TURKISH ELECTRICITY TRANSMISSION CORPORATION
DIRECTORATE GENERAL

380/154 kV DERİ OIZ GIS SUBSTATION (GAS INSULATED SYSTEM) SUBSTATION ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

ISTANBUL PROVINCE,
TUZLA DISTRICT
ANKARA – DECEMBER 2019

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Name of Project:	380/154 kV DERI OIZ GIS SUBSTATION (GAS INSULATED SYSTEM) SUBSTATION ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN
Address of Site Selected for the Project:	Istanbul Province, Tuzla District

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EXECUTIVE SUMMARY

The 380/154 kV Deri Organized Industrial Zone (OIZ) GIS Substation Project is planned to be constructed with financing from World Bank loan on a land of ~ 16000 m^2 located in a 1.761.233,89 m^2 Treasury-owned parcel (no. 4457) in Aydinli. Istanbul Deri Organized Industrial Zone (İDOSB) holds an easement right on the land for a period of 49 years and has provided consent for the 380/154 kV Deri OIZ GIS Substation Project.

In Turkey, environmental management is governed by the provisions of Environmental Impact Assessment Regulation published in the Official Gazette no. 29186 dated 25 November 2014. While the 380/154 kV Deri OIZ GIS Substation Project is considered outside the scope of the referred Regulation, all actions to be taken under the project will comply with the Environment Law No. 2872 and the applicable regulations. In addition, the relevant World Bank (WB) policies will be complied with as far as environmental and social management is concerned.

The 380/154 kV Deri Organized Industrial Zone (OIZ) GIS Substation Project is planned to be constructed with financing from World Bank loan on a land of ~ 16000 m^2 located in a 1.761.233,89 m^2 Treasury-owned parcel (no. 4457) in Aydinli. Istanbul Deri Organized Industrial Zone (İDOSB) holds an easement right on the land for a period of 49 years and has provided consent for the 380/154 kV Deri OIZ GIS Substation Project.

On the project site are 220 trees consisting of the species stone pine (pinus pinea) and maritime pine (pinus pinaster). During the construction of the SS, approximately 40 trees will be lost. However, all the tress that need to be relocated will be translocated to appropriate locations within the organized industrial area. The rest of the trees in the area will be protected.

Project characteristics have been set as 380/154 kV, 2x250 MVA + 420 kV, 160-250 MVAr Adjustable Reactor + 380/33 kV, 2x125 MVA + 154/33 kV, 1st and 2nd Transformer Feeders.

The construction of the project will positively impact both the regional economy and the Turkish economy as a whole. The development of industry which requires high voltage energy sources will be ensured in the region.

Establishment of substations and transmission lines are categorized as high risk according to the national OHS Law. In this respect, TEIAS has a department managing OHS issues and also capacity in the Regional Offices.

The personnel to work during the land preparation and construction stages of the project will meet their needs at existing structures located within the nearest settlements if applicable.

The environmental and social issues on construction stage are culturel and historical assets, dust-particle matter, noise, wastewaters originating from campsites, excavation, solid and hazardous waste originating from the construction site, wastes to originate from the vehicle park, health and safety, traffic and pedestrian safety, landscaping. Noise, EMF, health and safety, fire risk, SF6 gas, transformer oils, solid and hazardous wastes to be generated during operation stage (battery, waste oil) are the environmental and social issues on operation stage. All relevant and legal protective and preventive measures will be taken.

Also, a great deal of workers to be employed during the construction of the substation, especially those who are unqualified, is met from the local community. Moreover, apart from large-scale items, the material to be utilized in the construction of the substation (hardware, concrete, sand, gravel, small hand tools, stone chips etc.) is met from establishments operated by the local community and likewise, the catering needs of the workers are also met from establishments operated by the locals.

The Environmental and Social Management Plan Implementation report prepared/made to be prepared by the Contractor on a quarterly basis shall be submitted to the relevant Reigonal Directorate. The responsible person at the relevant Regional Directorate shall review the validity of the report on site and then the report shall be submitted to Directorate General along with comments from the Regional Directorate.

Even though the Turkish Legislation does not have sufficient provisions with regard to public consultation and information on land acquisition, for the subject project, TEIAS has provided the necessary environmental and social information to the headmen with a view to informing the affected groups and a Public Information Brochure and draft ESMP have been prepared and submitted to Nevzat Özsoy, the Headman of Aydinli neighborhood, for review,

objections and suggestions, on April 17, 2017. This process was made public on the official website of TEIAS on April 17,0 2017 (http://www.teias.gov.tr). Within the scope of the grievance mechanism of the project, it was made sure that the affected individuals were provided with the names and contact information of the people they can contact with.

The "TEIAS Stakeholder Relations Grievance and Demand Management Procedure" prepared by TEIAS Directorate of Corporate Communication was published within the scope of quality management.

The environmental and social activities supported by a grievance redress mechanism established by TEIAS are notified to the affected individuals prior to the project.

Contact numbers of both our establishment and the authorized officers and the address of our establishment was given to headman's offices. The people were informed that for any kind of information, the Expropriation Head Engineer and officers of the expropriation department can be reached at 0 (216)-521 58 00.

Grievances shall be addressed firstly at the local offices opened by TEIAS. A grievance mechanism was established as illustrated in the below provided table.

1. PROJECT DESCRIPTION

1.1 General Description of the Project

The 380/154 kV Deri Organized Industrial Zone (OIZ) GIS Substation Project is planned to be constructed with financing from World Bank loan on a land of ~ 16000 m^2 located in a 1.761.233,89 m^2 Treasury-owned parcel (no. 4457) in Aydinli. Istanbul Deri Organized Industrial Zone (İDOSB) holds an easement right on the land for a period of 49 years and has provided consent for the 380/154 kV Deri OIZ GIS Substation Project.

In Turkey, environmental management is governed by the provisions of Environmental Impact Assessment Regulation published in the Official Gazette no. 29186 dated 25 November 2014. While the 380/154 kV Deri OIZ GIS Substation Project is considered outside the scope of the referred Regulation, all actions to be taken under the project will comply with the Environment Law No. 2872 and the applicable regulations. In addition, the relevant World Bank (WB) policies will be complied with as far as environmental and social management is concerned.

380 kV Kroman Çelik GIS-Deri OIZ GIS Underground Cable (UGC) and 380 kV Deri OIZ-Tepeöre UGC projects will be connected to the 380/154 kV Deri OIZ GIS project.

1.2 Objective of the Project

The project aims at meeting the energy demand of Istanbul Deri OIZ Directorate as well as ensuring security of electricity supply in the Tuzla district of Istanbul Province and Gebze district of Kocaeli Province. The implementation of proposed project would contribute positively to both regional and national economy.

380 kV Kroman Celik OIZ – Deri OIZ GIS Underground Cable and 380 kV Deri OIZ-Tepeoren Underground Cable projects are planned to be connected to the 380/154 kV Deri OIZ GIS Substation. “EIA Not Necessary” decision has been obtained for the planned 10.96 km long 380 kV Deri OIZ-Tepeoren Underground Cable project to be carried out within the boundaries of Tuzla district of Istanbul province. The 10.65 km long 380 kV Kroman OIZ GIS- Deri OIZ GIS Underground Cable is planned to be carried out within the boundaries of the Tuzla district of Istanbul province and Gebze district of Kocaeli province. “EIA Not Necessary” decision has been obtained for this project as well.

1.3 Project Area

This project is planned to be constructed on a land of ~ 16,000 m^2 located in a 1,761,233.89 m^2 Treasury-owned parcel (no. 4457) in Aydinli, in outer skirts of Istanbul. The selected site is located within the reforestation area belonging to the OIZ, rented from the State Treasury by İDOSB. Istanbul Deri Organized Industrial Zone (İDOSB) holds an easement right on the land for a period of 49 years and has provided consent for the 380/154 kV Deri OIZ GIS Substation Project. The Project has also been approved by National Estate Directorate. On the project site are 220 trees consisting of the species stone pine (pinus pinea) and maritime pine (pinus pinaster). During the construction of the SS, approximately 40 trees will be lost. However, all the tress that need to be relocated will be translocated to appropriate locations within the organized industrial area. The rest of the trees in the area will be protected.

Figure 1 Photograph of the Project Site

During construction phase, an area of approximately 1 decare within the mentioned land will be utilized as construction site. Existing roads will be used within the scope of the project in question and no service roads shall be opened. Borrow pits are not required in TEIAS projects with ready-mixed concrete procured from the market being used and no

situation which requires the allocation of additional land arises. In addition, no materials shall be procured from illegal pits and it shall be conditional that all legal permits are obtained for procurement of materials, which shall remain under the control of TEIAS.

380 kV Kroman Çelik GIS-Deri OIZ GIS Underground Cable (UGC) and 380 kV Deri OIZ-Tepeöre UGC projects will be connected to the 380/154 kV Deri OIZ GIS project. The satellite image below displays the location of the cables and the SS. Those underground cables will be established on improved lands.

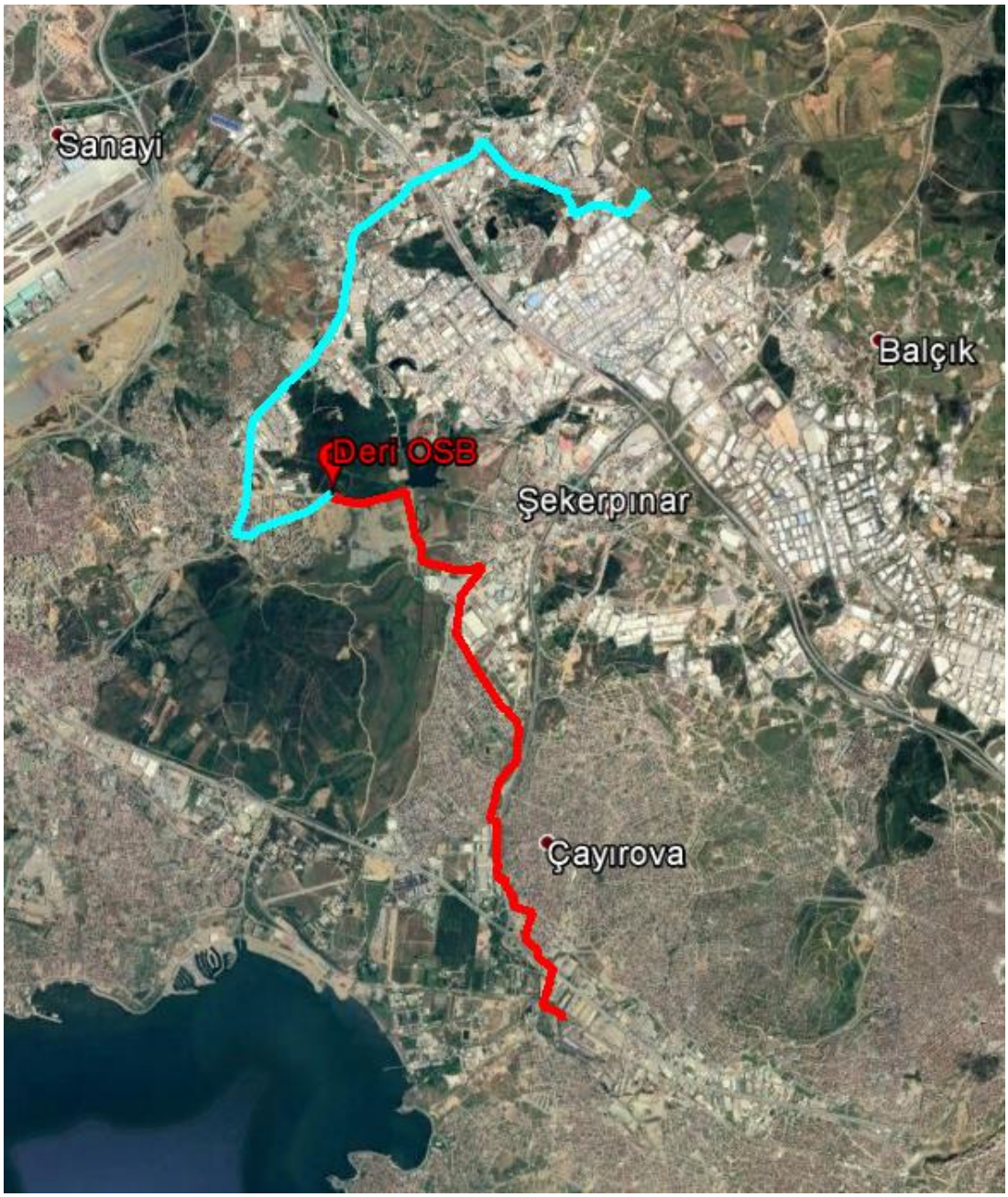

Figure 2 Satellite Image Displaying the Underground Cables to be Connected to Deri OIZ GIS-1

Figure 3 Satellite Image Displaying the Underground Cables to be Connected to Deri OIZ GIS-2

1.4 Technical Information on the Project

Gas Insulated Switchyards:

High voltage switchyards form a key ring of the power transmission chain between the electricity generation sources and consumers. Substations can be designed in two different ways. One of these is the continuously used air-insulated substations (AIS) with open switchyard and the other is closed or enclosed substations insulated with the SF6 gas, which can installed in both indoor and outdoor areas (GIS).

Air Insulated Substations (AIS) are used commonly where there is no spatial limitation.

Gas Insulated Substations (GIS) are replacing the conventional substations as they require very little space. Gas Insulated Substations can be easily designed and are environment-friendly.

GIS offers the possibility to be installed right in the middle of load centers in urban and industrial areas due to its appropriately assembled compact size and design. The use of SF6 as insulation gas in gas-insulated substations allow for small facility size and significant level of compliance with environmental requirements. Most of the elements used in the facility are assembled at the factory. GIS consists of circuit breaker, disconnectors, current transformer, control and protection equipment, internal locking and tracking and similar elements. The grounded metal casing of GIS not only protects the internal units of GIS from environmental impacts but also the employees from power shocks. GIS can be installed in outdoor spaces, inside and under buildings. The small installation area required for SF6 gas insulated facility ensures saving from expensive ground preparation and foundation activities. Its advantages also include short installation time and the ability of breakers installed in indoor areas to serve regardless of climatic and weather conditions.

Used all around the world since 1960, SF6 gas insulated substation technology was initially not deemed necessary in Turkey as the consumption of electrical energy and urban population were not at high levels in the past. It has become inevitable to use this technology due to safety concerns and limitations about the area of use, given the migration to urban areas during the past two decades, the growth in electricity consumption, and high voltage transmission lines remaining within city centers and industrial areas. In Turkey, the first gas-insulated substation was 154 kV Istanbul Topkapi GIS Substation, which was commissioned on November 23, 1990. Today, gas-insulated substations have been installed and are in operation in many cities (particularly big cities) of our country.

Tepeoren Substation serves 6 OIZs and 2 distribution companies, and the 650 MVA power transformer at the substation has reached 70% of its capacity. The largest user of Tepeoren Substation is the Deri OIZ with 100 MW, and the OIZ is expected to need an additional 100 MW power during the next 10 years. Deri OIZ GIS would be needed to meet the additional demand from both Sakarya Eletrik Dagitim A.Ş. (SEDAŞ) at both Tepeoren Substation and Gebze OIZ Substation, besides the Deri OIZ, as well as back up their load.

Project characteristics have been set as 380/154 kV, 2x250 MVA + 420 kV, 160-250 MVAr Adjustable Reactor + 380/33 kV, 2x125 MVA + 154/33 kV, 1st and 2nd Transformer Feeders.

Electromagnetic Field (EMF)

TEIAS complies with world standards in all projects, and all of the equipment it uses pass the international quality tests. While it is known that the project's EMF strength cannot exceed the established threshold values, Yildiz Technical University's Faculty of Electrical and Electronics Engineering has been hired to conduct electrical and magnetic measurements at the 380 kV Kucukbakkalkoy GIS Substation, which is operational within the urban area of Istanbul, to relieve the concerns of the public and reassure them that international standards are complied with in executing the project.

The report prepared by the Faculty states that based on the results of measurement conducted at 34 points inside and outside the building, electrical field and magnetic field values have been evaluated by taking into consideration the threshold values provided for human health in the technical document titled "International Commission On Non-Ionizing Radiation Protection (ICNIRP) Guidelines for Limiting Exposure to Time-Varying Electric and Magnetic Fields (1 HZ -100 kHZ), Health Physics 99 (6):818-836; 2010.".

As specified in Table-3 and Table-4 in the ICNIRP technical document (see Table-1 and Table-2 below), the threshold values for electrical field and magnetic field strength have been set as 5 kV/m (5000 V/m) and 160 A/m, respectively, for people continuously exposed to it, at an operating frequency of 50 Hz. In terms of occupational exposure, these threshold values have been set as 10 kV/m (10000 V/m) for strength of electrical field and 800 A/m for strength and magnetic field.

Table 1 ICNIRP Technical Document, Table-3

Table 3. Reference levels for occupational exposure to time-varying electric and magnetic fields (unperturbed rms values).

Frequency range	E-field strength E (kV m^{-1})	Magnetic field strength H (A m^{-1})	Magnetic flux density B (T)
1 Hz–8 Hz	20	$1.63 \times 10^5/f^2$	$0.2/f^2$
8 Hz–25 Hz	20	$2 \times 10^4/f$	$2.5 \times 10^{-2}/f$
25 Hz–300 Hz	$5 \times 10^2/f$	8×10^2	1×10^{-3}
300 Hz–3 kHz	$5 \times 10^2/f$	$2.4 \times 10^5/f$	$0.3/f$
3 kHz–10 MHz	1.7×10^{-1}	80	1×10^{-4}

Notes:
- f in Hz.
- See separate sections below for advice on non sinusoidal and multiple frequency exposure.
- To prevent indirect effects especially in high electric fields see chapter on "Protective measures."
- In the frequency range above 100 kHz, RF specific reference levels need to be considered additionally.

Table 2 ICNIRP Technical Document, Table -4

Table 4. Reference levels for general public exposure to time-varying electric and magnetic fields (unperturbed rms values).

Frequency range	E-field strength E (kV m^{-1})	Magnetic field strength H (A m^{-1})	Magnetic flux density B (T)
1 Hz–8 Hz	5	$3.2 \times 10^4/f^2$	$4 \times 10^{-2}/f^2$
8 Hz–25 Hz	5	$4 \times 10^3/f$	$5 \times 10^{-3}/f$
25 Hz–50 Hz	5	1.6×10^2	2×10^{-4}
50 Hz–400 Hz	$2.5 \times 10^2/f$	1.6×10^2	2×10^{-4}
400 Hz–3 kHz	$2.5 \times 10^2/f$	$6.4 \times 10^4/f$	$8 \times 10^{-2}/f$
3 kHz–10 MHz	8.3×10^{-2}	21	2.7×10^{-5}

Notes:
- f in Hz.
- See separate sections below for advice on non sinusoidal and multiple frequency exposure.
- In the frequency range above 100 kHz, RF specific reference levels need to be considered additionally.

As a result of the measurements conducted, it has been found that the measured values are below the threshold values of 5 kV/m and 160 A/m for strength of electrical field and magnetic field, respectively, for the continuously exposed general public at an operating frequency of 50 Hz as specified by ICNIRP (International Commission On Non-Ionizing Radiation Protection) *(Source: Yildiz Technical University, 2014, Technical Report, Istanbul).*

EMF values of the planned 154 kV Deri OIZ GIS Substation are anticipated to be below the threshold values during its operation stage, similar to the values measured at the 380 kV Kucukbakkalkoy GIS Substation, which is operational within the urban area of Istanbul and which uses the same technology.

SF6: SF6 is a non-toxic, inert, non-conducting, coolant, colorless, odorless and non-flammable gas which has high dielectric strength and thermal stability. With a molecular weight that is 5 times heavier than that of air, SF6 is one of the heaviest gases known to man. Under conditions of 50 Hz and 1 bar, its dielectric strength is 2.5/3 times higher than that of air and nitrogen. Such value increases with increased pressure and exceeds the dielectric strength of transformer oil at 3 bars.

With its electronegativity, SF6 has an excellent ability of arc quenching. Due to increased ambient temperature caused by the arc created during the breaking process, SF6 decomposes, bringing forth sulfur and fluorine atoms. Fluorine atoms with high electronegativity capture the free electrons in the environment, bringing the arc current down to near-zero. Even after SF6 heats up (2000 °C) and cools down after the breaking process, the fluorine and sulfur ions are recombined to transform into SF6. In his way, the dielectric environment regains its former properties.

Being quite stable chemically, SF6 is used in breaker and separator equipment along with the GIS equipment installed to GIS Substations. Due to its non-toxic nature in a pure state providing a safe working environment, SF6 is a preferred solution.

Since SF6 is 5 times heavier than air, when given into the atmosphere it has a tendency to gather in hollow areas on the ground. It is possible to breath a mixture of 20% oxygen and 80% SF6 without any negative effects. In cases of SF6 leakage, the SF6 collecting on the ground level should be avoided. SF6 leaks in closed quarters may cause a suffocation hazard for the personnel due to oxygen deficiency. In such case, the contaminated area needs to be aerated and evacuated, with personal protective equipment worn before re-entry.

The putrid SF6 gas dispersed into the environment as a result of the arc that is generated may have toxic properties. In such case, occupational safety rules must be observed while working with SF6.

Additionally, 1kg of SF6 given into the atmosphere causes an unnatural greenhouse effect that is equivalent to that which is caused by a normal, gasoline powered middle-class car driven for 120.000 km (a CO_2 emission of 185 g per kilometer). SF6 emissions should

be avoided to the extent possible. The amount of SF6 required to perform certain functions should be minimized.

GIS gas control design regulation is pursuant to the international standard (IEC: International Electrotechnical Commission) which strictly requires gas leakage. Thus, under the normal operation, gas leakage is almost zero. On the other hand, GIS consists of many separated and insulated gas chambers. Each chamber is equipped with an on-line / off-line gas pressure monitoring device and each chamber has gas valves. Therefore, gas leakage can be monitored by seeing the gas pressure trend automatically or manually (i.e. if gas pressure declines over the time slowly, the gas chamber leaks gas). At the maintenance, an engineer uses SF6 gas detector to check small amount of leak around the chamber and connection flanges, and he can spot the leaking point. Therefore, during normal operation and maintenance condition, SF6 gas leak can be detected and repair work will be initiated. By some possibility, if rapid gas leak happens, an operator in substation is noticed by alarm, can quickly detect a specific leaking gas chamber, and can close valves of such gas chamber to minimize or stop gas leaking from the chamber, and can collect remaining gas from the identified chamber from a collecting valve, then repair work will be initiated. Therefore, the leakage of SF6 gas will be very little due to design, and O&M regime of a GIS substation.

The employees working with the SF6 gas will be trained with respect to risks and occupational health and safety measures that should be taken and be equipped with the relevant personal protection equipment.

1.5 Places with High Landscape Value, Recreation and Protected Areas

The area where the project is planned to be implemented does not include any biosphere reserve, biogenetic reserve area, wildlife protection area, nature conservation area, natural monument, nature park, special environmental protection area and special protected site, national park, agricultural area.

The selected project site is located within the Private Plantation Area of İDOSB. Istanbul Deri Organized Industrial Zone (İDOSB) hold easement rights of 49 years over the area and has provided consent for the 380/154 kV Deri OIZ GIS Substation Project. The Project has also been approved by National Estate Directorate.

In case of any chance-find of historical or cultural value during the Project construction activities, the construction activities will be discontinued and Istanbul Provincial Culture and Tourism Directorate will be informed thereof.

1.6 Environmental and Social Background of the Project Area

Following the delivery of the site to the contractor after the signing of the agreement pertaining to the substation to be constructed, around 50 people shall be employed during the excavation stage, around 75 people during the construction works and around 75 people during electrical works, reaching a total of around 200 people employed.

A great deal of workers to be employed during the construction of the substation, especially those who are unqualified, is met from the local community. Moreover, apart from large-scale items, the material to be utilized in the construction of the substation (hardware, concrete, sand, gravel, small hand tools, stone chips etc.) is met from establishments operated by the local community and likewise, the catering needs of the workers are also met from establishments operated by the locals.

The construction of the project will positively impact both the regional economy and the Turkish economy as a whole. The development of industry which requires high voltage energy sources will be ensured in the region.

Geology, Hydrogeology and Geochemistry

Generally, units of Paleozoic age are observed in Tuzla. Such units forming up the foundation are products of different facies formed within the same catchment area. Since they are within the same group in terms of their formation, most researchers have named this sedimentary sequence as the İstanbul Group.

Arkoses known as the Kurtköy Formation (Fm) (Kuf) were formed in the continental facies. Kuf transitions to Aydos Fm (Af) consisting of quartzite. With increased clayey and partially sandy material presence, Gözda Fm (Gf) starts to form. Consisting of grey-dark green and partially brown shales, Gf is partitioned by massive beds of calcite in diagonal and vertical transitions, making up the Dolayoba Fm (Df). With the collection of clayey, sandy and carbonate material on Df with turbiditic flows, Kartal Fm (Kf) forms. Over this

sequence of Paleozoic age is a young sedimentary sequence (T). This formation which covers the İstanbul Group has developed in catchments marked by young fault lines. This formation consisting of blocky gravel-sand-clay is called Sultanbeyli Fm. Alluvia (Qal) are the last unit observed in the area.

From the hydrogeological standpoint, Dolayoba formation is considered the sole unit which may be of an aquiferous nature and associated with deep running waters due to its carstic structure.

The personnel to work during the land preparation and construction stages of the project will meet their needs at existing structures located within the nearest settlements if applicable. Therefore, the drinking water which the workers will need will be brought to the construction site in returnable carboys and plastic bottles and water to be used for other purposes shall be provided from the existing facilities (Municipal water supply). Since the carboys are returnable, when an order is placed for water, the empty carboy will be returned to the company bringing the water. When water is supplied with plastic bottles, the empty bottles shall be collected separately as per the provisions of “Regulation on the Control of Packaging Wastes” which became effective by being published in the Official Gazette Issue 30283 dated 27.12.2017 and of “Regulation on Zero Waste” which became effective by being published in the Official Gazette Issue 30829 dated 12.07.2019 and it shall be ensured that they are recycled by being given to the licensed companies authorized by the municipality.

For construction with concrete to be performed as part of the project and during construction works, ready-mixed concrete (which is manufactured at a concrete plant and brought to the site with mixer trucks) will be utilized. The water necessary for ready-mixed concrete is supplied by the concrete supplier firm at the place where the concrete is prepared. Since the water to be used in the mixing of concrete will remain within the material, no wastewater shall be generated. Moreover, the washing of mixer trucks which return after the concrete constructions at the work site shall not be allowed within the project site and its immediate surroundings and it will be ensured that such washing is carried out on the concrete supplier firm's own site (the concrete plant).

No ground and surface water shall be used as service water within the scope of the

project.

Climatic Characteristics

Tuzla area sees the effects of the climate of Marmara Region. Summers are hot and dry and winters are warm and wet. Annual average temperature is 15 °C.

Table 3 Meteorological Statistics for İstanbul Province

ISTANBUL	Ocak	Şubat	Mart	Nisan	Mayıs	Haziran	Temmuz	Ağustos	Eylül	Ekim	Kasım	Aralık	Yıllık
	Ölçüm Periyodu (1929 - 2018)												
Ortalama Sıcaklık (°C)	6.0	6.1	7.7	12.0	16.7	21.4	23.8	23.8	20.1	15.7	11.7	8.2	14.4
Ortalama En Yüksek Sıcaklık (°C)	8.5	9.0	11.0	15.5	20.1	24.7	26.7	26.9	23.8	19.2	14.9	10.9	17.6
Ortalama En Düşük Sıcaklık (°C)	3.2	3.1	4.3	7.7	12.2	16.6	19.5	20.2	16.9	13.0	9.0	5.5	10.9
Ortalama Güneşlenme Süresi (saat)	2.9	3.6	4.6	6.4	8.7	10.5	11.4	10.5	8.2	5.6	4.0	2.7	79.1
Ortalama Yağışlı Gün Sayısı	17.3	15.0	13.7	10.2	8.0	6.2	4.3	5.0	7.7	11.2	12.9	16.9	128.4
Aylık Toplam Yağış Miktarı Ortalaması (mm)	105.5	77.8	71.9	45.6	34.4	36.3	34.1	39.6	64.6	87.1	102.2	123.9	823.0
	Ölçüm Periyodu (1929 - 2018)												
En Yüksek Sıcaklık (°C)	22.0	24.7	29.3	33.6	34.5	40.2	41.5	40.5	39.5	34.2	27.8	25.5	41.5
En Düşük Sıcaklık (°C)	-13.9	-16.1	-11.1	-2.0	1.4	7.1	10.5	10.2	6.0	0.6	-7.2	-11.5	-16.1

Population

Population of Tuzla is 255.468 according to 2018 data. Of this population 130.360 are male and 125.108 are female. In percentage, this makes 51.03% male and 48.97% female.

Occupational Health and Safety (OHS)

Establishment of substations and transmission lines are categorized as high risk according to the national OHS Law. In this respect, TEIAS has a department managing OHS issues and also capacity in the Regional Offices. TEIAS also has a detailed procedure on OHS including risk assessment procedures, training procedures, site-work procedures, procedures on working with chemicals, working at heights, OHS audit procedures, OHS incidents etc. According to the TEIAS proceudures, the contractors are obliged to submit a risk assessment study, training information and work permits of the personnel, assignment of Class A OHS expert and full time C class OHS expert, personal protective equipment supply, maintenance plan of the equipment to be used on site and emergency preparedness and response plans before the mobilization of the contractors on site.

TEIAS audits the construction sites once a month with respect to OHS, and in case of continuous non-conformities, the contractors are warned and if necessary remedies are not in place, contractual enforcement is used. TEIAS has also implemented operational phase audits through a third party monitoring for OHS and environmental aspects for the existing substations. It is planned to implement these audits for the future substations as well.

Earthquake Status

The Map of Seismic Zones in Turkey was revised by AFAD's (the Disaster and Emergency Management Presidency) Department of Earthquake and published in the Official Gazette Repeating Issue 30364 dated 18 March 2018 and the new map became effective as of 1 January 2019.

In the Turkey Earthquake Hazard Map prepared with the most up-to-date earthquake source parameters, earthquake catalogues and next generation mathematical models being taken into account and providing further and more detailed data as opposed to the Map of Seismic Zones in Turkey, the peak ground acceleration values were displayed instead of the seismic zones.

With the new Turkey Earthquake Hazard Map, the concept of "seismic zone" has become obsolete. According to the Turkey Earthquake Hazard Map, the peak ground acceleration value PGA 475 pertaining to the site is 0.447 with the area in question being under a high hazard.

According to the Map of Seismic Zones in Turkey, which took effect through Council of Ministers decision no 96/8109 dated April 18, 1996, the project site where the 380/154 kV Deri OIZ GIS Substation will be installed is located within the first degree seismic zone.

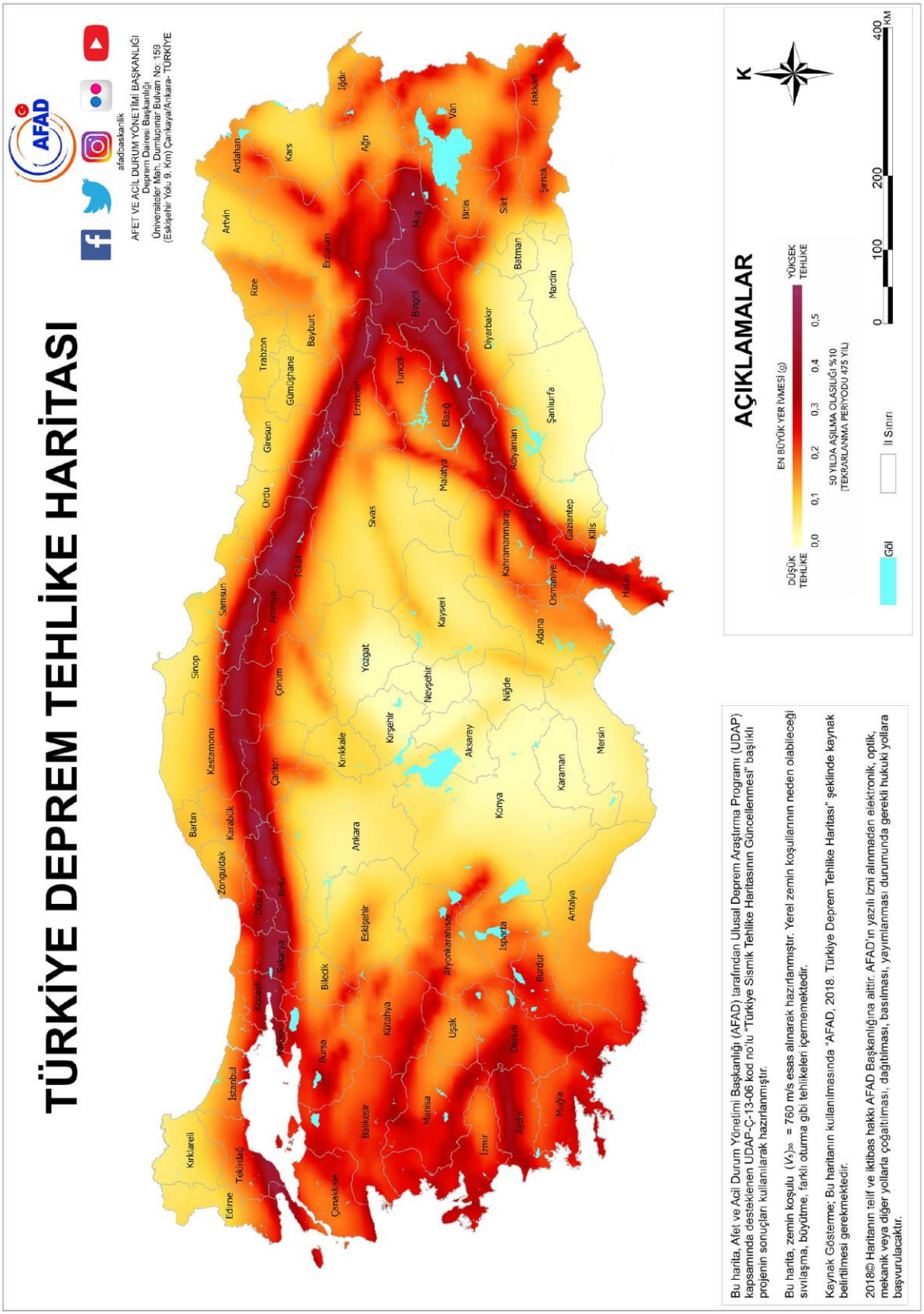

Figure 4 Turkey Earthquake Hazard Map

(Source: deprem.afad.gov.tr)

Figure 5 İstanbul Province Earthquake Hazard Map

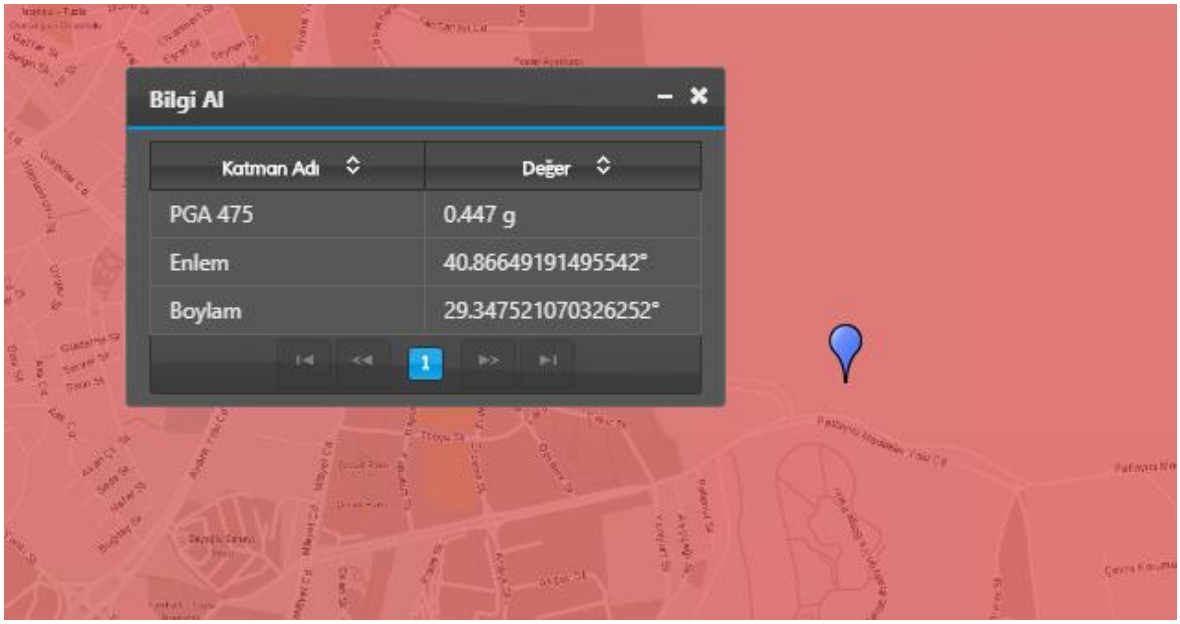

Figure 6 AFAD, 2018 Turkey Earthquake Hazard Map Peak Ground Acceleration PGA 475 Value

Detailed examinations and feasibility studies concerning the measures required to be taken against a potential earthquake expected in the Marmara Region have been conducted by Japanese experts hired by TEIAS. The team of experts visited our country twice to study seismicity of Istanbul and the countrywide impacts of the expected earthquake. The team has also consulted with relevant public agencies concerning the subject matter, and analyzed the transmission system, electricity network, transformer building and equipment in Istanbul. As a result of the studies, the team has concluded that no additional measure is required for the energy transmission lines and underground cables.

However, based on a prioritization study, the team has determined which equipment must be replaced at our substations, which equipment must be reinforced and how they must be reinforced. In particular, the team has determined that the 400 kV equipment is exposed to the risk of fracture due to its length, weight, and the height of its center of gravity. Our Substation Project criteria have been modified in line with the seismic studies and necessary reinforcements have been applied on the existing projects.

Moreover, zoning plans and geological studies serving as basis for construction are made to be performed by our Enterprise on the Substation site and the projects for the facilities are prepared in line with the results of the study reports.

Provisions of Turkey Building Earthquake Regulation which became effective upon being published in the Official Gazette Issue 30364 dated 18 March 2018 will be adhered to within the scope of the 380/154 kV Deri OIZ GIS Substation Project in question.

Emergency Response plan for cases of earthquake, occupational accident and fire is provided under Annex-H.

2. MITIGATION MEASURES PLAN

The personnel to work during the land preparation and construction stages of the project will meet their needs at existing structures located within the nearest settlements if applicable. Therefore, the drinking water which the workers will need will be brought to the construction site in returnable carboys and plastic bottles and water to be used for other purposes shall be provided from the existing facilities (OIZ's water supply).

For construction with concrete to be performed as part of the project and during construction works, ready-mixed concrete (which is manufactured at a concrete plant and brought to the site with mixer trucks) will be utilized. The water necessary for ready-mixed concrete is supplied by the concrete supplier firm at the place where the concrete is prepared. Since the water to be used in the mixing of concrete will remain within the material, no wastewater shall be generated. Moreover, the washing of mixer trucks which return after the concrete constructions at the work site shall not be allowed within the project site and its immediate surroundings and it will be ensured that such washing is carried out on the concrete supplier firm's own site (the concrete plant). No ground and surface water shall be used as service water within the scope of the project.

In the event that housing units are rented for the construction site, the wastewater generated by the personnel to be employed will be fed into the existing infrastructure system and in the event that the construction site is established, the same will be disposed to the OIZ's sewerage system. The principles of the Regulation on the Control of Water Pollution which became effective by being published in the Official Gazette Issue 25687 dated 31 December 2004 will be adhered to within the scope of the project.

During land preparation and construction works, only heavy duty vehicles will be used and no inflammable, explosive, hazardous, toxic or chemical material will be utilized. Therefore, no transportation and storage of hazardous and toxic materials will be performed. Dust emissions will be in question due to the excavations to be performed for the leveling works of the substation.

Feasible and cost-efficient measures to prevent the potential negative impacts of Deri OIZ Substation, reduce them to acceptable levels or redress them are presented herein. For

ease of use, the mitigation measures to be implemented in each stage of the project are presented in a tabular format.

The detailed table displaying the possible environmental impacts of the project in question, the measures to be taken, the responsible institution and the process is provided herebelow.

Table 4 Plan of Measures

Stage	Issue	Mitigation Measures **	Cost	Institutional Responsibility *	Start date	End Date
PRECONSTRUCTION	Flora&Fauna	• Relevant training on flora and fauna elements that could be found around the Project area will be provided to staff. • The site visit for identification of any fauna elements to be distracted from the Project site, to suitable environments..	No additional cost	TEIAS	Before construction starts	Start of construction
CONSTRUCTION	Cultural and historical assets	• Chance-find procedure will be established. • In case of a chance-find of cultural value, the construction activities will be discontinued and the related Cultural and Natural Assets Protection Boards will be informed thereof. The response of Protection Board about the facility's site will be awaited. No construction activities will be carried out meanwhile. • Construction activities will be resumed only after a positive response.	No additional cost	Contractor	Start of construction works	Completion of construction works

Stage	Issue	Mitigation Measures **	Cost	Institutional Responsibility *	Start date	End Date
	Dust – particulate matter	• With regard to dust and particulate matter emissions, the threshold value of 1.0 kg/hour provided for non-flue sources in Table 2.1 of Regulation on the Control of Air Pollution from Industrial Sources (SKHKKY) will be complied with. Watering will be done during dry seasons. • Loading and unloading processes will be done without scattering. In order to prevent scattering, loading and unloading processes will be carried out at places designated specifically for this purpose. Water sprinkling will be applied in order to prevent dust formation during the process. Furthermore, workers will be warned to be careful during loading/unloading. The direction and speed of wind will be taken into account when loading and unloading materials. • The top of trucks will be covered and a speed limit will be applied. Speed limit is 30 km/h within the construction site and 50 km/h in the city. • All the vehicles to be used must have exhaust emission permits. • The tires of trucks used in the construction site will be washed before they go out of the construction site (on public streets).	Not high	Contractor	Start of excavation works	Completion of excavation works

Stage	Issue	Mitigation Measures **	Cost	Institutional Responsibility *	Start date	End Date
CONSTRUCTION	Noise	• Construction activities will be carried out between 07:00 and 19:00 hours. The local authorities and people will be informed beforehand if any work is necessary beyond these hours. • Residents in close settlements will be informed throughout the construction process.. • Threshold values will be observed for continuous construction site noise (daytime - 70 dBA) (Regulation on the Evaluation and Management of Ambient Noise). In order to ensure this, the Substation will be surrounded by concrete protection walls and fences. • In addition, in case of level of noise rises, measures shall be taken, including avoiding the operation of work machines at the same time and using brand new vehicles to the extent possible in construction works since older vehicles would cause more noise.	No additional cost	Contractor	Start of construction works	Completion of construction works
	Excavation, solid and hazardous waste originating from the construction site	• Excavation wastes will be disposed of at the nearest excavation waste site authorized by Istanbul Metropolitan Municipality. • Solid wastes (metal, wooden and similar wastes originating from the use of construction materials) and package wastes (glass, paper, plastic, etc.) will be collected separately and will be taken by the Municipality or a licensed recycling firm. • Organic wastes of domestic nature will be taken by the Municipality and disposed of at the Sanitary Landfill. • Wastes like oil, paint, etc. will be collected separately in impermeable metal and tagged containers, and will be taken by a licensed recycling firm.	Not high, although it varies across municipalities and/or licensed recycling firms	Contractor	Start of construction works	Completion of construction works

Stage	Issue	Mitigation Measures **	Cost	Institutional Responsibility *	Start date	End Date
CONSTRUCTION	Wastes to originate from the vehicle park	• The maintenance of vehicles will not be carried out in the construction site to the extent possible. • The waste oils, grease, etc. from construction machines and vehicles, will be accumulated in stainless barrels and will be taken by licensed firms for disposal. • The barrels will be kept on an impermeable ground in a covered area to protect them from rain and sunlight. Necessary measures will be taken against fire risk. • The waste batteries, tires and similar materials to originate from the operation of machines and vehicles will be delivered to licensed firms for disposal.	Not high	Contractor	Start of construction works	Completion of construction works
	Health and safety	• The employees will be provided with all types of protective equipment (helmet, safety belt, labor health costume, eyeglasses, gloves, safety boot, etc.). • The employees will be trained about occupational health and safety. All the employees will be informed about the safety rules, risks and applicable regulations required to be complied with during the construction activities. • Risk assessment will be conducted and the measures to be taken in the construction site will be determined according to the results of risk assessment. • In case of any environmental/social or occupational or community health and safety incident (e.g. occupational accidents resulting in death or serious injury, environmental spills, etc.) at the construction site, the contractor will immediately inform TEIAS of the incident, and TEIAS will inform the World Bank thereof within 3 days. A detailed report on the accident (including a root-cause analysis, measures taken after the accident and compensation information) will be shared with TEIAS and the World bank within 30 days.	Within project budget	Contractor	Start of construction works	Completion of construction works

Stage	Issue	Mitigation Measures **	Cost	Institutional Responsibility *	Start date	End Date
	Traffic and pedestrian safety	• Necessary measures will be taken through the related authorities in order to ensure a safe flow of traffic. • Related stakeholders will be informed about the construction program. • Appropriate warning plates will be erected to ensure the safety of local people, reading for example "Caution", "Entrance Forbidden" etc.. • Speed limit rules will be complied with. • The vehicle drivers and work machine operators to be employed during the construction will be informed about safe drive. • Existing roads will not be damaged during the transportation activities. • In case existing roads are damaged during the traffic of heavy vehicles, the cost of damage will be compensated and covered by the contractor	Not high	Contractor	Start of construction works	Completion of construction works
	Landscaping	• The construction site will be restored to its previous state. • No hazardous, solid, liquid waste, construction waste, etc. will be left in the Substation site. • Translocation of trees to be removed form the project site.	Within project budget	Contractor	Completion of construction works	Commissioning of Substation
OPERATION	Transformer oils	• Unless compulsory, transformer oils will not be stored temporarily in the construction site. • If it has to be stored, it will be stored in stainless barrels placed on an impermeable ground. Its top will be covered to protect it from rain and sunlight. The area will be surrounded by fences and warning plates will be placed..	Not high	Contractor	Start of the storage of transformer oil	Transfer of oil to the transformer

Stage	Issue	Mitigation Measures **	Cost	Institutional Responsibility *	Start date	End Date
	Electromagnetic Field (EMF)	• The substation construction will be carried out according to world standards. • Grounding measurement will be conducted in case of a problem in grounding.	Not high	Contractor / TEIAS	Start of construction	Completion of the economic life of Substation
	Noise	• Measurements will be conducted if complaints are received from the resident living in nearby settlement units adjacent to the substation.	Not high	TEIAS	Commissioning of Substation	Completion of the economic life of Substation
	Health and Safety	• Employees will be provided with technical training and personal protective equipment. • Employees will be required to comply with all Occupational Health and Safety regulations, and required inspections will be conducted.	included in operation budget	TEIAS	Commissioning of Substation	Completion of the economic life of Substation
	Fire risk	• SF6 gas pressure, cable terminal caps, insulators, cable connection points and primary and secondary controls will be performed immediately in case of a fault in the Substation, or once every six months under normal conditions. • Transformers will be equipped with automatic fire extinguishing systems.	High	TEIAS	Commissioning of Substation	Completion of the economic life of Substation
	SF 6 Gas	• Gas pressure will be measured continuously in all sections throughout operation stage. • Employees will be trained on job hazards and occupational health and safety measures regarding SF6 gas and appropriate personal protectice equipment will be supplied.	included in operation budget	TEIAS	Commissioning of Substation	Completion of the economic life of Substation

** Applicable if these work items are assigned to any “Contractor” (Sub-Contractor). Otherwise, the responsibilities assigned to the Contractor will be undertaken by TEIAS.
*** When taking these measures, all applicable regulations will be complied with (Regulation on the Control of Air Pollution from Industrial Sources, Water Pollution Control

Regulation, Regulation on the Evaluation and Management of Ambient Noise, Regulation on the Excavation of Cesspools Where Sewage System Cannot be Built, Regulation on Control of Soil Pollution and Areas Contaminated by Point Sources, Regulation on the Control of Excavation Material, Construction and Demolition Wastes, Regulation on the Control of Packages and Package Wastes, Regulation on Grounding at Electrical Facilities, Occupational Health and Safety Regulation, Regulation on Health and Safety Signs, Regulation on the Use of Personal Protective Equipment at Workplaces, Regulation on Health and Safety Conditions on the Use off Work Equipment, Waste Management Regulation, etc.).

3. MONITORING PLAN

Environmental and social monitoring provides information on key environmental and social aspects during the implementation of project, particularly with regard to the effectiveness of measures taken and environmental and social impacts of the project. Such information enables the project owner and supervision mechanism to evaluate the success of measures which form part of project supervision and to allow for correct actions when necessary. Thus, the ESMP defines the objectives and types of monitoring in correlation with project measure criteria.

Table 5 Monitoring Plan

Stage	Subject	What are the parameters to be monitored?	Where will the parameters be monitored?	How will the parameters be monitored / what are the types of monitoring equipment?	When will the parameters be monitored? Measurement frequency / continuous measurement?	Why will the parameters be monitored?	Cost	Responsible institution	Start date	End date
CONSTRUCTION	Cultural and historical assets	New cultural assets that may be found in the project area	Construction site	Visual monitoring	When a cultural asset is encountered, it will be monitored by Cultural and Natural Assets Conservation Board officials.	Protection of cultural assets and compliance with Cultural and Natural Assets Conservation Law	Not high unless a cultural asset is damaged	Provincial Culture and Tourism Directorate	Start of construction activities	Completion of construction activities
	Dust-particulate matter	Dust to originate from the movement and exhaust gas of earth-moving and construction machinery (mg/Nm3) Complaints from public	Construction site	Visual monitoring Interviews in nearby settlements	During excavation Works / weekly during intensive construction period/upon complaint	Regulation on the Control of Air Pollution from Industrial Sources	No additional cost (within project budget)	TEIAS Provincial Environment and Urbanization Directorate	Start of construction activities	Completion of construction activities

Stage	Subject	What are the parameters to be monitored?	Where will the parameters be monitored?	How will the parameters be monitored / what are the types of monitoring equipment?	When will the parameters be monitored? Measurement frequency / continuous measurement?	Why will the parameters be monitored?	Cost	Responsible institution	Start date	End date
CONSTRUCTION	Noise	Noise level Complaints from public	Construction site	Measurement of noise level by noise meter (noise level meter) Interviews in nearby settlements	Weekly visual monitoring Upon complaint from public	Regulation on the Evaluation and Management of Ambient Noise	Not high	TEIAS Provincial Environment and Urbanization Directorate	Start of construction activities	Completion of construction activities
	Wastewaters originating from campsites	Connection to sewerage system Pollution, turbidity and odor in water in water and soil within Substation area	Connection to sewerage system and Substation area	Visual (monitoring whether wastewaters are discharged to unpermitted areas, whether the wastewaters are connected and discharged to the sewerage system, by documents and visually)	Weekly (sudden controls)	Compliance with the Water Pollution Control Regulation and Regulation on Control of Soil Pollution and Areas Contaminated by Point Sources	No additional cost (within project budget)	TEIAS Municipality	Start of construction activities	Completion of construction activities

Stage	Subject	What are the parameters to be monitored?	Where will the parameters be monitored?	How will the parameters be monitored / what are the types of monitoring equipment?	When will the parameters be monitored? Measurement frequency / continuous measurement?	Why will the parameters be monitored?	Cost	Responsible institution	Start date	End date
CONSTRUCTION	Excavation, solid and hazardous wastes originating from the construction sites and campsites	Odor, Visual pollution	construction sites and campsites, dump sites	Documentation check on waste management Visual	Weekly (sudden controls)	Protection of habitats, compliance with the Regulation on Control of Soil Pollution and Areas Contaminated by Point Sources, Waste Management Regulation, and Regulation on the Control of Waste Oils	Not high, although it varies across municipalities and/or licensed recycling firms Not high, although it varies across licensed recycling firms	TEIAS Contractor Municipality Provincial Environment and Urbanization Directorate	Start of construction activities	Completion of construction activities
CONSTRUCTION	Wastes to originate from the vehicle park	Wastes oils, batteries, used tires and scrap electronic vehicle materials	Vehicle park	Documentation check on waste management Review and control of vehicle examination certificates	In case of breakdown or during periodic maintenance	Disposal of waste in compliance with the Waste Management Regulation, Regulations on Control of Waste Oils, Control of Waste Batteries and Accumulators, and Control of Used Tires	Not high, although it varies across licensed recycling firms	Contractor	Start of construction activities	Completion of construction activities

Stage	Subject	What are the parameters to be monitored?	Where will the parameters be monitored?	How will the parameters be monitored / what are the types of monitoring equipment?	When will the parameters be monitored? Measurement frequency / continuous measurement?	Why will the parameters be monitored?	Cost	Responsible institution	Start date	End date
	Transformer oils	Leakages from the barrels where transformer oils are stored, used barrels (where they are stored, how they are sent to firms)	At the storage area if transformer oils will be stored	Documentation check on waste management Visual	Throughout storage period	Prevention of any leakage or spill in the area where the oils are stored	Not high	TEIAS	Start of storage	End of storage

Stage	Subject	What are the parameters to be monitored?	Where will the parameters be monitored?	How will the parameters be monitored / what are the types of monitoring equipment?	When will the parameters be monitored? Measurement frequency / continuous measurement?	Why will the parameters be monitored?	Cost	Responsible institution	Start date	End date
	Health and safety	Documentation about the health and safety training Certificates of participation in training Safety equipment used by the workers in the construction site (helmet, gloves, shoes, safety belt, etc.) Accident statistics	Construction sites	Documentation check on OHS Visual	At the beginning of each stage of work Daily Monthly	Compliance with the Occupational Health and Safety Regulation	No additional cost (within project budget)	TEIAS Contractor	Start of construction activities	Completion of construction activities

Stage	Subject	What are the parameters to be monitored?	Where will the parameters be monitored?	How will the parameters be monitored / what are the types of monitoring equipment?	When will the parameters be monitored? Measurement frequency / continuous measurement?	Why will the parameters be monitored?	Cost	Responsible institution	Start date	End date
CONSTRUCTION	Landscaping	Wastes (excavation, solid, liquid, hazardous etc.) Reinstatement of the construction site and translocation of the trees to be removed from the project site	Substation site Areas where trees are translocated	Documentation check on waste management Visual	During closure of construction site	Compliance with the Environment Law and regulations	No additional cost (within project budget)	TEIAS Contractor	Before start of construction activities	Start of construction activities
OPERATION	Noise	Noise level Public complaint	At the border of substation Nearby settlements	Interviews with residents in nearby settlements	Upon complaint (when necessary)	Verification of whether the values specified in the Regulation are satisfied	Not high	TEIAS	Commissioning of Substation	Completion of the economic life of Substation
	EMF	Substation wall/fence distances Substation equipment purchase documents Grounding resistance (ohm)	inside and around the substation	Visual monitoring Interviews with residents in nearby settlements Grounding measurement	Before the Commissioning of substation When grounding problem occurs	Verification of whether the national and international reference values are satisfied	Not high	TEIAS	Commissioning of Substation	Completion of the economic life of Substation

Stage	Subject	What are the parameters to be monitored?	Where will the parameters be monitored?	How will the parameters be monitored / what are the types of monitoring equipment?	When will the parameters be monitored? Measurement frequency / continuous measurement?	Why will the parameters be monitored?	Cost	Responsible institution	Start date	End date
	Health and safety	Technical and OHS Training (Operation and Maintenance) Protective equipment and clothes (whether they are used by employees)	at the substation site	Documentation check on OHS Visual	Throughout operation (at appropriate intervals)	Compliance with all occupational health and safety regulations	No additional cost (within operation budget)	TEIAS	Commissioning of Substation	Completion of the economic life of Substation

Stage	Subject	What are the parameters to be monitored?	Where will the parameters be monitored?	How will the parameters be monitored / what are the types of monitoring equipment?	When will the parameters be monitored? Measurement frequency / continuous measurement?	Why will the parameters be monitored?	Cost	Responsible institution	Start date	End date
	Fire risk	SF6 gas pressure, Cable terminal caps, insulators, cable connection points Primary and secondary controls	at the substation site	Technical tests performed by control teams and standard maintenance activities	Biannually /when there is a fault or breakdown, when the electrical system requires	due to fire risk compliance with the fire safety principles set out in the Electrical Power Current Facilities Regulation; repair the broken and worn-out parts, reduce accident risk and prevent outages	No additional cost (within operation budget)	TEIAS	Commissioning of Substation	Completion of the economic life of Substation

Stage	Subject	What are the parameters to be monitored?	Where will the parameters be monitored?	How will the parameters be monitored / what are the types of monitoring equipment?	When will the parameters be monitored? Measurement frequency / continuous measurement?	Why will the parameters be monitored?	Cost	Responsible institution	Start date	End date
	SF6 Gas	SF6 gas pressure	all sections	Barometer	Throughout operation (continuous)	…	No additional cost (within operation budget)	TEIAS 1st Regional Directorate	Commissioning of Substation	Completion of the economic life of Substation

Stage	Subject	What are the parameters to be monitored?	Where will the parameters be monitored?	How will the parameters be monitored / what are the types of monitoring equipment?	When will the parameters be monitored? Measurement frequency / continuous measurement?	Why will the parameters be monitored?	Cost	Responsible institution	Start date	End date
	Transformer oils	Characteristic features of the oil (density, acidity, fluidity, flaring point, corrosive sulfur, PCB, color)	At the transformers	Test method	Once every 2 years / daily, weekly, monthly due to a breakdown	Control of oil quality	No additional cost (within operation budget)	TEIAS	Commissioning of Substation	Completion of the economic life of Substation

Stage	Subject	What are the parameters to be monitored?	Where will the parameters be monitored?	How will the parameters be monitored / what are the types of monitoring equipment?	When will the parameters be monitored? Measurement frequency / continuous measurement?	Why will the parameters be monitored?	Cost	Responsible institution	Start date	End date
OPERATION	Solid and hazardous wastes to be generated during operation stage (battery, waste oil)	Pollution within substation area (wastes, odor, etc.) Faulty equipment wastes Pollutants in waste transformer oils (arsenic, cadmium, lead, total halogens, PCB, flaring point)	at the substation site	Documentation check on waste management Visual Test method	Throughout operation When equipment breaks down, completes economic life When transformer oil complete their economic life	Protection of habitats, compliance with the Waste Management regulation, Regulation on Control of Soil Pollution and Areas Contaminated by Point Sources, Waste Management Regulation, and Regulation on the Control of Waste Oils Compliance with Regulation on the Control of Waste Oils	Not high, although it varies across municipalities and/or licensed recycling firms Not high, although it varies across measurement firms	TEIAS Municipalities Provincial Environment and Urbanization Directorate	Commissioning of Substation	Completion of the economic life of Substation

4. INSTITUTIONAL ARRANGEMENTS

This section provides information on the measures to be taken and the institutional roles and procedures for monitoring, their linkages with environmental management, environmental information flow, and decision making hierarchy on environmental management, and discusses the way how monitoring data will be used to ensure a reliable environmental performance.

4.1 The measures to be taken and the institutional roles and procedures for monitoring, their linkages with environmental management

The "Mitigation Measures Plan", which covers the measures to be taken to minimize the potential negative impacts to arise from the activities to be carried out during the planing/design, construction and operation stages of 380/154 kV Deri OIZ GIS Substation Project, is presented in Section 2, and the "Monitoring Plan" prepared to check the implementation conditions of the principles and procedures specified in the Mitigaiton Measures Plan is presented in Section 3. These plans also specify the agencies and institutions responsible for the referred actions. The Mitigation Measures and Monitoring Plans are the key components of the Environmental and Social Management Plan prepared within the framework of thee "Political, Legal and Administrative Framework" section of Environmental Impact Assessment reports.

Legal Framework

Environmental Law No. 2872 which was published in the Official Gazette of the Republic of Turkey issue 18132 dated 11 August 1983 and amended in the Official Gazette dated 29 May 2013 (Law No. 6486) sets the basic legal framework for environmental legislation in Turkey. Article 10 of Environmental Law serves as the main framework for the Environmental Impact Assessment Regulation (ÇED/EIA Regulation) published in the Official Gazette Issue 29186 dated 25 November 2014. However, substations are not considered within the scope of the Turkish EIA Regulation. Therefore, substations are excluded from the EIA process. Apart from that, as part of the European Union accession procedures, Turkey has realized numerous institutional and legal reforms. The regulations which must be adhered to within the scope of the project are listed herebelow.

- Regulation on the Control of Waste Oils, published in the Official Gazette Issue 26952 dated 30 July 2008 and amended in the Official Gazette Issue 28812 dated 5 November 2013;
- Regulation on the Control of Waste Vegetable Oils, published in the Official Gazette Issue 29378 dated 6 June 2015;
- Regulation on the Control of Packaging Wastes, published in the Official Gazette Issue 28035 dated 24 August 2011;
- Regulation on the Control of Waste Batteries and Accumulators, published in the Official Gazette Issue 25569 dated 31 August 2004 and amended most recently in the Official Gazette Issue 28812 date 5 November 2013;
- Regulation on the Control of Medical Waste, published in the Official Gazette Issue 25883 dated 22 July 2005 and amended most recently in the Official Gazette Issue 28948 dated 21 March 2014;
- Regulation on the Control of Excavated Soil, Construction Wastes and Debris, published in the Official Gazette Issue 25406 dated 18 March 2004 and amended in the Official Gazette Issue 27533 dated 26 March 2010;
- Regulation on the Control of End-of-Life Tires, published in the Official Gazette Issue 26357 dated 25 November 2006 and amended most recently in the Official Gazette Issue 29292 dated 11 March 2015;
- Sanitary Landfill Regulation, published in the Official Gazette Issue 27533 dated 26 March 2010 and amended most recently in the Official Gazette Issue 29292 dated 11 March 2015;
- Communique on the Recovery of Some Non-Hazardous Wastes, published in the Official Gazette Issue 27967 dated 17 June 2011 and amended in the Official Gazette Issue 29292 dated 11 March 2015;
- Control of Waste Electrical and Electronic Devices, published in the Official Gazette Issue 28300 dated 22 May 2012;
- Regulation on the Control of Soil Pollution and Sites with Point-Source Pollution, published in the Official Gazette Issue 27605 dated 8 June 2010 and amended in the Official Gazette Issue 28704 dated 7 June 2013;
- Regulation on the Control of Water Pollution, published in the Official Gazette Issue 25687 dated 31 December 2014;
- Regulation on the Monitoring of Surface Waters and Ground Waters, published in the Official Gazette Issue 28910 dated 11 February 2014;

- Regulation on the Protection of Ground Waters Against Pollution and Deterioration, published in the Official Gazette Issue 28257 dated 07 April 2012;
- Regulation on Amendments to the Regulation on the Control of the Pollution Caused by Hazardous Materials In and Around Waters, published in the Official Gazette Issue 26005 dated 26 November 2005;
- Regulation on Waters Intended for Human Consumption, published in the Official Gazette Issue 25730 dated 17 February 2005;
- Regulation on Urban Waste Water Treatment, published in the Official Gazette Issue 26047 dated 01 January 2006;
- Regulation on the Evaluation and Management of Air Quality, published in the Official Gazette Issue 26898 dated 06 June 2008;
- Regulation on the Evaluation and Management of Ambient Noise, published in the Official Gazette Issue 27601 dated 04 June 2010;
- Law on Ground Waters (Law No. 167), published in the Official Gazette Issue 10688 dated 23 December 1960;
- Law on the Protection of Cultural and Natural Heritage (Law No. 2863), published in the Official Gazette Issue 18113 date 23 July 1983;
- Highway Traffic Law (Law No. 2918), published in the Official Gazette Issue 18195 dated 18 October 1983;
- Regulation on Road Traffic, published in the Official Gazette Issue 23053 dated 18 July 1997;
- Turkey Building Earthquake Regulation, published in the Official Gazette Issue 30364 dated 18 March 2018;
- Regulation Pertaining to Cesspits to be Built in Places where the Construction of a Sewerage System Is Not Possible, published in the Official Gazette Issue 13783 dated 19 March 1971.
- Law No. 6331 on Occupational Health and Safety published in the Official Gazette Issue 28339 dated 30 June 2010 and the relevant legislation.

Some of the legal arrangements in Turkey within the scope of expropriation works are also listed herebelow:

- Expropriation Law No. 2942 published in the Official Gazette Issue 18215 dated 8 November 1983 and the relevant legislation

- Law No. 4650 on Amendments to the Expropriation Law published in the Official Gazette Issue 24393 dated 5 May 2011

Requirements of the Turkish Environmental Legislation and Procedures and of World Bank Operational Policies (World Bank Principle OP/BP/GP 4.01 (Environmental Assessment), OP/BP 4.04 (Natural Habitats), OP/BP 4.11 (Physical Cultural Resources),OP 4.12 (Involuntary Resettlement) which are the four principles which commence environmental policies during project planning) shall be met, the basic differences between requirements in Turkey and World Bank requirements shall be determined and steps shall be taken to fill such gaps.

Environmental Assessment Policy OP. 4.01

Projects under the Environmental Assessment System of the World Bank (OP. 4.01) are classified as Category A, B, or Category C in view of the estimated potential risk.

Category A projects are those that can negatively impact environmentally and socially-important areas such as humans, forest areas and other natural habitats. These impacts, in general, are large scale impacts and irreversible, sensitive, diverse, cumulative, exemplary and might be impacting an area that is in effect larger than the location and facility financed under the project.

Category B can include projects with a variety of potential environmental and social challenges on a larger scale.

Category C projects include no activities that might have a negative impact on the environment. Thanks to the integration of good practices, potential impacts of such projects in this category can be almost zeroed-out.

Deri OIZ Substation Project is considered to be of a Category B or lower risk classification.

The World Bank Operational Policy OP 4.11 on Physical Cultural Resources

Cultural assets are critical for economic and social development, hence shall be taken into consideration in all project practices. Potential impacts are demonstrated as integral parts of the environmental assessment process. TEIAS is responsible for the prevention or mitigation of the impact of financed projects on physical or cultural resources. Therefore, TEIAS shall meet all the requirements of the legislation in Turkey.

Moreover, the measures to be taken in the event of a chance-find of any cultural asset and the follow-up to be carried out is explained in the ESMP.

The World Bank Operational Policy OP 4.04 on Natural Habitats

There is the possibility that construction works within the scope of the project can affect critical or not-critical natural (as per the definition in OP 4.01) habitats. It has no significant impact on an accepted critical natural habitat or ecosystem.

World Bank Operational Policy OP 4.12 on Involuntary Resettlement

TEIAS acquires the immovables which coincide with transmission facilities by way of expropriation as per the national legislation. Since land acquisition impacts the owners of such immovables, the situation is considered within the scope of World Bank's involuntary resettlement policy (OP 4.12). Even though OP 4.12 policy implementations encompass involuntary resettlement, people are not displaced in TEIAS' expropriation procedures. That being said, sensitivities set forth by OP 4.12 are taken into consideration in World Bank loan projects.

4.2 Environmental Information Flow (Reporting, by whom, to whom and how often reports will be submitted, etc.)

To create and implement a well-functioning environmental management plan, the principles applicable to monitoring data must be established very well. In this context, the published national regulations and communiqués must be observed. In Turkey, the "Environmental Impact Assessment Regulation", published in the Official Gazette no. 29186 dated November 25, 2014, is taken as a basis as regards environmental management. The 380/154 kV Deri OIZ GIS Substation Project is considered to be outside the scope of the referred Regulation.

All actions to be taken within the framework of the project will be compliant with the Environment Law No. 2872 and the applicable regulations. In addition, the relevant World bank (WB) policies will also be complied with respect to environmental and social management.

The measures included in the Environmental and Social Management Plan will be monitored by the contractor or an environmental consultant to be hired by the contractor. The monitoring reports to be created by collecting monitoring data will be submitted to the project owner (TEIAS) on a quarterly basis. The related Regional Directorate of TEIAS (4th Regional Directorate) verifies that the data presented in reports are correct (by reviewing the validity of data on site). Then the checked reports will be submitted to TEIAS Directorate General (Ankara) for control and approval. The report will then be submitted to the World Bank if it is approved by TEIAS Directorate General (Environment and Expropriation Department).

The environmental information flow contemplated for the planned construction projects is shown below.

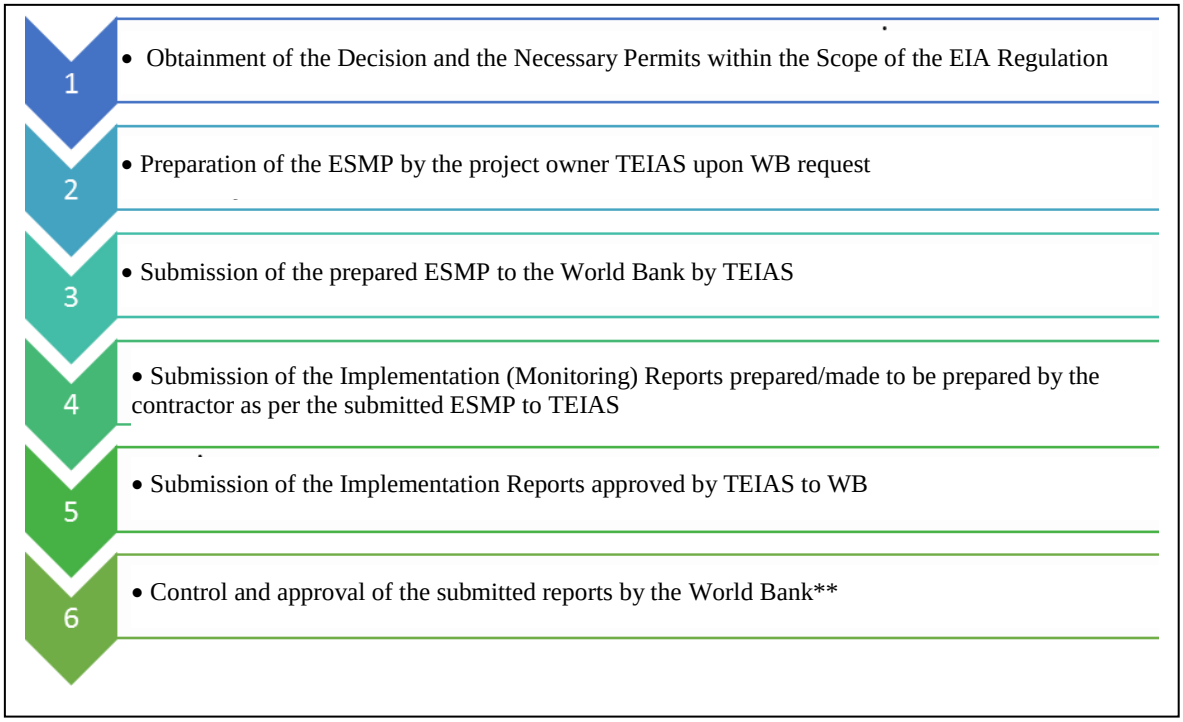

Figure 7: Environmental Information Flow

4.3 Project's Environmental Information Flow

The environmental information flow contemplated for the planned 380/154 kV Deri OIZ GIS Substation Project is shown below.

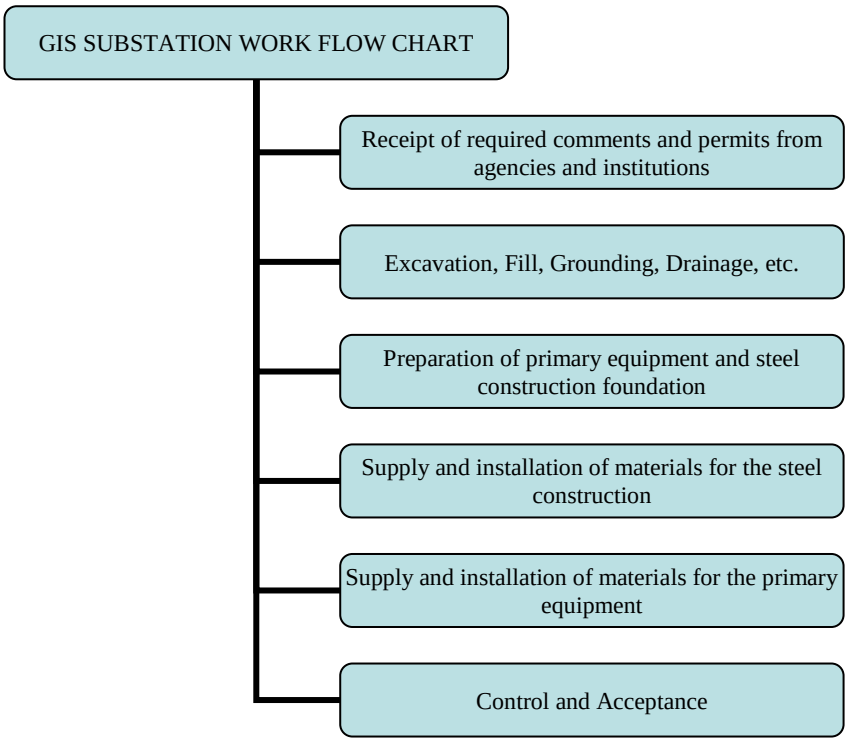

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Figure 8 Environmental Information Flow

Once the proposed project proceeds into the construction stage, the project owner (TEIAS) will supervise the performance of contractor in complying with the ESMP provisions, together with its Regional Directorates. In this scope, the contractor is obliged to comply with the requirements set out in the Mitigation Measures and Monitoring Plan, and shall report construction activities periodically (quarterly) to TEIAS.

The Environmental and Social Management Plan Implementation report prepared/made to be prepared by the Contractor on a quarterly basis shall be submitted to the relevant Reigonal Directorate. The responsible person at the relevant Regional Directorate shall review the validity of the report on site and then the report shall be submitted to Directorate General along with comments from the Regional Directorate. The report as examined by the

Directorate General shall then be submitted to the World Bank upob being approved. Revisions may be requested from the contractor during the examination of the reports.

The World Bank reviews the site-specific environmental and social documents prepared and approves the instruments. The compliance with the mitigation and monitoring measures committed by TEIAS are followed up through support missions, when necessary. Furthermore, TEIAS is to provide site-specific implementation monitoring reports to World Bank on quarterly basis.

Table 6 Organization Table

Activity	Institutional Responsibility
Collection of Monitoring Data Construction	The measures included in the Environmental and Social Management Plan will be monitored by the contractor or an environmental consultant to be hired by the contractor. The monitoring reports to be created by collecting monitoring data will be submitted to the project owner (TEIAS) on a quarterly basis.
Data Analysis Construction	The related Regional Directorate of TEIAS (4th Regional Directorate) verifies that the data presented in reports are correct (by reviewing the validity of data on site). Then the checked reports will be submitted to TEIAS Directorate General (Ankara) for control and approval. The report will then be submitted to the World Bank if it is approved by TEIAS Directorate General (Environment and Expropriation Department).
Management Construction	If something illegal or non-compliant with regulations is observed, the Ministry of Environment and Urbanization is authorized to stop activities or change operations.
Operation	Maintenance and repair activities will be carried out and recorded by TEIAS periodically and/or whenever needed, in compliance with the operational standards.

5. INTERVIEWS AND CONSULTATIONS WITH PROJECT AFFECTED GROUPS AND STAKEHOLDERS

Aydinli neighborhood of the Tuzla district of Istanbul province has been identified as the target local people who may be potentially affected negatively in terms of environmental aspects, from the proposed 380/ 154 kV Deri OIZ GIS Substation.

Even though the Turkish Legislation does not have sufficient provisions with regard to public consultation and information on land acquisition, for the subject project, TEIAS has provided the necessary environmental and social information to the headmen with a view to informing the affected groups and a Public Information Brochure (Annex-C) and draft ESMP have been prepared and submitted to Nevzat Özsoy, the Headman of Aydinli neighborhood, for review, objections and suggestions, on April 17, 2017 (Annex-H). This process was made public on the official website of TEIAS on April 17,0 2017 (http://www.teias.gov.tr) (Annex-E). Within the scope of the grievance mechanism of the project, it was made sure that the affected individuals were provided with the names and contact information of the people they can contact with.

The neighborhood headman stated on May 02, 2017 that no feedback has been provided about the subject project (Annex-D).

The “TEIAS Stakeholder Relations Grievance and Demand Management Procedure” prepared by TEIAS Directorate of Corporate Communication was published within the scope of quality management.

Grievance Redress Mechanism

The environmental and social activities supported by a grievance redress mechanism established by TEIAS are notified to the affected individuals prior to the project. The system allows for proper recording of the grievances, concerns and demands of affected individuals and the timely consideration thereof.

Various issues ranging from the environmental impacts over the areas coinciding with project components to the issue of compensation can be the subject of grievances. TEIAS

will provide the suitable procedures to relieve the suffering of affected individuals in a timely and satisfactory manner and without causing any victimization.

Through the project duration, TEIAS will make the necessary efforts to amend the project grievance mechanism during any and all kinds of briefings and negotiations with the affected individuals and settlements. During the construction, TEIAS may assign an accessible point of contact (name / position) to whom all kinds of issues pertaining to the project (concerns, grievances and similar demands) can be communicated. This person shall be responsible for keeping records of the filed grievances. TEIAS and its Regional Directorate shall ensure that all grievances are addressed and resolved in a timely manner and in line with the requirements of World Bank Policy.

Contact numbers of both our establishment and the authorized officers and the address of our establishment was given to headman's offices. The people were informed that for any kind of information, the Expropriation Head Engineer and officers of the expropriation department can be reached at 0 (216)-521 58 00.

Grievances shall be addressed firstly at the local offices opened by TEIAS. A grievance mechanism was established as illustrated in the below provided table.

Table 7 Grievance Mechanism

Level	Authority	Manner of Application	What Is Done	Duration
1	**TEIAS 4.Regional Directorate** N.Kemal Mah.Sütçü Cad.Şeker Maslak Sok.No:9 PK:18 34762 Ümraniye/İSTANBUL **Phone:** 0 (216)-521 58 00 (3 HAT) **Fax:** 0 (216)-328 11 93	Face-to-face, phone call, written correspondence	Question or grievance is evaluated. Feedback is provided to the individual. If no resolution is found, s/he is directed to legal remedy.	1 week
2	**TEIAS General Directorate Department of Environment and Expropriation** Nasuh Akar Mah. Türkocağı Cad. No:2/14 Çankaya/ANKARA	Phone call, written correspondence, e-mail	Question or grievance is evaluated. Feedback is provided to the individual. If no resolution is found, s/he is directed to legal remedy.	2 weeks

	Tel : 0 312 203 86 11 Fax : 0 312 203 87 17			
3	Relevant Civil Court of First Instance	Written correspondence	In line with the legislation	In line with the legal duration

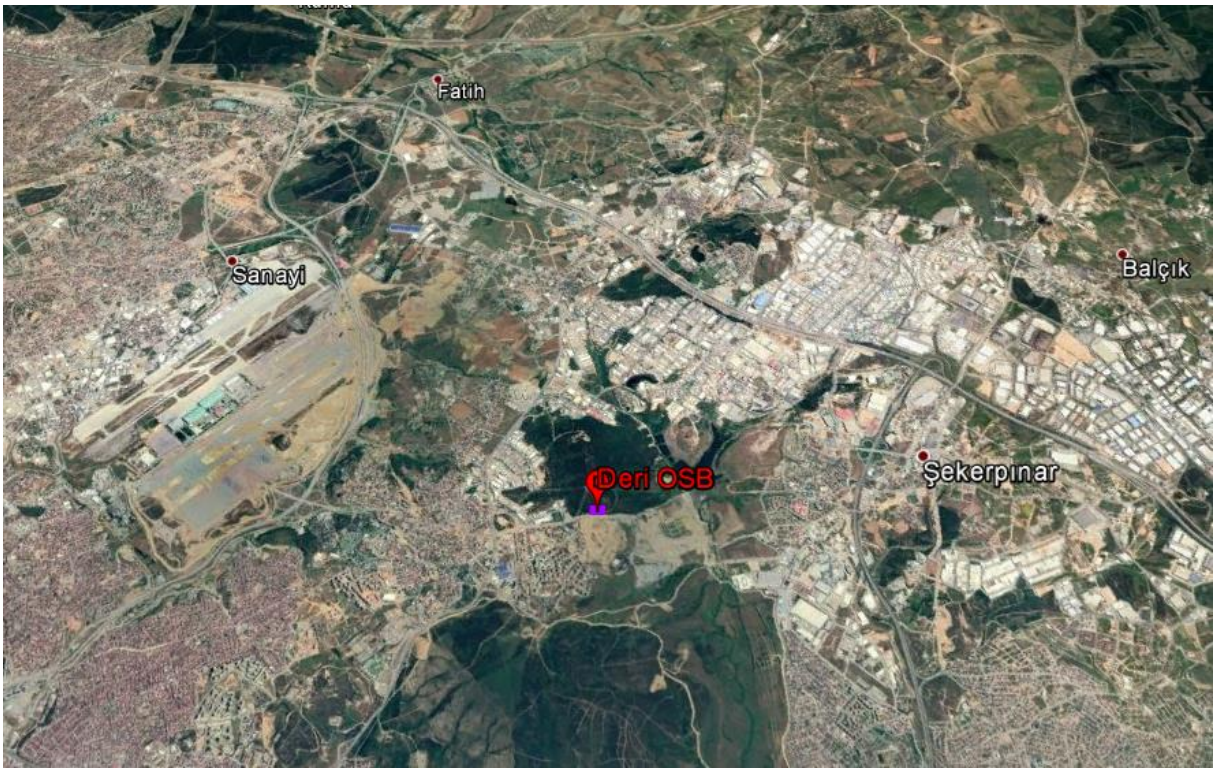
The people have been informed that they could apply to TEIAS Directorate General or 4th Regional Directorate in case they have any compliant or want to obtain any information during the project's construction and operation stages. The necessary contact details (phone number, fax number, address, etc.) have been shared with the neighborhood headman.

ANNEXES

LIST OF ANNEXES

Annex-A

Satellite Images and Photos


Fatih
Sanayi
Balçık
Deri OSB
Şekerpınar


Deri OSB


Deri OSB

Annex-B

Pictures of Existing GIS Substations


AÇIK ŞALT


GIS TM
TEİAŞ
ISUZU


GIS TM


GIS TM

Annex-C

Public Information Brochure and Minutes

Atıkların Bertarafı :

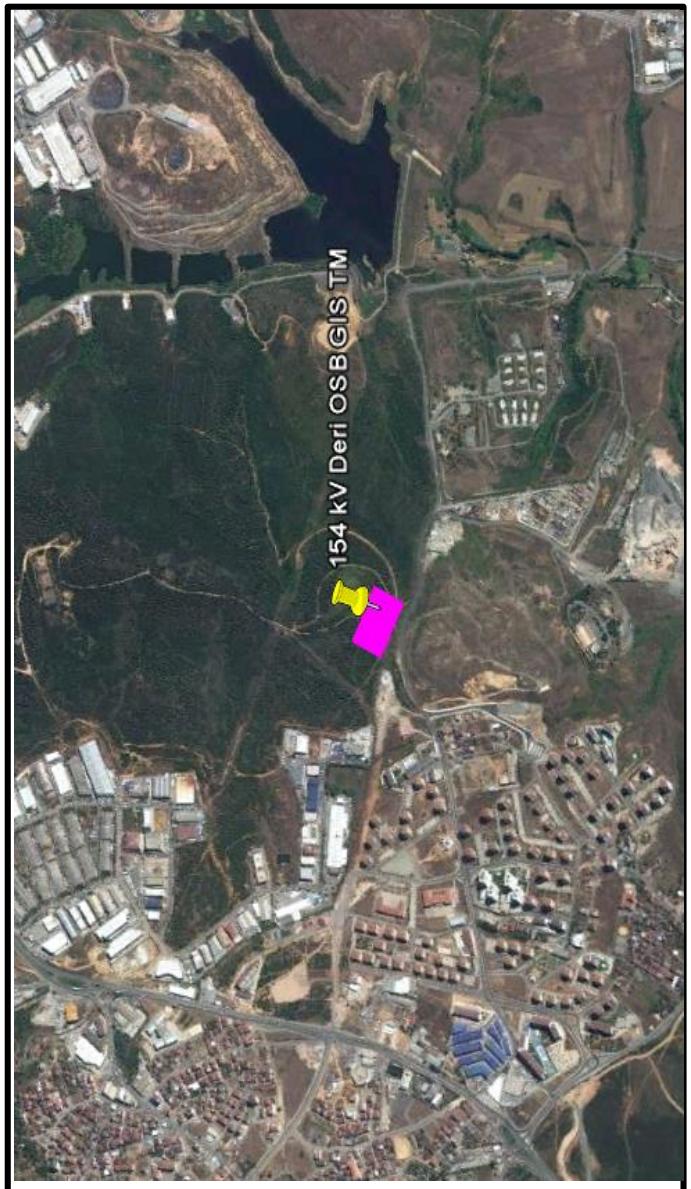
- Personelden kaynaklanacak atıksular, kanalizasyon sistemine verilecek, sistemin olmaması durumunda ise sızdırmaz foseptik çukurlarda toplanacaktır.

- İnşaat alanındaki katı atıklar ayrı ayrı konteynırlarda toplanacak ve en yakın belediye tarafından alınması sağlanacaktır.

- Kazı işlemlerinden kaynaklanacak hafriyat, inşaat alanında dolgu malzemesi olarak kullanılacaktır. Hafriyat atığı oluşması durumunda ise belediyenin göstereceği alana boşaltılacaktır.

Hava Kirliliği

- İnşaat aşamasında mümkün olduğunca yeni iş makineleri kullanılacaktır.
- Toz oluşumunu önlemek için gerekli hallerde inşaat alanı düzenli olarak sulanacak ve kamyonların üzeri kapalı tutulacaktır.
- Araçların egzoz emisyon ölçümleri düzenli olarak yaptırılacaktır.

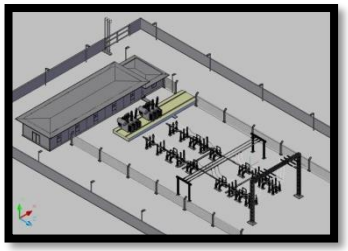


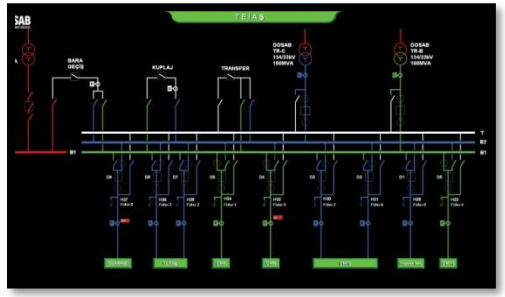
TEİAŞ Genel Müdürlüğü
Çevre ve Kamulaştırma Dairesi Başkanlığı
Nasuh Akar Mah. Türkocağı Cad. No:2/14 Çankaya/ANKARA
Tel : 0 312 203 86 11 Fax : 0 312 203 87 17

TEİAŞ 4. İletim Tesis ve İşletme Grup Müdürlüğü
Namık Kemal Mah. Sütçü İmam Cad. Şeker Maslak Sok.No:24
34762 Ümraniye/İSTANBUL
Tel : +90 216-521 58 00 Fax : +90 216-328 11 93

TEİAŞ

Türkiye Elektrik İletim Anonim Şirketi
Genel Müdürlüğü
Çevre ve Kamulaştırma
Dairesi Başkanlığı





154 kV DERİ OSB GIS TM (GAZ İZOLELİ SİSTEM TRAFO MERKEZİ)

HALKI BİLGİLENDİRME BROŞÜRÜ

ISTANBUL İLİ TUZLA İLÇESİ

Projenin Tanımı ve Amacı

Projenin Tanımı:154 kV Deri OSB GIS TM Projesinin, mülkiyeti Maliye Hazinesine ait 1.761.233,89 m2 'lik Aydınlı 4457 parselde ~ 16000 m2 'lik alan üzerine DB kredisi kapsamında tesis edilmesi planlanmaktadır.

Projenin Amacı :

İstanbul Deri OSB Müdürlüğü'nün enerji taleplerinin yanısıra, İstanbul ili, Tuzla ilçesi ve Kocaeli ili, Gebze ilçesinin enerjiarz güvenliğinin sağlanması amaçlanmaktadır. Önerilen projenin faaliyete geçmesi ile birlikte hem bölge hem de ülke ekonomisinin olumlu yönde etkilenmesi beklenmektedir.

Projenin Aşamaları

- Ön Etüt ve Yer Belirleme Çalışmaları
- Çevresel Etki Değerlendirmesi ve Çevre Yönetim Planının Hazırlanması
- İlgili Kurumlardan Gerekli İzinlerin Alınması
- İnşaat (Tesis)
- İşletme

Projenin Çevresel Etkileri ve Alınacak Önlemler

Projenin çevresel etkileri, GIS merkezi ve çevresi incelenerek değerlendirilmektedir.

Emniyet Açısından Tasarım ve İnşaat

Trafo Merkezi (GIS Merkezi) tamamıyla diğer altyapı tesislerine zarar vermeden, yürürlükte olan Yönetmelik, Şartnameler ve Dünya Standartları doğrultusunda gerekli emniyet mesafeleri korunarak tesis edilmektedir. Tesisin projelendirme, inşaat ve işletme aşamalarının tamamında "Elektrik Kuvvetli Akım Tesisleri Yönetmeliği"'ne bağlı kalınmaktadır.

Trafo Merkezini oluşturan tüm teçhizat (trafo, kesici, ayırıcı, parafudur, akım gerilim trafosu vb.) International Electric Commission (IEC) 60076-10 Standartlarına uygun olarak temin edilmekteve teçhizatlar işletme öncesi ve işletmeye alınma aşamasında "Tip testler", "Özel testler", "Rutin testler" ve "Saha testleri"ne tabi tutulmaktadır. Tüm bu testlerden sonra hat ve trafo merkezi enerjilendirilmekte ve işletmeye alınmaktadır.

Trafo Merkezinin etrafına duvar ve fens yapılarak bu alana giriş, yaklaşım, yerleşim gibi olası durumlar ve olumsuz etkiler için önlem alınacaktır. Ayrıca TM etrafına uyarı levhaları ve tırmanma engelleri yerleştirilecektir.

Gürültü :

- İnşaat çalışmaları gündüz saatlerde (07:00-19:00) yürütülecektir.
- Kullanılacak iş makinelerinin düzenli bakımları yapılarak ilgili yönetmelikte belirtilen sınır değerlerin aşılmaması sağlanacaktır.
- Aynı anda mümkün olduğunca az sayıda aracın kullanılmasına özen gösterilecektir.

Elektro Manyetik Alan (EMA) :

- İyonlaştırıcı Olmayan Radyasyonun Olumsuz Etkilerinden Çevre Ve Halkın Sağlığının Korunmasına Yönelik Alınması Gereken Tedbirlere İlişkin Yönetmeliği değerleri altında kaldığı belirlenmiştir.

TUTANAK

Türkiye Elektrik İletim Anonim Şirketi (TEİAŞ) 2017 yılı Yatırım Programında 17.D.00.0980 proje numarası ile yer alan ve Dünya Bankası "Yenilebilir Enerji Entegrasyonu" kredi paketi kapsamında tesis ve işletmesi planlanan 154 kV DERİ OSB GIS (Gaz İzoleli Sistem) Trafo Merkezi projesinin "Dünya Bankası tarafından Türkiye'de Finanse edilen Yenilenilir Enerji Entegrasyon Projesi için Çevresel İnceleme Çerçeve Dokümanı" kapsamında belirtilen süreç içerisinde halkı proje kapsamında bilgilendirmek, görüş ve önerilerini almak üzere ilgili Muhtarlıklara projeye ait broşür ve Taslak Çevre Yönetim Planı (ÇYP) dokümanlarının tutanla teslim edilmesi gerekmektedir.

Bu itibarla söz konusu projeye ait tanıtım broşürü ve çevre yönetim planı, İstanbul İli, Tuzla İlçesi Aydınlı Mahallesi Muhtarlığına teslim edilmiştir.

İş bu tutanak aşağıda isimleri bulunanlar arasında 12/04/2017 tarihinde 3 nüsha olarak imza altına alınmıştır.

TEİAŞ 4. Bölge Müdürlüğü Adına

Teslim Eden

Yavuz AKDENİZ
Şehir ve Bölge Planlısı

Aydınlı Mahallesi Muhtarlığı Adına

Teslim Alan

T.C.
AYDINLI
MAHALLE MUHTARI
NEVZAT ÖZSOY

Annex-D

Minutes of Feedback

TUTANAKTIR

Halkın bilgilendirilmesi, görüş ve önerilerini belirtmesi amacıyla tarafımıza broşürleri ve taslak çevre yönetim planları iletilen **"154 kV Deri OSB GIS Trafo Merkezi (TM)"** projesi için;

X	Herhangi bir geri dönüş olmamıştır.
	Geri dönüşler aşağıdaki hususları kapsamaktadır. (İlgili evrak, dilekçe, belge vb.)

•

02.05.2017

4. BÖLGE **MÜDÜRLÜĞÜ PERSONELI**

Yavuz AKDENİZ
Şehir ve Bölge Plancısı

İLGİLİ MUHTAR

AYDINLI
MAHALLE MUHTARI
NEVZAT ÖKSOY

İZMİR BÜYÜKŞEHİR BELEDİYESİ GÜZELBAHÇE İLÇESİ AYDINLI MAHALLESİ MUHTARLIĞI

Annex-E

Visuals of Web Announcement

http://www.teias.gov.tr/ TÜRKİYE ELEKTRİK İLETİM ...

Düzen Görünüm Sık Kullanılanlar Araçlar Yardım

Bilgi Edinme Başvurusu
Duyurular
Kurumsal E-Posta
Site Haritası
Maaş Bordroları
TEİAŞ Spor Kulübü

TEİAŞ KAPASİTE İHALE SİSTEMİ

Türkiye Elektrik İletim Sistemi Gerçek Zamanlı Bilgileri

e - anket

ANASAYFA EĞİTİM ELEKTRİK İSTATİSTİKLERİ

1 2 3 4

HABERLER

- TEİAŞ TÜRKİYE ELEKTRİK İLETİM A.Ş. 2015 YILINDA EN FAZLA VERGİ ÖDEYEN KURUMLAR Lİ
- **BASIN DUYURUSU: SON GÜNLERDE KONYA İLİNDE MEYDANA GELEN ELEKTRİK K**
  BASIN ORGANLARINDA ÇIKAN 'SİBER DARBE' ŞEKLİNDEKİ HABERLERE İLİŞKİN BA
- TEİAŞ 2015 YILI VERİLERİNE GÖRE HAZIRLANAN FORTUNE 500 2016 LİSTESİNDE, 2014 YILI FORTUNE 500 2015 LİSTESİNDE OLDUĞU GİBİ, YİNE 5 NCİ SIRADA YER ALMA BAŞARISINI GÖ
- 48 Yıldır Teşekkülümüzün Danışmanlığını Yapan Ordinaryüs Prof. Francesco ILICETO Vefat Etmi
- 2016 SPOR TOTO KAMU FUTBOL TURNUVASI
- 23. DÜNYA ENERJİ KONGRESİ (WEC2016)

DUYURULAR (Tüm Duyurular)

154 kV Deri OSB GIS TM Proje İlanı	17.04.2017
Bölgesel Kapasite Kiralama Hizmeti Kapsamında İstanbul İli Yenikapı Bölgesinde Konuşlandırılacak 90 MW Gücünde Mobil (Yüzer) Santral Hizmet Alınması İşi	12.04.2017
Elektrik Piyasasında Lisanssız Elektrik Üretimine İlişkin Yönetmelik Kapsamında Kapasite Tahsis Tablosu-Nisan 2017	03.04.2017
154 kV Atışalanı TM Aksaray TM Yeraltı Kablosu Projesi İlanı	31.03.2017

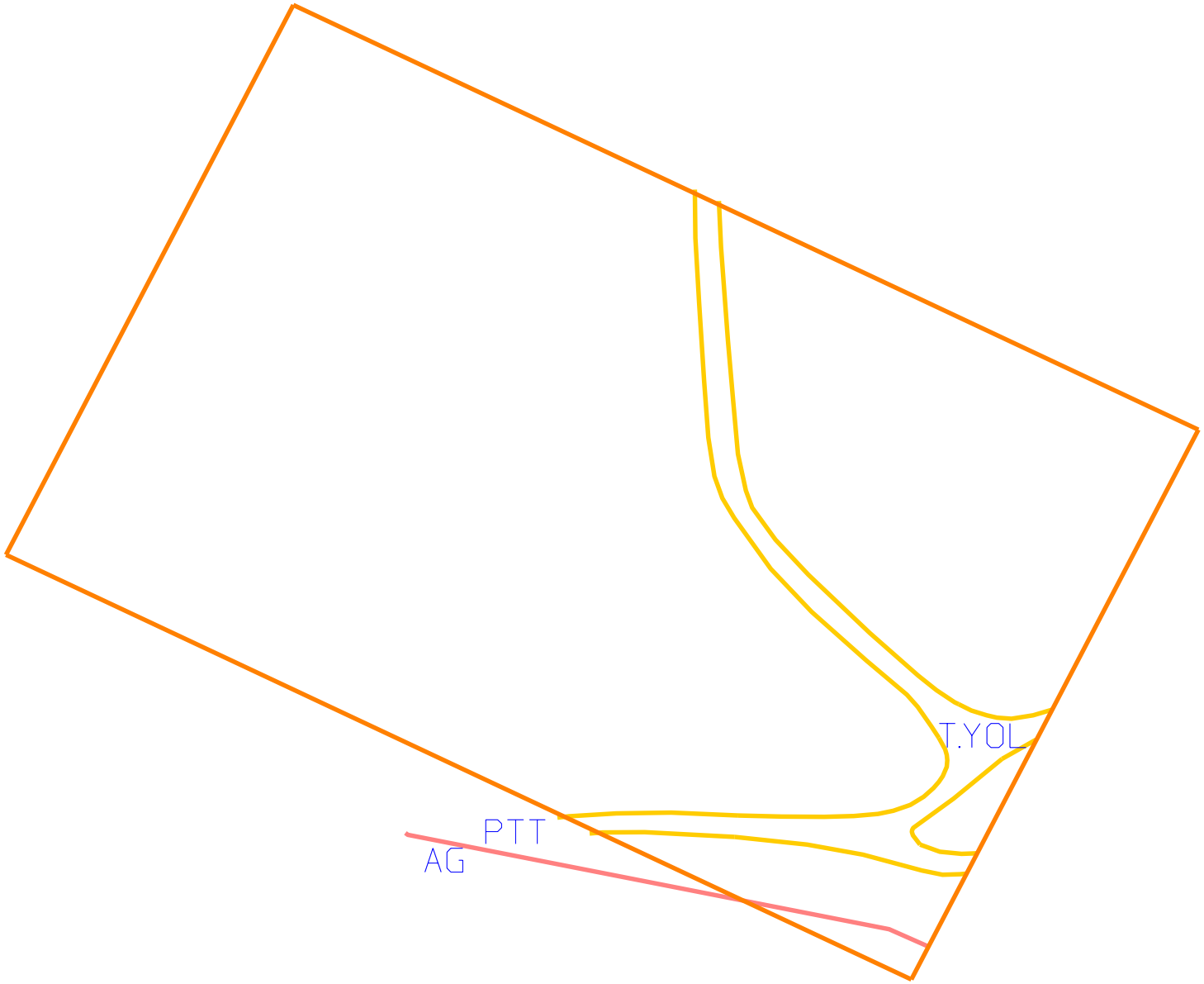
http://www.teias.gov.tr//duyurular/CEVREKAMU/ProjeDuyurulari12 DUYURULAR

Dosya Düzen Görünüm Sık Kullanılanlar Araçlar Yardım

154 kV ATIŞALANI TM - AKSARAY TM YERALTI KABLOSU PROJESİ
Duyuru Metni
Broşür
Taslak ÇYP

Annex-F

Site's Dimensional Drawing



Annex-G

Chance Find Procedure

CONTENTS

1. INTRODUCTION

Increasing the capacity of the REIP project will enable a stronger transmission system and help expand the scope of automated controls, improve management and protect the stability of the high-voltage grid and prevent the widespread of sizable disruptions, which require protection systems. Protected Natural and Archaeological Sites shall be reported if found in the Project area and its vicinity. There is the possibility to chance-find certain archaeological and cultural heritage during Project activities.

1.1 SCOPE

The scope of this document is to provide a summary of chance find management actions, procedures and responsibilities in the event of encountering any such assets during project construction activities.
This procedure is for any and all project activities (such as scraping, excavation, boring, drilling, cutting, blasting, leeching, rehabilitation, restoration, etc.) in the project impact zone as well as in other project-related areas.

1.2 DEFINITIONS

CHANCE FIND	*As a result of normal monitoring of construction activities in project-related areas potential cultural heritage other than defined per any official survey, such objects, characteristics or areas*
MUSEUMS	*Yalova City Museum* *Anatolian Civilization Museums*
REGIONAL CONSERVATION BOARD DIRECTORATES	*Kocaeli Regional Cultural Asset Conservation Boards* *Ankara 2nd Regional Cultural Asset Conservation Board*
PROJECT	*GIS SS*
WORKS	*Specifies mandated actions*
AND MANDATED ACTIONS	
COMPULSORY WORK	*Defines that the respective provision is not mandated but recommended as good practice.*

1.3 ACRONYMS

Acronym	Definition
TEİAŞ	*Official Tweeter Page of the company*
E & S	*Environmental and Social*
ESIA	*Environmental and Social Impact Analysis*

1.4 REFERENCES

STANDARDS, LEGISLATION AND LAWS

Ministry of Culture and Tourism, Law No. 2863, Ministry of Culture and Tourism Decision No. 658 on the Conservation of Cultural and Natural Assets, Conditions for the Conservation and Use of Archaeological Conservation Sites

2. ROLES AND RESPONSIBILITIES

TEİAŞ shall be responsible to prepare and implement management plans and procedures based on project-specific environmental and social impact analyses. Furthermore, TEİAŞ shall also be liable, together with all its units and contractors, to act in observance of these procedures during project construction

The Role of the Project	Responsibilities
Site Manager	To ensure that E & S issues are handled sufficiently and as required by all units concerned. To support E & M works, to allocate adequate on-site resources for the provision of E & M monitoring and inspection activities.

3. CHANCE FIND PROCESS

The step-by-step process to follow any chance finds in the project site and its area of impact is as follows:

STAGE 1 - **Following a chance find:**

All works in the sweep area shall be on-hold. A buffer zone shall be established around the chance find.

Worksite management and the museum directorate archaeologist shall be immediately contacted.

The area shall be cordoned off with adequate 'No Entry,,' etc. signage to secure the find. Protection of the Worksite: chance find shall not be removed, lifted or no more damaged.

STAGE 2 **– Registration**

Section A of the Chance Finds Report shall be filled and a copy shall be delivered to the site manager in 24 hours.

STAGE 3 - **Communication with local authorities**

The directorate of the respective Museum shall be notified.

STAGE 4 - **Museum Decision**

Museum directorate archaeologist shall determine actions below regarding the chance find.

STAGE 4A - **Site or the find are of no importance**

Museum directorate archaeologist declares that the site/find are of no significance.

Site supervisor notifies managers concerned.

STAGE 4B - **Site is significant**

Museum directorate archaeologist declares that the site/find is significant.

Museum archaeologist determines next steps and duly notifies the site supervisor.

Site supervisor keeps a copy of the chance find for own records. No other action required This stage closes the chance find procedure ***Construction can be resumed***	Site supervisor notifies managers concerned

STAGE 5 - **Site survey**

Project staff follows the instructions of the museum directorate archaeologist

Following site survey, the museum directorate archaeologist_____/ **declares _____ that the find is of less importance**

Site supervisor notifies superiors

Site supervisor keeps a copy of the chance find for own purposes

No other action required

This stage closes the chance find procedure

Construction can be resumed

Following the site survey the museum directorate archaeologist declares that the site/find is **moderately significant.**

Advanced studies such as test pit/recovery excavation or remote sensor shall be completed.

Museum archaeologist shall instruct and/or supervise works.

Sitesupervisor notifies managers.

Project management provides an archaeology task force supervised by the museum directorate archaeologist The task force shall be composed of qualified archaeologists as well as other specialists and workers.

The team,upon completion of excavation, shall report to the museum directorate.

Museum directorate shall notify the Regional Board for the Protection of Cultural assets of the activity outcomes.

The Regional Board for the Protection of Cultural Assets shall officially approve that retrieval has been complete and notified the Project Man-

Site supervisor keeps a copy of the chance find for own purposes

No further action is required.

This stage closes the chance find procedure

Construction can be resumed

Following the site survey the museum directorate archaeologist declares that the site/find is **highly significant.**

Recovery excavation completed.

The site shall be handled in observance of the provisions of the Law No. 2863 on the Protection of Cultural and Natural Assets dated 21.07.1983.

Museum directorate archaeologist provides instructions and/or supervision for the test pit/archaeological recovery excavation.

Site supervisor notifies his/her superiors.

Project management provides an archaeology task force supervised by the museum directorate archaeologist The task force shall be composed of qualified archaeologists as well as other specialists and workers.

Upon completion of excavation, the team shall report to the museum management.

Respective Board for the Protection of Cultural Assets shall officially approve that retrieval has been complete and notified the Project Management as required.

The site shall be registered and placed under protection as per the Turkish legislation.

Archaeology Supervisors/Specialists shall notify respective authorities.

Site supervisor keeps a copy of the chance find for own purposes

No further action is required.

The chance find procedure is closed.

In cases where human remains have been found, it is of utmost importance to note that the entire project team and local authorities shall be immediately notified.

4. MONITORING AND REPORTING

Site supervisor shall visually monitor any and all construction and other activities as proof of presence of cultural inheritance assets.

Chance Finds shall be recorded in the Chance Finds Notification Form (see. Annex 2.1). Print copies of Chance Find Notification Forms shall be available on site, which shall be always scanned once filled in and registered and saved

Chance Find Notification Forms shall be updated by the site supervisor, which be recorded in the Chance Finds Log (see. Annex. 2.2). This document shall be regularly checked.

ANNEX 2.1 – REPORTING OF CHANCE FINDS - NOTIFICATION FORM

PART A
SECTION A

Project Location: *Proje Sahası*	District (İlçe): Village (Köy):	Date: *Tarihi*	Form No:	Project Location:

Name of person reporting chance find:
Şans bulgusunu rapor eden kişinin ismi

Was work stopped in the immediate vicinity of the chance find? *Şans bulungusunun tam çevresinde iş durduruldu mu?*	□Yes *Evet*	□ No *Hayır*
Was a buffer zone created to protect the chance find? *Şans bulguyu korumak için tampon bölge oluşturuldu mu?*	□Yes *Evet*	□ No *Hayır*

NOTIFICATION
BİLDİRİM

Site manager and E&S manager contacted *Saha Müdürü ve Çevre Müdürü ile irtibata geçildi*	□Yes *Evet*	□ No *Hayır*

CHANCE FIND DETAILS
ŞANS BULGU AYRINTILARI

GPS coordinates
GPS koordinatları

Photo record □Yes □ No
(HD quality - no cell phone photos) *Fotoğraf kaydı Evet Hayır*
(HD kalitesinde — cep telefonu fotoğrafı değil)

If not, explain why:
Değil ise nedenini açıklayınız

Other records □Yes □No
Specify (drawings, HD quality videos, etc.):

Diğer kayıtlar Evet Hayır
Belirtin (çizimler, HID kalite videolar, vb.)

Description of chance find:
Şans bulungusunun tanımı

Description of site/finding and other specifications of site/finding: (e.g. surface sediment type, ground surface visibility, distance to closest watercourse, etc.)
Sahanın / bulgunun ve saha/bulgunun diğer özelliklerinin tanımı: (örn. Yüzey sediman türü, yüzey zemin görünürlüğü, en yakın suyoluna olan mesafe, vb.)

PART B
BÖLÜM

NOTIFICATION OF MUSEUM DIRECTORATE ARCHAEOLOGIST

Monitoring archaeologist contacted museum directorate archaeologist
İzleme arkeoloğu, müze müdürlüğü arkeoloğu ile irtibata geçti.
□Yes *Evet* □ No *Hayır*

Date of notification:
Bildirim tarihi

Name of museum directorate and name of museum directorate archaeologist:
Müze müdürlüğünün adı ve Müze müdürlüğü arkeoloğunun adı

Contact number of museum directorate archaeologist:
Müze müdürlüğü arkeoloğunun iletişim numarası

DECISION OF MUSEUM DIRECTORATE ARCHAEOLOGIST
MÜZE MÜDÜRLÜĞÜ ARKELOĞUNUNKARARI

Date of site visit:
Saha ziyaret tarihi:

□ Site/Finding of no significance - Construction to proceed with no further action - End of chance find procedure
Önemsiz Saha — Bulgu - daha fazla araştırma yapılmadan inşaat devam edilebilir — Şans bulgu prosedürün sonu.

□ **Site/Finding of significance - Further actions required**
Önemli Saha — Bulgu - Ek araştırma gerekmektedir

Please Fill out Part C
Lütfen Bölüm C 'yi doldurun.

Date of notice to resume work: *işe devam etme tarihinin bildirisi*

Name of museum directorate archaeologist: *Müze müdürlüğü arkeoloğunun ismi* Contact information: *iletişim numarası*	
Site manager and E&S manager contacted Saha Müdürü ve E & S müdürü ile irtibata geçildi	□Yes Evet □No Hayır
PART C ***BÖLÜM C***	

FURTHER FIELD INVESTIGATION

□ Site/Finding of minor significance Az *önem taşıyan saha/bulgu*	□ Site/Finding of moderate significance *Orta derecede önemli saha/bulgu*	□Site/Finding of major significance *Çok önemli saha/bulgu*	

Describe additional work to be conducted:
Yapılması gereken ek işlerin tanımları

Date started:
Başlangıç tarihi

Date completed:
Bitiriş tarihi

Date of notice to resume work:
işe geri dönme tarihi bildirisi

Name of museum directorate archaeologist:
Müze müdürlüğü arkeoloğunun ismi Contact information:
iletişim numarası

Construction manager contacted
inşaat müdürü ile irtibata geçildi

□ Yes *Evet* □ No *Hayır*

ANNEX 2.2 - CHANCE FIND RECORD

DATE OF FIND	BRIEF DESCRIPTION OF THE CHANCE FIND	NAME OF AUTHORIZED STAFF ACKNOWLEDGED R	ACTION TAKEN	CHANCE FIND NOTIFICA-TION COMPLETE	COUNT OPEN OR CLOSED	OTHER CONSIDERATIONS

ANNEX 2.3 - CONTACT INFORMATION

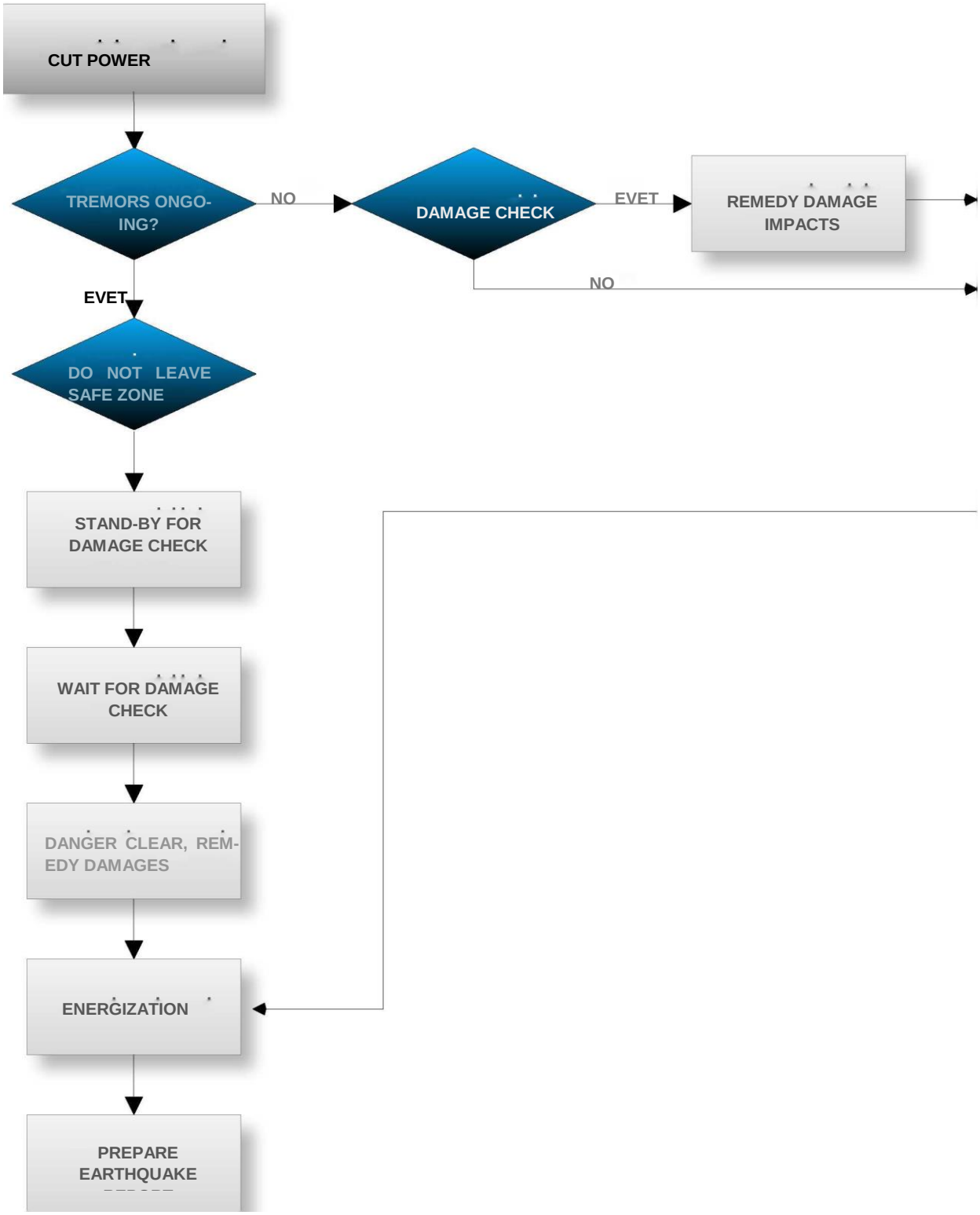
Museum Directorate	Address	Telephone	Fax	E-mail
Yalova City Museum	15 Temmuz Demokrasi ve Cumhuriyet Meydanı Eski Hükümet Konağı Kent Müzesi No:1 /YALOVA	0226 811 07 27		info@yalovakentmuzesi. gov .tr
Anatolian Civilizations Museum	Gözcü Sokak No: 2 06240 Ulus, ANKARA	(0312) 324 31 60	(0312) 311 28 39	anmedmuz@gmail.com

CONSERVATION BOARD	AREAS OF RESPONSIBILITY	ADDRESS	TELEPHONE	FAX	E-MAIL
Kocaeli Regional Cultural Asset Conservation Board	Kocaeli, Sakarya, Düzce, Yalova	Kozluk Mahallesi İstasyon Caddesi TCDD Eski Gar Binası Kat 2 İzmit / KOCAELİ	(0262)323 29 26 - (0262) 321 67 33	0262 323 29 36	ktvk41 @kultur.gov.tr
Ankara 2nd Regional Cultural Asset Conservation Board	ANKARA (Altındağ, Pursaklar, Akyurt, Çubuk, Elmadağ, Şereflikoçhisar, Evren, Haymana, Bala, Güdül), Çorum, Kırıkkale	Konya Sokak No: 46 ULUS ANKARA	(0312) 324 62 57	(0312) 312 12 47	Ankarakurul2@kultur.gov .tr

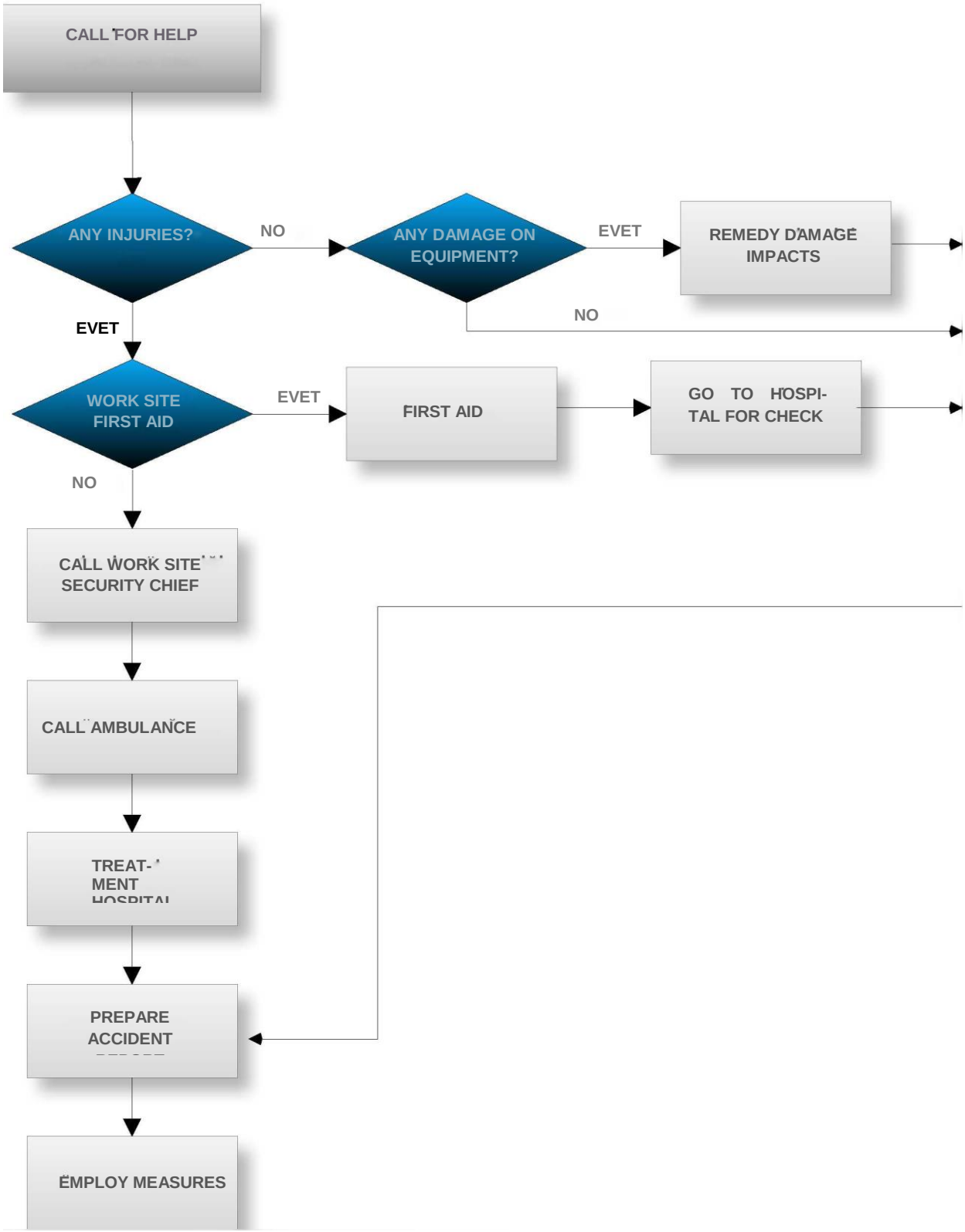
Annex-H

Emergency Response Plans

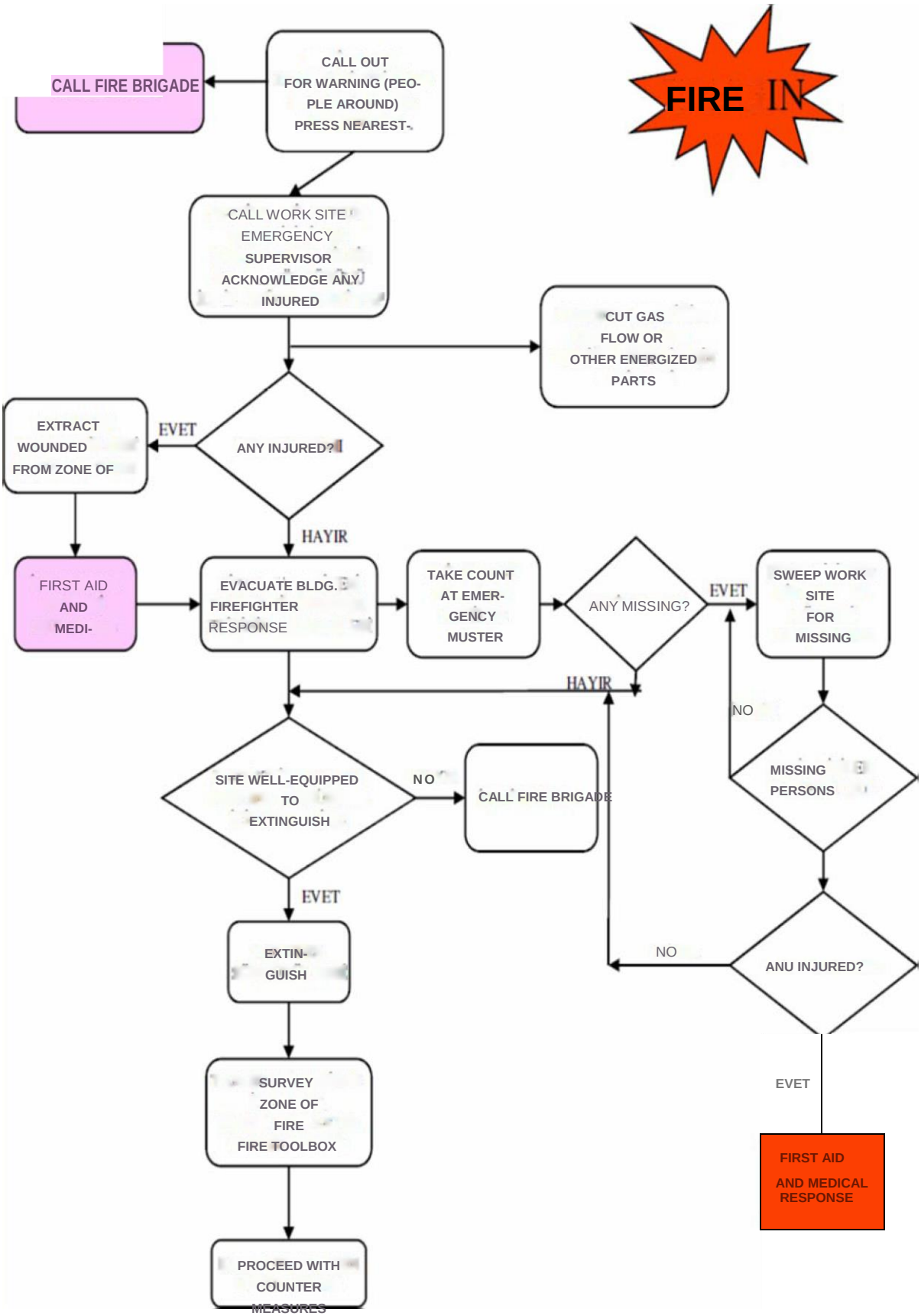
EARTHQUAKE EMERGENCY RESPONSE PLAN



WORKING ACCIDENT EMERGENCY RESPONSE PLAN



EMERGENCY RESCUE RESPONSE PLAN



Prepared By

380/154 kV DERİ OSB GIS TRAFO MERKEZİ (TM) ÇEVRE ve SOSYAL YÖNETİM PLANINI HAZIRLAYAN PERSONEL		
Proje Sahibi:	Türkiye Elektrik İletim Anonim Şirketi (TEİAŞ) Genel Müdürlüğü	
Projenin Mevkii:	İstanbul İli, Tuzla İlçesi	
Proje Adı:	380/154 kV Deri OSB GIS Trafo Merkezi (TM)	
Adı Soyadı	**Mesleği**	**İmzası**
Coşkun KOÇ	Orman Mühendisi	
Erdinç ÇALIŞKAN	Çevre Mühendisi	
Firdevs İrem KALE ÜNLÜ	Çevre Mühendisi