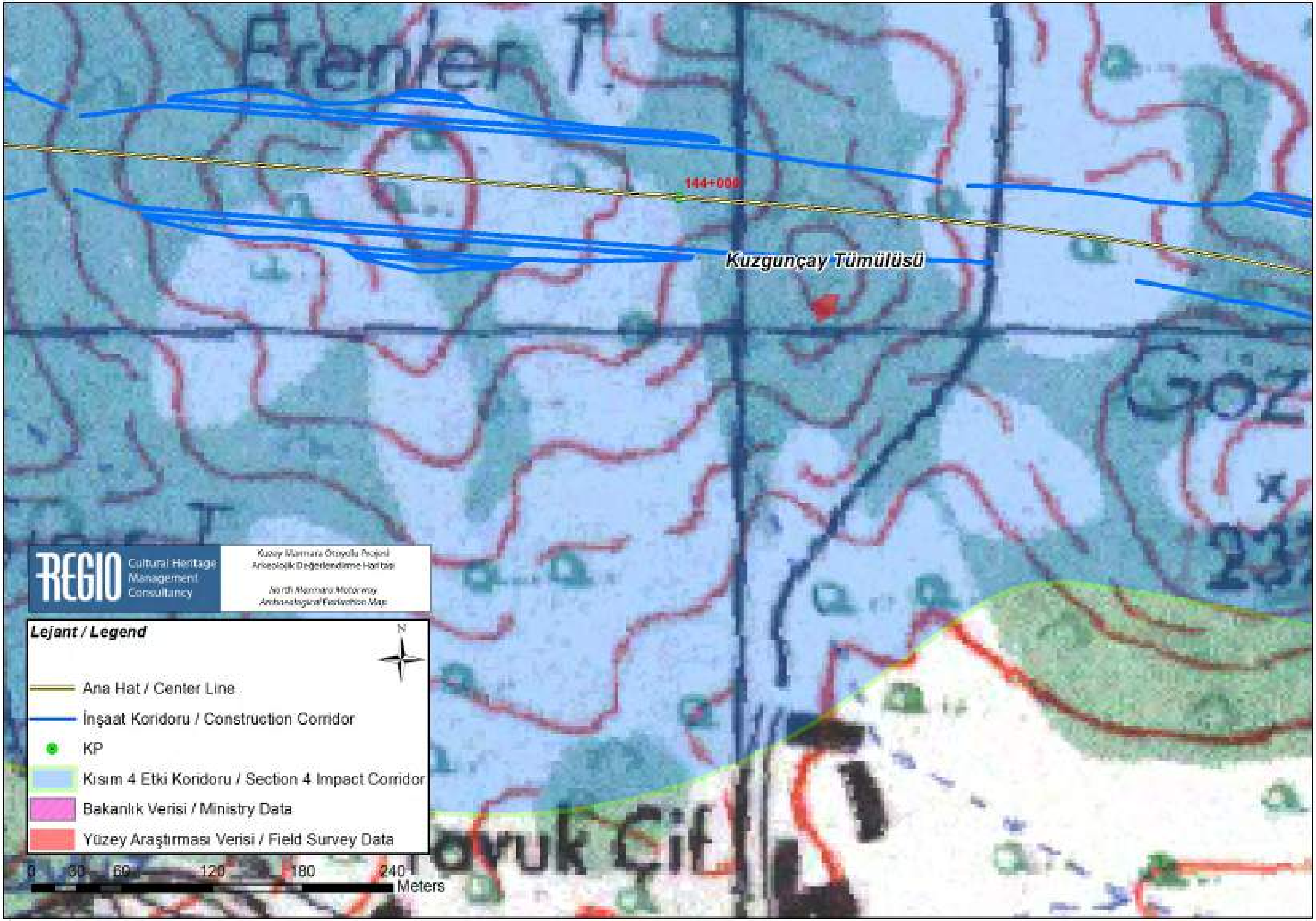


149+500
150+000
Uluyan II
Uluyan I
REGIO
Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 4 Etki Koridoru / Section 4 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0
45
90
180
270
360
Meters

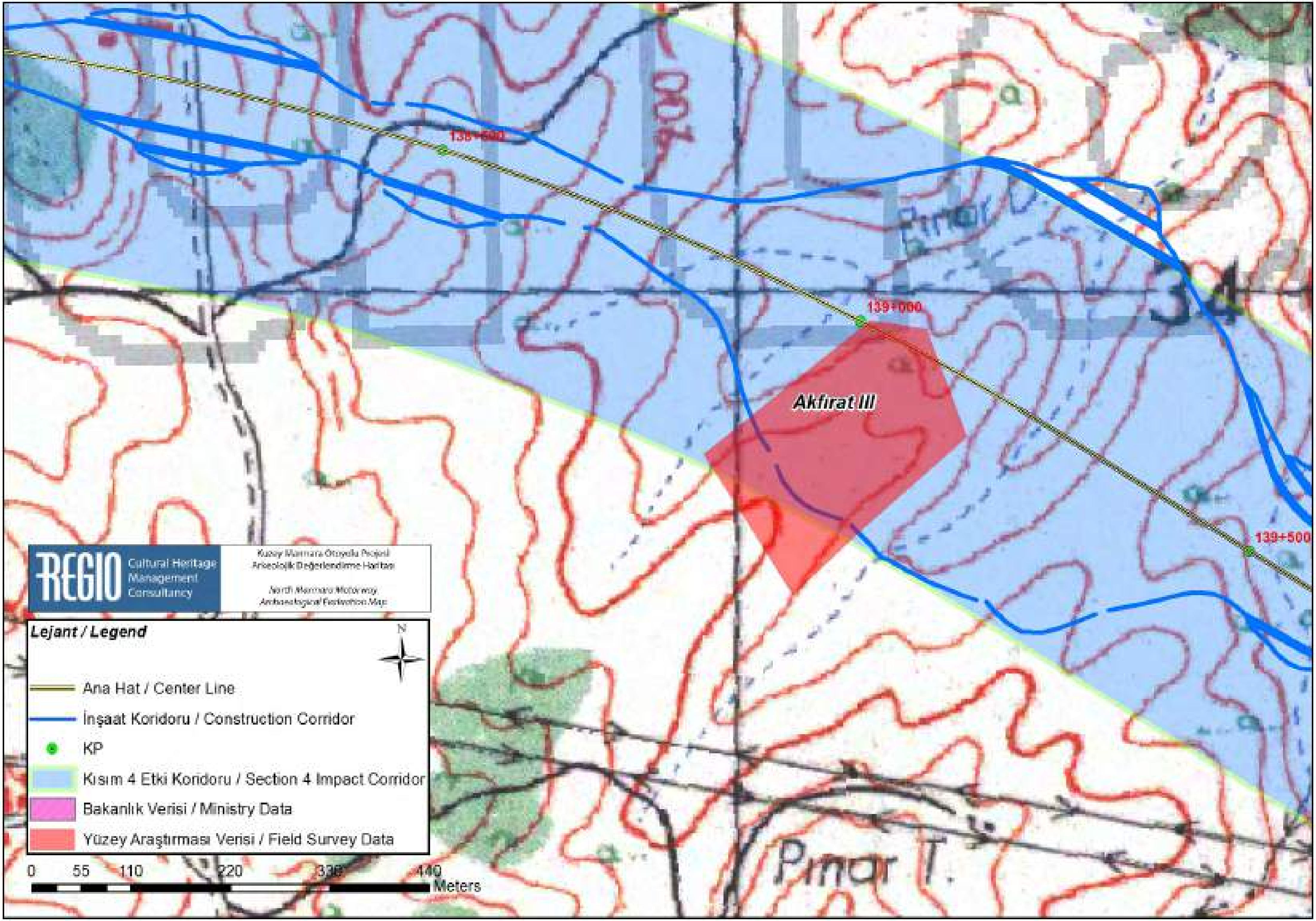

147+000
147+500
148+000
Karapınar (Molla Fenari)
Erge
Koca Kp
Bostan Ç.s.
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi Arkeolojik Değerlendirme Haritası
North Marmara Motorway Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 4 Etki Koridoru / Section 4 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 55 110 220 330 440
Meters



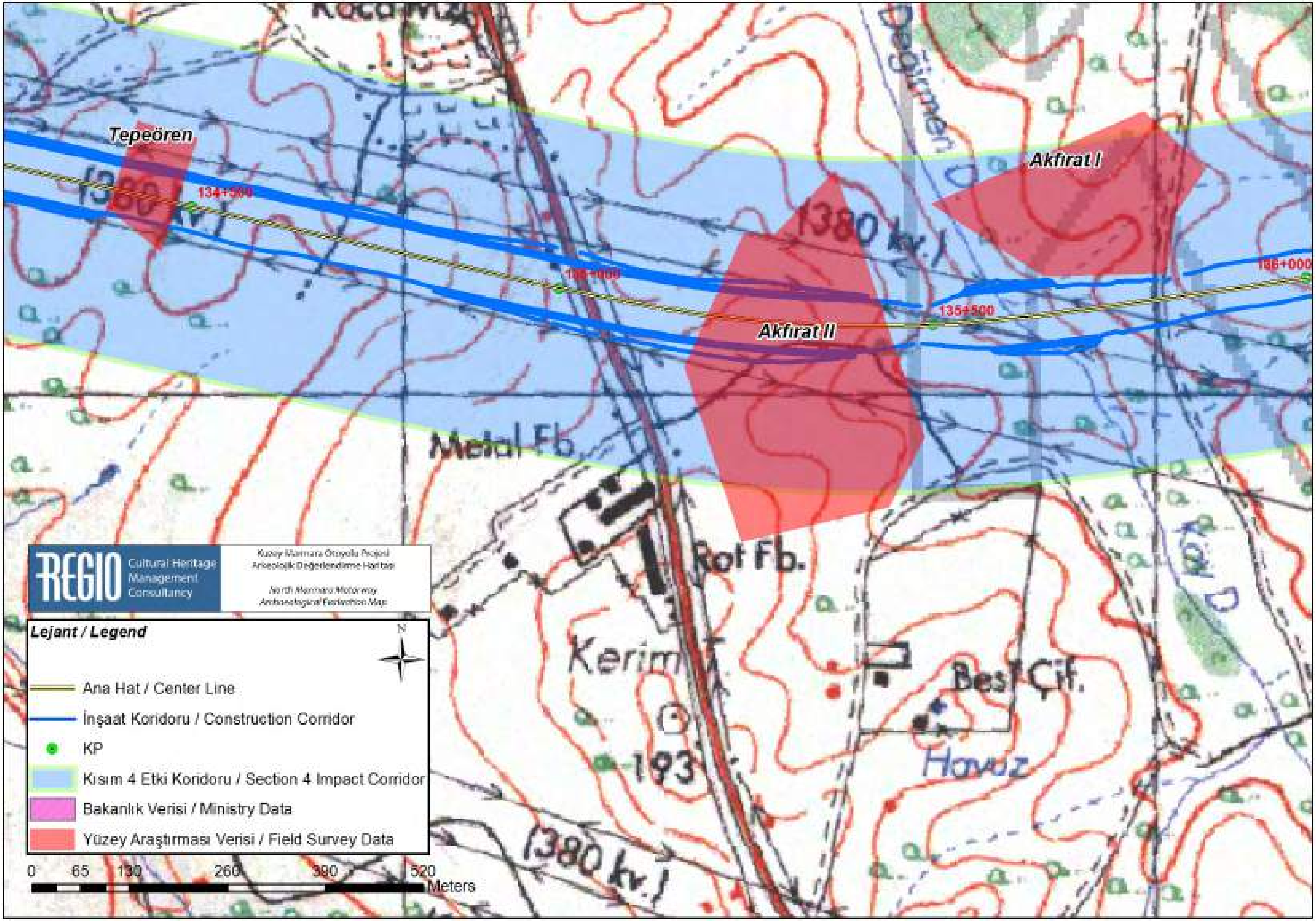
145+500
146+000
Besi Çif.
Seramik Fb
Koca Mzl.
Cumaköy Mezarlığı
Tavuk Çif.
Besi Çif.
Malapa
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 4 Etki Koridoru / Section 4 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0
45
90
180
270
360
Meters



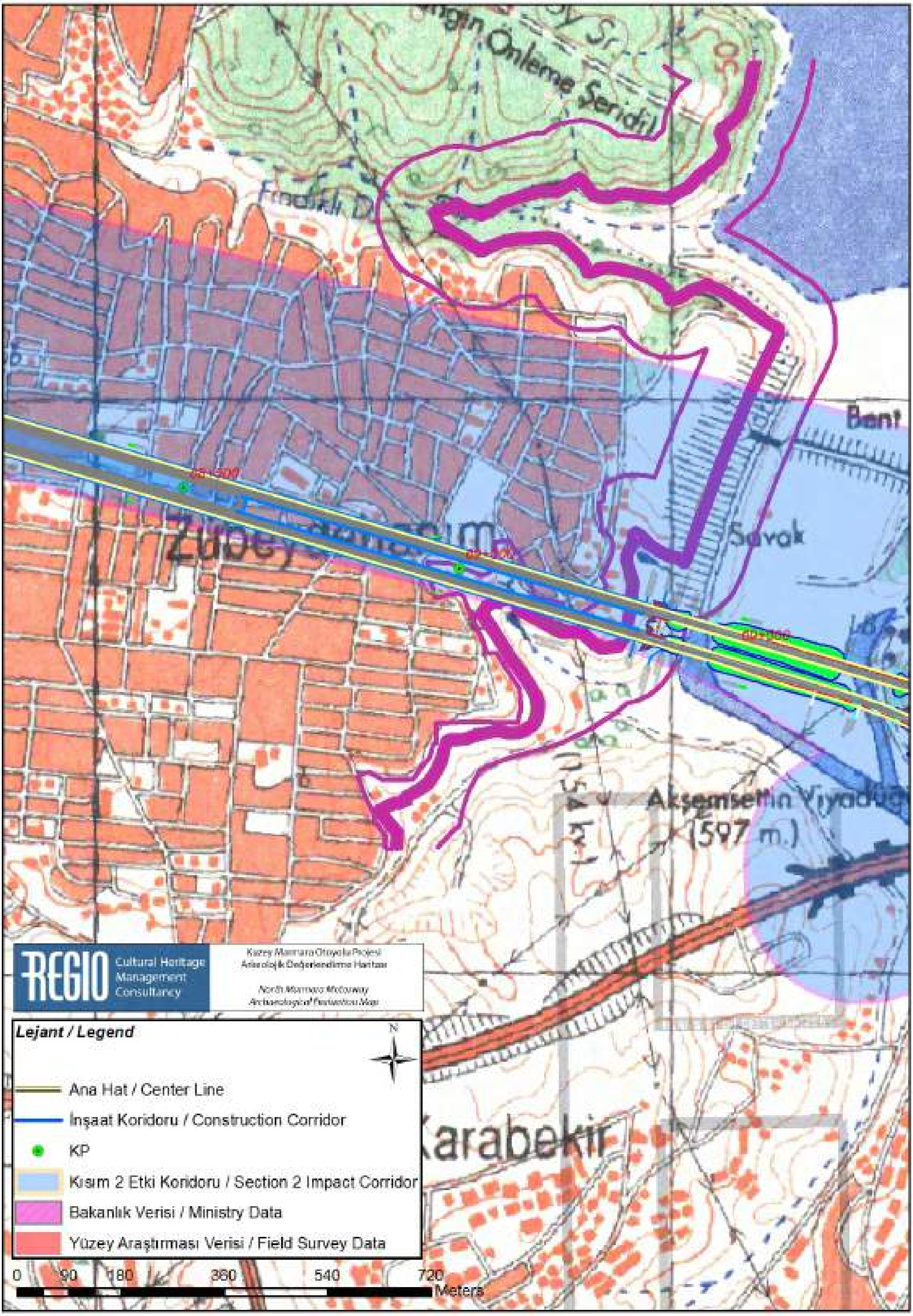
Erenler T.
144+000
Kuzgunçay Tümülüsü
Göz
Tavuk Çif
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 4 Etki Koridoru / Section 4 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 30 60 120 180 240
Meters



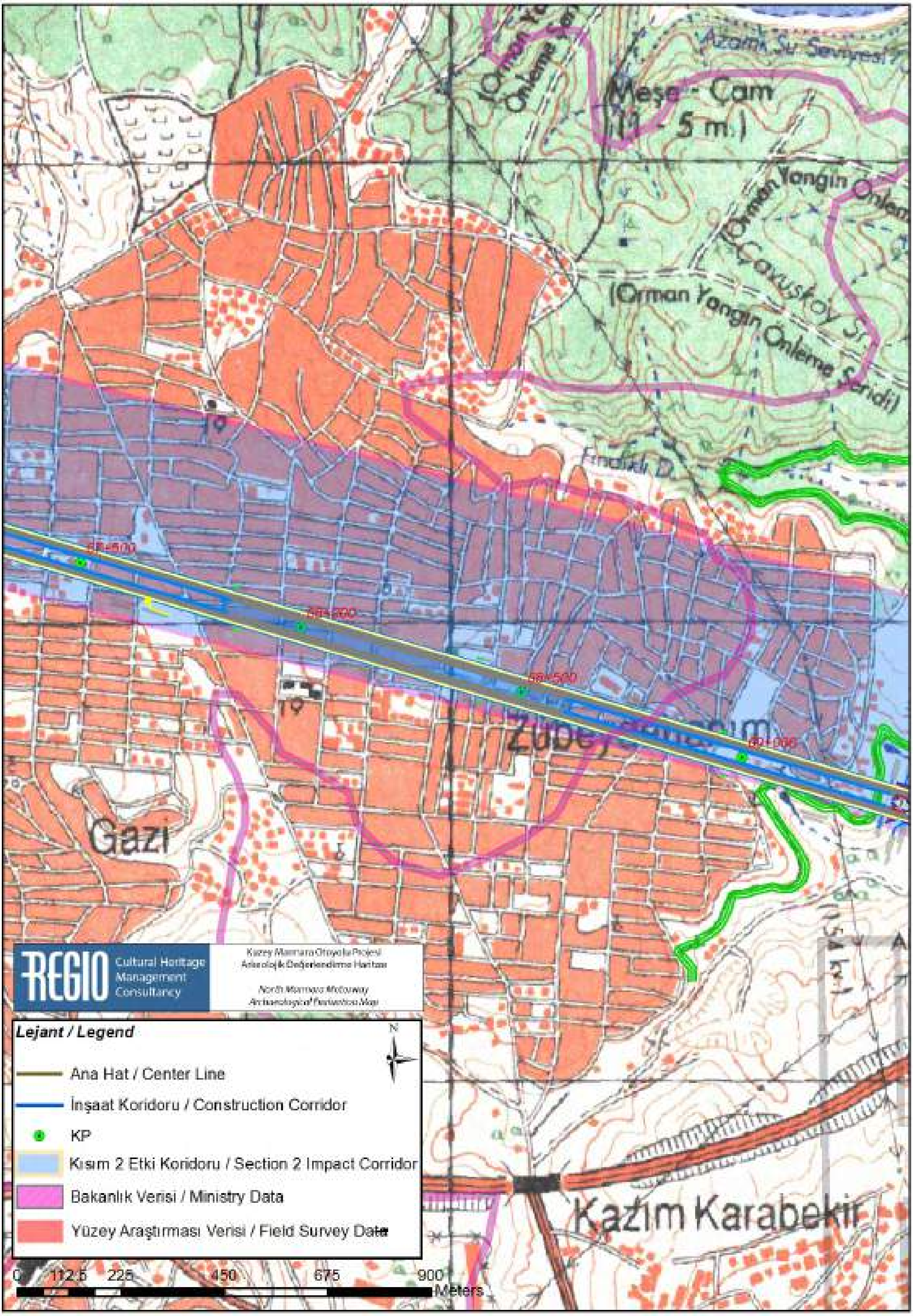
138+500
139+000
139+500
Akfırat III
Pınar D.
Pınar T.
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 4 Etki Koridoru / Section 4 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 55 110 220 330 440
Meters



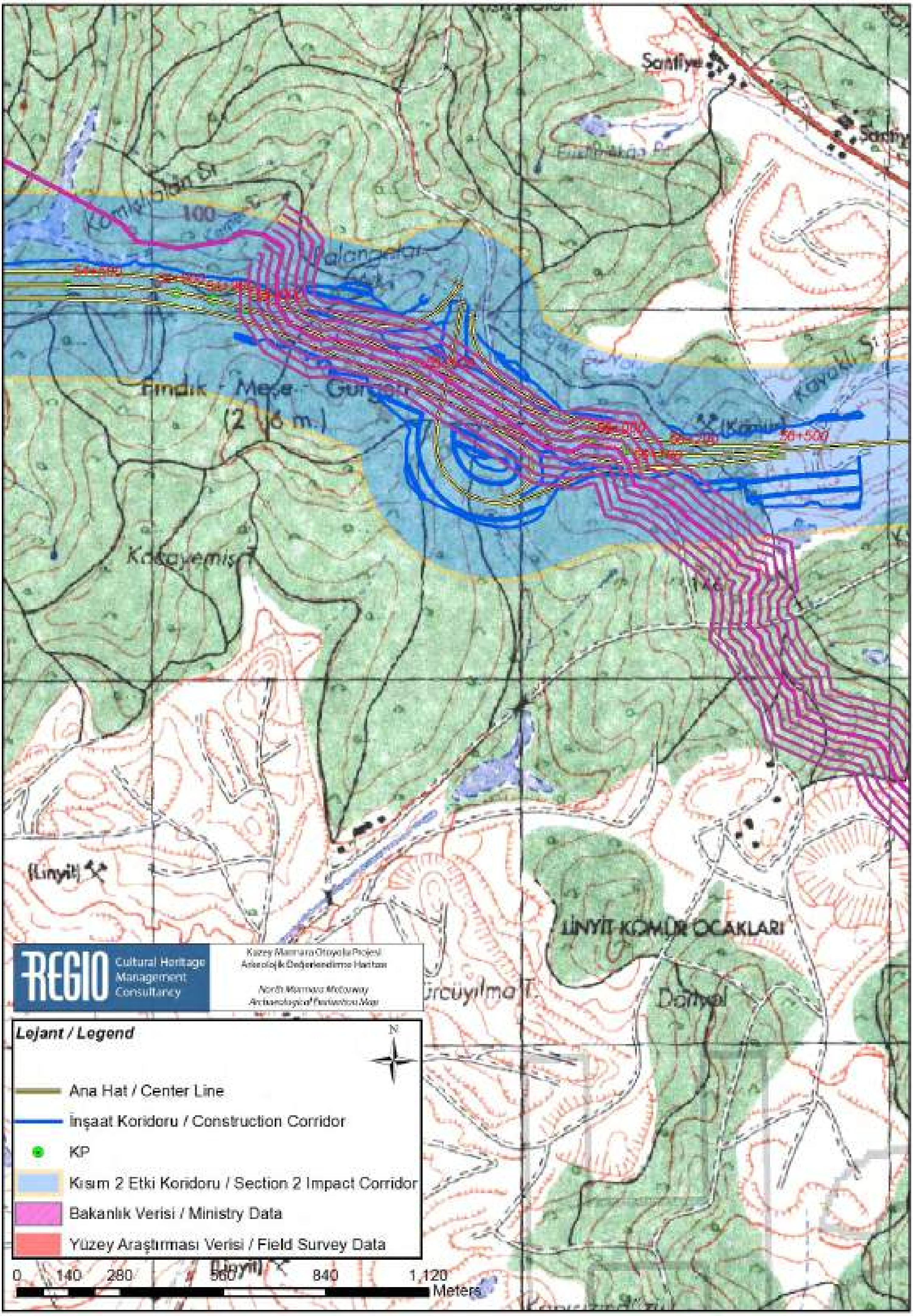
Tepeören
Akfırat I
Akfırat II
134+500
135+500
(380 kv.)
Metal Fb.
Rot Fb.
Kerim
Beş Çif.
Havuz
193
Değirmen D.
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi Arkeolojik Değerlendirme Haritası
North Marmara Motorway Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 4 Etki Koridoru / Section 4 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 65 130 260 390 520
Meters

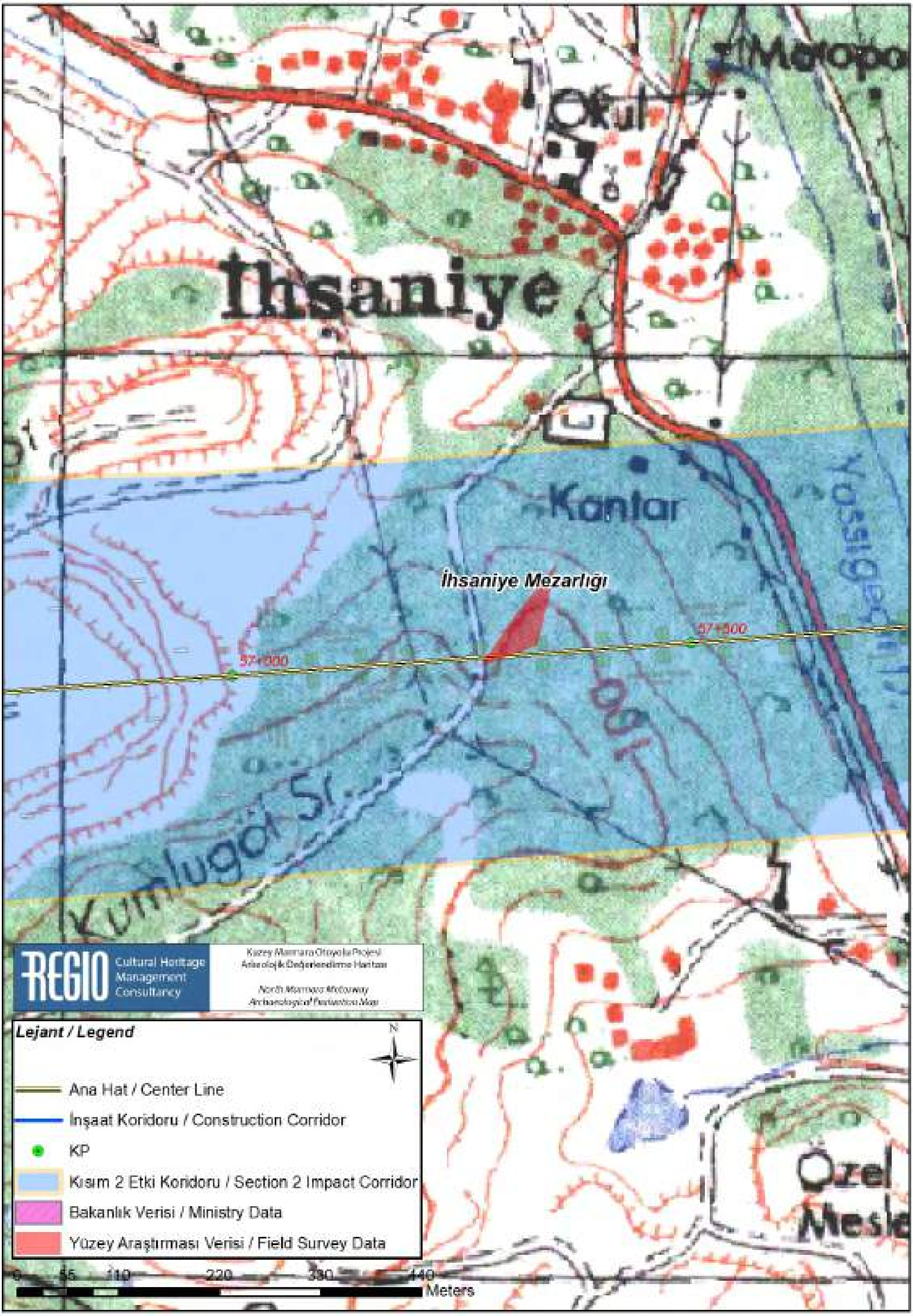


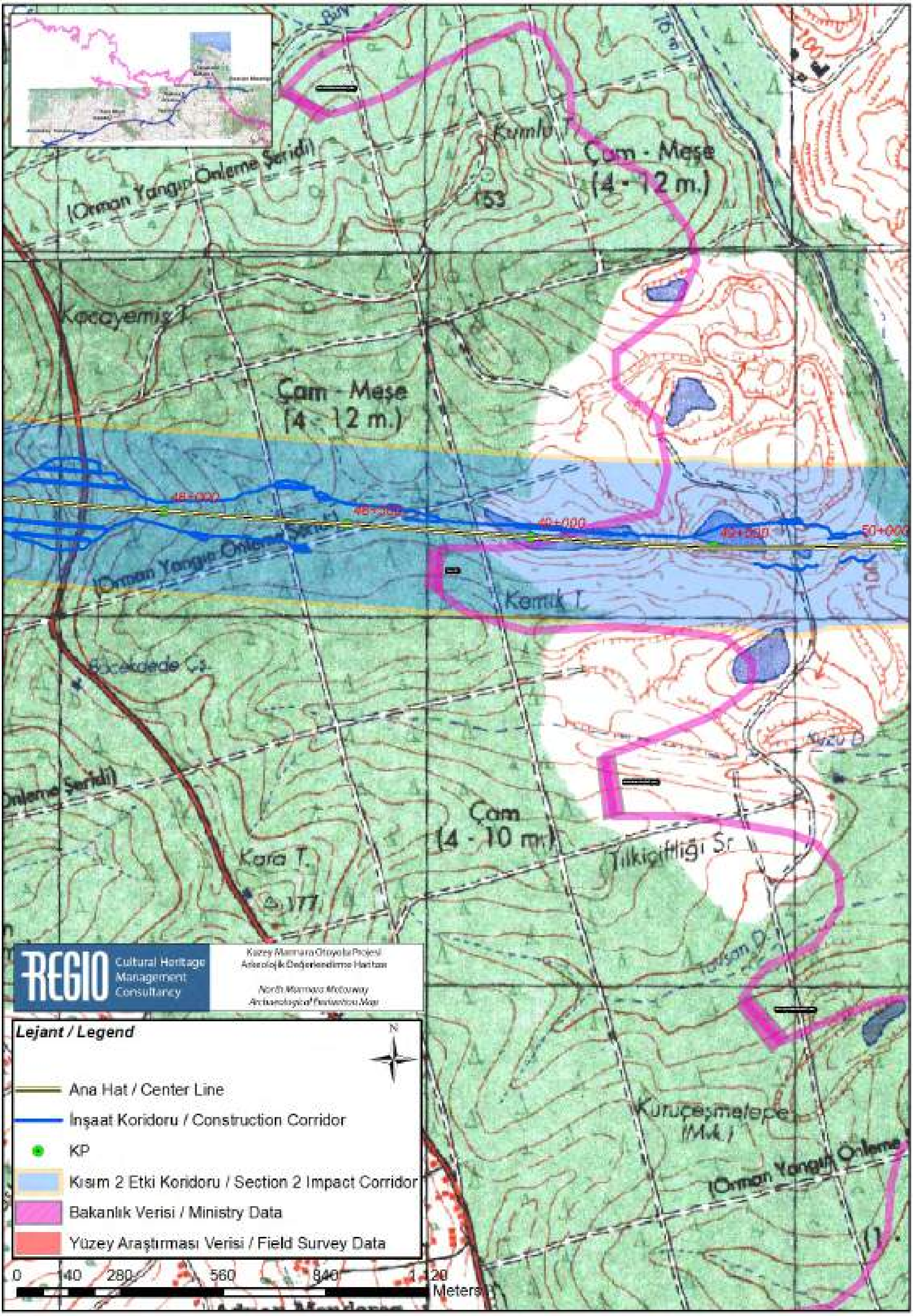
Bent
Savak
(597 m.)
Karabekir
REGIO
Cultural Heritage
Management
Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 2 Etki Koridoru / Section 2 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0
90
180
360
540
720
Meters

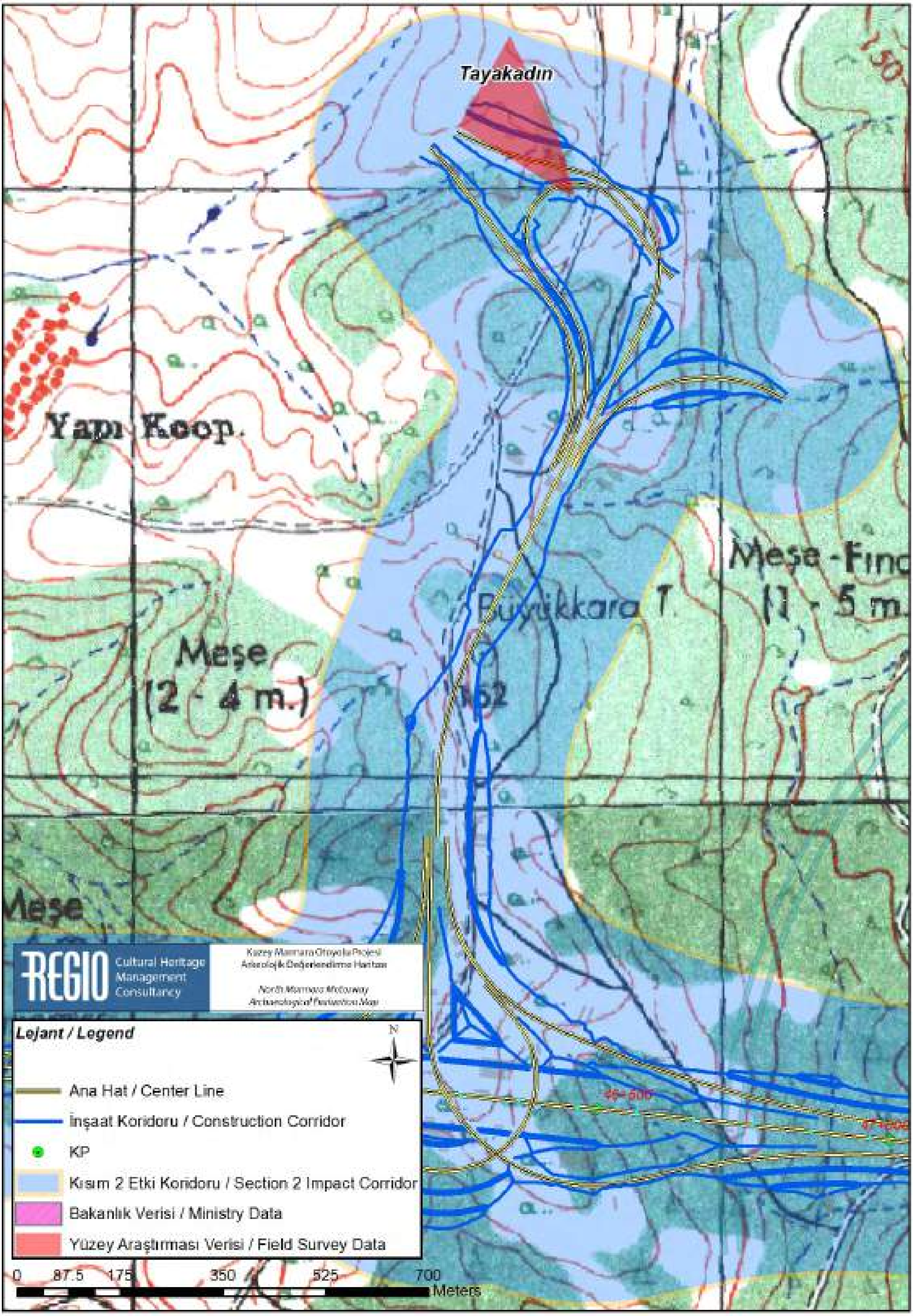


Meşe - Çam
(11 - 5 m.)
Azami Su Seviyesi
(Orman Yangın Önleme Şeridi)
Çavuşköy Sr.
Fındıklı D.
Gazi
Kazım Karabekir
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 2 Etki Koridoru / Section 2 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 112.5 225 450 675 900
Meters

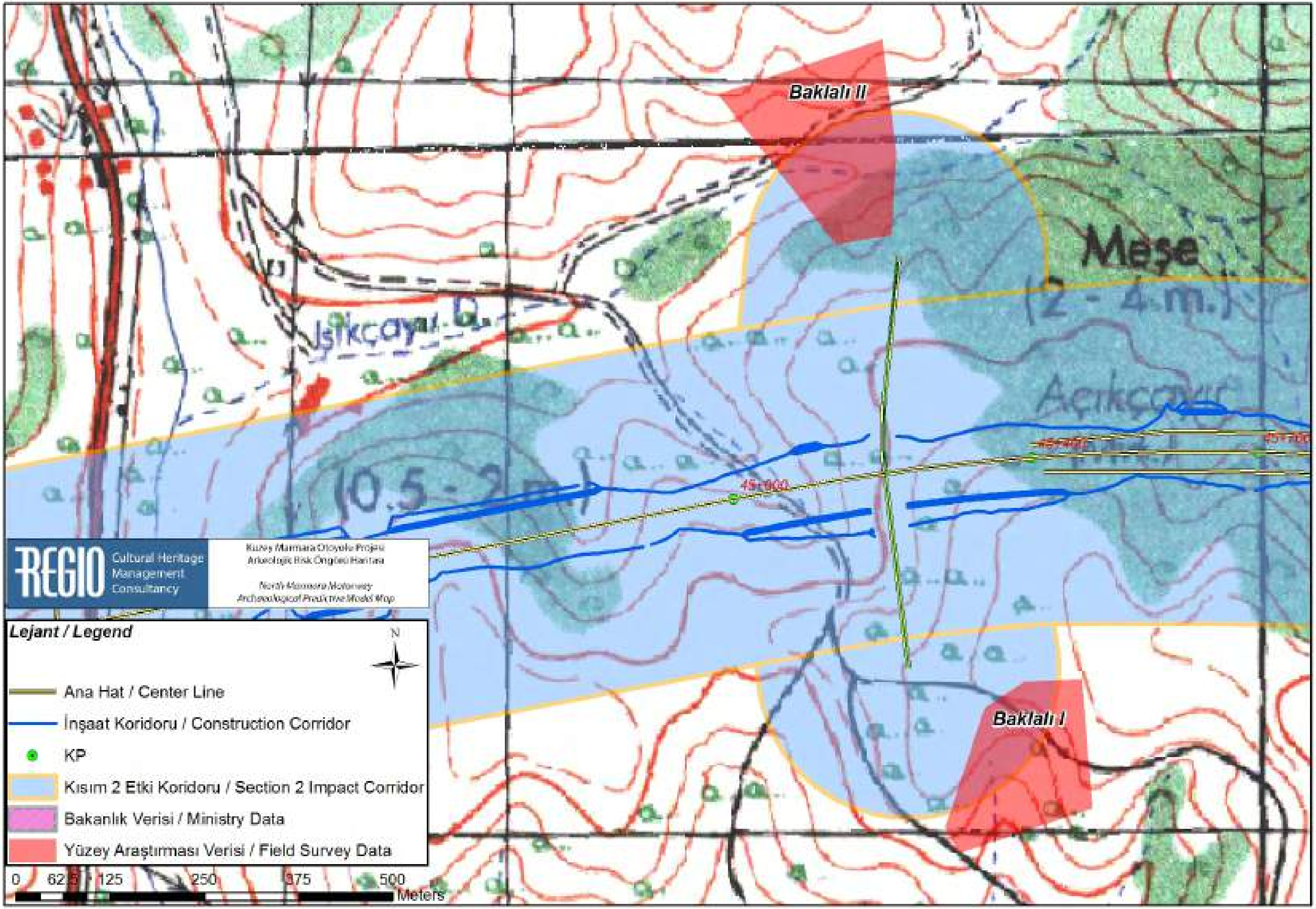

Şahfiye
Kavaklı Sr.
Fındık - Meşe - Gürgen
(2 - 6 m.)
Karayemiş T.
(Kömür)
58+500
(Linyit)
LİNYİT KÖMÜR OCAKLARI
REGIO
Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 2 Etki Koridoru / Section 2 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 140 280 560 840 1,120
Meters


Okul
İhsaniye
Kantar
İhsaniye Mezarlığı
57+000
57+500
Kumlugöl Sr.
Özel
Cultural Heritage
Management
Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 2 Etki Koridoru / Section 2 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 55 110 220 330 440
Meters

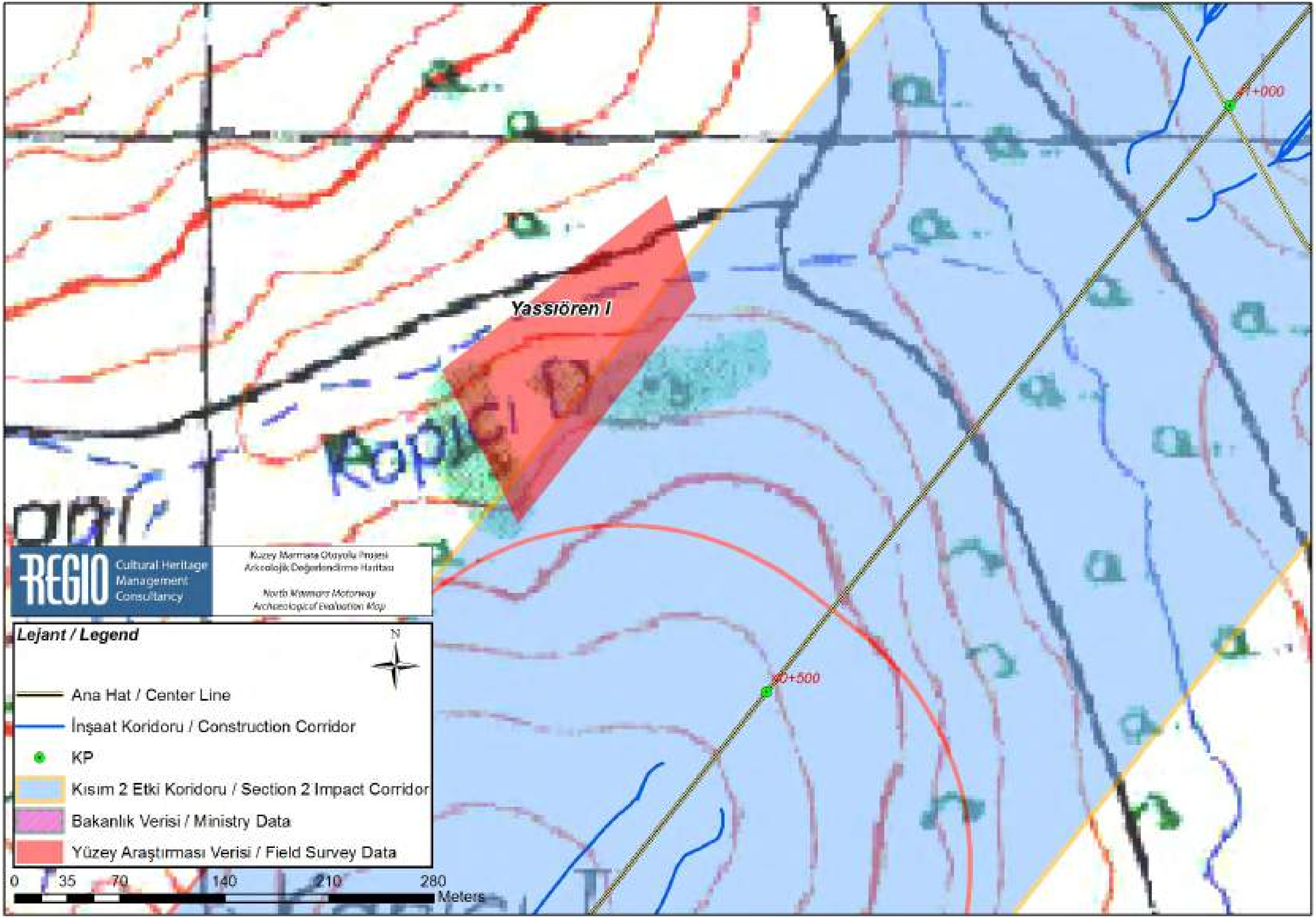

Çam - Meşe
(4 - 12 m.)
Kumlu T.
(Orman Yangın Önleme Şeridi)
Kocayemiş T.
Çam - Meşe
(4 - 12 m.)
48+000
48+500
49+000
49+500
50+000
(Orman Yangın Önleme Şeridi)
Kemik T.
Önleme Şeridi)
Çam
(4 - 10 m.)
Tilkiçiftliği Sr.
Kara T.
177
Kuruçeşmetepe
(Orman Yangın Önleme
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 2 Etki Koridoru / Section 2 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0
140
280
560
840
1,120
Meters



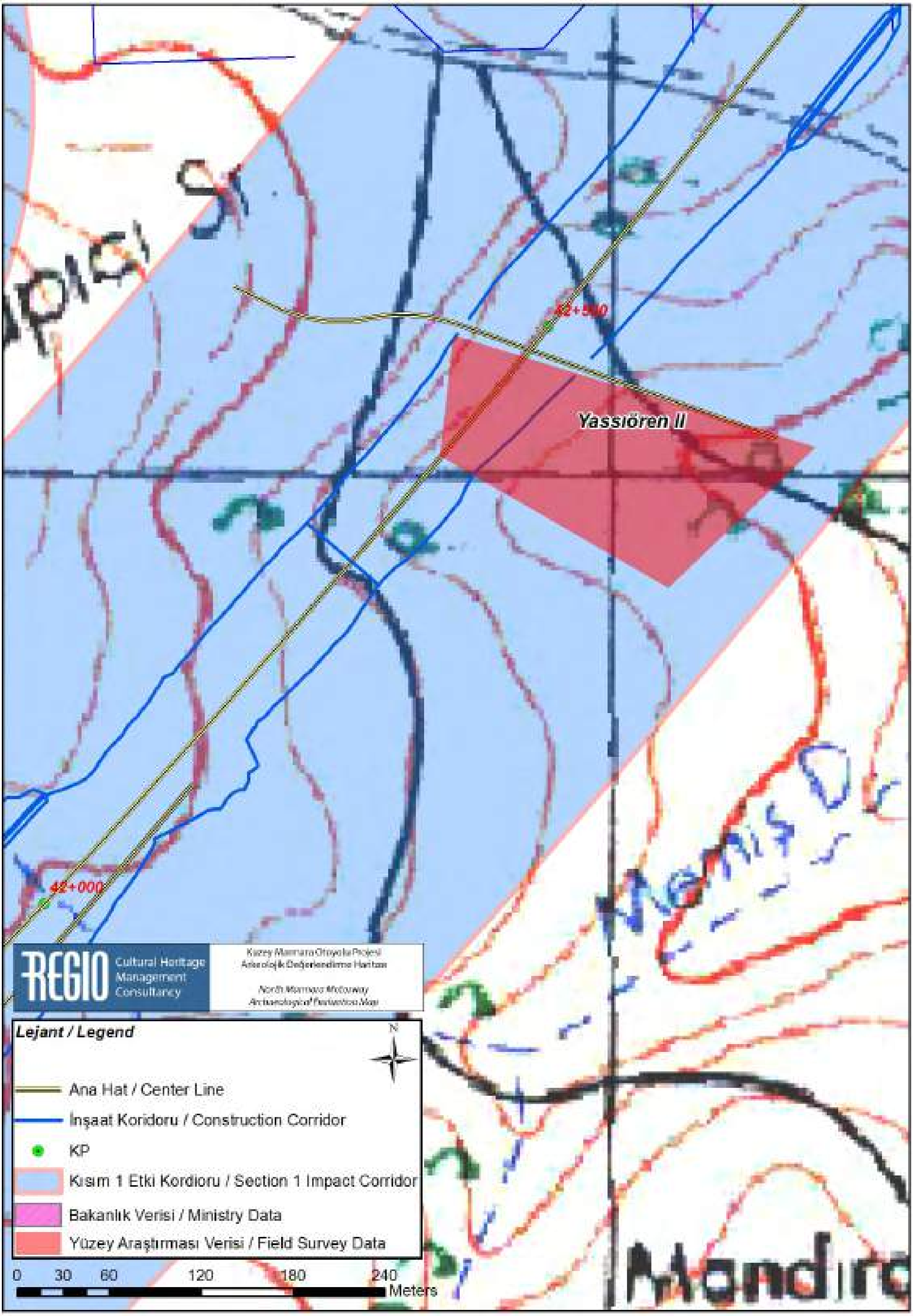
Tayakadın
Yapı Koop.
Meşe
(2 - 4 m.)
Büyükkara T.
162
Meşe
REGIO
Cultural Heritage
Management
Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 2 Etki Koridoru / Section 2 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 87.5 175 350 525 700
Meters



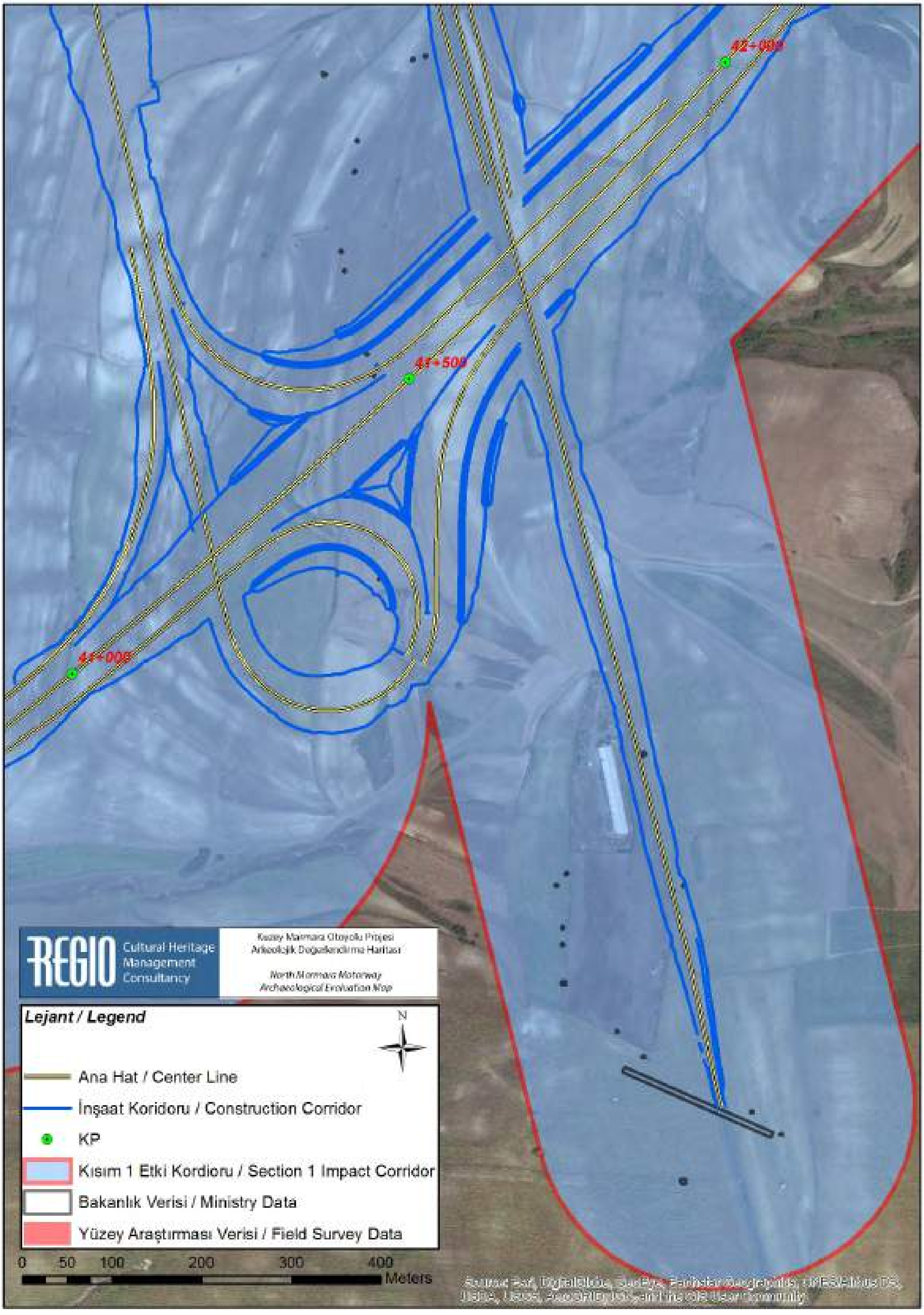
Baklalı II
Meşe
(2 - 4 m.)
Işıkçayı D.
Açıkçayır
(0.5 - 2 m.)
45+000
Baklalı I
REGIO
Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Risk Öngörü Haritası
North Marmara Motorway
Archaeological Predictive Model Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 2 Etki Koridoru / Section 2 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 62.5 125 250 375 500
Meters



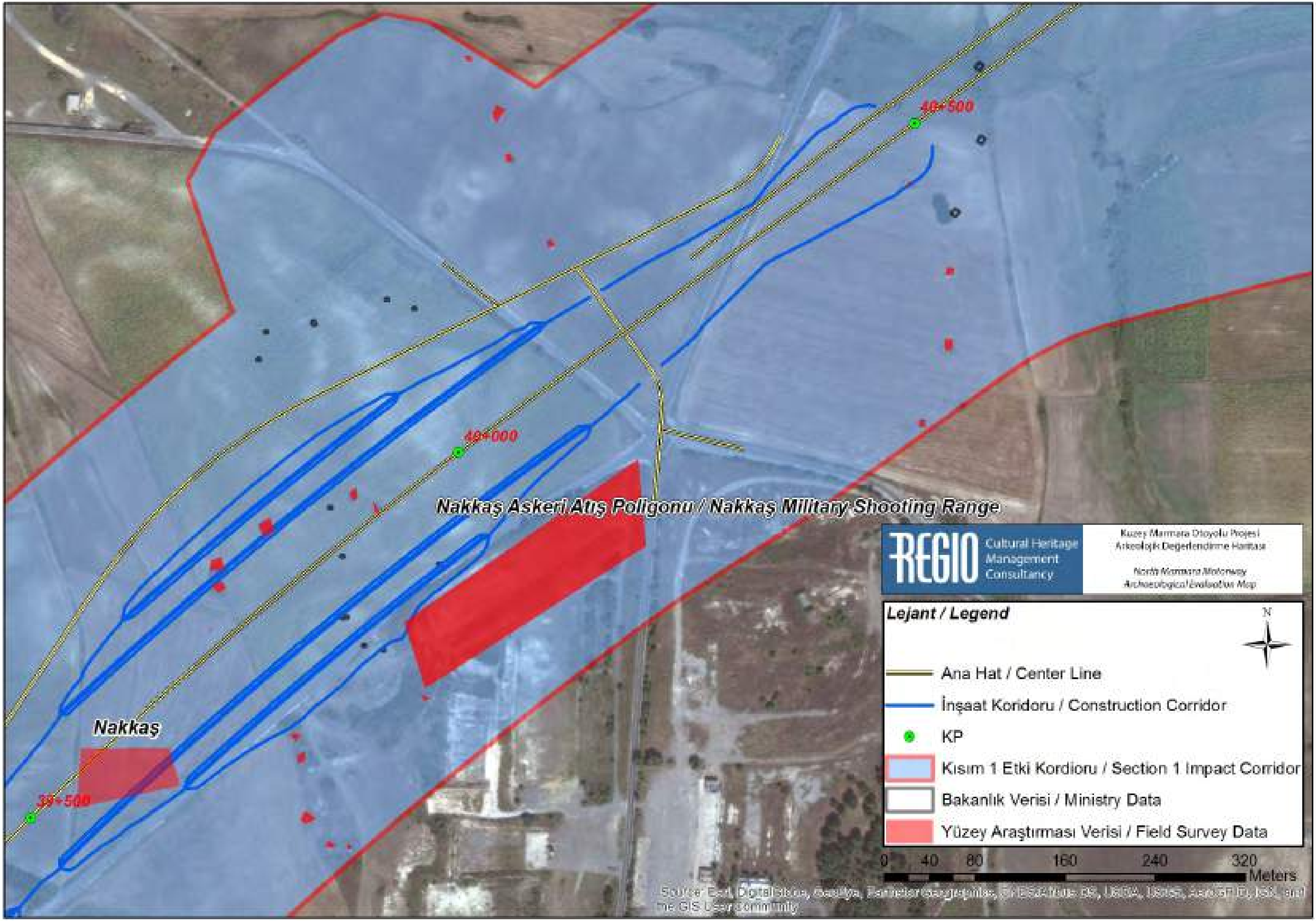
Yassıören I
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 2 Etki Koridoru / Section 2 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0
35
70
140
210
280
Meters


Yassıören II
42+500
42+000
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 1 Etki Kordioru / Section 1 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 30 60 120 180 240
Meters

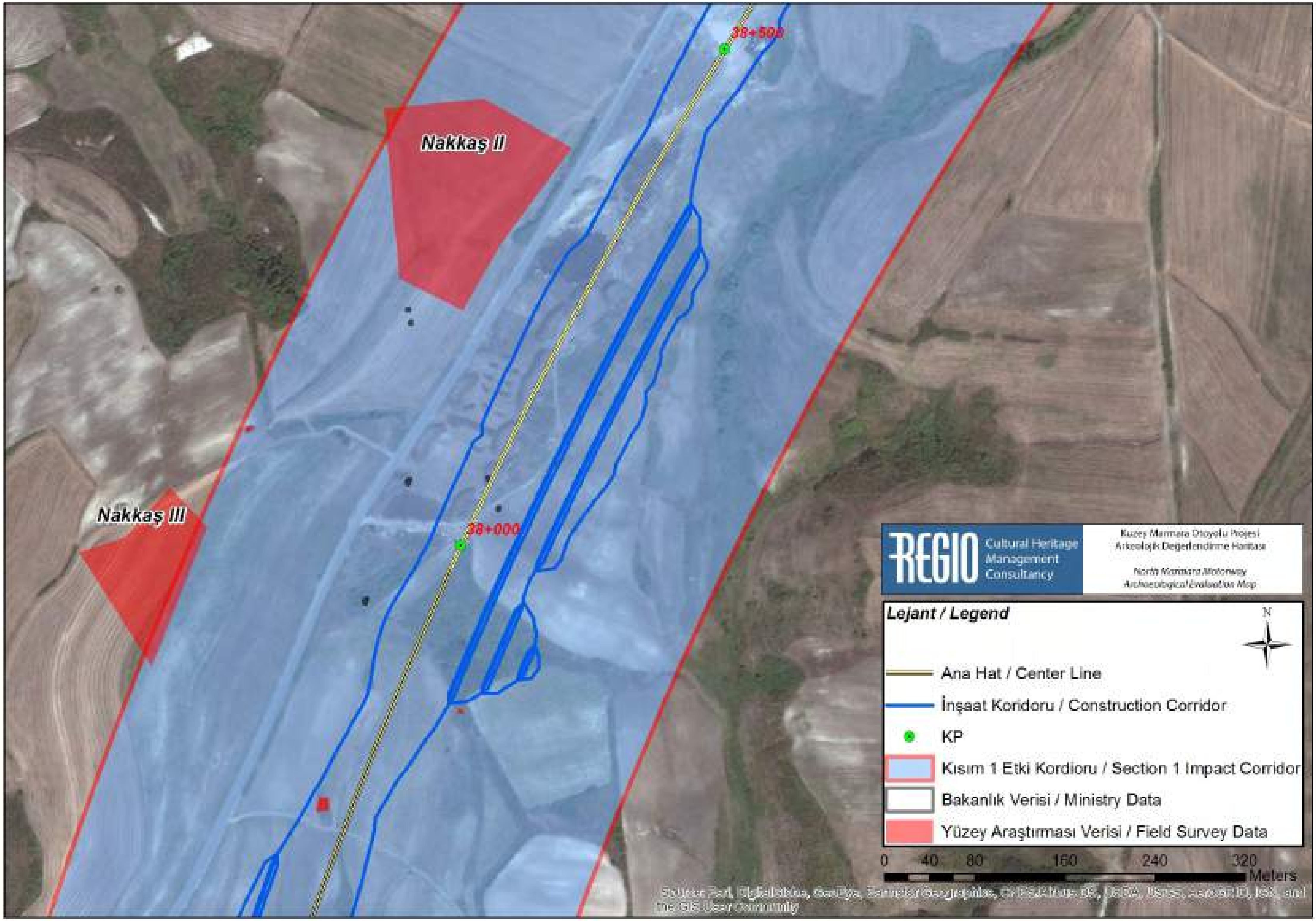

REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 1 Etki Kordioru / Section 1 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 40 80 160 240 320
Meters
42+000



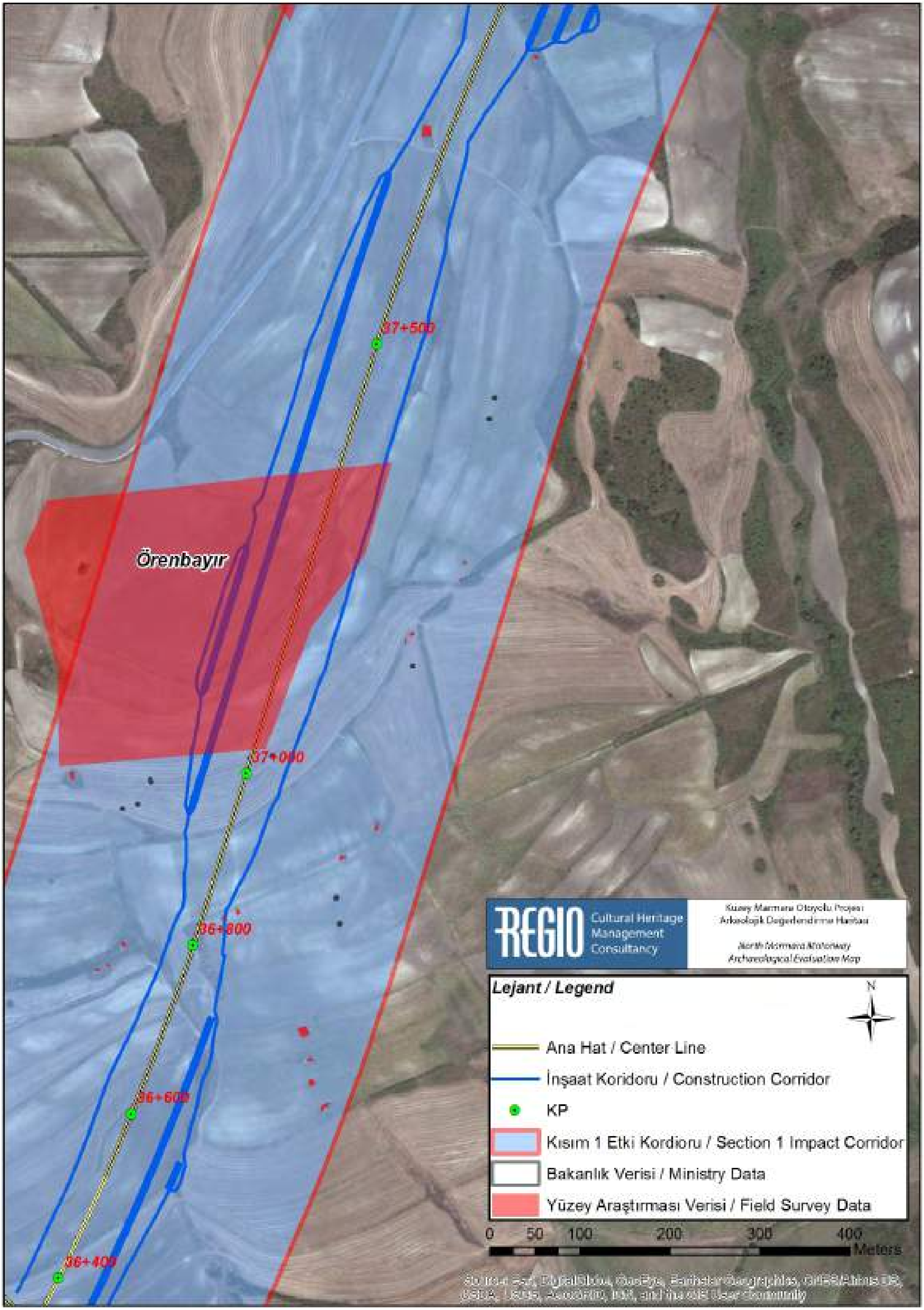
41+500
41+000
Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 1 Etki Kordioru / Section 1 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 50 100 200 300 400
Meters



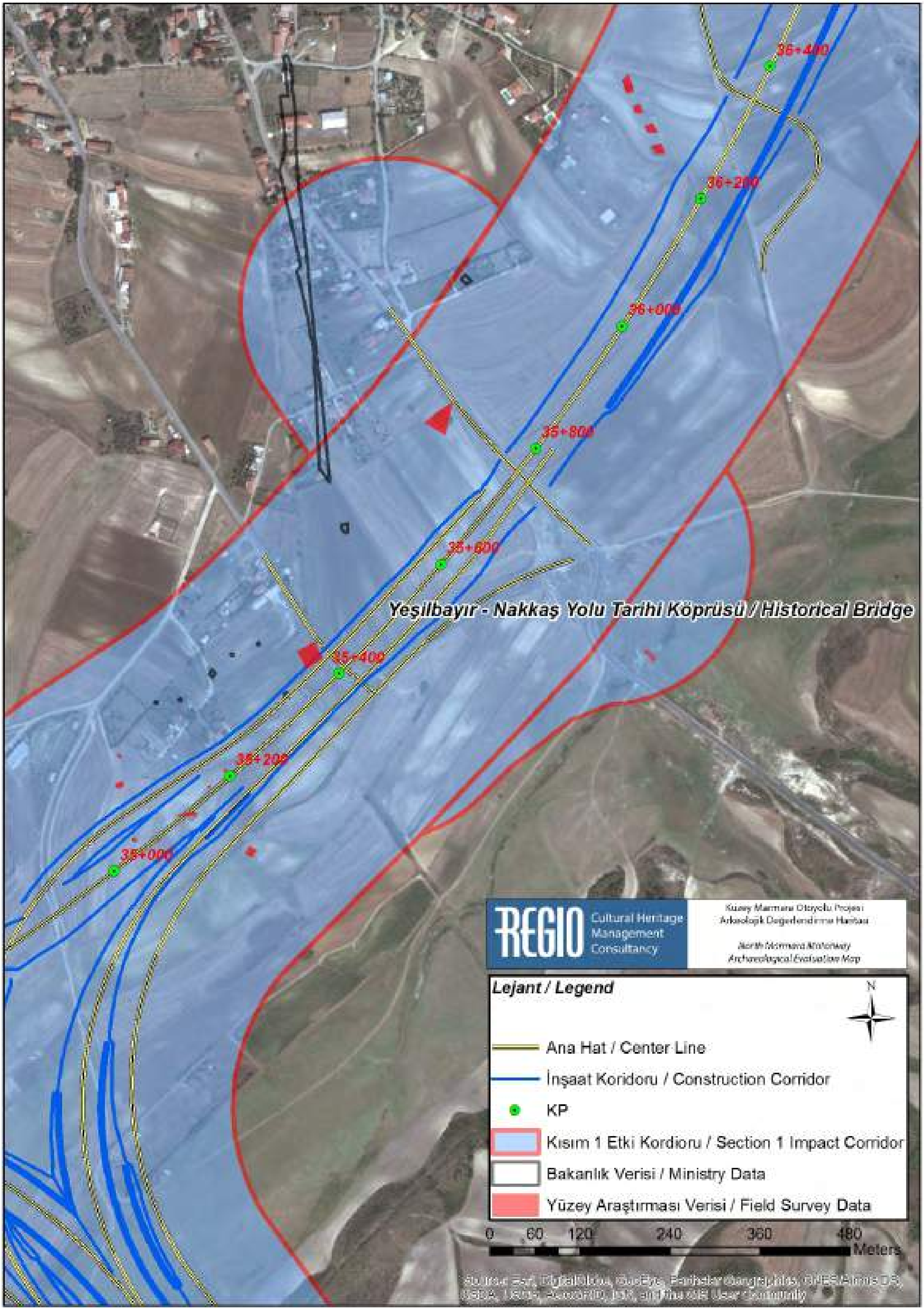
40+500
40+000
39+500
Nakkaş Askeri Atış Poligonu / Nakkaş Military Shooting Range
Nakkaş
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 1 Etki Kordioru / Section 1 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 40 80 160 240 320
Meters

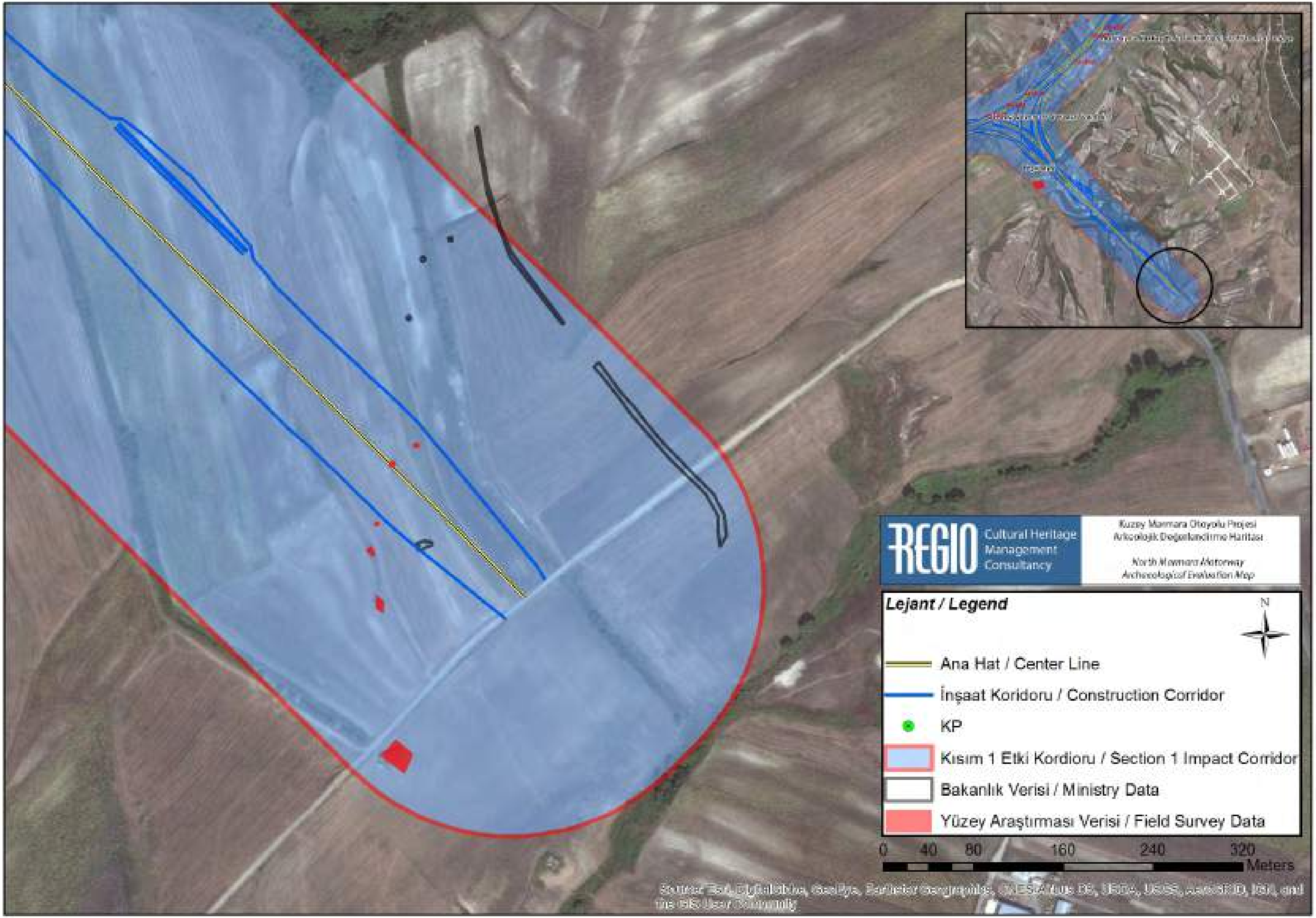


38+500
Nakkaş II
Nakkaş III
38+000
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 1 Etki Kordioru / Section 1 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 40 80 160 240 320
Meters

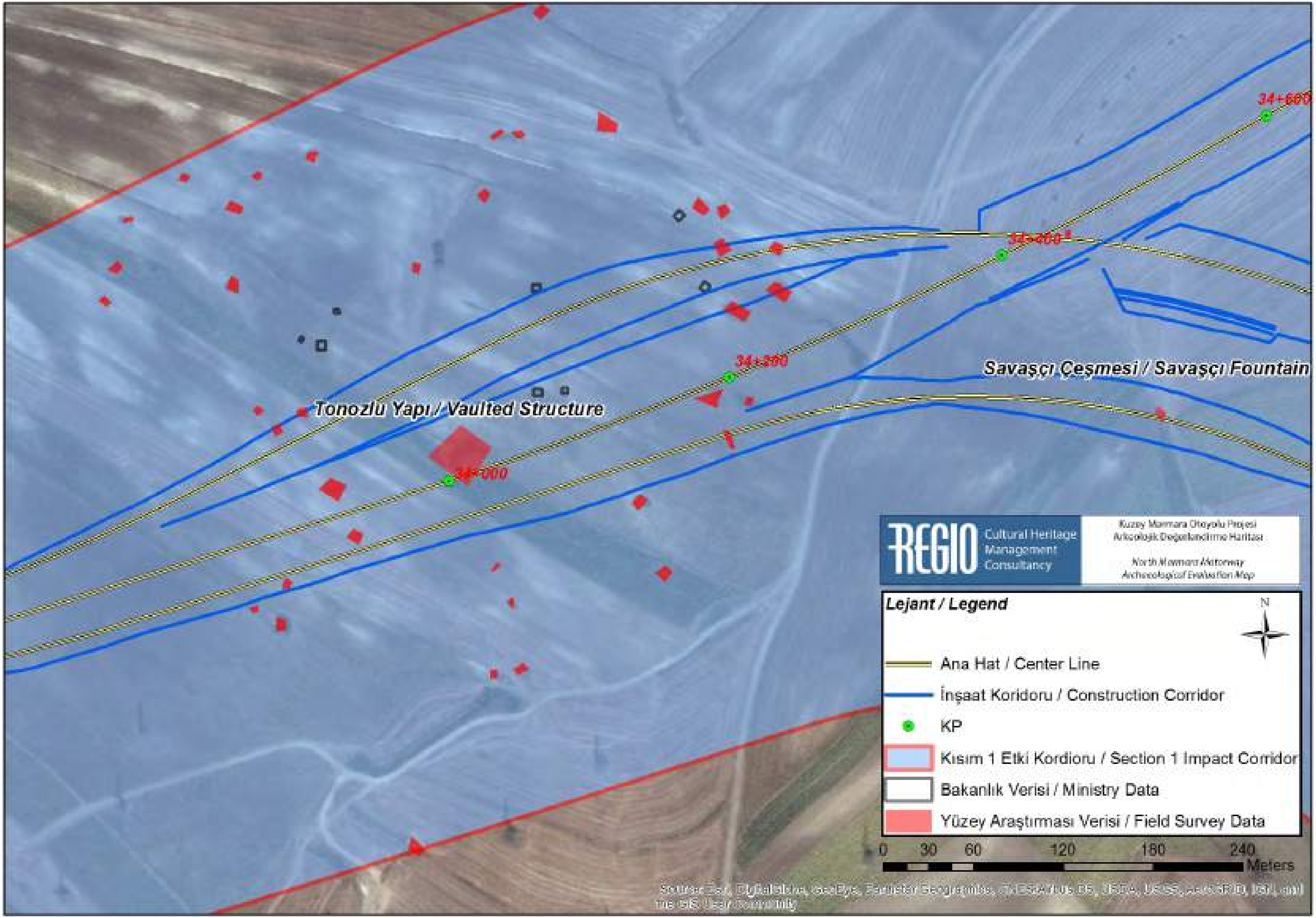


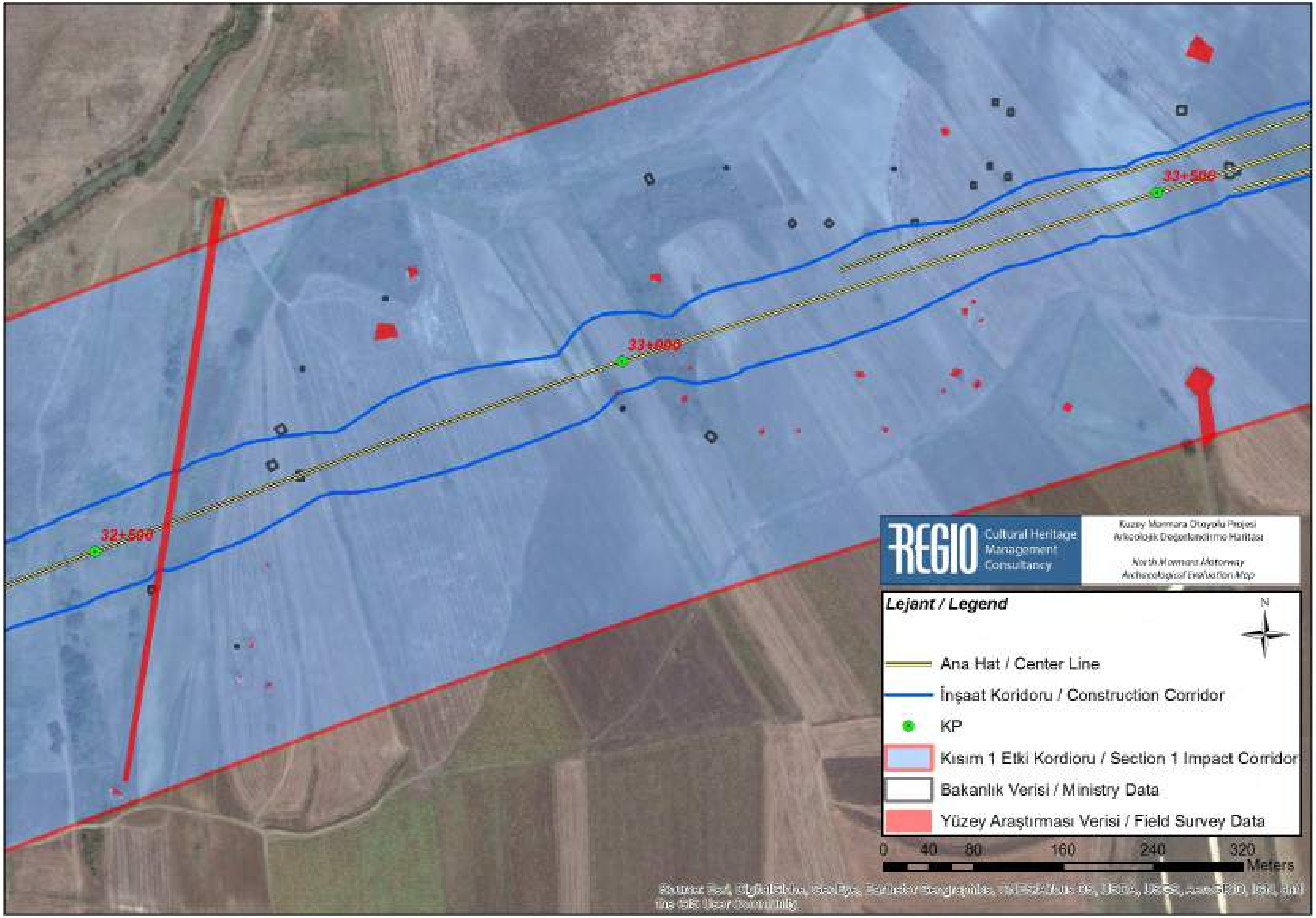
37+500
Örenbayır
37+000
36+800
36+600
36+400
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 1 Etki Kordioru / Section 1 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 50 100 200 300 400
Meters

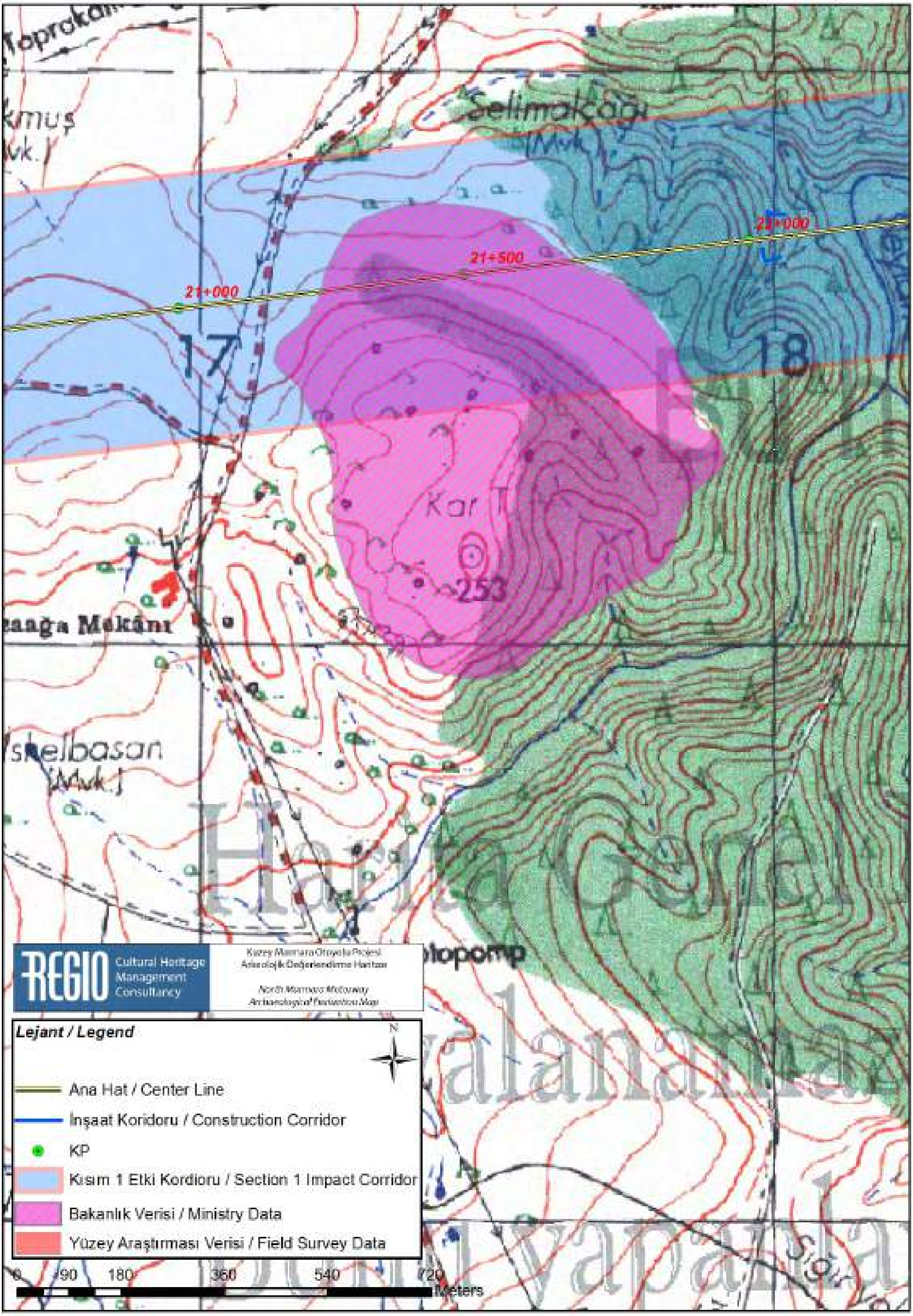

36+400
36+200
36+000
35+800
35+600
Yeşilbayır - Nakkaş Yolu Tarihi Köprüsü / Historical Bridge
35+400
35+200
35+000
REGIO
Cultural Heritage
Management
Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 1 Etki Kordioru / Section 1 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0
60
120
240
360
480
Meters



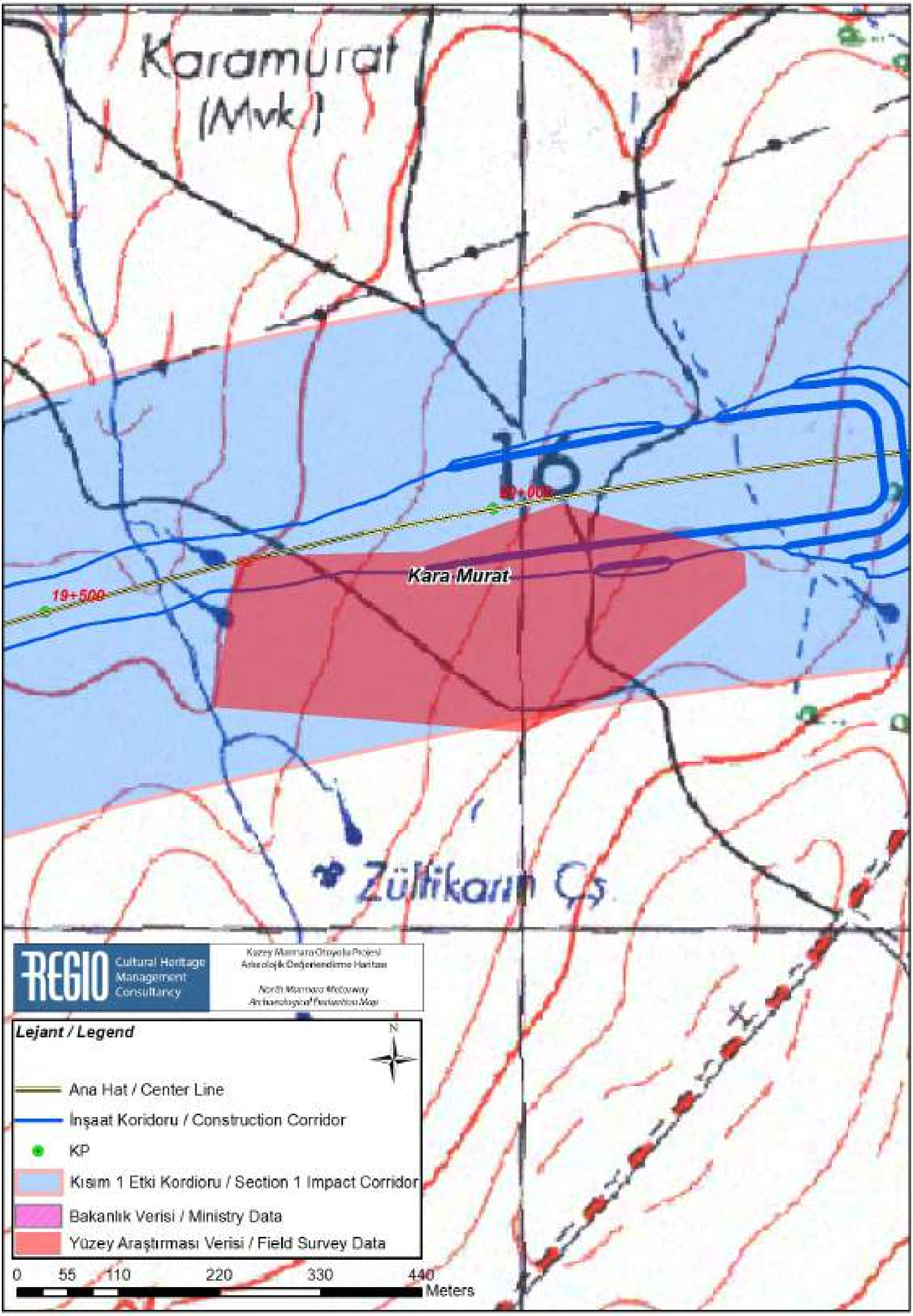
REGIO
Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 1 Etki Kordioru / Section 1 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 40 80 160 240 320
Meters

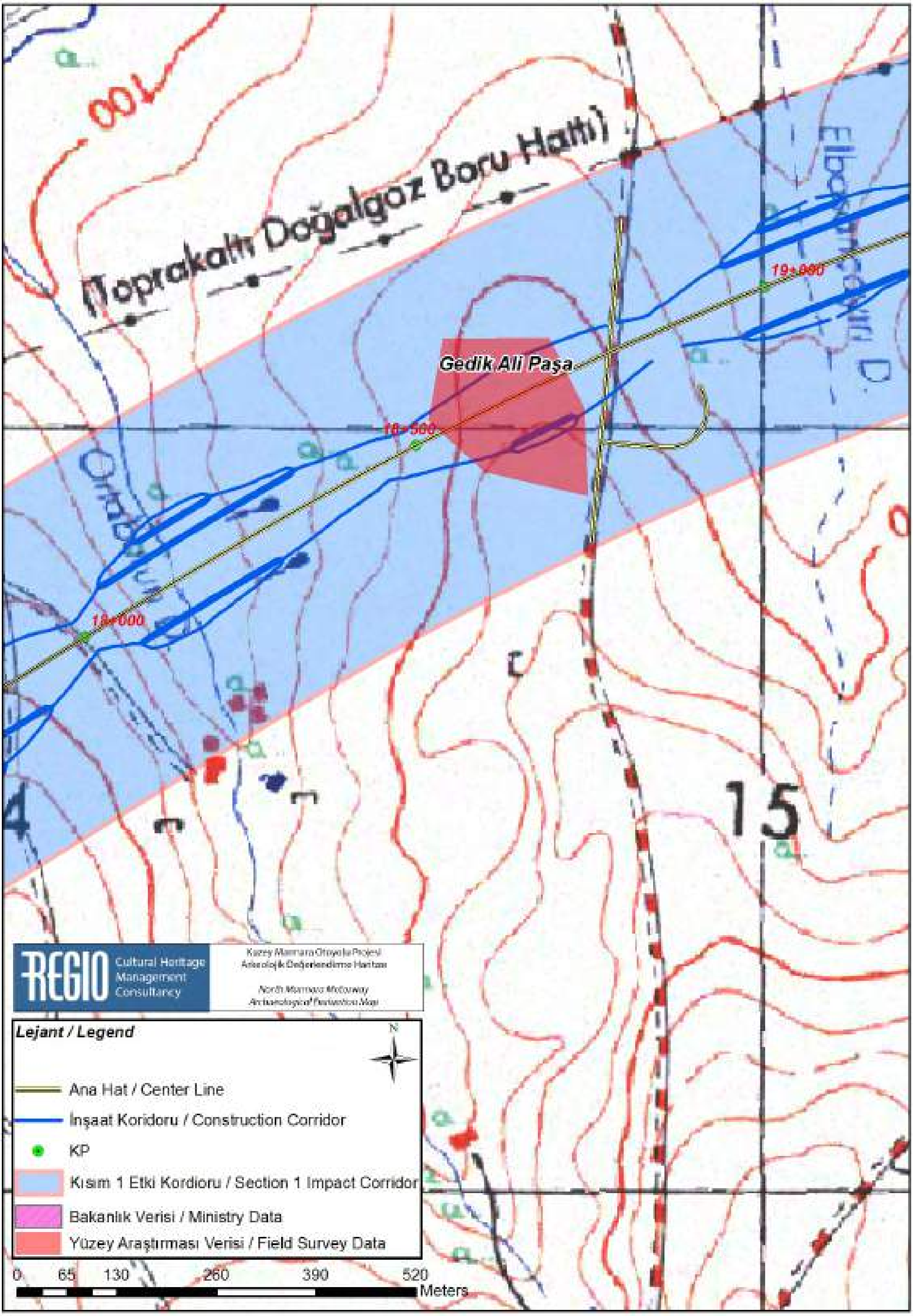

34+600
34+400
34+200
34+000
Savaşçı Çeşmesi / Savaşçı Fountain
Tonozlu Yapı / Vaulted Structure
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 1 Etki Kordioru / Section 1 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 30 60 120 180 240
Meters


32+500
33+000
33+500
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 1 Etki Kordioru / Section 1 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 40 80 160 240 320
Meters

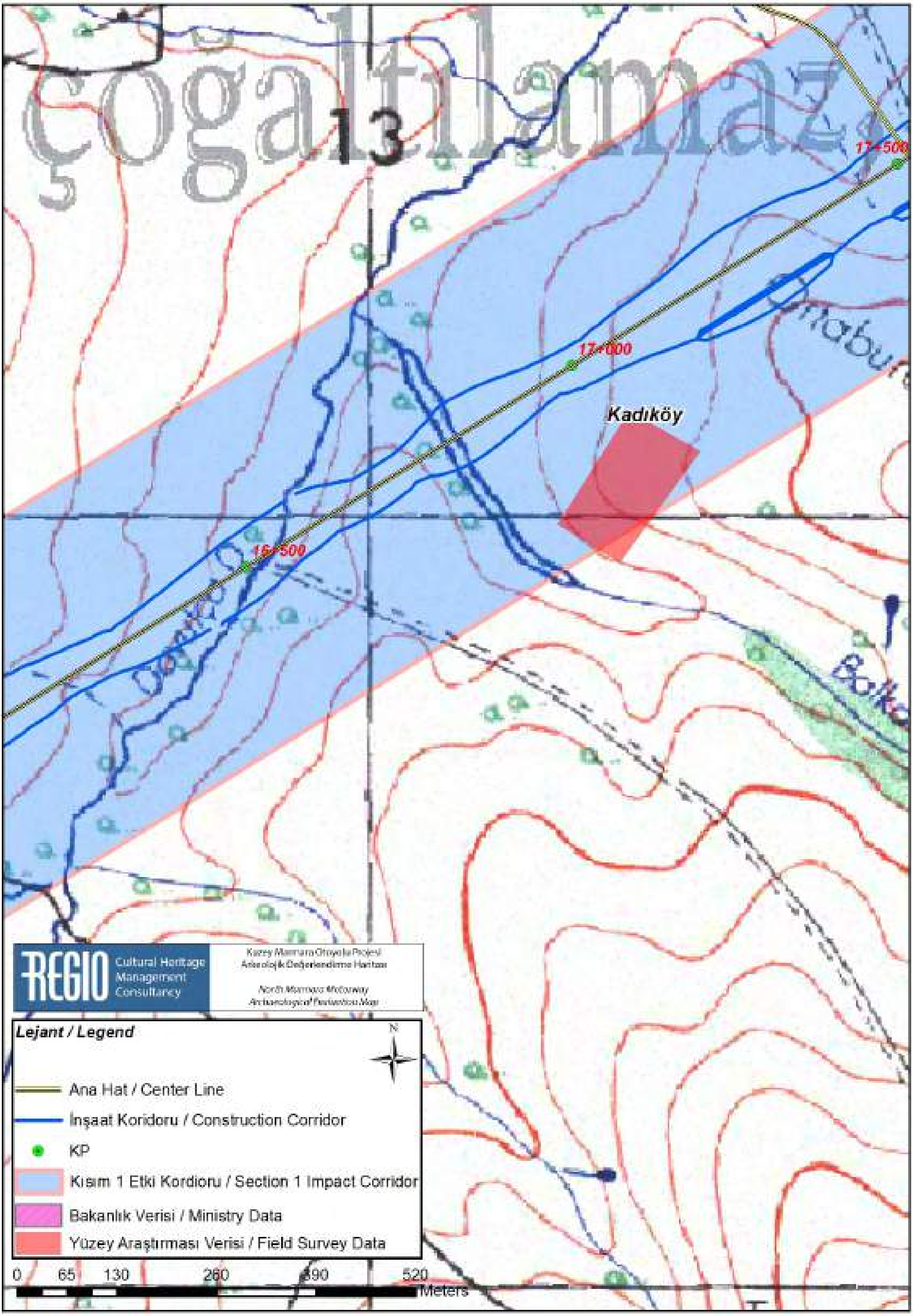


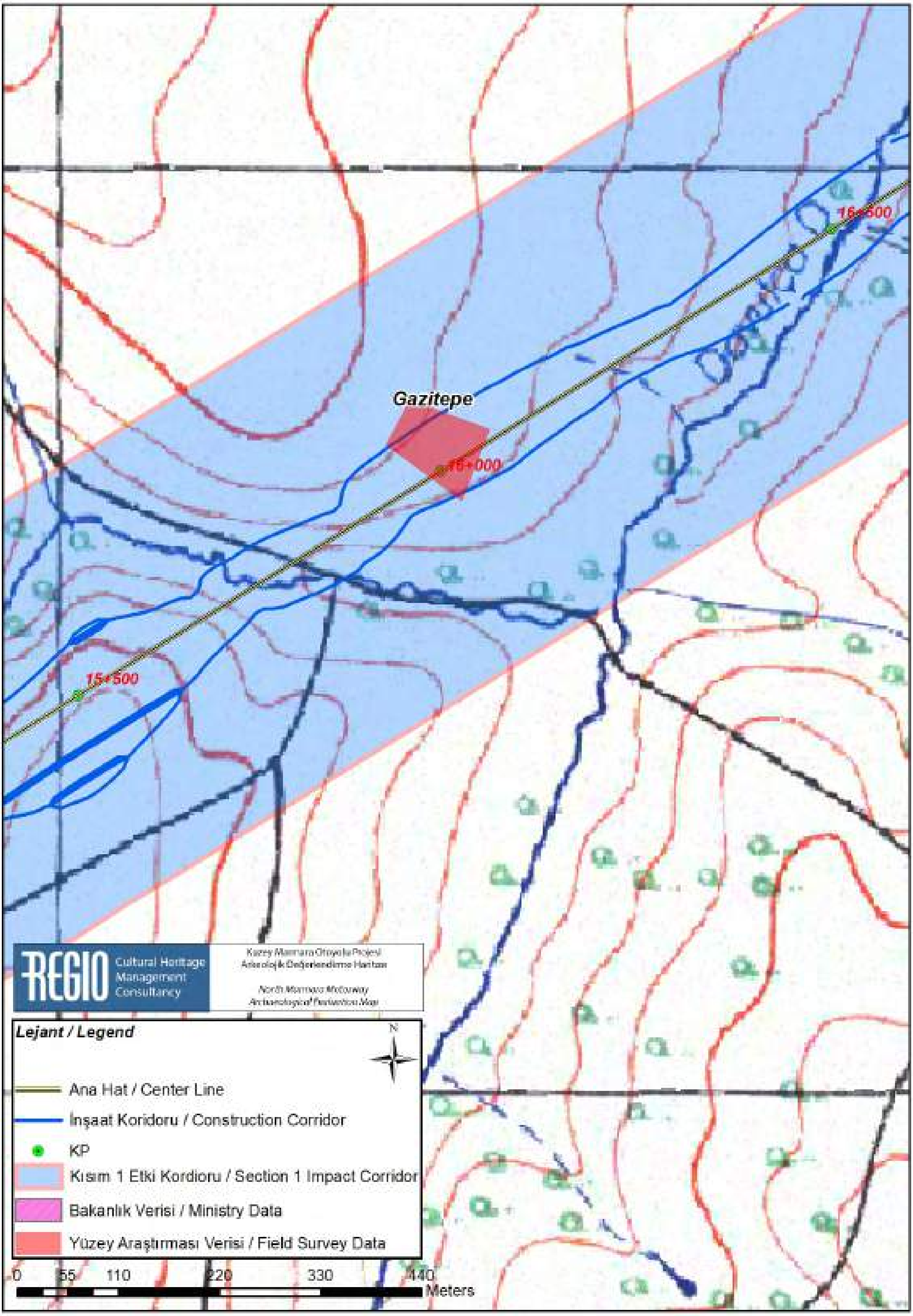
Selimağa
Kar T.
253
17
18
21+000
21+500
22+000
REGIO
Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 1 Etki Kordioru / Section 1 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 90 180 360 540 720
Meters


Karamurat
(Mvk.)
16
19+500
Kara Murat
Zülfikarın Çş
REGIO
Cultural Heritage
Management
Consultancy
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 1 Etki Kordioru / Section 1 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0
55
110
220
330
440
Meters

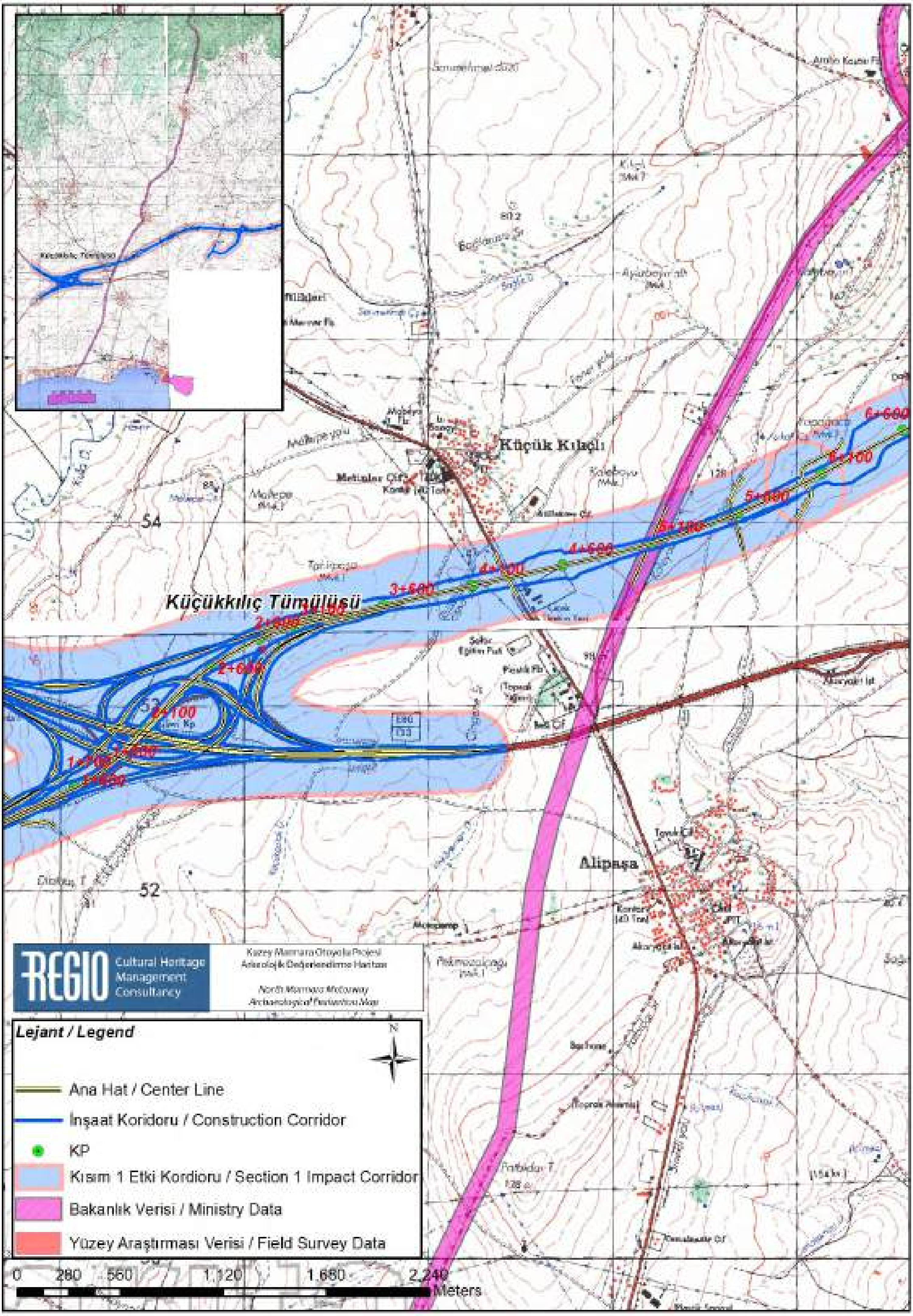


Toprakaltı Doğalgaz Boru Hattı
100
Elbasan D.
19+000
Gedik Ali Paşa
18+500
18+000
15
REGIO
Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 1 Etki Kordioru / Section 1 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 65 130 260 390 520
Meters

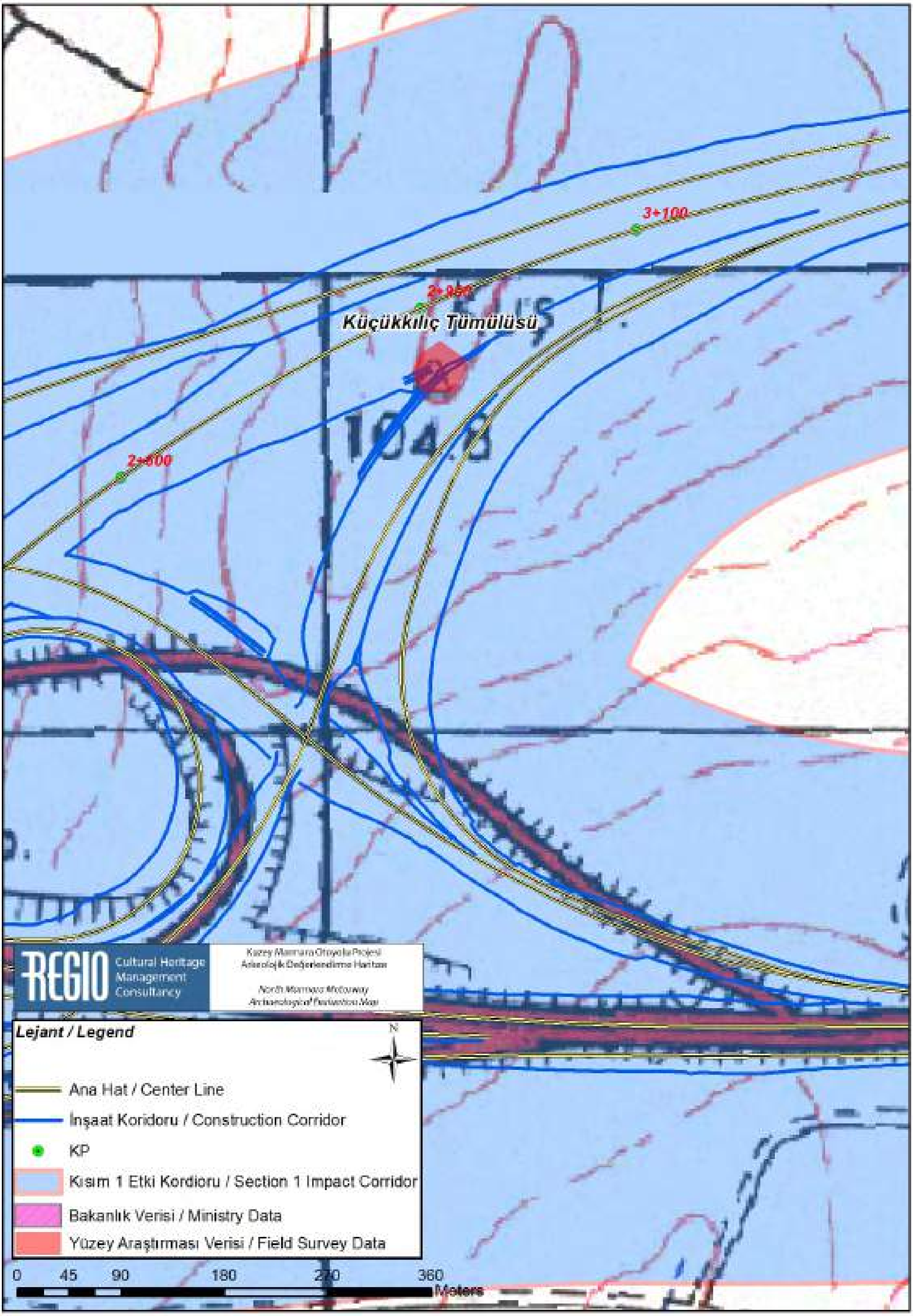

çogaltılamaz
13
17+500
17+000
16+500
Kadıköy
REGIO
Cultural Heritage
Management
Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 1 Etki Kordioru / Section 1 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 65 130 260 390 520
Meters



Gazitepe
15+500
16+000
16+500
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 1 Etki Kordioru / Section 1 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0
55
110
220
330
440
Meters



Küçükkılıç Tümülüsü
Küçük Kılıçlı
Alipaşa
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 1 Etki Kordioru / Section 1 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 280 560 1,120 1,680 2,240
Meters



3+100
2+950
Küçükkılıç Tümülüsü
104.8
2+800
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 1 Etki Kordioru / Section 1 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 45 90 180 270 360
Meters

Annex 7 – Impact Site Layouts

No	Archaeological/Historical Site Name	Province	KP	Spatial Coverage of Potential Archaeological/Historical Site (m2)	Magnitute of Construction Activities on Potential Archaeological/Historical Site (m2)	Magnitude of Impact (%)	Scale & Severity of Change/Impact	Value of Heritage Assets
1	Osmanbey Potential Archaeological Site	Sakarya	250+520-246+827	2479235	356807	14,39	No Change	Low
2	Çayırlar Mevkii Archaeological Site	Sakarya	238+720-239+127	52692	2288	4,34	No Change	Low
3	Budaklar Potential Archaeological Site	Sakarya	236+747-236+850	6096	3233	53,03	Minor	Low
4	Çelebiler Potential Archaeological Site	Sakarya	232+970-233+550	66312	36037	54,34	Minor	Low
5	Kömürlük Modern Cemetery	Sakarya	232+000 Access Road km 1+500	96	0	0,00	No Change	Low
6	Kömürlük Potential Archaeological Site	Sakarya	232+000 Access Road km 0+250-1+150	498170	81093	16,28	No Change	Low
7	Besihane Potential Archaeological Site	Sakarya	229+000-239+450	67278	26531	39,43	Negligible	Low
8	Azizbey Tepesi Archaeological Site	Sakarya	226+550-226+670	24214	0	0,00	No Change	Low
9	Süloğlu Bridge	Kocaeli	214+700	354	0	0,00	No Change	Low
10	Deredağ Potential Archaeological Site	Kocaeli	213+750-213+950	11430	4790	41,91	Minor	Low
11	Adaparmak Sırtı Potential Archaeological Site	Kocaeli	212+300-212+600	39541	0	0,00	No Change	Low
12	Kabaklı Mevkii Potential Archaeological Site	Kocaeli	211+950-212+150	11863	9108	76,78	High	Low
13	Köprübaşı Tepesi Potential Archaeological Site	Kocaeli	210+500-210+550	1717	1688	98,31	Major	Low
14	Mancarcı Mevkii Potential Archaeological Site	Kocaeli	199+560-199+780	14879	14444	97,08	Major	Low
15	Gedikli 1 Archaeological Site	Kocaeli	198+950-199+100	23057	10612	46,03	Minor	Low
16	Gedikli 2 Archaeological Site	Kocaeli	198+600-198+810	20009	16619	83,06	Major	Low
17	Biberoğlu Archaeological Site	Kocaeli	197+970-198+060	14792	10493	70,94	Moderate	Low
18	İğriköz Deresi Archaeological Sita	Kocaeli	197+560-197+640	4729	0	0,00	No Change	Low
19	Doruk Archaeological Site	Kocaeli	195+700-196+000	47287	0	0,00	No Change	Low
20	Kesimahlar Archaeological Site	Kocaeli	195+000 Access Road km 1+000	66549	0	0,00	No Change	Low
21	Solaklar Archaeological Site	Kocaeli	193+460-194+000	88245	47903	54,28	Minor	Low
22	Çayırköy Arcchaeological Site	Kocaeli	192+300-192+500	43287	0	0,00	No Change	Low
23	Kocaeli RPBCA Registered Archaeological Site 1	Kocaeli	192+000 On Acces Road	1860	0	0,00	No Change	High
24	Toylar Archaeological Site	Kocaeli	174+150-174+370	45829	37307	81,40	Major	Low
25	Sipahiler 1 Archaeological Site	Kocaeli	171+690-171+850	20034	8754	43,70	Minor	Low
26	Sipahiler 2 Archaeological Site	Kocaeli	171+220-171+330	35192	7499	21,31	Negligible	Low
27	Kocadere Archaeological Site	Kocaeli	170+000-170+100	61070	0	0,00	No Change	Low
28	Martılar Archaeological Site	Kocaeli	169+000 Access Road km 41+750+ 42+800	434015	69806	16,08	No Change	Low
29	Kocaeli RPBCA Yağcılar Ancient Road Remains	Kocaeli	161+800	174887	7100	4,06	No Change	High
30	Demirciler Archeaological Site	Kocaeli	150+000 Access Road km 1+200	43565	0	0,00	No Change	Low
31	Uluyan 1 Archaeological Site	Kocaeli	149+950-150+000	1369	0	0,00	No Change	Low
32	Uluyan 2 Archaeological Site	Kocaeli	149+700-149+850	13445	3735	27,78	Negligible	Low
33	Karapınar (Molla Fenari) Archaeological Site	Kocaeli	147+550- 147+900	46491	31398	67,54	Moderate	Low
34	Cumaköy Cemetery	Kocaeli	145+750	36237	0	0,00	No Change	Low
35	Kuzgunçay Tumulus	Kocaeli	144+100	229	0	0,00	No Change	Low
36	Akfırat 3 Archaeological Site	İstanbul	138+900-139+180	46812	9223	19,70	No Change	Low
37	Akfırat 1 Archaeological Site	İstanbul	135+500-135+900	47143	0	0,00	No Change	Low
38	Akfırat 2 Archaeological Site	İstanbul	135+190-135+450	98442	22317	22,67	Negligible	Low
39	Tepeören Potential Archaeological Site	İstanbul	134+390-134+480	11953	6370	53,29	Minor	Low
40	Kırkçeşme Water Line	İstanbul	68+900-69+400	469562	30237	6,44	No Change	High
41	Roman Period Water Line B	İstanbul	68+700-68+800	5717200	430	0,01	No Change	High
42	Terkos - Kağıthane Water Line	İstanbul	57+600-58+850	25723113	906	0,00	No Change	High
43	İhsaniye Cemetery	İstanbul	59+900	2713	0	0,00	No Change	High
44	Roman Period Water Line A	İstanbul		5211719	419	0,01	No Change	High
45	Tayakadın	İstanbul	48+800 Access Road	22654	13	0,06	No Change	Low
46	Baklalı 1 Archaeological Site	İstanbul	47+850 Southern Part of Access Road	31003	0	0,00	No Change	Low

47	Baklalı 2 Archaeological Site	İstanbul	47+850 Nothern Part of Access Road	38650	0	0,00	No Change	Low
48	Yassıören 1 Potential Archaeological Site	İstanbul	43+100-43+350	16324	0	0,00	No Change	Low
49	Çakmak Line Military Entrenchments	İstanbul	42+800-32+500	3464	443	12,79	No Change	High
50	Yassıören 2 Potential Archaeological Site	İstanbul	42+350-42+440	20632	4375	21,20	Negligible	Low
51	Military Bunker 1	İstanbul	40+500	12	0	0,00	No Change	High
52	Military Bunker 2	İstanbul	40+500	45	0	0,00	No Change	High
53	Military Bunker 3	İstanbul	40+400	68	0	0,00	No Change	High
54	Military Bunker 4	İstanbul	40+400	35	0	0,00	No Change	High
55	Military Bunker 5	İstanbul	40+171	29	0	0,00	No Change	High
56	Military Bunker 6	İstanbul	40+171	95	0	0,00	No Change	High
57	Military Bunker 7	İstanbul	40+171	34	0	0,00	No Change	High
58	Military Bunker 8	İstanbul	40+171	32	0	0,00	No Change	High
59	Nakkaş Military Shooting Range	İstanbul	39+825-40+116	15504	30	0,19	No Change	High
60	Military Bunker 9	İstanbul	39+863	53	53	100,00	Major	High
61	Military Bunker 10	İstanbul	39+873	29	29	100,00	Major	High
62	Military Bunker 11	İstanbul	39+850	19	0	0,00	No Change	High
63	Military Bunker 12	İstanbul	39+781	145	145	100,00	Major	High
64	Military Bunker 13	İstanbul	39+726	121	121	100,00	Major	High
65	Military Bunker 14	İstanbul	39+720	76	76	100,00	Major	High
66	Military Bunker 15	İstanbul	39+750	40	0	0,00	No Change	High
67	Military Bunker 16	İstanbul	39+740	56	0	0,00	No Change	High
68	Military Bunker 17	İstanbul	39+660	78	0	0,00	No Change	High
69	Military Bunker 18	İstanbul	39+660	36	0	0,00	No Change	High
70	Military Bunker 19	İstanbul	39+660	14	0	0,00	No Change	High
71	Nakkaş Potential Archaeological Site	İstanbul	39+500-39+600	3745	3745	100,00	Major	Low
72	Nakkaş 2 Archaeological Site	İstanbul	38+150-38+330	19649	0	0,00	No Change	Low
73	Military Bunker 20	İstanbul	38+000	30	0	0,00	No Change	High
74	Nakkaş 3 Archaeological Site	İstanbul	37+780-37+900	8245	0	0,00	No Change	Low
75	Military Bunker 34	İstanbul	37+850	21	0	0,00	No Change	High
76	Military Bunker 35	İstanbul	37+700	125	125	100,00	Major	High
77	Military Bunker 21	İstanbul	37+400	12	0	0,00	No Change	High
78	Örenbayır Archaeological Site	İstanbul	36+980-37+360	95005	35323	37,18	No Change	Low
79	Military Bunker 33	İstanbul	37+250	12	0	0,00	No Change	High
80	Military Bunker 32	İstanbul	37+250	12	0	0,00	No Change	High
81	Military Bunker 31	İstanbul	37+250	18	0	0,00	No Change	High
82	Military Bunker 30	İstanbul	37+250	12	0	0,00	No Change	High
83	Military Bunker 22	İstanbul	36+900	45	0	0,00	No Change	High
84	Military Bunker 29	İstanbul	37+000	32	0	0,00	No Change	High
85	Military Bunker 28	İstanbul	36+900	31	0	0,00	No Change	High
86	Military Bunker 27	İstanbul	36+850	22	0	0,00	No Change	High
87	Military Bunker 26	İstanbul	36+800	15	6	40,00	Minor	High
88	Military Bunker 23	İstanbul	36+700	24	0	0,00	No Change	High
89	Military Bunker 24	İstanbul	36+700	17	0	0,00	No Change	High
90	Military Bunker 25	İstanbul	36+700	15	0	0,00	No Change	High
91	Military Bunker 38	İstanbul	36+700	107	0	0,00	No Change	High
92	Military Bunker 39	İstanbul	36+701	21	0	0,00	No Change	High
93	Military Bunker 40	İstanbul	36+702	44	0	0,00	No Change	High
94	Military Bunker 41	İstanbul	36+703	46	0	0,00	No Change	High
95	Military Bunker 45	İstanbul	36+300	245	0	0,00	No Change	High
96	Military Bunker 44	İstanbul	36+270	116	0	0,00	No Change	High
97	Military Bunker 43	İstanbul	36+240	145	0	0,00	No Change	High
98	Military Bunker 42	İstanbul	36+230	173	0	0,00	No Change	High
99	Military Bunker 46	İstanbul	35+700 Access Road	738	0	0,00	No Change	High
100	Yeşilbayır - Nakkaş Historical Bridge	İstanbul	35+701	121	0	0,00	No Change	Low
101	Military Bunker 47	İstanbul	35+350	689	145	21,04	Negligible	High
102	Military Bunker 48	İstanbul	35+162	12	12	100,00	Major	High
103	Military Bunker 49	İstanbul	35+120	130	0	0,00	No Change	High
104	Military Bunker 50	İstanbul	35+121	18	18	100,00	Major	High
105	Military Bunker 51	İstanbul	35+095	109	109	100,00	Major	High
106	Military Bunker 52	İstanbul	35+036	17	17	100,00	Major	High
107	Military Bunker 53	İstanbul	35+010	26	26	100,00	Major	High
108	Military Bunker 54	İstanbul	35+050	75	0	0,00	No Change	High
109	Military Bunker 55	İstanbul	35+050	19	0	0,00	No Change	High
110	Yeşilbayır Archaeological Site	İstanbul	34+600 On Access Road	6967	0	0,00	No Change	Low
111	Military Bunker 62	İstanbul	34+600 On Access Road	27	27	100,00	Major	High
112	Military Bunker 61	İstanbul	34+600 On Access Road	20	20	100,00	Major	High
113	Military Bunker 60	İstanbul	34+600 On Access Road	19	0	0,00	No Change	High
114	Military Bunker 59	İstanbul	34+600 On Access Road	43	0	0,00	No Change	High
115	Military Bunker 58	İstanbul	34+600 On Access Road	90	0	0,00	No Change	High
116	Military Bunker 57	İstanbul	34+600 On Access Road	473	0	0,00	No Change	High
117	Savaşçı Fountain	İstanbul	34+600 On Access Road	46	46	100,00	Major	Low
118	Military Bunker 63	İstanbul	34+410	20	20	100,00	Major	High
119	Military Bunker 64	İstanbul	34+230	59	59	100,00	Major	High
120	Military Bunker 74	İstanbul	34+210	122	122	100,00	Major	High
121	Military Bunker 65	İstanbul	34+237	54	0	0,00	No Change	High
122	Military Bunker 66	İstanbul	34+230	76	0	0,00	No Change	High
123	Military Bunker 68	İstanbul	34+198	83	66	79,52	Moderate	High
124	Military Bunker 71	İstanbul	34+194	121	52	42,98	Negligible	High
125	Military Bunker 76	İstanbul	34+170	28	28	100,00	Major	High

126	Military Bunker 77	İstanbul	34+195	54	54	100,00	Major	High
127	Military Bunker 75	İstanbul	34+160	108	108	100,00	Major	High
128	Military Bunker 67	İstanbul	34+195	128	0	0,00	No Change	High
129	Military Bunker 91	İstanbul	34+195	65	0	0,00	No Change	High
130	Military Bunker 69	İstanbul	34+120	31	0	0,00	No Change	High
131	Military Bunker 70	İstanbul	34+115	32	0	0,00	No Change	High
132	Military Bunker 78	İstanbul	34+072	63	0	0,00	No Change	High
133	Military Bunker 79	İstanbul	34+108	66	0	0,00	No Change	High
134	Military Bunker 72	İstanbul	34+073	45	0	0,00	No Change	High
135	Military Bunker 73	İstanbul	34+040	36	0	0,00	No Change	High
136	Vaulted Structure	İstanbul	33+950-34+000	896	896	100,00	No Change	High
137	Military Bunker 80	İstanbul	34+000	17	0	0,00	No Change	High
138	Military Bunker 81	İstanbul	34+000	21	0	0,00	No Change	High
139	Military Bunker 83	İstanbul	34+000	44	0	0,00	No Change	High
140	Military Bunker 90	İstanbul	34+000	41	0	0,00	No Change	High
141	Military Bunker 82	İstanbul	33+986	30	0	0,00	No Change	High
142	Military Bunker 92	İstanbul	33+960	29	0	0,00	No Change	High
143	Military Bunker 93	İstanbul	33+941	65	0	0,00	No Change	High
144	Military Bunker 94	İstanbul	33+930	32	0	0,00	No Change	High
145	Military Bunker 88	İstanbul	33+894	42	16	38,10	Negligible	High
146	Military Bunker 89	İstanbul	33+930	66	0	0,00	No Change	High
147	Military Bunker 84	İstanbul	33+890	64	64	100,00	Major	High
148	Military Bunker 85	İstanbul	33+890	159	159	100,00	Major	High
149	Military Bunker 86	İstanbul	33+880	37	28	75,68	Negligible	High
150	Military Bunker 87	İstanbul	33+900	28	0	0,00	No Change	High
151	Military Bunker 95	İstanbul	33+890	20	0	0,00	No Change	High
152	Military Bunker 96	İstanbul	33+880	44	0	0,00	No Change	High
153	Military Bunker 102	İstanbul	33+875	80	0	0,00	No Change	High
154	Military Bunker 100	İstanbul	33+830	37	37	100,00	No Change	High
155	Military Bunker 101	İstanbul	33+856	51	0	0,00	No Change	High
156	Military Bunker 99	İstanbul	33+844	21	0	0,00	No Change	High
157	Military Bunker 97	İstanbul	33+830	35	0	0,00	No Change	High
158	Military Bunker 98	İstanbul	33+567	365	0	0,00	No Change	High
159	Military Bunker 103	İstanbul	33+500	966	0	0,00	No Change	High
160	Military Bunker 104	İstanbul	33+357	51	0	0,00	No Change	High
161	Military Bunker 108	İstanbul	33+340	48	0	0,00	No Change	High
162	Military Bunker 105	İstanbul	33+312	10	0	0,00	No Change	High
163	Military Bunker 107	İstanbul	33+312	16	0	0,00	No Change	High
164	Military Bunker 106	İstanbul	33+313	33	0	0,00	No Change	High
165	Military Bunker 110	İstanbul	33+291	36	0	0,00	No Change	High
166	Military Bunker 109	İstanbul	33+271	55	0	0,00	No Change	High
167	Military Bunker 111	İstanbul	33+258	10	0	0,00	No Change	High
168	Military Bunker 112	İstanbul	33+197	18	0	0,00	No Change	High
169	Military Bunker 113	İstanbul	33+197	46	0	0,00	No Change	High
170	Military Bunker 114	İstanbul	33+122	10	0	0,00	No Change	High
171	Military Bunker 115	İstanbul	33+095	20	0	0,00	No Change	High
172	Military Bunker 119	İstanbul	33+057	62	0	0,00	No Change	High
173	Military Bunker 117	İstanbul	33+020	10	10	100,00	Major	High
174	Military Bunker 116	İstanbul	33+036	26	0	0,00	No Change	High
175	Military Bunker 118	İstanbul	32+940	15	8	53,33	Minor	High
176	Military Bunker 120	İstanbul	32+855	68	0	0,00	No Change	High
177	Military Bunker 121	İstanbul	32+792	5	2	40,00	Negligible	High
178	Military Bunker 122	İstanbul	32+700	5	5	100,00	Major	High
179	Military Bunker 123	İstanbul	32+643	7	0	0,00	No Change	High
180	Military Bunker 124	İstanbul	32+610	12	0	0,00	No Change	High
181	Military Bunker 126	İstanbul	32+610	17	0	0,00	No Change	High
182	Military Bunker 125	İstanbul	32+580	7		0,00	No Change	High
183	Military Bunker 127 and Parapet	İstanbul	32+530	3499	597	17,06	No Change	High
184	Umurtepe - Kartepe 2nd Degree Archaeological Site	İstanbul	21+800-21+100	431636	185421	42,96	Minor	High
185	Karamurat Archaeological Site	İstanbul	20+230-19+660	98813	20939	21,19	Negligible	Low
186	Gedik Ali Paşa Archaeological Site	İstanbul	18+500-18+680	32014	15329	47,88	Minor	Low
187	Kadıköy Archaeological Site	İstanbul	16+850-17+080	17943	0	0,00	No Change	Low
188	Gazitepe Potential Archaeological Site	İstanbul	15+920-16+036	6811	5459	80,15	Major	Low
189	Anastasios Fortification Wall	İstanbul	5+000-5+100	1671171	7817	0,47	No Change	High
190	Küçükkılıç Tumulus	İstanbul	2+860-2+940	1518	1518	100,00	Major	Low

SCALE & SEVERITY OF CHANGE/IMPACT	
%0-%20	No Change
%20-%40	Negligible
%40-%60	Minor
%60-%80	Moderate
%80-%100	Major

VALUE OF HERITAGE ASSETS	
The importance of the asset has not been ascertained.	Unknown Potential
*Assets with little or no surviving archaeological interest.	Negligible
*Designated or undesignated assets of local importance. *Assets compromised by poor preservation and/or poor survival of contextual associations. *Assets of limited value, but with potential to contribute to local research objectives.	Low
*Nationally-designated Archaeological Monuments protected by the State Party's laws *Undesignated sites of the quality and importance to be designated. *Assets that can contribute significantly to acknowledged national research objectives.	High
*Sites of acknowledged international importance inscribed as WH property. *Individual attributes that convey OUV of the WH property. *Assets that can contribute significantly to acknowledged international research objectives.	Very High

Annex 8 – Official Correspondances of Regional Board for Preservation of Cultural Assets

T.C.
KÜLTÜR VE TURİZM BAKANLIĞI
Kocaeli Kültür Varlıklarını Koruma Bölge Kurulu Müdürlüğü

Sayı : 95741949/00.720.91/ 83 20/01/2017
Konu : Kuzey Marmara Otoyolu Kurum Görüşü
Altyapı Deplasmanları

REGİO KÜLTÜREL MİRAS YÖNETİM DANIŞMANLIĞINA

İlgi: a) Karayolları Genel Müdürlüğü, 1. Bölge Müdürlüğünün 27.10.2016 tarih ve E.251737 sayılı yazısı.
b)Regio Kültürel Miras Yönetim Danışmanlığının 09.01.2016 tarih ve 01 sayılı yazısı.

İlgi yazılarda;Yap-İşlet-Devret yönetimi ile ihalesi yapılan Kuzey Marmara Otoyolu (3 Boğaz Köğrüsü Dahil) Projesi, Kınalı-Odayeri (Bağlantı Yolları Dahil) Kesimi İşi KMO Avrupa Otoyol İşletmesi A.Ş. taahhüdünde, Kurtköy-Akyazı (Bağlantı Yolları Dahil) Kesimi İşi KMO Anadolu Otoyol İşletmesi A.Ş. taahhüdünde ve Karayolları 1. Bölge Müdürlüğü denetiminde yürütülmektedir. Bu kapsamda Müdürlüğümüzün görüşünün ivedilikle bildirilmesi ve güzergah üzerinde yer alan sit alanı ya da tescilli yapılara ilişkin sayısal verilerin gönderilmesi talep edilmektedir.

Söz konusu yazıya ilişkin sayısal veriler e-mail yoluyla Regio Kültürel Miras Yönetim Danışmanlığına iletilmiş olup, ayrıca aynı firmanın elemanları ile Müdürlüğümüz teknik elemanları yerinde incelemeler yaparak tüm hattı incelemişlerdir. Söz konusu Kuzey Marmara Otoyol Projesinin Gebze Yağcılar Mevkiinde tarihi yol kalıntısı ile kesiştiği tespit edildiğinden bu noktadaki geçiş konusu Kurulumuz ilk toplantısında değerlendirilecek olup, toplantı sonrası kesin kurum görüşümüz iletilebilecektir.

Gereğini rica ederim.

Taner AKSOY
Bölge Kurulu Müdürü

EK: CD (1 adet)

DAĞITIM:

Gereği:
-Karayolları Genel Müdürlüğüne
(1. Bölge Müdürlüğü)
-Regio Kültürel Miras Yönetim Danışmanlığına

Kozluk Mahallesi İstasyon Caddesi TCDD Eski Gar Binası Kat 2 İzmit / KOCAELİ
Telefon: (0 262) 323 29 26 Faks: (0 262) 323 29 36
E- mail :ktvk41@kultur.gov.tr

Ayrıntılı bilgi için irtibat:
Sanat Tarihçi
Tayfun OK
Dahili: 118

T.C
KÜLTÜR VE TURİZM BAKANLIĞI
İstanbul V Numaralı Kültür Varlıklarını
Koruma Bölge Kurulu Müdürlüğü

SAYI: 25087147/211
KONU: Kuzey Marmara Otoyolu.

İSTANBUL
26 Ocak 2017

REGİO Raporlama Etüd Geliştirme Organizasyon Danışmanlık Eğitim A.Ş.
(Sedat Simavi S. No:17 A Blok No:2 06550 Çankaya/ANKARA)

İlgi: 09.01.2017 tarih ve KMO-REG-KKY-IST-02 sayılı yazımız.

Kuzey Marmara Otoyolu (3. Boğaz Köprüsü Dahil) Projesi Kınalı-Odayeri ve Kurtköy-Akyazı (Bağlantı Yolları Dahil) kesimlerine ilişkin yazı ekinde CD ortamında sunulan verideki proje uygulama sahaları (yol güzergahı, yerüstü tesisleri, kavşaklar, tüneller, köprüler, stok sahaları dahil) ve bu uygulama sahalarının üzerine rastlayan tescilli alanlar ile tescil aşamasında olan, tespitli alanlara ilişkin bilgi ve belgelerin tarafınıza iletilmesi talep edilen ilgi yazınız ile eki incelenmiştir.

Söz konusu güzergahlardan Kurtköy-Akyazı kesiminin batı ucunda yer alan parçası Müdürlüğümüz sorumluluk alanında kalan Pendik ve Tuzla ilçe sınırları içerisinden geçmektedir. Söz konusu güzergahta Müdürlüğümüz görev alanına giren herhangi bir sit alanı bulunmamakta olup, tescil yapılmış herhangi bir kültür varlığı kaydına da rastlanmamıştır. Alanda yapılacak çalışmalar sırasında kültür varlığı bulgusuna rastlanılması halinde fiziki uygulamaların durdurularak gerekli belgelerin Müdürlüğümüze iletilmesi gerekmektedir.

Bilgilerinizi ve gereğini rica ederim.

Aynur ARTAR
Müdür

ADRES: Hobyar Mahallesi, Büyük Postane Cad. No:34 Kat:4
Bahçekapı/Eminönü/İSTANBUL
Tel: 0212- 512 09 20 Faks: 0212- 528 31 13

Bilgi için: Gökhan BİLGİHAN
Şehir Plancısı

T.C.
KÜLTÜR VE TURİZM BAKANLIĞI
İstanbul I Numaralı Kültür Varlıklarını
Koruma Bölge Kurulu Müdürlüğü

SAYI: 39682869/469 13./03./2017
KONU: Kuzey Marmara Otoyolu Projesi kapsamında istenen bilgi ve belgeler hk.

REGİO KÜLTÜREL MİRAS YÖNETİM DANIŞMANLIĞI EĞİTİM A.Ş'YE

İlgi: a)09.01.2017 tarih 1 sayılı yazınız.
b) İstanbul I Numaralı Kültür Varlıklarını Koruma Bölge Kurulunun 12.01.2017 tarih 2203 sayılı kararı.

İstanbul İli ve çevresini kapsayan alanda gerçekleştirilen Kuzey Marmara Otoyolu ve Bağlantı Yolları(3. Boğaz Köprüsü dahil) Projesi kapsamında arkeolojik taşınmaz kültürel mirasın değerlendirilmesine yönelik çalışmaların yapılması, bu itibarla otoyol güzergahı boyunca arkeolojik ve somut kültürel mirasın etki değerlendirmesi için gerekli saha araştırmalarını Kurum ve diğer paydaş görüşmelerini veri toplama faaliyetlerini ve ilgili diğer çalışmaları gerçekleştirmek üzere 2016/20 sayılı Başbakanlık Genelgesi kapsamında, cd ortamında (kmz dosyası) sunulan verideki proje uygulama sahaları(yol güzergahı, yerüstü tesisleri, kavşaklar, tüneller, köprüler, stok sahaları dahil) ve bu uygulama sahalarının üzerine rastlayan tescilli alanlar ile tescilli alanlar ile tescil aşamasında olan, tespitli alanlara ilişkin bilgi ve belgelerin iletilmesini konu edinen ilgi (a) yazınız ve ekleri incelenmiştir.

Müdürlüğümüzce yapılan inceleme neticesinde;

İstanbul İl sınırları içerisinde, Müdürlüğümüz yetki alanında olan; Eyüp, Arnavutköy, Başakşehir, Sultangazi, Gaziosmanpaşa, Başakşehir, Avcılar, Çatalca ve Silivri İlçelerinden geçen Kuzey Marmara Otoyolu ve Bağlantı Yolları Proje(KMO) sınırları ve yakın çevresinde 2863 Sayılı Yasa kapsamında bazı tescilli veya tescil süreci devam eden çeşitli kültür varlıkları bulunmakta olduğu,

Yapılan inceleme neticesinde bahse konu proje güzergahı üzerinde yer aldığı tespit edilen önemli kültür varlıklarının;

- Silivri İlçesi Anastasius Surları ve Koruma alanı
- Çatalca İlçesi Kartepe-Umurtepe 2. Derece Arkeolojik sit alanı,
- Arnavutköy İlçesi tarihi Roma Su İsale hattı,
- Eyüp-Arnavutköy Terkos-Feriköy Su İsale hattı,
- Kırkçeşme Su İsale hattı,
- Fevzi Çakmak Savunma Hattı olarak bilinen tarihi ve askeri tahkimatlar(tabya ve korunganlar) oldukları,

Bahse konu kültür varlıklarının onaylı koruma alanı veya sit sınırına ait Kurul kararı ile onaylı sayısal verilen(dxf, ncz, vb.) bulunmamakta olup, bu alanlara ilişkin, Müdürlüğümüzce gerçekleştirilen sayısallaştırma çalışmalarının devam etmekte olduğu tespit edilmiştir.

T.C.
KÜLTÜR VE TURİZM BAKANLIĞI
İstanbul I Numaralı Kültür Varlıklarını
Koruma Bölge Kurulu Müdürlüğü

SAYI: 39682869/469 13/03/2017
KONU: Kuzey Marmara Otoyolu Projesi kapsamında istenen bilgi ve belgeler hk.

Tespit edilen hususlar doğrultusunda, Kuzey Marmara Otoyolu ve Bağlantı Yolları Proje(KMO) güzergahı üzerinde kaldıkları tespit edilen kültür varlıklarına ilişkin ait ilgi (a) yazınız ile istenen sayısal veriler, Kurul kararıyla onaylı veriler olmayıp, resmi işlemlerde kullanılmaması koşulu ile sadece bilgi amaçlı olarak kullanılmak üzere cd ortamında(ncz, kmz) yazımız ekinde tarafınıza iletilmekte olup, Kuzey Marmara Otoyolu ve Bağlantı Yolları Projesinin, bahse konu kültür varlıkları ile ilişkilerinin Kurulumuzca değerlendirilmesi neticesinde, alınan ilgi (b) Kurul karar örneği de yazımız ekinde tarafınıza iletilmektedir.

Bilgilerinizi rica ederim.

Ahmet LATİFOĞLU
Müdür V.

Ek: - İlgi (b) karar örn.(1syf)
- 1 adet Cd(kmz, ncz, txt, docx)

Türkiye

Hobyar Mahallesi Büyük Postane Caddesi No:72 Kat:2
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Bilgi için: Ersan VAROL
Şehir Plancısı
Dahili No:124

T.C.
KÜLTÜR VE TURİZM BAKANLIĞI
İSTANBUL I NUMARALI KÜLTÜR VARLIKLARINI
KORUMA BÖLGE KURULU

Toplantı Tarihi ve No :12.01.2017/233 **Toplantı Yeri**
Karar Tarihi ve No :12.01.2017/2203-1 İSTANBUL

KARAR

İstanbul İli, Eyüp, Arnavutköy, Başakşehir, Sultangazi, Gaziosmanpaşa, Başakşehir, Avcılar, Çatalca ve Silivri ilçelerinden geçen, Kuzey Marmara Otoyolu ve Bağlantı Yolları Projesi (KMO), Yassıören Mevki ile Odayeri-Işıklar Mevki arasında bulunan otoyol projesi, 3. Havalimanı Güzergahı Odayeri Kavşağı ile Tem Otoyolu Mahmutbey Kavşağı arasında projelendirilen bağlantı yolu kesimine ilişkin İstanbul 1 Numaralı Kültür Varlıklarını Koruma Bölge Kurulunun 18.12.2014 tarih 1247 sayılı kararı ile … Kırkçeşme Su Galeri Hattı Koruma Alanı ile Anastasias Surları Koruma Alanının içerisinden geçen kısımlara ilişkin, 2863 Sayılı Yasa kapsamında azami özen gösterilmesi ve alanda uygulama aşamasında koruma altındaki yapılarla ilişkileri gösterilerek yapılacak uygulama projelerinin Kurulumuza iletilmesine;…Kültür varlığı olarak tescil ve tespit işlemleri tamamlanmayan ve Kuzey Marmara Otoyolu Projesi kapsamında kaldıkları anlaşılan tahkimatlara ilişkin Milli Savunma Bakanlığı'ndan, tabya ve koruganlarla ilgili bilgi, belge ve raporların istenmesine ve proje güzergahında bundan sonra düzenleme yapılmasına; …muhtemel Terkos-Kağıthane Su İletim Galerisi Hattında, İSKİ Genel Müdürlüğü, Karayolları Genel Müdürlüğü ve İstanbul Arkeoloji Müzeleri Müdürlüğü işbirliğiyle yapılacak kazı ve sondaj çalışmaları sonucunda hazırlanacak raporun ivedilikle Kurula iletilmesine; bölgede tarihi su sistemlerine ilişkin yapılan bilimsel çalışmalardaki veriler ile İSKİ Genel Müdürlüğünün 11.09.2014 gün ve 314-446263 sayılı yazısı ekindeki 1935 tarihli Terkos Su Yolu Planının; Karayolları Genel Müdürlüğü, İSKİ ve Arkeoloji Müzeleri koordinasyonunda, 2863 Sayılı Yasa Kapsamında incelenmesine, kazı ve sondaj çalışmalarının yapılmasına ve sonucunda hazırlanacak raporun Kurula iletilmesine; Projenin, koruma kurulu yetki alanında kalan sit sınırı ve koruma alanlarının coğrafi koordinatlarının yerinde tespit edilerek, elde edilen koordinat verilerinin paftalara işlenerek Kurula iletilmesine ve akabinde tescil fişlerine işlenmesi gerektiğine; Kuzey Marmara Otoyolu ve Bağlantı Yolları Projesine ilişkin, Ulaştırma, Denizcilik ve Haberleşme Bakanlığı Karayolları Genel Müdürlüğü, 1. Bölge Müdürlüğü'nün 16.10.2014 gün ve 175909 sayılı yazısına konu, 1/25.000 ölçekli paftaların, Karayolları Genel Müdürlüğü'nün onayının ardından ivedilikle Kurulumuza iletilmesine; Kültür ve Tabiat Varlıklarını Koruma Kanunu'nun, Haber Verme Zorunluluğu başlıklı 4. …Madde'nin ve konuya ilişkin 23.08.2012 gün ve 28390 sayılı Resmi Gazetede ilan edilen Başbakanlık Genelgesi'nin 11. Maddesinde belirtilen hususların gereğinin yapılması gerektiğine; söz konusu projenin, Kurulumuz yetkisinde kalan kısımlarına ilişkin 1/25.000 ölçekli Nazım İmar Planı, 1/5000 Nazım İmar Planı ve 1/1000 Ölçekli Uygulama İmar Planı onaylı paftalarının, Kurul arşivinde yer almak üzere, ivedilikle Kurulumuza iletilmesi gerektiğine, İstanbul 1 Numaralı Kültür Varlıklarını Koruma Bölge Kurulunun 07.01.2016 tarih 1661 sayılı kararı ile Kuzey Marmara Otoyolu ve Bağlantı Yolları Projesine ilişkin alınan 18.12.2015 tarih 1247 sayılı Kurul…karar gereklerinin yerine getirilmesine karar verilen, Karayolları Genel Müdürlüğü, 1. Bölge Müdürlüğünün; İstanbul, Avrupa Yakası Kuzey Marmara Otoyolu(3. Boğaz Köprüsü Dahil) Projesi, Kınalı-Odayeri (Bağlantı Yolları Dahil) Kesimi İşi 1/5000 ölçekli Ön Proje Güzergahına ait Kurum görüşlerinin talep edildiği .10.2016 tarih 170.99/E.251737 sayılı yazısı ile söz konusu iş kapsamındaki Kesim-7 Habibler-Hasdal km:66+650 – 69+325' de bulunan Gazi Tüneli ile tarihi Kırkçeşme Sularına ait etkileşimi gösteren 1/5000 ölçekli Otoyolu plan-profil paftasının incelenerek görüş verilmesinin talep edildiği 22.12.2016 tarih 170.99/E.304075 sayılı yazıları, bahse konu projeye ilişkin Başbakanlık Personel ve Prensipler Genel Müdürlüğünün 23.08.2016 tarih ve 2016/20 sayılı genelgesinin yazı ekinde iletildiği İstanbul Valiliği İl Yazı İşleri Müdürlüğünün 29.08.2016 tarih E.67520 sayılı yazısı, bahse konu projelere ilişkin yapılan işlemlere ilişkin bilgi ve belgenin iletilmesini konu edinen Kültür Varlıkları ve Müzeler Genel Müdürlüğünün ilgi 23.11.2016 tarih 209115 sayılı ve 12.12.2016 tarih 221455 sayılı yazıları, hazırlanan uzman raporu okundu, 1292 nolu işlem dosyası incelendi, yapılan görüşmeler sonucunda;

ASLI GİBİDİR.
Ahmet LATİFOĞLU
Müdür V.

T.C.
KÜLTÜR VE TURİZM BAKANLIĞI
İSTANBUL I NUMARALI KÜLTÜR VARLIKLARINI
KORUMA BÖLGE KURULU

Toplantı Tarihi ve No :12.01.2017/233 **Toplantı Yeri**
Karar Tarihi ve No :12.01.2017/2203-II İSTANBUL

İstanbul, Avrupa Yakası Kuzey Marmara Otoyolu(3. Boğaz Köprüsü Dahil) Projesi kapsamında, Karayolları Genel Müdürlüğü 1. Bölge Müdürlüğünün 27.10.2016 tarih 170.99/E.251737 sayılı ve 22.12.2016 tarih 170.99/E.304075 sayılı yazı eklerinde yer alan Silivri Kınalı- Eyüp Odayeri (Bağlantı Yolları Dahil) Kesimi ile Sultangazi-Hasdal Bağlantıları proje güzergahlarının uygulanmasında 2863 Sayılı Yasa kapsamında sakınca bulunmadığına; ancak uygulama öncesinde proje güzergahının, Silivri Anastasius Surları ve Koruma alanı, Arnavutköy ve Sultangazi Roma Su İsale Hatları, Eyüp Terkos-Feriköy Su İsale hatları ve Arnavutköy Çakmak hattı olarak bilinen bölgede yer alan tarihi askeri tahkimatlar(tabya, korugan, vb.) ile kesiştiği noktalarda ilgili Kurumlarca ve ilgili Müze denetiminde jeoradar çalışmasının yapılarak bahse konu kültür varlıklarının kesin yerleri ve ebatlarının(3 boyutlu modellenmiş şekilde) coğrafi koordinatları ile birlikte belirlenerek onaylı halihazır paftalara işlenmesine, bu veriler doğrultusunda hazırlanacak alternatifli uygulama projelerinin değerlendirilmek üzere Kurulumuza iletilmesine;

Kuzey Marmara Otoyol Projesi hattı ile kesiştiği anlaşılan Kartepe-Umurtepe II. Derece Arkeolojik Sit Alanının içerisinden kısmen geçtiği anlaşılan öneri tünel yapısının kültür varlıklarını etkileyen kısımlarını gösterir üç boyutlu modellemelerin de yer aldığı alternatifli ve detaylı uygulama projesi ve raporlarının Kurulumuza iletilmesine;

Proje kapsamında Sultangazi-Hasdal Bağlantısında önerilen tünel hattı ile kesiştiği anlaşılan Kırkçeşme Su İsale hattı galeri ve Çiftekemerin yer aldığı bölümünde, isale hattının yeraltında kalan kısımları ile birlikte gerekli tespit ve belgeleme çalışmalarının ilgili Müze denetiminde yapılmasına, mimari elemanlarının ortaya çıkarılmasına; kültür varlığının kesin yerleri ve ebatlarının(3 boyutlu modellenmiş şekilde) coğrafi koordinatları ile birlikte belirlenerek onaylı halihazır paftalara işlenmesine, bu veriler doğrultusunda hazırlanacak alternatifli uygulama projelerinin değerlendirilmek üzere Kurulumuza iletilmesine;

Kuzey Marmara Otoyoluna ilişkin Kurulumuzun 18.12.2014 tarih 1247 sayılı kararında yer alan ve yerine getirilmeyen hükümlerin ivedilikle yerine getirilmesine;

Ayrıca otoyol proje hattı üzerinde belirlenen kültür varlıkları dışında, herhangi bir kültür varlığına rastlanması durumunda 2863 Sayılı Yasanın 4. Maddesinin gereğinin yerine getirilmesine karar verildi.

BAŞKAN Hüseyin KOÇ İMZA	ASLI GİBİDİR Ahmet LATİFOĞLU Müdür V.	**BAŞKAN YARDIMCISI** Barış HAN İMZA
ÜYE Suat ÇAKIR İMZA	**ÜYE** Aslıhan YURTSEVER BEYAZIT (BULUNMADI)	**ÜYE** Muhammed HARDALAÇ İMZA
ÜYE Fatih ELÇİL İMZA	**ÜYE** Mergül KOTİL İMZA	**ÜYE** Zuhal AYANOĞLU İst. B.Şehir Bld. Tems. İMZA
ÜYE Zeynep KIZILTAN İst. Arkeoloji Müz. Md (BULUNMADI)	**ÜYE** Yılmaz FIRAT İst. Orm. Bölg. Müd. Tems. İMZA	**ÜYE** Hamdi DEMİRHAN Arnavutköy Bld.Tems (BULUNMADI)
ÜYE Zehra. B. ÇAVUŞ Başakşehir Bld. Tems.	**ÜYE** Erhan GÜZEL Çatalca Bld.Tems (BULUNMADI)	**ÜYE** Esra SARI Eyüp Bld. Tems. İMZA
ÜYE Sibel ALATAŞ Silivri Bld.Tems (BULUNMADI)	**ÜYE** Nurgün GÜNGÖREN Sultangazi Bld.Tems (BULUNMADI)	12.01.2017/EV

T.C.
KÜLTÜR VE TURİZM BAKANLIĞI
Kocaeli Kültür Varlıklarını Koruma Bölge Kurulu Müdürlüğü

Sayı : 95741949/ 00.720.91/ 427 23/03/2017
Konu : Kocaeli İli, İzmit, Gebze, Körfez İlçeleri
Kuzey Marmara Otoyolu Projesi

REGİO KÜLTÜREL MİRAS YÖNETİM DANIŞMANLIĞINA
(Sedat Simavi Sok. No:17/A Blok No:2 Çankaya/ANKARA)

Yukarıda belirtilen konu hakkında Kurulumuzca alınan 21/03/2017 gün ve 2887 sayılı karar ekte sunulmuştur.

Bilgilerinize rica ederim.

Taner AKSOY
Bölge Kurulu Müdürü

EKLER:
1-Karar örneği (1 sayfa)
2-CD (1 Adet)

DAĞITIM:

Gereği:
-Kocaeli Valiliğine
(İl Kültür ve Turizm Müdürlüğü)
-Karayolları Genel Müdürlüğüne
(1. Bölge Müdürlüğü)
-Kocaeli Büyükşehir Belediye Başkanlığına
(İmar ve Şehircilik Müdürlüğü)
(Ek-2 konulmadı)
-İzmit Belediye Başkanlığına
(İmar ve Şehircilik Müdürlüğü)
(Ek-2 konulmadı)
-Gebze Belediye Başkanlığına
(İmar ve Şehircilik Müdürlüğü)
(Ek-2 konulmadı)
-Körfez Belediye Başkanlığına
(İmar ve Şehircilik Müdürlüğü)
(Ek-2 konulmadı)

Bilgi:
-Kültür Varlıkları ve Müzeler Genel Müdürlüğüne
(Kurullar Dairesi Başkanlığı)
(Kazılar Dairesi Başkanlığı)
(Ek-2 konulmadı)
-Regio Kültürel Miras Yönetim Danışmanlığına
(Sedat Simavi Sok. No:17/A Blok No:2
Çankaya/ANKARA)
(Ek-2 konulmadı)

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Sanat Tarihçi
Tayfun OK
Dahili: 116

T.C.
KÜLTÜR VE TURİZM BAKANLIĞI
KOCAELİ KÜLTÜR VARLIKLARINI KORUMA BÖLGE KURULU

KARAR

Toplantı Tarihi ve No : 21/03/2017 - 184
Karar Tarihi ve No : 21/03/2017 - 2887

Toplantı Yeri
Kocaeli

Kocaeli İli, İzmit, Körfez ve Gebze İlçesi sınırları içerisinde bulunan, sit dışı, mülkiyeti maliye hazinesine ve şahsa ait, ekte koordinatları belirtilen, Gedikli, Biberoğlu, Solaklar, Sipahiler 1 ve 2, Karapınar (Molla Fenari) arkeolojik alanlarına ilişkin Karayolları Genel Müdürlüğü, 1.Bölge Müdürlüğünün 02/03/2017 tarih ve E.62716 sayılı yazısı ile Regio Kültürel Miras Yönetim Danışmanlığının 08/03/2017 tarih ve KOC-02 sayılı yazısı, raportör raporu okundu, dosyası ve ekleri incelendi. Yapılan görüşmeler sonucunda;

Kocaeli İli, İzmit, Körfez ve Gebze İlçesi sınırları içerisinde bulunan, sit dışı, mülkiyeti maliye hazinesine ve şahsa ait, ekte koordinatları belirtilen arkeolojik alanlara ilişkin olarak, Müze Müdürlüğü denetiminde yapılacak kazı, sondaj ve jeoradar çalışmalarından sonra hazırlanacak bilgi, belge ve raporların Kurulumuza iletilmesine, sit değerlendirmelerinin ve tescil konularının bundan sonra değerlendirilebileceğine, alanlara ilişkin her türlü emniyet tedbirinin ilgili birimlerce alınmasına karar verildi.

Aslı Gibidir
Taner AKSOY
Bölge Kurulu Müdürü

BAŞKAN
Prof. Dr. E. Özlem AYDIN
imza

BAŞKAN YARDIMCISI
Yrd. Doç. Dr. Murat YILDIZ
bulunmadı

ÜYE
Zinnur BÜYÜKGÖZ
imza

ÜYE
Yrd. Doç. Dr. Ramazan UYKUR
imza

ÜYE
Hatice SATOĞLU
imza

ÜYE
Ramis OKUR
imza

ÜYE
Kocaeli Büyükşehir Belediye Temsilcisi
Volkan ŞENEL
imza

ÜYE
İzmit Belediye Temsilcisi
Cem GÜLER
imza

ÜYE
Gebze Belediye Temsilcisi
bulunmadı

ÜYE
Körfez Belediye Temsilcisi
bulunmadı

ÜYE
Kocaeli Müze Müdürlüğü Temsilcisi
Rıdvan GÖLCÜK
imza

Dosya No:00.720.91 T.O

T.C.
KÜLTÜR VE TURİZM BAKANLIĞI
Kocaeli Kültür Varlıklarını Koruma Bölge Kurulu Müdürlüğü

Sayı : 95741949/ 00.720.91/ 112 26/01/2017
Konu : Kocaeli İli, İzmit ve Gebze İlçeleri
Kuzey Marmara Otoyolu Projesi

REGİO KÜLTÜREL MİRAS YÖNETİM DANIŞMANLIĞINA
(Sedat Simavi Sok. No:17/A Blok No:2 Çankaya/ANKARA)

Yukarıda belirtilen konu hakkında Kurulumuzca alınan 24/01/2017 gün ve 2802 sayılı karar ekte sunulmuştur.

Gereğini rica ederim.

Taner AKSOY
Bölge Kurulu Müdürü

EKLER:
1-Karar örneği (1 sayfa)

DAĞITIM:

Gereği:
-Kocaeli Valiliğine
(İl Kültür ve Turizm Müdürlüğü)
-Karayolları Genel Müdürlüğüne
(1. Bölge Müdürlüğü)
-Kocaeli Büyükşehir Belediye Başkanlığına
(İmar ve Şehircilik Müdürlüğü)
-İzmit Belediye Başkanlığına
(İmar ve Şehircilik Müdürlüğü)
-Gebze Belediye Başkanlığına
(İmar ve Şehircilik Müdürlüğü)
-Regio Kültürel Miras Yönetim Danışmanlığına
(Sedat Simavi Sok. No:17/A Blok No:2
Çankaya/ANKARA)

Bilgi:
-Kültür Varlıkları ve Müzeler Genel Müdürlüğüne
(Kurullar Dairesi Başkanlığı)

Kozluk Mahallesi İstasyon Caddesi TCDD Eski Gar Binası Kat 2 İzmit / KOCAELİ
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Ayrıntılı bilgi için irtibat:
Sanat Tarihçi
Tayfun OK
Dahili: 116

T.C.
KÜLTÜR VE TURİZM BAKANLIĞI
KOCAELİ KÜLTÜR VARLIKLARINI KORUMA BÖLGE KURULU

K A R A R

Toplantı Tarihi ve No : 24/01/2017 - 180
Karar Tarihi ve No : 24/01/2017 - 2802

Toplantı Yeri
Kocaeli

Kocaeli İli, İzmit İlçesi sınırları içerisinde bulunan, mülkiyeti maliye hazinesine ve şahsa ait, Kurulumuzun 22/05/2012 tarih ve 387 sayılı kararı tescil edilen ve koruma grubu 2. Grup olarak belirlenen su kanalı kalıntısı ve Kocaeli ili, Gebze ilçesi sınırları içerisinde bulunan, mülkiyeti maliye hazinesine ait, Kurulumuzun 13/12/2011 tarih ve 139 sayılı kararı ile "Yağcılar Tarihi Yol Kalıntısı I.Derece Arkeolojik Sit Alanı" olarak ilan edilen alanın Otoyol projesinin kamulaştırma alanı içerisinde kalmasına ilişkin Karayolları Genel Müdürlüğü, 1.Bölge Müdürlüğünün 27/10/2016 tarih ve E.251737 sayılı yazısı, raportör raporu okundu, dosyası ve ekleri incelendi. Yapılan görüşmeler sonucunda;

Kocaeli İli, Gebze ilçesi sınırları içerisinde bulunan, mülkiyeti maliye hazinesine ait, Kurulumuzun 13/12/2011 tarih ve 139 sayılı kararı ile "Yağcılar Tarihi Yol Kalıntısı I.Derece Arkeolojik Sit Alanı" olarak ilan edilen alan ile kesiştiği noktada Otoyol projesinin sürekliliğini sağlayan ve tarihi yolun devamlılığını bozmayan projelerin Kurulumuza sunulmasından sonra karar verilmesine,

Kocaeli İli, İzmit İlçesi sınırları içerisinde bulunan, mülkiyeti maliye hazinesine ve şahsa ait, Kurulumuzun 22/05/2012 tarih ve 387 sayılı kararı tescil edilen ve koruma grubu 2. Grup olarak belirlenen su kanalı kalıntısının Otoyol projesinin kamulaştırma alanının dışına alınmasının uygun olduğuna, alana ilişkin can ve mal güvenliğinin mal sahibi ve ilgili belediyesince sağlanmasına karar verildi.

Aslı Gibidir
Taner AKSOY
Bölge Kurulu Müdürü

BAŞKAN
Prof. Dr. E. Özlem AYDIN
bulunmadı

BAŞKAN YARDIMCISI
Yrd. Doç. Dr. Murat YILDIZ
imza

ÜYE
Zinnur BÜYÜKGÖZ
imza

ÜYE
Yrd. Doç. Dr. Ramazan UYKUR
imza

ÜYE
Hatice SATOĞLU
imza

ÜYE
Ramis OKUR
bulunmadı

ÜYE
Kocaeli Büyükşehir Belediye Temsilcisi
Volkan ŞENEL
imza

ÜYE
İzmit Belediye Temsilcisi
Cem GÜLER
imza

ÜYE
Gebze Belediye Temsilcisi
bulunmadı

ÜYE
Kocaeli Müze Müdürlüğü Temsilcisi
Rıdvan GÖLCÜK
imza

Dosya No: 00.720.91 T.O

Annex 9 – Archaelogical Object Delivery Form

2.03.2017

MÜZE MÜDÜRLÜĞÜ'NE
KOCAELİ

Aşağıda yazılı objelerin Komisyonda değerlendirilerek Kocaeli Müzesi Müdürlüğü'ne Bağış / satın alma olarak kabul edilmesi hususunda,gereğini arz ederim.

Adı Soyadı : A. Halim ÖZATAY
İmzası :
Telefonu : 0531 8707623

ADRES VE TELEFON BİLGİLERİ:

IBAN NO: TR:

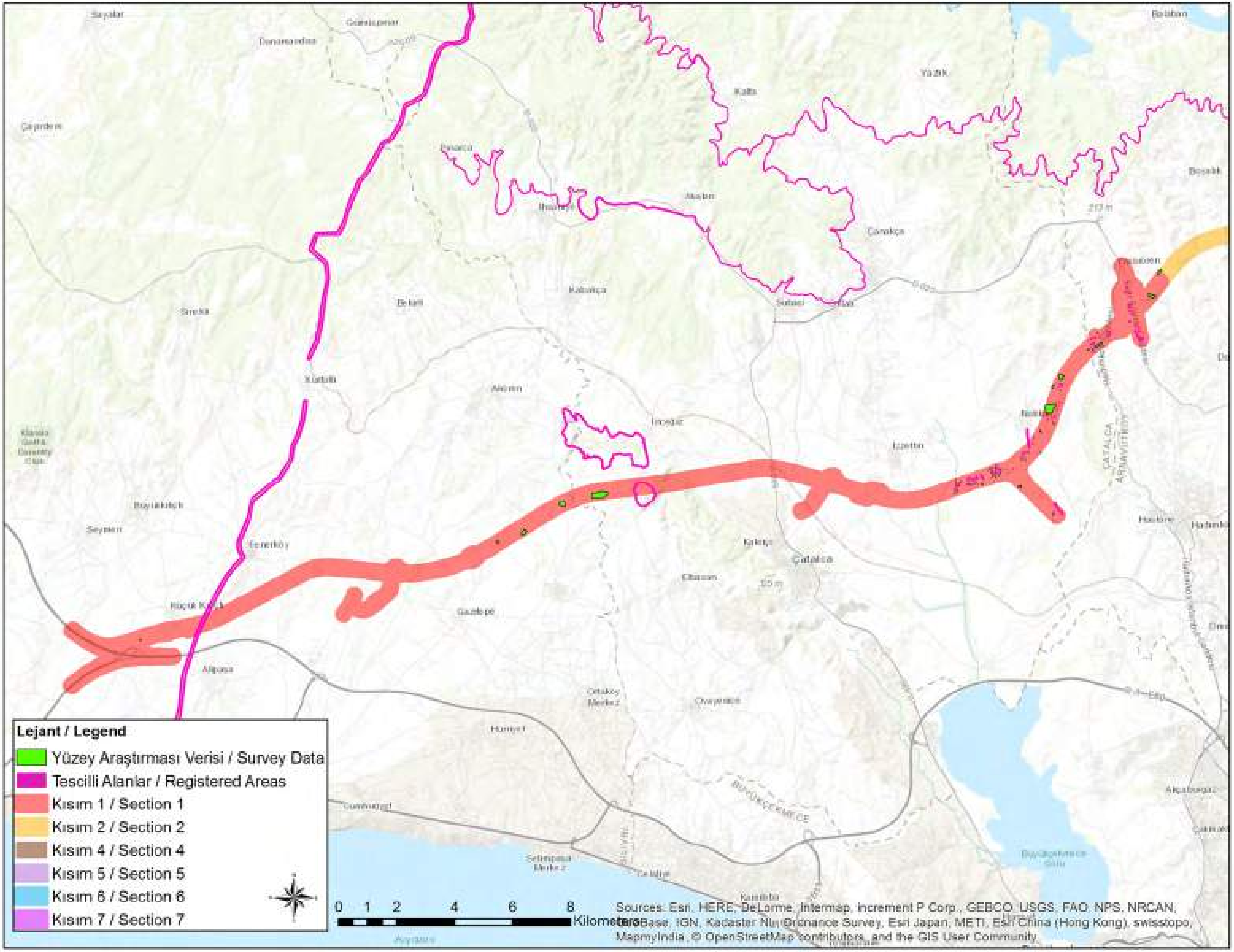
SIRA NO	ADI	ADEDİ	CİNSİ	DÖNEMİ	ÖLÇÜLERİ VE ÖZELLİKLERİ	BULUNTU YERİ
1	Sikke	1	Bronz	Roma	26x28 m	Durhasan Mah.

TESLİM EDEN:
A. Halim ÖZATAY

OLUR

TESLİM ALAN
Zuhal UYKAL
Arkeolog

Annex 10 – Archaelogical Maps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Kilometers
Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community
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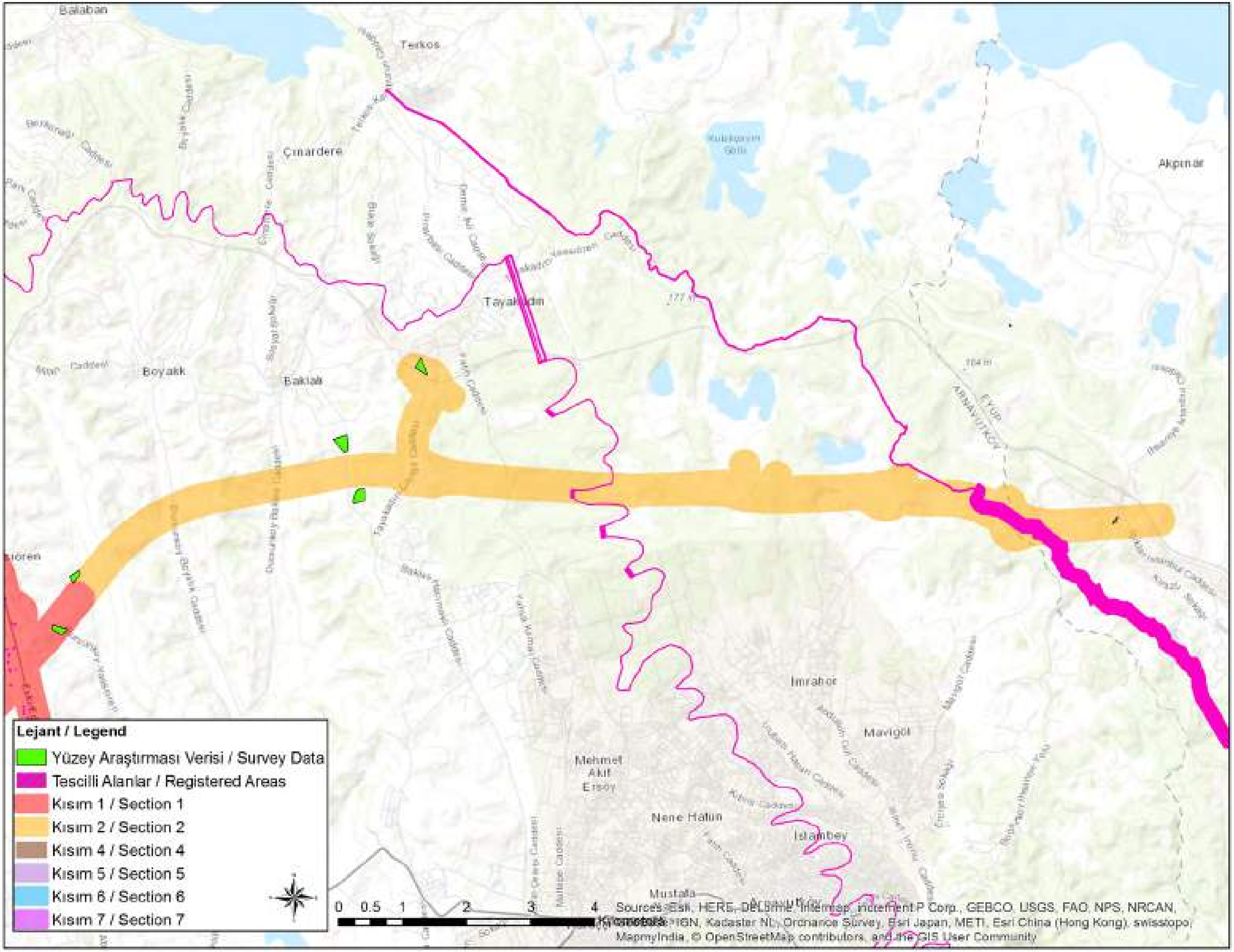

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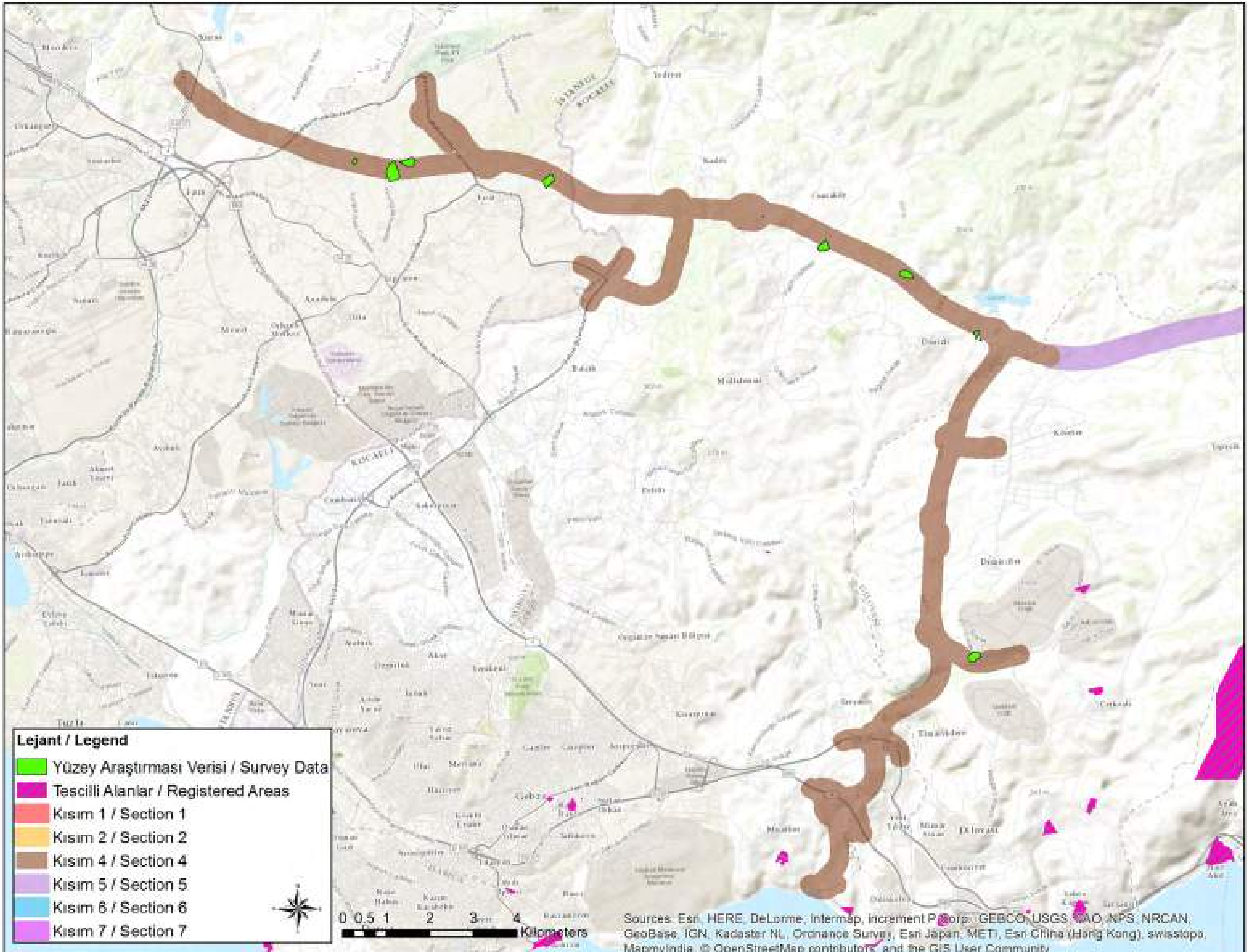
İmrahor
Mavigöl
Mehmet Akif Ersoy
Nene Hatun
İslambey
Mustafa
ARNAVUTKÖY
EYÜP
Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community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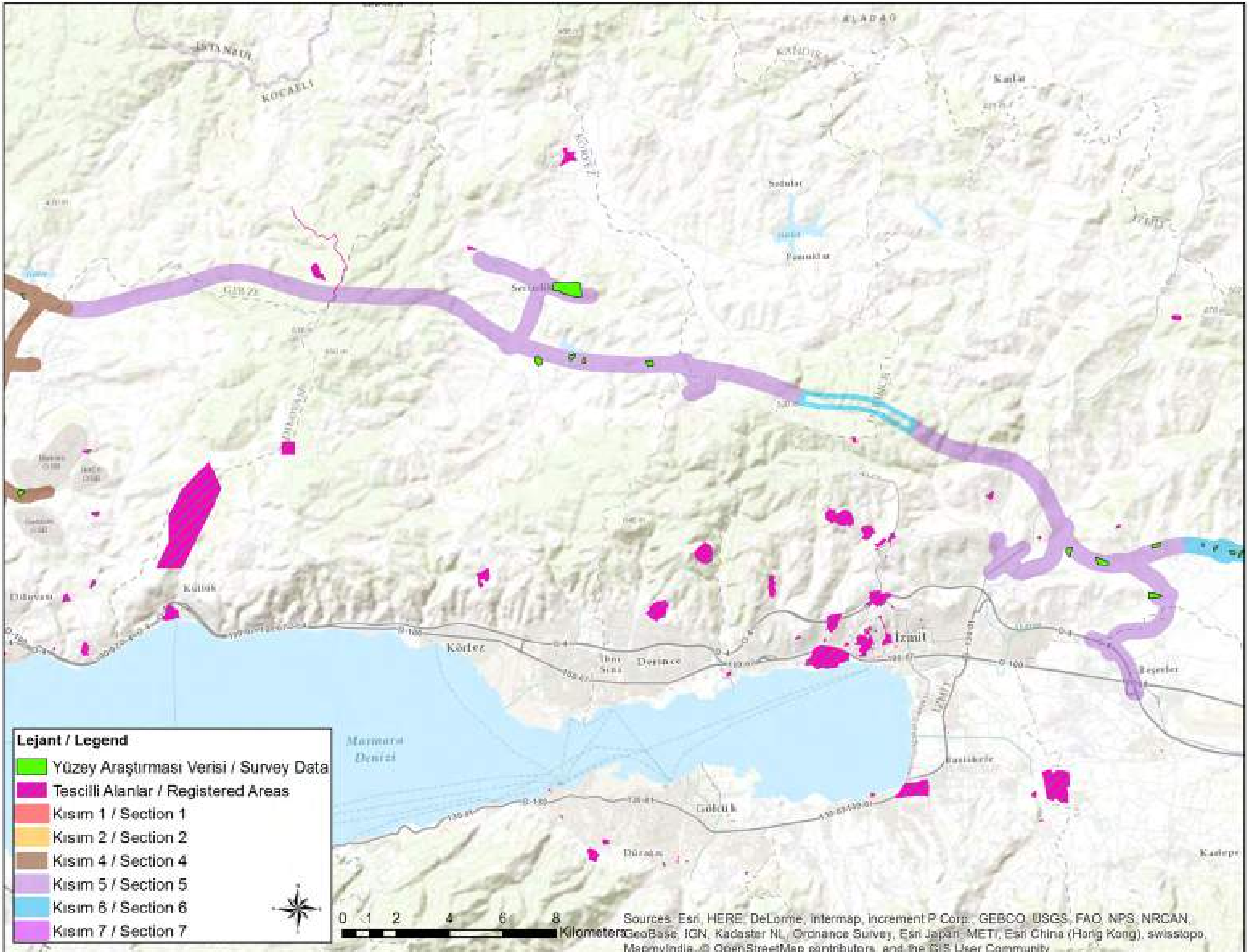
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KOCAELİ
GEBZE
Körfez
Derince
İzmit
Marmara Denizi
Gölcük
Başiskele
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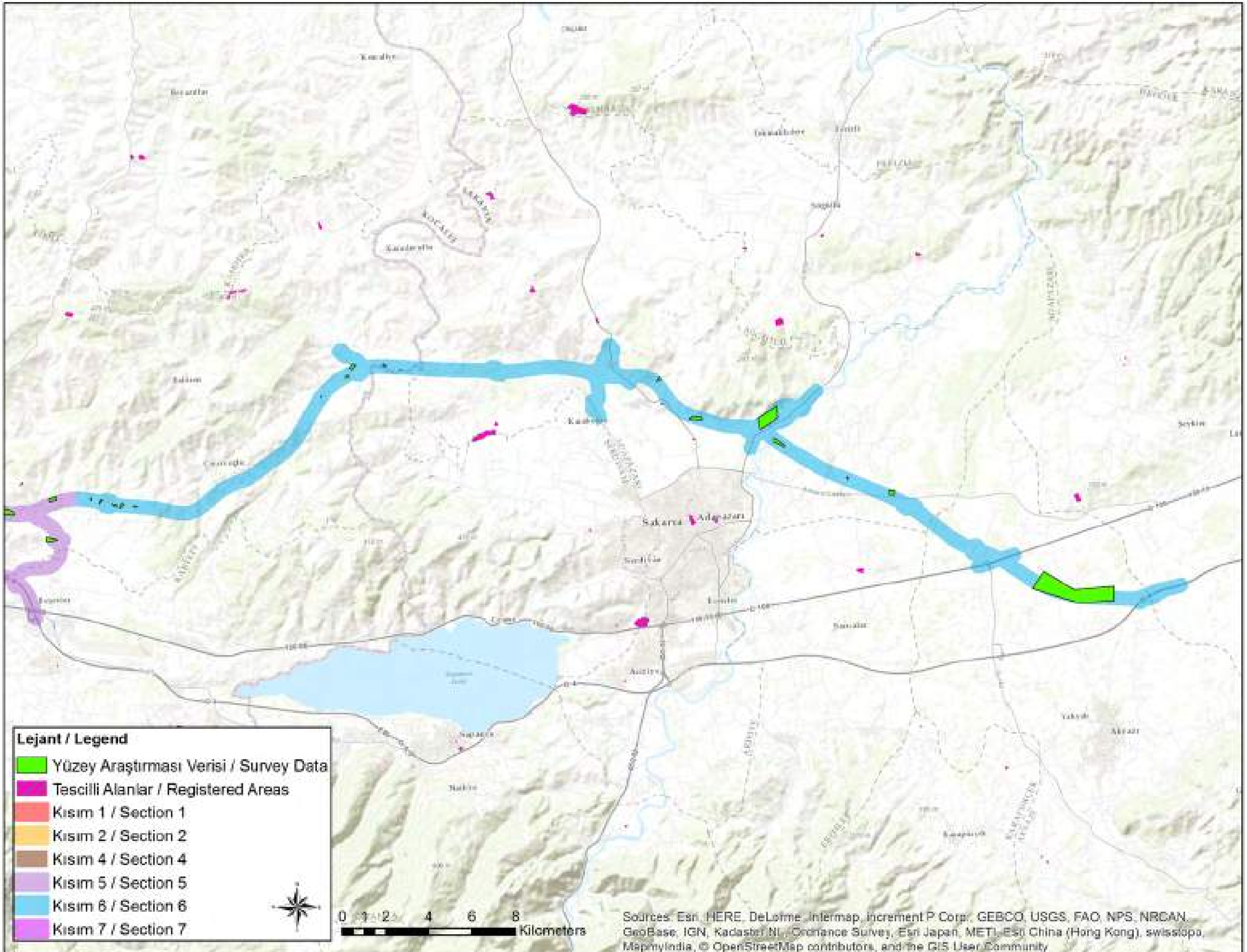
Kartepe
KANDIRA
Seyrek
Kullar
Sedular
Pamukla
Dilovası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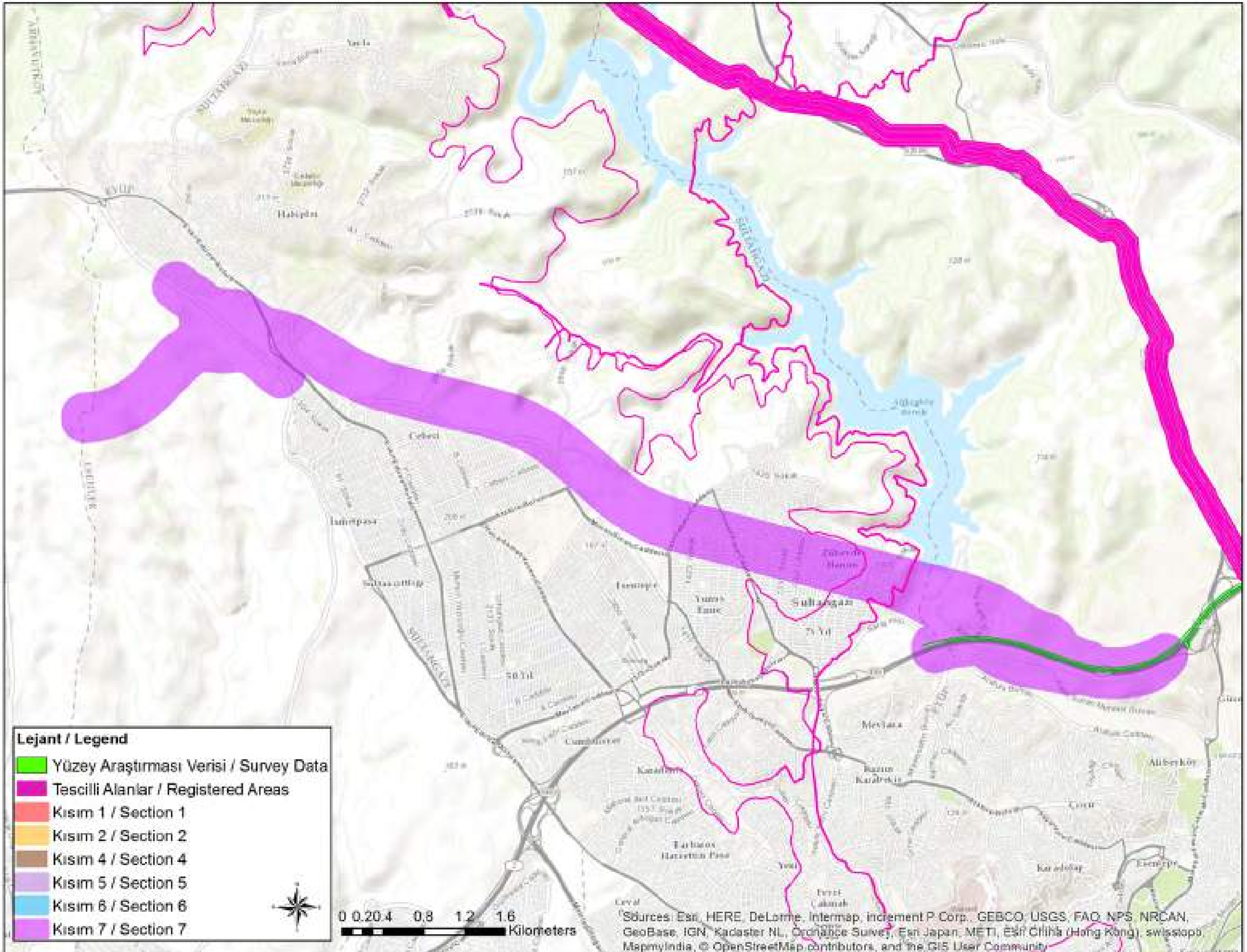

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ANNEX-11

STAKEHOLDER ENGAGEMENT PLAN

ANNEX-11 STAKEHOLDER ENGAGEMENT PLAN

1. Introduction

Stakeholder engagement is the basis for building strong, constructive, and responsive relationships that are essential for the successful management of a project's environmental and social impacts. The purpose of stakeholder engagement is to establish and maintain a constructive relationship with a variety of external stakeholders over the entire life of the project. Initiating the engagement process in the early phases of the project helps ensure timely public access to all relevant information and provides the stakeholders with an opportunity to input into the project design and the assessment of impacts.

To meet these objectives, a Stakeholder Engagement Plan (SEP) is designed to guide stakeholder consultations leading up to and during the period of the ESIA studies, as well as during the further stages of project implementation, i.e. land preperation, construction and operation.

This SEP is designed to ensure that Project Owner identifies all stakeholders and establishes an effective engagement strategy during the development and life of the Project. The ultimate goal of this SEP is to build meaningful and trusting relationships with the local community and other interested stakeholders based on a transparent and timely supply of information and open dialogue. Additionally, this SEP also covers the following aspects:

- Applicable national and international regulations and requirements on stakeholder engagement;
- Project Owner's previous consultation activities and future plans to engage with stakeholders during the construction and operational phases of the Project;
- Key Project stakeholders that have been identified and will be interacted with;
- Strategy for consultation and information disclosure;
- Timetable for various stakeholder engagement activities;
- Resources and responsibilities for the implementation of the SEP;
- Means of monitoring and reporting on consultation and disclosure activities; and
- A grievance mechanism for stakeholders and the public to raise concerns, provide feedback and comments about the Project operations and how complaints/comments will be handled (see Section 6).

This SEP has been prepared on behalf of Project Owner to meet international lending institution requirements, specifically, International Finance Corporation (IFC) Performance Standard 1 (PS1) - Assessment and Management of Environmental and Social Risks and Impacts and the corresponding Guidance Note and the Equator Principles as well as relevant Turkish legislation.

2. Project Description

The North Marmara Motorway was initially planned as an integrated Project starting at Kinali interchange in Silivri, Istanbul and ending at the Akyazi TEM interchange in Akyazi, Sakarya, which crosses the sea by a Third Bosphorus Bridge. Once the location of the Third Bosphorus Bridge has been selected between Garipce (Sariyer, Istanbul) and Poyraz (Beykoz, Istanbul) neighborhoods, feasibility studies were conducted by the General Directorate of Highway (KGM) by dividing the entire Motorway route between Kinali and Akyazi into seven different sections. Later in the process, the authorities decided to separate the Third Bosphorus Bridge and its associated Motorway section from the Project and tender it out individually due to emerging conditions. Accordingly, Section 3 of the Project, which included the Third Bosphorus Bridge and its associated Motorway section between Odayeri and Pasakoy, has been separately constructed and taken into operation in August 2016.

Following the feasibility stage and tendering of Section 3 (including the Third Bosphorus Bridge), the European and Asian sections of the Project have been revised, keeping the ultimate starting (Kinali) and ending (Akyazi) points of the feasibility route the same and ensuring connection to Section 3 of the Motorway at Odayeri (European sections) and Pasakoy (Asian sections) locations as originally planned. Consequently, the European and Asian sections of the Project were tendered out in May 2016. In this tender, the European sections included Section 1: Kinali-Yassioren, Section 2: Yassioren-Odayeri and Section 7: Habibler-Hasdal; and the Asian sections included Section 4: Kurtkoy-Liman, Section 5: Liman-Izmit, and Section 6: Izmit-Akyazi. This SEP has been prepared for the European sections (Section 1, 2 and 7) of the North Marmara Motorway Project, where the Asian sections (Section 4, 5 and 6) are subject of a separate Plan.

In accordance with the terms of the BOT Contract signed between the KGM and the Project Sponsors, the Project includes financing, planning/design, building/construction, operation, full range of maintenance and repair works during the operation period and transfer of the Motorway to the KGM at the end of the Contract Duration free from any debt or commitment and in a well-maintained, operating, in-service condition, without any charge. The rights of the Project Sponsors to operate, maintain and repair the Motorway will expire at the end of the Contract Duration.

According to the BOT Contract, Contract Duration covers both the construction and operation phases. Contract Duration for the European sections has been specified as 7 years 9 months 12 days and the total investment cost for these sections has been estimated as 2.710.065.000 TL including the expropriation costs up to 500 Million TL and excluding the value added tax (VAT). Maximum construction period is 3 years after the effective (signing) date of the contract. If the construction period exceeds 3 years, the delay time (the time after 3 years) will be deducted from the operation period. If the construction of the Motorway is completed before the end of foreseen construction period (3 years), the remaining time will be added to operation period.

3. National and International Regulations and Standards

3.1. National Regulations

Under Turkey's Environmental Impact Assessment Regulation No. 29186 dated 25th November 2014, reference is made concerning information disclosure and stakeholder participation. Under the 1st clause of Article 9 of the regulation, it is a legal obligation for the Project Owner to organize a Public Participation Meeting within the Project area on a date determined in agreement with the Ministry of Environment and Urbanization. The aim of the Public Participation Meeting is to inform people potentially affected by the Project about the proposed development and provide the opportunity for their concerns and comments about the Project to be collated.

The 2nd clause of Article 9 states that activities such as questionnaires and seminars/workshops can also be conducted by the Project Owner prior to the Environmental Impact Assessment (EIA) process and recommends these in addition to Public Participation Meeting, with the aim of increasing public participation.

However, since the North Marmara Motorway (including the Third Bosphorus Bridge) Project was put in the public investment program before 07/02/1993 and the Kinali-Odayeri (inc. the access roads) and Kurtkoy-Akyazi (inc. the access roads) section have been approved as the integral components of the North Marmara Motorway (including the Third Bosphorus Bridge) Project, the EIA exemption decision issued for the North Marmara (inc. the Third Bosphorus Bridge) Motorway Project with the official letter of the MoEU dated 31/07/2009 was evaluated by the MoEU to be applicable to the North Marmara Motorway Project as well, which includes the construction, operation and transfer of the Kinali-Odayeri (inc. the access roads) and Kurtkoy-Akyazi (inc. the access roads) sections. Thus, no full or limited EIA report has been required for the Project. On the other hand, the ESIA Report to be prepared for the Project will aim to cover the relevant methodological requirements of the Turkish EIA Regulation. Accordingly, all the relevant stakeholder engagement and public consultation activities were performed in line with international standards and requirements, specifically International Finance Corporation (IFC) Performance Standards 1 - Assessment and Management of Environmental and Social Risks and Impacts.

3.2. International Regulations and Standards

The proposed Project is intended to meet applicable international standards. This document has been prepared in accordance with the guidance of the applicable IFC Performance Standards.

Where a project and a Project Owner receives project financing from IFC, or another financial institution adopting IFC requirements, IFC Performance Standards must be applied for the duration of that project finance. As of 1 January 1th, 2012, the following eight IFC Performance Standards are applicable to the Project as a whole:

Performance Standard 1: Social and Environmental Assessment and Management System
Performance Standard 2: Labor and Working Conditions
Performance Standard 3: Pollution Prevention and Abatement
Performance Standard 4: Community Health, Safety and Security
Performance Standard 5: Land Acquisition and Involuntary Resettlement
Performance Standard 6: Biodiversity Conservation and Sustainable Natural Resource Management
Performance Standard 7: Indigenous Peoples
Performance Standard 8: Cultural Heritage

Performance Standard 1[1] specifically relates to stakeholder engagement on the basis that it establishes the importance of: (i) integrated assessment to identify the social and environmental impacts, risks, and opportunities of projects; (ii) effective community engagement through disclosure of project-related information and consultation with local communities on matters that directly affect them; and (iii) management of social and environmental performance throughout the life of the Project. The objectives of this standard are as follows[2]:

- To identify and assess social and environment impacts, both adverse and beneficial, in the Project's Area of Influence;
- To avoid, or where avoidance is not possible, minimize, mitigate, or compensate for adverse impacts on workers, affected communities, and the environment;
- To ensure that affected communities are appropriately engaged on issues that could potentially affect them; and
- To promote improved social and environment performance of companies through the effective use of management systems.

To meet these objectives, this SEP is designed to guide stakeholder consultations leading up to and during the period of the ESIA studies, as well as during the further stages of project implementation, i.e. land preperation, construction and operation.

4. Stakeholder Identification and Analyses

Within the scope of the Project it is important to identify stakeholders in the beginning of the process to inform key stakeholders (local people, relevant state institutions and NGOs) about the Project and provide effective participation of the stakeholders. To this end, following individuals and groups should be considered specifically:

- People who are likely to be affected, directly or indirectly by the Project
- People or institutions may have an interest in the Project
- People or institutions that have the potential to influence Project outcomes or company operations.

[1] PS1 is specifically relevant, because it contains clear requirements for community engagement, disclosure of information and consultation. These requirements are the main concerns of this Chapter.
[2] IFC Performance Standards, January 2012.

Besides it is an important process to identify vulnerable or disadvantaged people or groups, who are likely to be affected by the Project in certain phases, accurately during the identification of stakeholders.

Possible stakeholders who are likely to be affected by the Project or have an influence on the Project are listed below:

- Local public institutions and organizations
- National public institutions and organizations
- Non-governmental Organizations
- Local people
- Local businesses
- Project employees, including contractors

Within the scope of the SEP, key Project stakeholders have been identified. The stakeholders that have been identified as being affected by or potentially interested in the Project are listed in Table 1.

Table 1. Stakeholders and Other Key Affected Parties

Stakeholder Groups	Definitive Stakeholders	Summary of Specific Interest
Local Governmental Organizations	• Istanbul Metropolitan Municipality • Silivri Municipality • Catalca Municipality • Arnavutkoy Municipality • Governorship of Istanbul • Neighborhood Headmen	Social and economic development Environmental protection
Turkish Governmental Organizations	• Ministry of Transport, Maritime Affairs and Communications • Ministry of Forestry and Water Affairs • Ministry of Environment and Urbanization • Ministry of Culture and Tourism	National and regional development Policy formulation
Non-governmental Organizations (NGO's) - local, national and international	• Environment Foundation of Turkey • WWF Turkey • Global Environment Organization (GEO) • Protection Association (TURMEPA) • The Union of Chambers and Commodity Exchanges of Turkey (TOBB) • Union of Turkish Roads, Buildings and Construction Workers (YOL-IS)	Global and local environmental impacts
Local Communities/Residents	• Neighborhoods located in the immediate vicinity of the Project Area • Local communities using the Project Area for agricultural and livestock purposes;	Noise nuisance and other environmental and social impacts Income loss Land acquisition Employment
Local Businesses	Local Enterprises Farms	Route development Inward investment

Stakeholder Groups	Definitive Stakeholders	Summary of Specific Interest
Public Economic Enterprises	• Turkish Electricity Transmission Company (TEIAS) • Turkish Electricity Distribution Corporation (TEDAS) • Istanbul Gas Distribution Industry and Trade Incorporated Company (IGDAS)	Implementation of infrastructure services
KMO	Employees EPC Contractor Sub-contractors	Growth and development. Stable employment and opportunity
Universities	Istanbul Technical University Bogazici University	Technical Consultancy
Other Groups	Private owners of the land identified for the new Motorway	Income loss Economic growth Quality of services

Within the scope of the Project a stakeholder list which was prepared by desktop studies is given in Appendix 11.1. As this list was prepared to be inclusive, people/institutions/organizations who are not in the list may add during the Project development.

5. Stakeholder Engagement Activities

5.1. Summary of Previous Stakeholder Engagement Activties

A comprehensive program of Public Consultation Meetings (PCMs) was held in March 2017 in the scope of the North Marmara Motorway Project. As a part of this program 8 PCMs were held along the entire Motorway route between Silivri district of Istanbul and Akyazi district of Sakarya. In this section, organizational details and findings of the PCMs held at European section are documented.

Selection of the PCM locations was done during the scoping stage of the ESIA process based on the findings of the key informant questionnaires and focus group meetings conducted in the region by the social expert team of the Project. As known, the overall North Marmara Motorway route has a length of 274 km including the main carriageway and the access roads. Since it would not be possible to organize a meeting in every settlement that is located within the study area, in the selection of the settlements at which the public consultation meetings are planned, it has been aimed that a meeting location is determined at every 20-30 (plus minus) km along the Motorway route to ensure to the extent possible that the meeting location is accessible for the local people from the surrounding settlements. In the selection of the settlements the following criteria have been considered.

- Distance between the settlements and the Project components;
- Population of the settlements;
- Effects of the Project on livelihoods such as agricultural and pasture lands and business;
- Sensitivity to environmental impacts;
- Land acquisition impacts;

- Cumulative impacts potential;
- Level of impacts on infrastructures such as access roads, power supply etc.;
- Cultural and social aspects of the settlements;
- Economical condition of the residential place;
- Ethnical and ethnographical structure (based on initial observation during the reconnaissance) of the residential place.

For the European part of the Project, 3 meeting locations were selected as Kadikoy (Istanbul, Silivri), Nakkas (Istanbul, Catalca) and Tayakadin (Istanbul, Arnavutkoy) neighborhoods. Principally local neighborhood teahouses were preferred as the meeting venue, where they have proper capacity and physical conditions, as participation levels have been generally higher in such local venues in the previous experiences.

Prior to PCMs several information methods were used to inform the related public authorities (including provincial governorates, district governorates, municipality mayors, etc.) neighborhood headmen and local people, national and local media agencies and wider public including Non-governmental Organizations (NGOs), etc. A list summarizing the methods used to inform each party is provided in Table 2.

Table 2. Stakeholder Notification Methods for Public Participation Meetings in European Sections

Stakeholder Group	Shared Project Documents	Means of Notification
Governorship of Istanbul	• Program of Meetings	Official Letter
Silivri Municipality		Phone Call
Catalca Municipality		Phone Call
Arnavutkoy Municipality		Phone Call
Cebeci Neighborhood		Phone Call
Zubeydehanim Neighborhood		Phone Call
Gazi Neighborhood		Phone Call
Kadikoy Neighborhood	• Project Information Brochure • Comment and Grievance Form • Announcements of Public Participation Meetings	Official Letter / Neighborhood Meeting
Kucukkilicli Neighborhood		Official Letter / Neighborhood Meeting
Izzettin Neighborhood		Official Letter / Neighborhood Meeting
Nakkas Neighborhood		Official Letter / Neighborhood Meeting
Yassioren Neighborhood		Official Letter / Neighborhood Meeting
Tayakadin Neighborhood		Official Letter / Neighborhood Meeting
İhsaniye Neighborhood		Official Letter / Neighborhood Meeting
Wider Public and Interested Parties	• Program of Meetings and Organizational Details	Newspaper announcements

During the information process in advance of the PCMs, initially announcements were published in national and local newspapers on February 22, 2017 (in accordance with the standards described in the national Environmental Impact Assessment (EIA) Regulation). In addition, relevant provincial and district governorates were informed of the program by means of official letters. Headmen of the neighborhoods located within a 1 km corridor (keeping 500 meters at each side of the Motorway's centerline/axis) were individually contacted by means of face-to-face meetings or phone calls depending on the time constraints. Information documents and official invitation letters were distributed as necessary. For this purpose, a Project Information Brochure and grievance/comment forms have been prepared and delivered to neighborhood headmen prior to the meetings. Means of transportation was offered to the local headmen however, transportation was not needed for the meetings in European section. Municipality mayors were also contacted and informed of the PCM program by means of phone calls. Information documents used in the overall process are provided in following sections.

Following the information process, PCMs for the European sections were conducted on March 8-9, 2017 at Kadikoy (Istanbul, Silivri), Nakkas (Istanbul, Catalca) and Tayakadin (Istanbul, Arnavutkoy) neighborhoods and April 10, 2017 at Cebeci Neighborhood. Organizational details of the meetings are summarized in Table 3. and the map of PCM locations is presented in Figure 1.

The meetings were held with the participation of representatives of Project Sponsors (senior officials and technical Project team members including design and expropriation) and the Independent Environmental and Social Impact Assessment (ESIA) Consultant (ENCON Environmental Consultancy Co.). Authorities from 1st Regional Directorate of KGM were invited to the meetings to represent the state but the Directorate officials did not prefer to attend the meetings.

The Independent ESIA Consultant performed the moderation of the meetings. The meetings started with an introduction and explanation of the purpose and scope of the meeting and followed by a presentation given by the Independent ESIA Consultant and a final discussion session where questions, concerns and suggestions were received. The main topics covered in the presentations were as follows:

- What is the North Marmara Motorway Project?
- Who are the Project Owner and the Project Sponsors?
- What are the Anticipated Benefits of the Project?
- What is the Environmental and Social Impact Assessment Process?
- Stakeholder Engagement: How to Participate into the Process?
- Discussion (Questions and Answers) Session

Table 3. Organizational Details of the Public Consultation Meetings conducted in the European Part of the Project

PCM No	Motorway Section	Province	District	Neighborhood	KM Chainage	Population (Turkstat, 2016)	Date of the Meeting	Time of the Meeting	Meeting Venue	Number of Participants	
										Estimated Number of Actual Participants	Number of Participants who Signed the List of Participants
Europe											
1	1	Istanbul	Silivri	Kadikoy	16+000	1,521	08.03.2017	11:00	Kadikoy Teahouse	50	31
2	1	Istanbul	Catalca	Nakkas	36+000	833	08.03.2017	16:00	Nakkas Neighborhood Teahouse	120	63
3	2	Istanbul	Arnavutkoy	Durusu (Tayakadin)	46+000	3,402	09.03.2017	11:00	Durusu Culture Center	25	21
4	7	Istanbul	Sultangazi	Cebeci	-	59,996	10.04.2017	15:00	Project Office	11	11

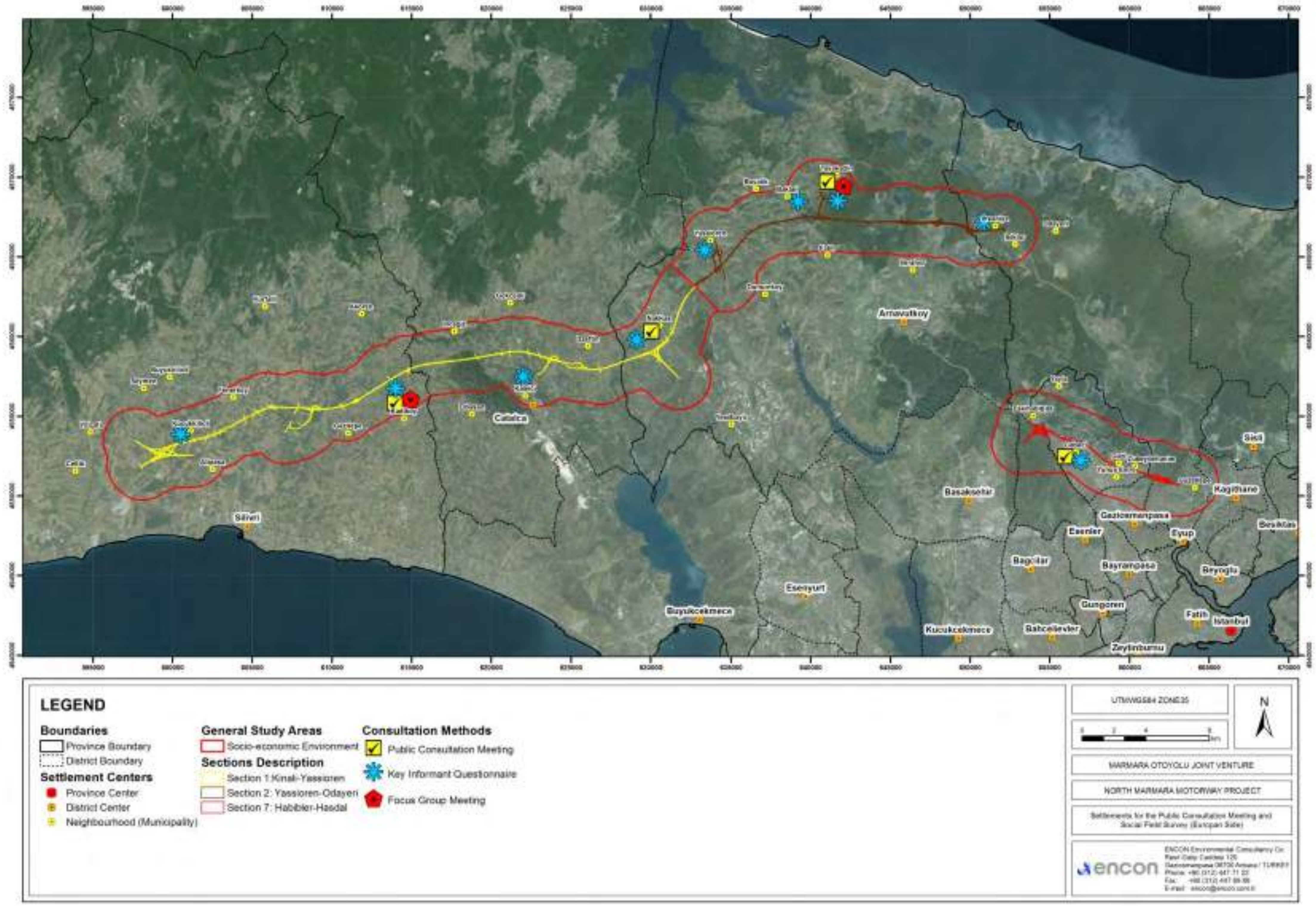

Figure 1. Map of Social Field Survey and Public Consultation Meetings Locations

Large-scale (in A2 format) maps showing the relevant part of the route in each meeting were posted on the walls of the meeting venue. Comment and grievance forms were kept ready and participants interested in the submission of comments and grievances during the meetings were guided by the officials of Project Sponsors.

As a result of the information efforts, participation levels were high especially at the meetings held at local neighborhood teahouses. Attendance of different parties including state officials or adjacent neighborhoods as well as representatives of media and NGOs in addition to local people was achieved as summarized in Table 4. No women participated the meeting in Kadikoy neighborhood. Participation of women was restricted with a few representatives in Nakkas. In Tayakadin, Kuzey Ormanlari Savunmasi (NGO) participated the meeting.

Table 4. Summary of Participants Profiles

PCM No	Meeting Location	Adjacent Neighborhoods from which Representatives (Headmen or Local People) had Participated in the Meeting	Other Parties Participated in the Meeting (Public Authorities, Media, etc.)
1	Kadikoy	Kucukkilicli (headman)	N/A
2	Nakkas	Yassioren (headmen), Izzettin (headmen), Catalca district center	Catalca Municipality (Mayor) Local media
3	Tayakadin	Arnavutkoy district center, Ihsaniye (headman), Terkos, Tayakadin (headmen)	Kuzey Ormanlari Savunmasi (NGO) National media (Cumhuriyet Gazetesi)
4	Cebeci	Zubeydehanim and Gazi Neighborhood	Project Owner and Contractor Representatives

Participation lists were kept by the Project Sponsors during the meetings. It should be noted that not all participants preferred to sign the participation lists thus actual participant numbers were higher than the number of participants who signed the lists. Due to high level of participation at teahouses, some of the participants had to stay outside. Microphones and audio systems were used to ensure that the participants outside the teahouse could follow the presentations and the discussions and submit their views and concerns. On average, each meeting last for 1-1,5 hours. Following the official meeting durations, questions of the participants were replied at the unofficial conversations held after the meetings. (brochures and grievence forms were distributed

The questions, issues, concerns and suggestions raised by the participants during the PCMs were grouped under five main categories as follows. Each main category included sub-categories and a summary of the PCM findings is provided in Appendix 11.2.

- Technical/Design
- Environment
- Socio-economy
- Cultural Heritage
- Stakeholder Engagement

5.2. Future Engagement Activities and Timetable

Project Owner will actively engage with Project Stakeholders throughout the Project's lifetime. During construction Project Owner will participate in disclosure and consultation for the new developments. Key environmental and social impact assessment documents (a 'disclosure package') will be released into the public domain to provide a basis for informed consultation. In addition to this SEP, the disclosure package will include an Environmental and Social Management Plan (ESMP),.Environmental and Social Action Plan (ESAP) and a Non-Technical Summary (NTS).

For planning of stakeholder engagement activities, emphasis was put both on providing correct and comprehensible information to affected parties and on ensuring the effective participation of related stakeholders to the process of decision making. In this extent, it is important to relay information through appropriate form, content and effective channels and to ensure this information is accessible to all stakeholders. Literacy levels, local languages and dialects and cultural patterns of the communities must be taken into consideration for information flow. In order to accomplish such a task, opinions of both communication experts and local leaders who have comprehensive knowledge of how to receive feedback from the community must be taken into consideration and if necessary, cooperation must be ensured. By considering main issues about stakeholder engagement process, emphasis will be put on following objectives during all phases of participation and consultation activities within the scope of the Project:

- Organizing the participation during early phases of decision process;
- Indicating restrictions of decision (whether it is possible or not) taking clearly;
- Ensuring the on time and sufficient announcements of future participation activities;
- Assisting the participants to ensure they comprehend alternatives;
- Providing information regarding concepts, examples and best practices, to participants;
- Ensuring that the public examines data and sources that are used for analysis;
- Encouraging the stakeholders to share thoughts and ideas between themselves;
- Encouraging group problem solving between various stakeholder groups; and
- Planning and implementing a representative, objective and honest approach.

Together with the information provided above, following methods are proposed for implementation of SEP within the scope of the Project:

- Conducting activities that are necessary for providing information related to the project;
- Providing assistance and opportunities for participation of vulnerable and disadvantaged groups;
- Organize small scale group discussions for different interest groups;
- Planning public participation meetings in a way that ensures everyone to get a chance to speak for at least once;
- Conducting small scale investigations during Project implementation (perception surveys and questionnaire);

- Inform press regularly by using local media; and
- Organize site visits with local people and representatives of the institution if necessary

During participation and disclosure events, it is planned to keep documents such as informative leaflets and brochures available and to display maps and figures for the communities (residents of the district and neighborhoods), NGOs and other Project stakeholders. Within the scope of SEP, targeted stakeholders and methods, which will be used in order to ensure that Project stakeholders will participate to the process, are presented in Table 5.

Table 5. Target Stakeholders and Methods

Target Stakeholder	Method
Project Affected People	• Affected neighborhoods where brochures, leaflets, posters, grievances and surveys related to the grievances will be provided (Community Liaison Officers already be appointed). • Publication and dissemination of a expropriation booklet summarizing the policies, entitlements compensation standards will be provided. • Set up an alternative phone line (free if it is possible) for PAPs to reach public relations representatives. • Informal meetings and face-to-face communications • Posters • Interviews • Local newspapers, radio and television • Periodic visits to the neighborhoods
Relevant Agencies (Including municipalities)	• Official meetings • Official letters to be sent to institutions • An alternative phone line for the Project • Conducting public meetings that are attended by all stakeholders and that provide communication between them.
Interested NGOs	• Dedicated phone line for the Project • Meetings • Posters • Meetings with the representatives of NGOs • Local newspapers, radio and televisions • Surveys to be conducted NGO representatives
Other Stakeholders (are those with an interest in the project outcome but who are not fully involved or affected, for instance central and local government offices, policy makers, supportive or dissident groups and other non-governmental organizations.)	• Meetings • An alternative phone line for the Project • Posters • Mass media (newspapers, radio and television)
The media	• Official meetings if necessary
Other Relevant Institutions	• An alternative phone line for the Project • Local newspaper, radio and televisions • Interviews • Meetings with public

6. Grievance Mechanism

Information about the procedure and channels (e.g. phone, e-mail address, website) can be used to lodge grievance is given under this chapter and also this information will be provided through information boards within the affected settlements and on the relevant web sites (*www.marmaraotoyolu.com*). A Public Grievance Form which will be used to lodge a grievance is provided Appendix 11.3. This from is comprised of three copies and each copy has a different color. A copy of a filled grievance form will be given to complainant after the grievance is recorded to the computer registry. The officer will have the second copy of the form and the other copy will be sent to higher authorities for other operations related to corrective actions. At the end of all processes a closing form will be prepared and recorded to the computer.

To implement the engagement activities, Company will employ a a Community Liaison Officer (CLO) and CLO will be responsible for the implementation of social engagement activities, coordinating the disclosure of Project information, public consultation activities and the management of Grievance Procedure. Each complaint whether from an individual, entity or a community will be considered and a response to each specific complaint will be communicated to the party that raised it (complainant). A formal procedure will be used to log the key information provided by a complainant and to record any related incoming communications. A record of actions taken and resolutions agreed as a result of the grievance investigation will also be documented.

Company will review and improve the existing informal grievance mechanisms to establish a formalized procedure ensuring that it is responsive to any concerns and complaints from affected stakeholders and communities. Where training is necessary for the staff involved in the management of the grievance mechanism, the Company will ensure that such training is provided in a timely manner.

The Company will ensure that the following measures are put in place for the Project:

- Set up alternative telephone hotlines for using during public disclosure and consultation, and to receive grievances.
- Appoint community-liaison officers who receive verbal complaints and fill out forms on behalf of community members and read the complaint back to them to provide confidence that the complaint is accurately portrayed.
- A more informal forum to address grievances, such as a regular presence in local communities to address problems through regular dialogue.
- Visual displays of the mechanism, such as brochures and leaflets distributed in the communities.

Information on the grievance procedure will be provided on information boards, headmen offices in the Neighborhoods and Company’s website. All written and other forms of communication will be acknowledged and, in the case of straightforward issues, the aim will be to resolve them within seven (7) days.

All reasonable efforts to investigate and address the complaint upon acknowledgement of the grievance will be made. If it is unable to address the issues raised by immediate corrective action, appropriate, long-term corrective action(s) will be identified. The complainant will be informed about the proposed corrective action(s) and follow-up of corrective action within 30 days upon the acknowledgement of the grievance.

If the Company is not able to address the particular concern raised or if action is not required, the Company will provide a detailed explanation/justification on why the issue has not been addressed, listing all feasible and available alternative solutions proposed. The response will also contain an explanation on how the person/organization which raised the complaint can pursue the grievance in case the outcome is not satisfactory.

If the complainant is not satisfied with the solutions proposed and implemented by the Company to address the raised comment or grievance, the complainant is free to seek other mediation or legal remedies in accordance with Turkish law.

All grievances related to the activities of the project will be recorded throughout the project cycle and the grievance related progress will be monitored through project specific monitoring programme.

7. Resources and Responsibilities

To implement the engagement activities, a Community Liaison Officer(s) (CLO(s)) already be employed by the Company under its Environmental Department. The CLO will be responsible for the implementation of a SEP, coordinating the disclosure of Project information, public consultation activities and the management of Grievance Procedure described in Section 6. To achieve this, the Environmental Manager and CLO will also work together.

8. Monitoring and Reporting

Monitoring activities will be conducted during land preperation, construction and operation phases of the Project. Detailed information regarding main indicators of internal and external monitoring, applied data collection methods and frequency of monitoring/reporting activities is presented in this section.

8.1. Internal Monitoring

8.1.1. Aim and Approach

General Directorate of Highways (KGM) is responsible of continuation of the expropriation process and payment of compensation. During the process, Company will be responsible for ensuring effectiveness of public consultation and public participation and supervision of sustainability of development efforts in the affected settlements. In order to fulfill these responsibilities, Company will evaluate the effectiveness of the internal monitoring and measures taken against the potential impacts by use of proper monitoring methods. Monitoring and evaluation studies that will be conducted within this scope would constitute great importance for the entire project management.

Performance (internal) monitoring will be conducted by qualified internal experts. The results of the audits will be recorded and corrective actions of implementation will be arranged. In addition, Company will hold monthly meetings with monitoring experts and representatives of the related stakeholders to discuss the ongoing monitoring activities and, if necessary, to make remedial corrections in monitoring indicators, tools and methods. Therefore, for performance (internal) monitoring activities, sufficient allowance must be allocated from the budget.

8.1.2. Internal (Performance) Monitoring

The main purpose of the performance (internal) assessment is to monitor whether the activities and objectives mentioned in the SEP are being realized on time and on required level, and if not, to develop necessarily preventive/corrective actions and implement them. Thus, performance (internal) monitoring will reveal whether SEP activities are synchronized with project implementation activities. Performance monitoring will include the monitoring of both expropriated land owners and people who requested for government assisted resettlement (if there is any) and the staff taking part in resettlement activities.

Performance monitoring will be conducted by internal experts assigned by Company once every six months (in the absence of non-compliance issues, annually). Means of data collection to be utilized during performance monitoring is provided below.

- **Public Consultation and Informative Meetings:** Within the SEP implementation program, Public Consultation and Informative Meetings will be held in the affected settlements in order to collect data for monitoring and consultation activities. Thus, information regarding the level of affected individuals satisfaction and how they are affected by the activities of SEP will be obtained;
- **Neighborhood Level Questionnaires:** Questionnaires with relevant headmen / authorities will be conducted;
- **In-depth Interviews:** In-depth interviews will be conducted with affected people and local stakeholders who can provide information;

- **Focus Group Meetings with Vulnerable Groups:** Meetings will be held with vulnerable groups that include elderly people, women, young, children and disabled people;
- **Field Observations within the scope of Monitoring Activities:** Field Observations will be conducted in order to monitor the environmental impacts, expropriation process and construction activities;
- **Expropriation Program and Allocations:** Information regarding timing of the stages of land acquisition process. Thus, it will be possible to follow up the expropriation payments whether they paid in a timely manner;
- **Interviews or Meetings with Relevant Stakeholders:** Interviews with the authorized organizations who are responsible for relocation of historical and archeological assets will be conducted;
- **Grievance and Grievance Closeout Forms:** All incoming grievances regarding the project will be taken and recorded in these forms. These forms are effective means of data collection for monitoring the appropriateness of SEP implementations to construction and land acquisition process; and
- **Project Progress Reports:** Project progress reports, to be prepared by Company, will be utilized to monitor the effectiveness and timing of SEP activities.

In case any inappropriate condition observed by internal monitoring during the implementation phase, the relevant party/parties will be informed. Within 15 days following this notice, the relevant party/parties will hold a meeting in order to determine corrective/preventive actions and time frame for these actions. The functionality and efficiency of the implementation of the corrective/preventive actions will closely be monitored in the next monitoring period. Thus, the nonconformity will be resolved by the implementation of corrective/preventive actions or if the corrective/preventive actions prove to be insufficient, new corrective/preventive actions will be developed and implemented to resolve the nonconformities. During the implementation, Company will make necessary corrections or updates in the SEP in order to sustain a proper implementation.

8.2. External Monitoring

External monitoring evaluates the effectiveness of the SEP and its implementation in meeting the needs of the affected population. External monitoring is conducted by the contracted external monitoring agency as determined by the Project Owner. The purpose of external monitoring is to provide the Company responsible for SEP implementation with an assessment of the effects of engagement activities, to verify internal performance monitoring, and to identify adjustments in the implementation of the SEP as required. Where feasible, stakeholder groups will be included in all phases of monitoring activities.

The quantitative and qualitative techniques shall be covered by external monitoring to appropriate for the measurement of target concepts of SEP, based on quantitative and qualitative indicators. Consequently, the instruments of external monitoring are:

- Key informant interviews with selected local leaders, or people with special knowledge and/or experience about the ongoing stakeholder engagement activities and implementation;
- Open public meetings to disseminate information about the performance of various stakeholder engagement activities;
- Structured direct observations, including field observations on the status of the stakeholder engagement;
- Structured direct observations, including individual and group interviews for cross-validating purposes; and
- Informal interviews including informal non-sampled surveys with the affected people, local communities, and Company personnel.

Using a variety of tools explained above, independent monitoring agency will prepare a report every six months. This bi-annual report will be the compilation of individual reports. Purpose-specific individual reports will be generated on the basis of qualitative or quantitative indicators gauged by the means of corresponding suitable methodological techniques to address monitoring questions packed in these indicators.

8.3. Monitoring Indicators and Frequency

Information regarding main indicators will be used during the internal and external monitoring activities and the frequency of monitoring is provided in Table 6.

Table 6. Main Indicators for Monitoring and Monitoring/Reporting Frequencies

Activity	Obtained Information/Data Type Monitoring Indicators	Source of Information/Data Collection Methods	Responsibility of Data Collection, Analysis and Reporting	Monitoring/Reporting Frequency
INTERNAL MONITORING	• Payment of expropriation price in accordance with the set timetable • Preparation of resettlement areas and their efficiency (if there will be a request) • Construction of housing (if there will be a request) • Providing employment and efficiency and income of employment • Efficiency of provided education and other developmental input • Rehabilitation of vulnerable groups • Repair, relocation or change of infrastructure • Payments regarding complaints and grievances	• Records of expropriation process • socioeconomic studies and key informant meetings • Implementation records of grievance mechanism procedures • Records of resettlement process related to households that requested resettlement (if there will be a request) • Records of initiated income restoration activities • Monitoring and assessment reports • Public participation meetings • Project progress reports	Project Owner	• Six (6) weeks (for land preparation and construction phases)
EXTERNAL MONITORING	• Living conditions and socio-economic status of affected settlements • Effectiveness of grievance procedure • Effectiveness of local employment strategies • Number of vulnerable individuals in each affected settlements • Number of Public Consultation Meetings • Number of field observations, interviews and informative meetings	• Key informant interviews with selected local leaders • Open public meetings • Informal interviews • Implementation records of grievance mechanism procedures • Project progress reports	Independent Agency / External Experts	• Bi-annually

9. Contact Details for Public

Stakeholders are invited to contact the Company at:

Marmara Otoyol Insaati A.O. Tic. Isl.

Address: Garipce mah. Rumeli Feneri cad. No: 280 34450 Sariyer / ISTANBUL

Telephone: +90 212 338 7676 (toll-free hot line)

E-mail: info@marmaraotoyolu.com

Web-site: www.marmaraotoyolu.com

APPENDIX 11.1

STAKEHOLDER LIST

Level	Category	Organization / Entity
Internal	Personnel	Project Sponsor
	Contractors	N/A
	Shareholders	N/A
National	Ministries and Relevant Authorities	Ministry of Transport, Maritime Affairs and Communication
		General Directorate of Highways
		General Directorate of Infrastructure Investments
		Ministry of Forestry and Water Affairs
		General Directorate of State Hydraulic Works (DSİ)
		General Directorate of Forestry
		General Directorate of Meteorology
		Ministry of Environment and Urbanization
		General Directorate of Spatial Planning
		General Directorate of Environmental Management
		General Directorate of Preservation of Natural Heritage
		General Directorate of Land Registry and Cadastre
		Ministry of Culture and Tourism
		General Directorate of Cultural Heritage and Museums
		Ministry of Energy and Natural Resources
		General Directorate of Mineral Research and Exploration
		General Directorate of Electricity Generation Corporation (EUAS)
		General Directorate of Electricity Transmission Company (TEIAS)
		Ministry of Interior
		Gendarmerie General Command
		General Directorate of Security Affairs
		Ministry of Labor and Social Security
		General Directorate of Turkish Employment Agency (ISKUR)
		Ministry of Development
		Ministry of Defense
		Petroleum Pipeline Company (BOTAS)
		Prime Ministry's Disaster and Emergency Management Presidency (AFAD)

Level	Category	Organization / Entity
	NGO's	The Union Chambers of Turkish Engineers and Architects (TMMOB)
		Chamber of Environmental Engineers
		Chamber of Urban Planners
		Chamber of Agricultural Engineers
		Chamber of Civil Engineers
		Chamber of Forest Engineers
		Chamber of Architects
		Chamber of Landscape Architects
		The Union of Turkish Agricultural Chambers
		The Union of Chambers and Commodity Exchanges of Turkey (TOBB)
		Turkish Foundation for Combating Soil Erosion for Reforestation and the Protection of Natural Habitats (TEMA)
		World Wide Fund for Nature (WWF)
		Foundation for the Protection and Promotion of the Environment and Cultural Heritage (CEKUL)
		Environment Foundation of Turkey
		Greenpeace Turkey
		Turkish Environmental and Woodlands Protection Society(TURCEK)
		International Freight Forwarders Association
		Union of Forestry Workers (ORMAN-IS)
		Union of Turkish Roads, Buildings and Construction Workers (YOL-IS)
		Confederation of Unions of Turkish Workers (TURK-IS)
		Union of Construction Industry Employers (INTES)
		Community Volunteers Foundation
Regional	Governmental Agencies and Authorities	Ministry of Forestry and Water Affairs 1th Regional Directorate
		Ministry of Transport, Maritime Affairs and Communication 1th Regional Directorate of Highways
		Istanbul Regional Directorate of Forestry
		General Directorate of State Hydraulic Works (DSİ) 1th Regional Directorate
		Ministry of Transport, Maritime Affairs and Communication 1th Regional Directorate
		Regional Directorate of Mineral Research and Exploration

Level	Category	Organization / Entity
		Istanbul 1th Regional Directorate of Cultural Heritage Preservation Board
		Istanbul 2th Regional Directorate of Cultural Heritage Preservation Board
		Istanbul 1th Regional Commission of Cultural Heritage Preservation
		Istanbul 2th Regional Commission of Cultural Heritage Preservation
		Istanbul 5th Regional Commission of Cultural Heritage Preservation
		General Directorate of Turkish State Railways 1th Regional Directorate
Local	Governmental / Local Authorities and Agencies	Istanbul Metropolitan Municipality
		Governorship of Istanbul
		Istanbul Provincial Directorate of Environment
		Istanbul Water and Sewerage Administration (ISKI)
		TEIAS 1th Transformation, Installation and Operation Group Division
		Istanbul Gas Distribution Industry and Trade Incorporated Company (IGDAS)
		Bogazici Electricity Distribution Co. (BEDAS)
		Istanbul Anatolian Side Electricity Distribution Co. (AYEDAS)
		Istanbul Turk Telekom Regional Directorate of European Side
		Istanbul Provincial Directorate of Employment Agency
		Arnavutkoy Municipality
		Catalca Municipality
		Silivri Municipality
		Sultangazi Municipality
		District Governor of Arnavutkoy
		District Governor of Catalca
		District Governor of Eyup
		District Governor of Silivri
		District Governor of Sultangazi
		District Governor of Tuzla
		Istanbul Provincial Directorate of Agriculture
		Istanbul Provincial Directorate of Cultural Heritage and Museums
		Istanbul Metropolitan Municipality Department of Environmental Protection and Control
	NGO's	Istanbul Federation of Environmental Council

Level	Category	Organization / Entity
		Istanbul Environmental Council
		Friends of the Environment Association
		Environmental Protection and Packaging Waste Recycling Association (CEVKO)
		Istanbul Chamber of Commerce
		Istanbul Chamber of Industry
		Istanbul Association of Disabled People
		Silivri Chamber of Agriculture
		Catalca Chamber of Agriculture
		Arnavutkoy Chamber of Agriculture
		Eyup Chamber of Agriculture
		Sultangazi Chamber of Agriculture
	Residential Areas	Settlements located along the route*
	Business Enterprises	Business enterprises located along the route*
	Universities	Istanbul Technical University
		Bogazici University
		Istanbul University
		Yildiz Technical University

APPENDIX 11.1

SUMMARY OF PCM FINDINGS

PCM No	Party who Raised the Question/ Issue/Concern/ Suggestion	Category	Sub-category	Question/Issue/Concern/ Suggestion Raised	Response of Project Sponsors/ Environmental Consultant
Europe					
1	**Istanbul, Silivri, Kadikoy Neighborhood (08.03.2017)**				
1.1	Headman of Kadikoy Neighborhood	Socio-economy	Construction impacts	An incident of soil/excavated material disposal on to the pasturelands that are not acquired by KGM in the scope of the Project had happened. As a solution, rental of agricultural lands was suggested if required in the scope of the Project. Additionally, a camera surveillance system was suggested to be established to allow the neighborhood administration monitoring the activities being conducted at the Camp Site.	Camera system can be established and the neighborhood administration can be provided with access through a system to be installed
		Socio-economy	Employment	Neighborhood should be given priority in the provision of construction workforce.	If information on the scale of local employment requirement and resident having previous experience in construction works is provided through Project's grievance/comment mechanisms or office of neighborhood headman, local employment opportunities would be considered by the Project Sponsors especially for suitable positions (e.g. cook, security, sanitary, driver, etc.). It has been also noted that the scale of employment opportunities will be quite high.
		Socio-economy	Expropriation	Information was requested on the scale of expropriation at Kadikoy neighborhood.	It has been informed that around 225 decare of land will be expropriated at Kadikoy neighborhood.
		Socio-economy	Expropriation	Information was requested on the expropriation program and procedure (e.g. how compensation for the crops will be obtained, when the compensation amounts will be paid) as this would affect the cultivation activities (e.g. foreseen date for expropriation, activities to be conducted on the cultivated lands)	Information on the expropriation/land acquisition procedure being/to be followed under Expropriation Law and other legislation (forestry, pasturelands) has been given. It has been informed that the expropriation process would be completed within 45-60 days if agreement is settled. Compensation would be provided for the existing crops at the time of notification/valuation. No further compensation would be provided for crops cultivated after the date of notification. Local people has been recommended to submit their information request through Project's grievance/comment mechanisms so that they would be informed in advance once the expropriation program is specified.
		Stakeholder Engagement	Comment and Grievance Mechanism	Communication lines (e.g. telephone numbers) are not functional.	In the mechanism established as a part of this Project, responses will be provided within 1 month.

PCM No	Party who Raised the Question/ Issue/Concern/ Suggestion	Category	Sub-category	Question/Issue/Concern/ Suggestion Raised	Response of Project Sponsors/ Environmental Consultant
1.2	Resident of Kadikoy Neighborhood	Environment Socio-economy	Construction traffic	Information was requested on the impacts of construction traffic in case Camp Site access is provided through settlements	A service road has been constructed to avoid construction traffic through Kadikoy neighborhood. (Kadikoy headman has also confirmed this information by saying that access to Camp Site is provided from Tavsantepe and thus construction traffic will not pass through their settlement)
1.3	Resident of Kadikoy Neighborhood	Environment	Flora and Fauna	Information was requested on the impacts of the Project on the high forest (300 decare area located near KM 16) area located on the north-west of the Motorway route.	The mentioned high forest area and potential impacts, if there is any, will be particularly considered in the ESIA studies.
		Environment	Flora and Fauna	Information was requested on the impacts of the habitat fragmentation/severance to be caused by the Project on wild life components that need to cross the Motorway	Information on the flora and fauna studies (habitat and species identification) being conducted by experts as a part of the ESIA has been provided Additionally, information on the number and location of the culverts, underpasses and overpasses planned in this section has been given.
1.4	Resident of Kadikoy Neighborhood	Socio-economy	Construction impacts	Potential for impacts of/damage due to construction activities on adjacent lands was questioned.	Expropriation corridor is specified wide enough to avoid intrusion onto adjacent lands. For individual cases, if there is any, agreements can be made on a case-by-case basis through purchase or rental. In addition, intentions of construction crew to stay within the borders of the expropriation corridor to avoid further land acquisition process/requirements have been explained.
1.5	Resident of Kadikoy Neighborhood	Socio-economy	Fragmentation Restriction of access to lands	Information was requested on the location of engineering structures providing passage of Motorway (e.g. culverts, underpass, overpass)	Information on the location of the passage at KM 16 providing access to the northwestern pastureland was provided.
1.6	Resident of Kadikoy Neighborhood	Environment	Flood risk	A previous flood incident happened in the area was mentioned.	Flow design for the drainage system has been done to meet 500 years recurrent flood conditions in accordance with the views of State Hydraulic Works. Hydraulic culverts have been integrated into the design as required.
1.7	Headman of Kucukkilicli Neighborhood (KM 4+500)	Environment	Noise	Neighborhood experiences noise impact due to the existing European Motorway, especially during southwester winds and due to heavy vehicles/trucks. The impact is anticipated to aggregate together with the operation of North Marmara Motorway.	Baseline noise measurements were conducted at Kucukkilicli neighborhood. Measurement results will be evaluated and mitigation measures will be proposed in the scope of the ESIA Report depending on the results of the noise modeling studies to be conducted.

PCM No	Party who Raised the Question/ Issue/Concern/ Suggestion	Category	Sub-category	Question/Issue/Concern/ Suggestion Raised	Response of Project Sponsors/ Environmental Consultant
2	**Istanbul, Catalca, Nakkas Neighborhood (08.03.2017)**				
2.1	Mayor of Catalca Municipality	Socio-economy	Expropriation	The Project passes Izzettin, Kaleici, Nakkas and Elbasan neighborhoods within the Catalca Municipality urban area over a distance of 20,9 km. The Municipality is not against the Project, which is anticipated to make Osmangazi Bridge and other projects viable. However, a large number of parcels, which is beyond Motorway's actual needs, have been expropriated following the Expropriation Decision taken in October 2016.Furthermore, the route has changed after this date thus most of the parcels listed in the Expropriation Decision are now out of the current expropriation corridor. Compensation payments have already been provided in Elbasan. However, Nakkas' lands form an important portion of the total area to be expropriated. Thus, giving priority to Nakkas in expropriation would be useful and effective for the sake of Project's implementation.	Information on the expropriation/land acquisition procedure (negotiations, objection, court processes, etc.) being/to be followed under Expropriation Law has been given. For the case of unsuccessful negotiations, it has been informed that KGM as the responsible authority opens lawsuits in the fastest way possible to avoid any delay in the Project schedule. The previous northern route is not valid anymore as route has been shifted towards south in this section. It has been also clarified that around 258 decare of land will be expropriated within the borders of Catalca Municipality, where 100 decare of the total area is located in Nakkas neighborhood.
		Environment	Water Resources	Catalca Municipality harbors most important water resources of Istanbul province. Thus, impacts of the Project on water resources have to be duly considered.	Information provided on the environmental and social criteria considered in the route selection and design of engineering structures.
		Environment Socio-economy	Agricultural lands	Agricultural lands within the borders of Catalca Municipality are very fertile. Revision of Project route should be considered to protect fertile agricultural lands in the area.	Information provided on the environmental and social criteria considered in the route selection and design of engineering structures.
		Cultural Heritage	Archaeological sites	Project route corresponds to Kartepe-Umurtepe 2nd degree archaeological site.	The site and potential impacts, if there is any, will be assessed in the scope of the ESIA.
		Socio-economy	Expropriation	The Project (service area) corresponds to a portion of a planned educational facility area (Biomedical Vocational High School). Route revision is required for the execution of the educational facility project.	Project revision has been made and in the current situation no impact is foreseen on the proposed educational facility area.
		Socio-economy	Construction traffic	Construction vehicles/trucks will pass through the settlement centers. Excavation and fill operations bring environmental impacts	Service roads are constructed to avoid traffic through settlement centers.
		Socio-economy	Restriction of access to lands	Even though engineering structures allowing passage of Motorway are planned to be constructed along the route at several locations, farmers and wild life will encounter difficulties in reaching their agricultural	Participants were asked to submit their specific requests for passage structures and other issues through the comment and grievance forms so that these requests can be considered by the design team.

PCM No	Party who Raised the Question/ Issue/Concern/ Suggestion	Category	Sub-category	Question/Issue/Concern/ Suggestion Raised	Response of Project Sponsors/ Environmental Consultant
				lands/habitats.	
2.2	Resident of Nakkas Neighborhood	Socio-economy	Expropriation	Considering the fact that construction activities will be completed within 3 years, the exact implementation program for the expropriation, negotiations, compensation payments, start of construction activities, etc. as well as the compensation amounts have to be swiftly determined.	It has been informed that the expropriation works will start in about 1 month.
2.3	Resident of Nakkas Neighborhood	Socio-economy	Expropriation	Information was requested regarding the expropriation of lands with built houses, structures, trees, ladders, walls, fences, etc.	All the structures (including their building materials) present on the lands at the time of notification as well as depreciation value will be considered in valuation of lands in accordance with the Expropriation Law. Negotiations are done based on the total amount. If the land portion remaining from expropriation would not be viable anymore, eligible persons may request the expropriation of the entire parcel including the remaining portion, even if this portion is out of the expropriation corridor. If the holder of the right prefers the use the remaining portion of the parcel that has been expropriated, he/she can continue his/her activities on that land.
2.4	Resident of Nakkas Neighborhood	Socio-economy	Expropriation	Information was requested on the procedure to be followed and criteria considered for the valuation of lands located adjacent to the Motorway and lands located 200-300 m away from the Motorway.	Information on the expropriation/land acquisition procedure being/to be followed under Expropriation Law has been given.
		Socio-economy	Expropriation	Information was requested on the procedure to be followed for the expropriation of joint-owned parcels.	It has been informed that all the eligible share holders will receive compensation based on the same valuation. All the shareholders will be compensated in the ratio of his/her share.
2.5	Resident of Nakkas Neighborhood	Technical/ Design	Location of Engineering Structures	Information was requested on the access locations (i.e. interchanges) in the region.	Nakkas Interchange will provide access to the nearby settlements. Other nearby interchanges are located in Catalca and Yassioren.
3.	**Istanbul, Arnavutkoy, Durusu (Tayakadin) Neighborhood (09.03.2017)**				
3.1	Cumhuriyet Newspaper Reporter	Environment	Forestry/Trees	Information was requested on the number of trees to be logged	It has been informed that assessments are being done based on forestry management data and the exact number of trees to be logged will be included in the ESIA Report.
3.2	Kuzey Ormanlari Savunması (KOS) Representative (NGO)	Environment	General	There had been problems in the implementation of the measures proposed in the ESIA reports and in the public participation meetings of other infrastructure projects (e.g. noise barriers have not	Information has been provided on the ESIA schedule (ESIA studies started in November 2016, studies will be completed by the end of 2017 and the Draft ESIA Report will be disclosed to public for comment for 1 month).

PCM No	Party who Raised the Question/ Issue/Concern/ Suggestion	Category	Sub-category	Question/Issue/Concern/ Suggestion Raised	Response of Project Sponsors/ Environmental Consultant
				been implemented, water catchment areas have been affected, etc.)	Following the ESIA period, implementation will be monitored.
3.3	Kuzey Ormanlari Savunması (KOS) Representative (NGO)	Technical/ Design	Traffic Study	Information was requested on traffic study conducted for the Project (who conducted the study, when it was conducted, etc.).	Traffic study was conducted in the scope of Motorway's feasibility studies. Services were acquired from international consulting firms.
3.4	Resident of Tayakadin Neighborhood	Socio-economy	Expropriation	Compensation amounts determined for lands are very low. Motorway Project is to be constructed but compensation provided to local people should be satisfactory. Unit prices (m^2/TL) proposed for the lands in this region (Europe) are not sufficient to purchase similar lands in the same region.	Compensation values are determined by KGM in accordance with the Expropriation Law. Lawsuits can be opened upon objection if the compensation values are not accepted by the right owners.
3.5	Resident of Tayakadin Neighborhood	Socio-economy	Expropriation	Information was requested on the criteria taken into consideration by the courts.	Information has been given regarding the process conducted with the involvement of expert witnesses.
3.6	Resident of Tayakadin Neighborhood	Socio-economy	Urgent Expropriation	Negative opinions about urgent expropriation process were expressed. Complaints were raised due to the fact that lands could not be sold because of the Project.	It has been informed that the expropriation works including urgent expropriation are conducted by KGM as the responsible authority.
3.7	Kuzey Ormanlari Savunması (KOS) Representative (NGO)	Stakeholder Engagement	Public Consultation Meetings	NGOs should have been individually informed of and invited to the public consultation meetings. Newspaper announcements are not solely sufficient for informing stakeholders in the scope of ESIA meetings.	Information has been provided on the methods used for informing stakeholders such as letters and announcements delivered to neighborhood headmen and invitations sent to relevant public authorities (governorates, municipalities). In addition it has been informed that transportation vehicles were provided to transfer interested parties/local people to the meeting locations from surrounding settlements to ensure sufficient participation.
		Environment Socio-economy	Future development potential	Similar to past experiences, Population would dramatically increase around areas where Motorway interchanges are located. Land use characteristics of the region would change in time around the Motorway route resulting in loss of lands used for agriculture and grazing. As a result of the integrated 3rd Bosphorus Bridge and New Airport Project, the city will expand towards northern forests.	It has been informed that the high-level planning of the Project and decision making has been under the authority and responsibility of the state and the Project Sponsors or environmental consultants do not have any authority on this process. The ESIA process aims to minimize the impacts of this Project, for which high-level planning has already been done by the state authorities. Information has been provided on the major revisions done on the tender route to minimize environmental and social impacts to the extent possible.
		Environment	Forestry/Trees	Information was requested if tree logging activities have started.	It has been informed that logging has not started in the European sections.

PCM No	Party who Raised the Question/ Issue/Concern/ Suggestion	Category	Sub-category	Question/Issue/Concern/ Suggestion Raised	Response of Project Sponsors/ Environmental Consultant
		Socio-economy	Minimum traffic guarantee	Information was requested on the minimum traffic guarantee provided to the Project Sponsors.	Information was provided on the minimum traffic guaranteed by the KGM for Section 1, 2 and 7.
3.8	Kuzey Ormanlari Savunması (KOS) Representative (NGO)	Stakeholder Engagement	Comment and Grievance Mechanism	Mechanisms proposed in previous projects did not effectively function.	In the mechanism established as a part of this Project, responses will be provided within 1 month.
3.9	Resident of Tayakadin Neighborhood/ Environmental Engineer	Environment	Afforestation	Participant informed concerns about the effectiveness of afforestation as he thought that trees will be planted along the Motorway with frequent intervals.	Information was provided on the procedure to be followed for afforestation in cooperation with the General Directorate of Forestry. Afforestation will be done on lands to be allocated by the authorities in lieu of the payment to be done by the Project Sponsors.
		Socio-economy	Minimum Traffic Guarantee	Information was requested on the currency (US dollars or Turkish liras) of traffic guarantee provided by the state.	It has been informed that the traffic guarantee is based on US dollars.
3.10	Resident of Tayakadin Neighborhood	Environment Socio-economy	Benefits of the Project for Locals	Besides the adverse impacts such as dust and noise during construction, etc., information was requested on the benefits (e.g. access to interchange locations) of the Project for local people and settlements.	Benefits will be provided to local people in terms employment and transportation infrastructure.
4	**Istanbul, Sultangazi, Cebeci Neighborhood (10.04.2017)**				
4.1.	Cebeci Neighborhood Headmen	Socio-economy	Expropriation	Information was requested on possible lands and plots that will be subjected to the expropriation	Expropriation process is designed by KGM and headmen of the neighborhoods and entitled individuals will be informed by the authorities. It is understood that any information has not been received from the authorities to date.
4.2.	Gazi Neighborhood Headmen	Socio-economy	Traffic	Possible disturbances and nuisances may occur if traffic management will not be implemented in accordance with the headmen of Gazi Neighborhood	Possible access roads will be determined in accordance with the neighborhoods headmen. Local people will be informed about roads that will be closed due to the construction activities.
4.3.	Gazi Neighborhood Headmen	Environment	Noise and Vibration	Information was requested on possible noise and vibration effects due to the blasting activities	Blasting will be used during the tunnel construction however, the vibration and noise will be minimum and local residents will not feel the vibration impact.
4.4.	Zubeydehanim Neighborhood Headmen	Environment Socio-economy	Damages to buildings	Will buildings be affected by blasting activities?	All the buildings located on the tunnel route will be examined prior to start blasting activities and if any damages will occur damages and losses will be compensated by Project Owner.

APPENDIX 11.1

GRIEVANCE FORM

	ŞİKAYET VE ÖNERİ FORMU	**MARMARA OTOYOL İNŞAATI** ADİ ORTAKLIĞI TİCARİ İŞLETMESİ Dök No.: E01.F01 Rev.0

*Bu kısım Sosyal Etki Uzmanı tarafından doldurulacaktır.			
Şikayet/Öneri No.	Kesim ______	Şikâyet ☐ Öneri ☐	Sıra No. ______
Yer	Kesim ______ Güzergâh KM'si ______ Mahalle ______		
Şikayet/Öneri'nin Hangi Kanalla Alındığı	☐ Yazılı ☐ Sözlü (______)		
Şikayet/Öneri Sahibi			
Ad-Soyad (İsminizi belirtmek istemiyorsanız lütfen "İSİMSİZ" şeklinde belirtin)	______________________________		
İletişim Bilgileri Bizinle ne şekilde iletişim geçilmesini istiyorsunuz?	☐ **Posta yoluyla** (lütfen posta adresiniz belirtin): ______________________________ ☐ **Telefonla** (lütfen telefon numaranızı belirtin): ______________________________ ☐ **E-posta** (lütfen e-posta adresinizi belirtin): ______________________________		
Şikayet/Öneri Açıklaması			
Şikâyet/Öneri Türü	☐ Çevresel ☐ Sosyal		
Şikâyet/Öneri Aşaması	☐ İnşaat ☐ İşletme		
Şikayet/Öneri Nedeni	☐ Toz Oluşumu ☐ Kamulaştırma ☐ Gürültü/Titreşim ☐ İş gücü temini/Çalışma koşulları ☐ Atıklar ☐ Trafik yoğunluğu ☐ Su/Toprak Kirliliği ☐ Diğer (__________)		
Şikayet/Öneriyi Açıklayın (Ne oldu? Nerede oldu? Kim sebep oldu? Sorunun neticesi ne?)			
Şikayet/Öneri Tarihi: ___-___-201__	☐ Tek seferlik olay/şikâyet ☐ Birden fazla kez mi oldu (kaç defa? ____) ☐ Devam eden (aynı problem halen yaşanıyor) Evet ☐ Hayır ☐		
Belirtilen sorunun çözümü için ne yapılmasını istersiniz?			

İmza ve Tarih:______________________

E-posta: info@marmaraotoyolu.com

Telefon hattı: 0212 338 78 00 pbx

Adres: MARMARA OTOYOLU ADİ ORTAKLIĞI 3.Köprü Şantiyesi Marmara Otoyolu Merkez Ofis Binası PK:34450 Garipçe/İSTANBUL

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ŞİKAYET VE ÖNERİ FORMU	MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ Dök No : F01 F07 Rev.0

Kapanış Açıklaması	
Kapanış Tarihı	___-___-201_
Şikayetin/Önerinin Değerlendirmesi	
Değerlendiren Yetkili	**Ad-Soyad** ________________ **İmza** ________________
İzleme Değerlendirmesi	
İzleme Gerekliliği	□ Gerektiriyor □ Gerektirmiyor
İzleme Faaliyeti	
İzleme Süresi/Sıklığı	
İzleme Yeri	
Sorumlu Taraf	
Tamamlanma Tarihi	___-___-201_
İzleme Sonucu	

İmza ve Tarih ________________

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