



TÜRKİYE ORGANIZED INDUSTRIAL ZONES PROJECT

Denizli Organized Industrial Zone

Wastewater Treatment Plant Project

**Environmental and Social Impact Assessment
(ESIA)**

JUNE 2024



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LIST OF ABBREVIATIONS

AFAD	Disaster and Emergency Management Presidency
AoI	Area of Influence
ASP	Activated Sludge Process
AZE	Alliance for Zero Extinction
BEKRA	Reducing the Risks of Major Industrial Accidents
BOD	Biochemical Oxygen Demand
BP	Bank Procedures
CCD	UN Convention to Combat Desertification
CIA	Cumulative Impact Assessment
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CLRTAP	Convention on Long Range Transboundary Air Pollution
COD	Chemical Oxygen Demand
CORINE	of Information on the Environment
dBA	Decibels adjusted
DEM	Digital Elevation Model
DLP	Defects Liability Period
DOIZ	Denizli Organized Industrial Zone
DSİ	State Hydraulic Works
E&S	Environmental and Social
EDL	Electricity Distribution Line
EHS	Environmental Health and Safety
EIA	Environmental Impact Assessment
EMEP	European Monitoring and Evaluation Programme
EPA	Environmental Protection Agency
ESCP	Environmental and Social Commitment Plan
ESF	Environmental and Social Framework
ESHS	Environmental, Social Health, and Safety
ESIA	Environmental and Social Impact Assessment
ESMAP	Energy Sector Management Assistance Program
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
ESMR	Environmental and Social Monitoring Report
ESMS	Environmental and Social Management System
ESPR	Environmental and Social Progress Report
ESR	Environmental and Social Report
ESS	Environmental and Social Standard
EU	European Union

EUNIS	European Nature Information System
FI	Financial Intermediary
FPIC	Free, Prior, and Informed Consent
FUND	The International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage
GBV	Gender Based Violence
GHG	Green House Gas
GIIP	Good International Industry Practice
GP	Good Practices
GM	Grievance Mechanism
GMR	Grievance Mechanism Report
HR	Human Resources
HSE	Health, Safety, and Environment
IAPCR	Industrial Air Pollution Control Regulation
IBA	Important Bird Area
IBRD	International Bank for Reconstruction and Development
IFC	International Finance Corporation
ILO	International Labor Organization
IPA	Important Plant Area
IUCN	International Union for Conservation of Nature
KBA	Key Biodiversity Areas
KGM	General Directorate of Highways
LC	Least Concern
MoEUCC	Ministry of Environment, Urbanization and Climate Change
MoIT	Ministry of Industry and Technology
MSDS	Material Safety Data Sheet
NGOs	Non-Governmental Organizations
OHS	Occupational Health and Safety
OIZ	Organized Industrial Zone
OP	Operational Policies
PGA	Peak Ground Acceleration
PGV	Peak Ground Velocity
PID	Project Identification Document
PIF	Project Introduction File
PIU	Project Implementation Unit
PMU	Project Management Unit
POP	Persistent Organic Pollutant
PPE	Personal Protective Equipment
PS	Performance Standard
RAMAQ	Regulation on the Assessment and Management of Air Quality

RAMSAR	Convention on Wetlands of International Importance, Especially as Waterfowl Habitat
RAP	Resettlement Action Plan
RAS	Return Activated Sludge
RCA	Root Cause Analysis
RENC	Regulation on Environmental Noise Control
SAIS	Wastewater Monitoring System
SCM	Stakeholder Consultation Meeting
SEA/SH	Sexual Exploitation and Abuse and Sexual Harassment
SEP	Stakeholder Engagement Plan
TCDD	Turkish State Railways
TOC	Total Organic Carbon
TOIZP	Türkiye Organized Industrial Zones Project
TUMAS	Türk Mühendislik Musavirlik ve Muteahhitlik A.S
TurkStat	Turkish Statistical Institute
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	UN Framework Convention on Climate Change
VEC	Valued Ecosystem Component
WB	World Bank
WBG	World Bank Group
WHO	World Health Organization
WPCP	Water Pollution Control Regulation
WWTP	Wastewater Treatment Plant

GLOSSARY

Associated Facility

Facilities or activities that are not funded as part of the project and, in the judgment of the Bank, are: (a) directly and significantly related to the project; and (b) carried out, or planned to be carried out, contemporaneously with the project; and (c) necessary for the project to be viable and would not have been constructed, expanded or conducted if the project did not exist. For facilities or activities to be Associated Facilities, they must meet all three criteria. In this Project, electricity distribution line and collector line are determined as associated facilities.

Area of Influence (Aol)

The geographical area that may be directly or indirectly affected by the project activities. This includes areas where physical, biological, social, or economic changes may occur as a result of the project, including but not limited to the project site and its surroundings. The potential Aol for the Project includes the Denizli Organized Industrial Zone (DOIZ), and planned Wastewater Treatment Plant (WWTP) area. In addition to these areas, the closest neighborhood, Pınarkent neighborhood, is included in the social Aol of Project.

EXECUTIVE SUMMARY

Türkiye Organized Industrial Zones Project (TOIZP) will be financed by the World Bank/ International Bank for Reconstruction and Development (IBRD) through a loan for which Ministry of Industry and Technology (MoIT) has been designated as responsible for project implementation by the Ministry of Treasury and Finance. The project aims to increase the efficiency, environmental sustainability, and competitiveness of Organized Industrial Zones (OIZs) in Türkiye. With a total budget of EUR 250.3 million, the project will be implemented by the Ministry of Industry and Technology (MoIT) through the General Directorate of Industrial Zones.

The main responsible organization for the implementation of this ESIA is DOIZ. A PMU will be established to carry out operational and administrative tasks. The PMU staff will be the DOIZ's own staff who have previous experience with implementation of projects following WB Environmental and Social Framework (ESF). Besides, on different phases of the Project (pre-construction, construction and operation), different parties (Consultant, Contractor, Construction Supervision Consultant, MoIT/PIU) will take responsibility for various works in the scope of the ESIA. All mentioned works will be coordinated by the DOIZ. The roles and responsibilities of these parties are detailed in Section 8.

As a subproject under the TOIZP, the primary objective of this Project is to establish a second-stage WWTP with a daily capacity of 30,000 m³ in Denizli Organized Industrial Zone (DOIZ). The Project will occupy an area of 26,840 m². The planned WWTP will specialize in the removal of floatable materials, grit, grease, organic pollutants, and hazardous substances from the wastewater. The treated wastewater will be discharged into Çürüksu Creek.

The planned WWTP will encompass physical treatment components (screening, grit and grease removal), chemical treatment processes (coagulation, flocculation, sedimentation), and biological treatment methods (bio-P and primarily aeration tanks) to effectively eliminate various industrial pollutants from the wastewater. Furthermore, the WWTP will have a sludge stabilization system, encompassing a return sludge pumping station, sludge thickening, and sludge dewatering, to manage excess sludge. The dewatered sludge, stored temporarily within the WWTP premises, will be transported to a licensed disposal facility, mirroring the process implemented for the existing WWTP. All necessary design and construction activities will be carried out.

The project has two main components, that are WWTP and discharge line. In addition, the collector line and the electricity distribution line are the associated facilities of the project.

The construction of the WWTP does not require expropriation of any private land. The area (parcel no 54) that WWTP will be constructed currently belongs to DOIZ and transfer of land was completed on 15.12.2020. The title deed for this area is given in Annex 2. For the Project Area, there is no pending title transfer, compensation payment, ownership disputes. In addition, collector and discharge lines will not require any land acquisition process since their construction will be under the existing roads. Permission letter from Pamukkale Municipality for the use of existing roads for collector and discharge lines is given in Annex 3.

The Project will be in compliance with the good international practice, including WB Environmental and Social Standards (ESSs), guides, standards and best practices documents alongside the national legislation. In addition, the Project and the social and environmental elements in the Area of Influence (Aol) of the Project include elements or activities that are related to the scope of ESS1, ESS2, ESS3, ESS4, ESS5, ESS6 and ESS10. The main objectives of these standards within the scope of the Project are presented below.

- ESS1: Assessment and Management of Environmental and Social Risks and Impacts,
- ESS2: Labour and Working Conditions,

- ESS3: Resource Efficiency and Pollution Prevention and Management,
- ESS4: Community Health and Safety,
- ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources,
- ESS10: Stakeholder Engagement and Information Disclosure.

Main impacts and mitigation measures are described in details in Chapter 5 and Chapter 7, respectively. Additionally, monitoring requirements are also detailed in Chapter 7. A summary of the main impacts identified for the pre-construction, construction and operation phases of the project and the mitigation measures taken to manage these impacts are presented in Table 1.

Table 1 Summary of the E&S Impact Assessment and Mitigation Measures

Potential E&S impacts	Summary of Measures
Air Quality and Odor	<ul style="list-style-type: none"> • Preparing and complying with an Air Quality and Emissions Management Plan and measures for odor problem • Regular maintenance of machinery and equipment • Training of the project personnel • Speed limitations and restricted idle engine running
Soil and Contaminated Land	<ul style="list-style-type: none"> • Topsoil preservation and restoration • Prevention of soil contamination • Erosion control measures • Complying with the Soil Protection Project
Water Resources and Use	<ul style="list-style-type: none"> • Proper storage of chemicals • Prevention of surface runoff • Effluent discharge consistent with applicable national requirements or internationally accepted standards • Improving water quality of Çürüksu Creek
Noise and Vibration	<ul style="list-style-type: none"> • Regular maintenance of the construction machinery, equipment and vehicles • Establishment of a robust grievance mechanism • Isolated closed buildings for noise generating equipments/units • Homogeneously distributing construction equipment
Resources and Wastes	<ul style="list-style-type: none"> • Wastes management in accordance with the waste management hierarchy • Selection of most appropriate raw materials by evaluating clean production options • Seeking assistance to reduce energy consumption and related costs • Contracting licensed companies and/or utilizing relevant municipality's vehicles for waste recycling, transport and disposal • Separating waste (i.e., hazardous / non-hazardous, recyclable / non-recyclable) and storing in designated temporary storage areas • System overflows will be prevented as much as possible by using level-meters and by-pass channels • Preparing and complying a Sludge Management Plan
Landscape and Visual	<ul style="list-style-type: none"> • Painting the planned WWTP in colors that suit the background • Planting trees at the borders of the WWTP • Performing construction activities at particular times
Biological Environment	<ul style="list-style-type: none"> • Re-vegetation, where possible • Measures to further avoid and minimize the construction footprint • Preserving the riparian vegetation
Community Health and Safety	<ul style="list-style-type: none"> • Restricting access to the Project area and WWTP area in operation • Strategically positioned signage across the construction site • Mandatory and regular training for workers in community health and safety issues
Working Conditions and Labor Management	<ul style="list-style-type: none"> • Providing transparent, non-discriminatory, equal recruitment opportunities with respect to ethnicity, religion, language, gender and sexuality • Preparation of information materials • Managing and monitoring the performance of contractors in relation to the requirements of child labor, unregistered employment and forced labor • Proper adaptation of human rights policy and labor rights
Occupational Health and Safety	<ul style="list-style-type: none"> • Awareness raising, training for workers • Code of Conduct • Preparation of procedures, methods statements and work instructions • Preparing and complying an Emergency Preparedness and Response Plan • Supplying appropriate personal protective equipment (PPE)

Traffic and Transportation	<ul style="list-style-type: none"> • Usage of appropriate traffic signage • Regulating in a way that will guarantee traffic safety and minimum traffic flow disruptions
Stakeholder Engagement, Disclosure	<ul style="list-style-type: none"> • Stakeholder Consultation Meeting (SCM), disclosure of ESIA and SEP and establishing and operating Grievance Mechanism.

In Chapter 7, details of all necessary monitoring activities for monitoring of ambient conditions and the effectiveness of the mitigation measures are defined for relevant impacts and environmental factors. The monitoring activities including parameters, frequencies and responsibilities for pre-construction, construction and operation phases are defined.

As a part of the mitigation measures, site-specific Environmental and Social management documents on different subjects should be developed. The recommended management plans and procedures for both phases of the Project are given in Table 2.

Table 2 Environmental and Social Management Plans and Procedures for the Project

Management Plans/Procedure	Stage to be Prepared	Responsible Party	Approving Party
Pre-construction and Construction Phase			
Soil Management Plan	Prior to pre-construction	Contractor	MoIT PIU
Biodiversity Management Plan	Prior to pre-construction	Contractor	MoIT PIU
Air Quality and Emissions Management Plan	Prior to pre-construction	Contractor	MoIT PIU
Water Resources Management Plan	Prior to pre-construction	Contractor	MoIT PIU
Noise Management Plan	Prior to pre-construction	Contractor	MoIT PIU
Waste Management Plan	Prior to pre-construction	Contractor	MoIT PIU
Community Health, Safety, and Security Management Plan including Emergency Action Plan	Prior to pre-construction	Contractor	MoIT PIU
Traffic Management Plan	Prior to pre-construction	Contractor	MoIT PIU
Occupational Health and Safety Management Plan	Prior to pre-construction	Contractor	MoIT PIU
Emergency Preparedness and Response Plan	Prior to pre-construction	Contractor	MoIT PIU
Risk Assessment and Management Plan	Prior to pre-construction	Contractor	MoIT PIU
Labor Management Plan	Prior to pre-construction	Contractor	MoIT PIU
Contractor Management Plan	Prior to pre-construction	DOIZ	MoIT PIU
Local employment procedure	Prior to pre-construction	Contractor and DOIZ	MoIT PIU
Grievance procedure - Community	Prior to pre-construction	Contractor and DOIZ	MoIT PIU
Grievance procedure - Employee	Prior to pre-construction	Contractor and DOIZ	MoIT PIU
Operation Phase			
Water Resources and Effluent Management Plan	Prior to operation	DOIZ	MoIT PIU
Sludge Management Plan	Prior to operation	DOIZ	MoIT PIU
Odor Management Plan	Prior to operation	DOIZ	MoIT PIU

1 INTRODUCTION

1.1 Project Background

Türkiye Organized Industrial Zones Project (TOIZP) will be financed by the World Bank/ International Bank for Reconstruction and Development (IBRD) through a loan for which Ministry of Industry and Technology (MoIT) has been designated as responsible for project implementation by the Ministry of Treasury and Finance. This main project aims to increase the efficiency, environmental sustainability, and competitiveness of Organized Industrial Zones (OIZs) in Türkiye. To achieve these objectives the following indicators are determined for the main Project:

Indicator 1: Energy savings from OIZ expenditures in basic and green infrastructure

Indicator 2: Water savings from OIZ investments in green infrastructure

Indicator 3: Reduction in CO₂ emissions due to the financed investments

Indicator 4: Share of OIZs that attract new investments

With a total budget of EUR 250.3 million, the main project will be implemented by the Ministry of Industry and Technology (MoIT) through the General Directorate of Industrial Zones.

Within the scope of the TOIZP, sub-projects are subject to a screening process that takes into account three key factors: the project's nature, scale, and its location within environmentally sensitive areas. This initial assessment helps identify sub-projects that may potentially pose substantial environmental or social concerns. These identified sub-projects as 'substantial' then undergo a comprehensive Environmental and Social Impact Assessment in accordance with the World Bank's Environmental and Social Framework (ESF) and project-specific Environmental and Social Management Framework (ESMF) tools.

In this regard, an Environmental and Social Screening Report was prepared by a consultant assigned by the MoIT and approved by the WB ESF Team on March 2023 for the DOIZ Wastewater Treatment Plant Project, which is a sub-project within the scope of TOIZP. The assessment of environmental and social aspects related to the DOIZ sub-project involved an on-site inspection and meetings with representatives from the DOIZ Management. This evaluation was conducted using a specialized Environmental and Social Screening Form designed to address relevant questions concerning the projected environmental and social consequences arising from the implementation of the sub-project. The outcome of the Screening process and in turn Screening Report is summarized below:

- The environmental risks are considered to be "*Substantial*" since,
 - medium construction works, the common impacts related to the construction works (noise, dust, waste generation etc.) can be easily mitigated with the measures taken,
 - the capacity of the WWTP will be 30,000 m³/day,
 - have potential impacts on the Project Area which is located in Sarayköy Plain and is a protected area,
 - have potential impacts on surrounding environmental receptors which are actively used as agricultural areas,
 - activities will be carried out in allocated WWTP area within the DOIZ borders as per the plan but "650 m" away from the main DOIZ site.
 - wastes will be disposed of in accordance with national regulation and World Bank Group (WBG) Environmental, Health and Safety (EHS) Guidelines.
- The social risks associated are considered to be "*Moderate*" since,
 - land acquisition or resettlement will not be needed,

- excessive labour influx will not be generated,
- additional mitigation measures to address and prevent potential of any adverse impacts on adjacent cultivated agricultural lands and their livelihoods will be needed during the construction and operation stages,
- livelihoods of households, vulnerable groups and formal-informal users on adjacent land will not be damaged,
- impacts will be very low in scale and will not be differentiated on women and men, different ethnic groups or social classes. National legislation and WB Environmental and Social Standards (ESSs) will be applied on fair employment, equal access and employment opportunities for women.

Considering the Substantial-Moderate risks, the MoIT has contracted Türk Mühendislik Müşavirlik ve Müteahhitlik A.Ş. (TÜMAŞ) to prepare Environmental and Social Impact Assessment (ESIA) Report for DOIZ WWTP Project.

DOIZ currently operates a wastewater treatment plant (WWTP) situated on a 28,836 m² plot within the DOIZ boundaries. This facility includes a closed area of 910 m² and an open area spanning 16,450 m². Initially designed with a capacity of 42,000 m³/day, the WWTP was completed and became operational on December 31, 1997. The existing WWTP incorporates various units for physical, chemical, biological treatment, as well as sludge dewatering. The discharge point for both the existing and planned WWTPs is Çürüksu Creek (which was also known as Sariçay in the past), a highly sensitive water body that has long been threatened by improper industrial wastewater discharges from both local point and diffuse source polluters except DOIZ existing WWTP discharge. Excess sludge from the existing WWTP, which is dewatered and reaches a dry content of 40-60%, is regularly transported to a licensed disposal facility. This disposal facility employs a solar drying unit to further increase the dry content of the accepted sludges.

To date, the WWTP has been operating at full capacity in compliance with the national discharge standards. Consequently, maintenance and repair costs for machinery and equipment have risen, and there have been challenges in sourcing spare parts. Additionally, it has been recognized that the total wastewater volume will increase due to rising production capacities of companies within the DOIZ. Therefore, the construction of a planned WWTP is deemed essential for the safe and environmentally sound operation of the DOIZ.

1.2 Project Scope

The primary objective of this Project is to establish a second-stage WWTP with a daily capacity of 30,000 m³. The Project will occupy an area of 26,840 m². The planned WWTP will specialize in the removal of floatable materials, grit, grease, organic pollutants, and hazardous substances from wastewater.

The planned WWTP will encompass physical treatment components (screening, grit and grease removal), chemical treatment processes (coagulation, flocculation, sedimentation), and biological treatment methods (bio-P and primarily aeration tanks) to effectively eliminate various industrial pollutants from the wastewater. Furthermore, the WWTP will have a sludge stabilization system, encompassing a return sludge pumping station, sludge thickening, and sludge dewatering, to manage excess sludge. The dewatered sludge, stored temporarily within the WWTP premises, will be transported to a licensed disposal facility with licensed transportation vehicles, mirroring the process implemented for the existing WWTP. All necessary design and construction activities will be carried out.

The project has two main components, WWTP and discharge line. In addition, the collector line and the electricity distribution line are the associated facilities of the project. The map showing the location of DOIZ, existing and planned WWTP areas, discharge line, collector line, the electricity distribution line, and transformer is given in Figure 1.1.

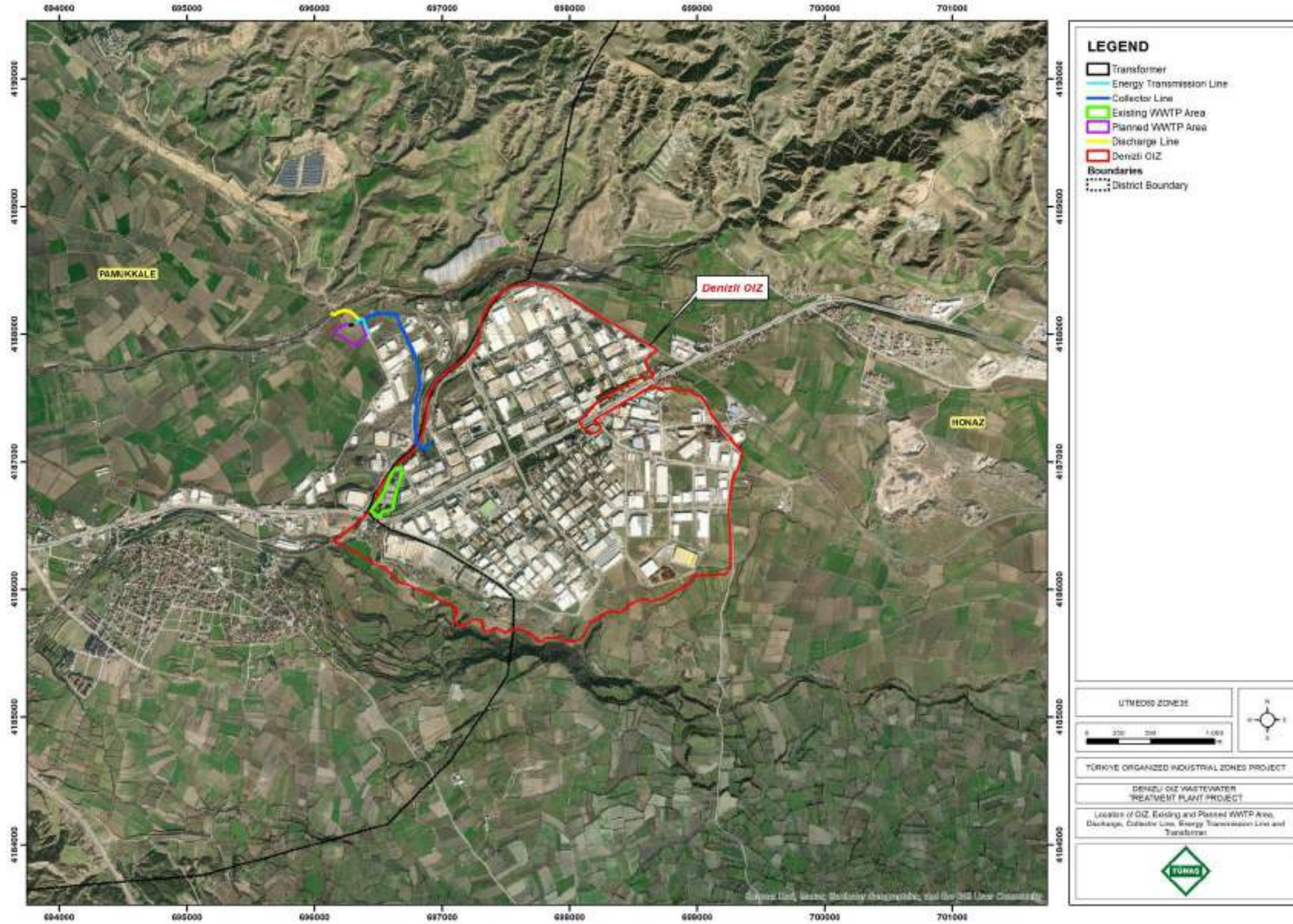


Figure 1.1 Location of DOIZ, Existing and Planned WWTP Areas, Discharge, Collector Lines, Electricity Distribution Line and Transformer

1.3 Deviations from the Approved E&S Screening Study

As explained in the previous Sub-section 1.1, an Environmental and Social Screening Report was prepared by a Consultant assigned by the MoIT and approved by the WB ESF Team on March 2023 for the DOIZ Wastewater Treatment Plant Project.

During the preparation of the Screening Report for the DOIZ Wastewater Treatment Plant Project, the finalization of the project design was not achieved, leading to subsequent revisions in the design. Consequently, the most up-to-date project design has been taken into consideration in this ESIA report. Deviations between the project design outlined in the Screening Report and the one presented in the ESIA report are detailed below to provide transparency and clarity on the changes made during the course of the project development.

- **Discharge Line:** The first discharge route line determined in the Screening Report was passing through the borders of the neighboring agricultural land. In this case, a long-term study such as including the transition route within the scope of easement-expropriation-approved border would be encountered. For this reason, the discharge line will continue from the borders of parcel 54, where the treatment plant will be built, to the improved road of Pamukkale Municipality, from the exit point of the facility. After that, it will pass through cadastral roads and reach the Çürüksu Creek, which is the receiving environment. Only 30,000 m³/day treated wastewater will be connected to the discharge line, which will be built with a total length of 475 m, and there will be no additional water inflow.
- **Collector Line:** The change in the route of the collector line will be taken into account as a difference made in the associated facilities defined in the Screening Report. During the technical design studies of DOIZ's project team, the route of the collector line was changed to ensure that the water flows by gravity and pumps are not used.

The locations of the discharge and collector lines determined in the Screening Report are represented in Figure 1.2. Also, current versions are given in Figure 1.1.



Figure 1.2 Discharge and Collector Lines Determined in the Screening Report

Source: EPTISA, DOIZ Wastewater Treatment Plant Environmental & Social Screening Report, 2023.

1.4 Purpose and Scope of ESIA

One of the tasks under the scope of the Project is the preparation of an ESIA in accordance with the both national regulations and WB ESF standards. This ESIA provides the background to the proposed Project as well as an assessment of their likely environmental and social impacts/risks, both beneficial and adverse. Proposed enhancement and mitigation measures, as well as monitoring needs, are outlined where necessary together with an assessment of responsibilities for their implementation.

The objectives of this ESIA are as follows:

- To identify and assess the potential environmental and social impacts of the proposed project, as well as evaluate alternatives;
- To design appropriate mitigation, management, and monitoring measures for defined impacts;
- To conduct all project activities in accordance with the applicable national legislation and in compliance with the WB's Environmental and Social Standards (ESSs);
- To identify environmental and social risks and impacts and related mitigation measures by adopting the mitigation hierarchy, which anticipates and avoids, minimizes, and, where residual impacts remain, compensates or offsets risks and impacts;
- To prevent or compensate for any loss to the affected person;
- To enhance positive environmental and social outcomes;
- To ensure maximizing efficiency and minimizing costs in complying with environmental and social legislation and standards;
- To ensure that all stakeholders' concerns are addressed.

This report was structured around the below main headings. The information provided in the report was detailed under these headings to the extent that the best available data allowed. Accordingly, the chapters included in the ESIA Report can be briefly explained as the following:

- Chapter 1. Introduction; leads an introduction to the project and ESIA Report, providing project details and environmental and social impact studies.
- Chapter 2. Legislative Framework; explains national and international legal requirements, and identifies environmental agreements, and other relevant international agreements that are relevant to the project.
- Chapter 3. Description of the Proposed Project; is a description of the project including its location, components, technical specifications, associated construction and operation activities, and a proposed schedule for implementation.
- Chapter 4. Baseline Conditions; describes the baseline conditions in and around the proposed Project Area, including physical, biological and socio-economic conditions.
- Chapter 5. Environmental and Social Impacts of the Project; assesses the potential positive and negative risks and impacts of the project, identifying mitigation measures.
- Chapter 6. Assessment of Project Alternatives; is an analysis of feasible alternatives to the proposed project site, technology, design and operation, including a "no project" alternative.
- Chapter 7. Mitigation and Monitoring Plans; describes the necessary management strategies, monitoring activities, and responsibilities for implementation of the identified mitigation measures.
- Chapter 8 Institutional Arrangements and Capacity Building; gives the information about environmental and social management structure, trainings, and environmental and social monitoring reports.
- Chapter 9 Stakeholder Engagement; gives the detailed information about stakeholder management and grievance mechanisms.
- Chapter 10 Consultations with Affected Groups and Non-Governmental Organizations (NGOs); gives the detailed information about identification of consultation participants,

the conducted Public Consultation Meeting, sets out the comments of the community, and the results of the questions and answers session with community.

Supplementary information, such as list of preparers and contributors, references, official letters, related reports, etc., which is relevant to the contents of the chapters listed above, was provided in the annexes of the ESIA Report.

2 LEGISLATIVE FRAMEWORK

This chapter is constructed to elucidate the main aspects of the legal and administrative framework followed in the design of this ESIA. Various national legislation and international conventions and standards explained in the following sections are also to be complied with during different stages of the Project, including pre-construction, construction and operation. In addition to determining which standards to follow, a gap analysis is conducted to analyse the gaps between national legislation and WB ESF.

The administrative structure in Türkiye is governed by central and local administrations. The central administration is organized so that the land mass of the country is divided into provinces and the provinces into further smaller divisions (i.e., districts, municipalities, villages/neighborhoods) according to geographic and economic conditions, and the need for public services. For the purpose of meeting collective local needs, the populations of provinces, municipalities, and villages/neighborhoods are administered by units of local government established by law (*Toksoz, F., 2006*).

Ministries are the units of central administration. Local branches of ministries are composed of provincial organizations attached to governors and district organizations attached to the district governors (*Hacettepe University, Department of Political Science and Public Administration, April, 2015*). At the local level, municipality mayors and the chief of the villages/neighborhoods (*mukhtar*) are the representatives of the administrative structure.

2.1 National Legislation

The key national laws and regulations presented in this section include the legal requirements to reduce the potential environmental impacts that may arise from the pre-construction, construction and operational activities of the Project. National Legislation related to the Project is presented in the following sections under relevant subtopics.

2.1.1 National Environmental, Health and Safety Legislation

Environmental Law No. 2872, which is ratified in August 1983 (Official Gazette dated 11.08.1983 and numbered 18132), is one of the principal legislations related to the Project. Several by-laws and decrees are enforced under the Environmental Law.

The Environmental Impact Assessment (EIA) Regulation (Official Gazette dated July 29, 2002 and numbered 31907) defines the administrative and technical procedures and principles to be followed throughout the EIA process and is largely in line with the EU Directive on EIA. When an activity (a Project) is planned, the Project developer is responsible for preparing an EIA Report along with many other permits required to realize the Project. However, facilities are subject to preparation of an EIA Report depending on the type of facility, its capacity, or the location of the activity. The activities that are subject to the provisions of the EIA Regulation are listed in Annex I and Annex II of the Regulation. For Annex I activities, a full EIA Report is required, and those projects go through the full EIA process. For Annex II activities, a Project Identification File (PIF) is prepared in accordance with the outline given in the EIA Regulation and the relevant process has to be conducted. As a result of the submission of PIF, if "EIA is required" decision is given, a full EIA Report is prepared.

DOIZ initiated the process by submitting an application to the Denizli Governorship to determine whether the project falls under the purview of the Environmental Impact Assessment (EIA) regulation. The project falls within the scope of the "Wastewater treatment plants with a capacity of 30,000 m³/day and above," as specified in the Item 51 of the Annex-II List of the EIA Regulation. To accomplish this, a comprehensive "Project Identification File" was prepared, and it underwent a thorough examination in accordance with the provisions outlined in Article 16 of the Environmental

Impact Assessment Regulation. After this detailed examination, "Project Identification File" was approved and in accordance with Article 17 of the EIA regulation, the Governorship has decided that EIA is not required for the Denizli Organized Region New Central Wastewater Treatment Plant Project. The "EIA is not required" decision was provided on 5.10.2022 by the Provincial Directorate of Environment, Urbanization and Climate Change provided in Annex 4 EIA is not Required Decision.

The rest of the Turkish Legislation that the Project will comply with is presented in Annex 13.

DOIZ shall comply with the requirements of the current national legislation and codes of practice and fulfill all other legal requirements. Therefore, during each stage of the planned Project and implementation of related management plans, all activities will be carried out in accordance with certain standards and limits set by the above-mentioned laws and regulations. Furthermore, any license and/or permit required for the upcoming stages of the Project will be acquired accordingly.

2.2 International Agreements and Standards

International financial institutions follow certain policies and procedures regarding assessment and management of environmental and social impacts/risks of the projects to be financed. As a requirement of international support for the Project, environmental and social impact assessment studies shall be undertaken to guarantee that the Project's design, construction and operation will be satisfactory for international environmental standards alongside national legislation.

2.2.1 International Environmental Conventions that Türkiye is a Contracting Party

Turkish national policy on protection of cultural heritage and conservation of biological resources has been constituted on the base of relevant international agreements that Türkiye has ratified or acceded by laws or relevant legislation. In addition to these, there are various laws and regulations on protection and conservation of natural habitats, wildlife and cultural heritage.

The international agreements and conventions on biological, cultural heritage, environmental and wildlife conservation that Türkiye had ratified are:

- Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention) (1972),
- Paris Convention on the Protection of the World Cultural and Natural Heritage (1975),
- Barcelona Convention on the Protection of the Mediterranean Sea Against Pollution (1976),
- The Convention for the Protection of Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention) (1981),
- Bern Convention on Protection of Europe's Wild Life and Living Environment (1982),
- Convention on Long Range Transboundary Air Pollution (CLRTAP) (1983),
- Convention on Long-Range Transboundary Air Pollution and the Cooperative Programme for Monitoring and Evaluation of the Long-Range Transmissions of Air Pollutants in Europe (EMEP) (1983),
- Vienna Convention for the Protection of the Ozone Layer (1988),
- Mediterranean Sea Protocol Concerning Specially Protected Areas and Biodiversity (1988), including related protocols,
- Montreal Protocol on Substances Depleting the Ozone Layer (1990),
- Convention on Biological Diversity (Rio Convention) (1992),
- The International Convention on the Established of an International Fund for Compensation for Oil Pollution Damage (FUND 1992),
- International Convention on Civil Liability for Oil Pollution Damage (1992),
- Convention on Wetlands of International Importance, Especially as Waterfowl Habitat (RAMSAR) (1994),

- Basel Convention on the Control of Transboundary Movements of Hazardous Waste and Their Disposal (1994),
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (1996),
- Kyoto Protocol (1997),
- UN Convention to Combat Desertification (CCD) (1998),
- United Nations Europe Economic Commission Convention on Transboundary Effects of Industrial Accidents (2000),
- European Landscape Convention (2001),
- Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (Aarhus Convention) (2001),
- UN Framework Convention on Climate Change (UNFCCC) (2004),
- Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (Rotterdam Convention) (2004),
- Stockholm Convention on Persistent Organic Pollutant (POPs),
- Convention for the Protection of the Black Sea Against Pollution (Bucharest) (1994) and its protocols including the Protocol for the Protection of Biological and Landscape Diversity in the Black Sea (2004),
- International Labor Organization (ILO) Conventions;
 - ILO Convention on Forced Labor (1930),
 - ILO Convention on Freedom of Association and Protection of the Right to Organize (1948),
 - ILO Convention on Right to Organize and Collective Bargaining (1949), ILO Convention on Equal Remuneration (1951),
 - ILO Convention on Abolition of Forced Labor (1957),
 - ILO Convention on Discrimination (Employment and Occupation) (1958),
 - ILO Convention on Minimum Age (1973),
 - ILO Convention on Worst Forms of Child Labor (1999).

Aside from the listed ILO Conventions, which are categorized as fundamental conventions; Türkiye also ratified three out of four governance conventions, 48 out of 177 technical conventions, out of 59 Conventions ratified by Türkiye, of which 55 are in force, three Conventions have been denounced which are C 34 Fee-Charging Employment Agencies Convention, C 58 Minimum Age (Sea) Convention (Revised) and C 59 Minimum Age (Industry) Convention (Revised); one instrument abrogated which is C 15 Minimum Age (Trimmers and Stokers) Convention; none have been ratified in the past 12 months.

2.2.1.1 International Legal and Regulatory Framework for Ecology and Biodiversity

Bern Convention

The Bern Convention was put forward in 1982 in order to protect the European wildlife and natural habitats. Species to be protected according to the Bern Convention are listed in four appendices, which are presented in Table 2.1 with their explanations:

Table 2.1 Annexes to the Bern Convention

Annex	Explanation
I	Strictly protected flora species
II	Strictly protected fauna species
III	Protected fauna species
IV	Prohibited means and methods of killing, capture and other forms of exploitation

The Convention aims at conserving and promoting biodiversity, developing national policies for the conservation of wild flora and fauna and their natural habitats, protection of the wild flora and

fauna from the planned development and contamination, developing trainings for protection practices, promoting and coordinating the research made regarding this subject. It has been signed by 26 member states of the European Council (as well as Türkiye) with the aim of conserving the wildlife in Europe. Species that are not included within the appendices of the Convention are those that do not require any special protection. Species are not listed individually but instead are protected due to the habitat protection approach of the Bern Convention. All the nations that are party to the BERN Convention have signed the Convention on Biological Diversity as well. Parties of this convention are responsible for ensuring sustainable use of resources in line with their national development trends and conserving the threatened species.

CITES

CITES stands for the Convention on International Trade in Endangered Species of Wild Flora and Fauna. It is an international agreement that has been ratified by governments of 164 states (including Türkiye), whose aim is to ensure that international trade in specimens of wild animals and plants does not threaten their survival. The principles of CITES are based on sustainability of the trade in order to safeguard ecological resources (live animals and plants, vast array of wildlife products derived from them, including food products, exotic leather goods, etc.). CITES was signed in 1973 and entered in force on July 1, 1975. Türkiye ratified the Convention in 1996. Categories and species included in CITES are listed in three different appendices based on their protection statuses. These appendices and their explanations are given in Table 2.2.

Table 2.2 Appendices to CITES

Appendix	Explanation
I	Covers the species, which are under the threat of extinction. Trade in the specimens of these species is not allowed except extraordinary circumstances
II	Includes species, which are not threatened with extinction, but trade in specimens is restricted in order to prevent utilization incompatible with their survival
III	For which other parties of CITES is applied for assistance in controlling trade and which are conserved at least in one country.

IUCN

The International Union for Conservation of Nature (IUCN) publishes its Red List of Threatened Species, which intends to draw attention to species whose populations are at risk or under threat. The IUCN places a species on the Red List only after studying its population and the reasons for its decline. Some countries pay greater attention to IUCN-listed species than Bern-listed species, since the Red List relies on more research. The 1994 (ver.2.3) and 2001 (ver.3.1) categories and criteria of the IUCN Red List are presented below in Table 2.3. The Red List Categories and Criteria had been re-formed through evaluating more open and easier to use systems. As a result, the IUCN Commission made revisions in February 2000 and the new set of categories and criteria were published in 2001.

Table 2.3 IUCN Red List Categories and Criteria

IUCN Red List Categories and Criteria 1994 (ver. 2.3)		IUCN Red List Categories and Criteria 2012 (ver. 4.0)	
EX	Extinct	EX	Extinct
EW	Extinct in the Wild	EW	Extinct in the Wild
CR	Critically Endangered	CR	Critically Endangered
EN	Endangered	EN	Endangered
VU	Vulnerable	VU	Vulnerable
LR	Lower Risk		
	cd : conservation dependent	NT	Near Threatened
	nt : near threatened	LC	Least Concern
	lc : least concern		
DD	Data Deficient	DD	Data Deficient

IUCN Red List Categories and Criteria 1994 (ver. 2.3)		IUCN Red List Categories and Criteria 2012 (ver. 4.0)	
NE	Not Evaluated	NE	Not Evaluated

2.2.2 World Bank Environmental and Social Framework (ESF)

Since the main finance source of the Project is WB; the Project must be in compliance with the good international practice, including WB ESSs, guides, performance standards and best practices documents alongside the national legislation.

After a thorough assessment of the risks and impacts associated with this project, it has been classified as of Substantial Risk. This classification takes into consideration various factors, including the project's complexity, environmental and social scale, impact size, and location sensitivity. While not as complex as High-Risk projects, this project still presents significant risks and impacts. These include temporary, predictable, and reversible risks that may require substantial investment and time to address. Additionally, there are concerns regarding adverse social impacts, potential conflicts, and risks to human security. The project's magnitude and spatial extent are medium, with potential for cumulative and/or transboundary impacts that are less severe than those of High-Risk projects. Moreover, there is a medium to low probability of serious adverse effects on human health and the environment, with mechanisms available to prevent or minimize such incidents.

The project's effects on areas of high value or sensitivity are expected to be lower than those of High-Risk projects. Mitigatory and compensatory measures can be designed more readily and are expected to be more reliable. The project is being developed in a legal or regulatory environment where there is uncertainty or conflict regarding jurisdiction, inadequate legislation or regulations for complex projects, ongoing changes to applicable legislation, or weak enforcement.

The Borrower and implementing agencies have limited past experience in developing complex projects, with some concerns regarding their track record on environmental and social issues. However, these concerns can be addressed through implementation support. There are also some concerns regarding capacity and experience in managing stakeholder engagement, but these can also be addressed through implementation support.

Reasons regarding to the risk characterization of the Project are given below:

- The planned WWTP has a capacity of 30,000 m³/day and according to Turkish EIA regulation, "EIA is not required" decision provided on 5.10.2022.
- The ownership of the land is registered in the name of Denizli Organized Industrial Zone Directorate, it is currently vacant land and is planned on the condition that a WWTP is constructed. There is no expropriation in the existing land area, collector and discharge routes.
- With the realization of the Project, the wastewater will be treated and discharge of untreated wastewater into the environment will be prevented. Therefore, the Project will have a positive impact on both the environment and public health.

The World Bank Group (WBG) Environmental, Health and Safety (EHS) Guidelines constitutes technical reference resources that include general and sector specific examples of international good sector practices. It includes the information on applicable environmental, the health and safety issues for all industrial sectors. WBG uses the EHS Guidelines as a technical source of information during Project appraisal. EHS Guidelines include performance levels and measurements that can be achieved at newly installed facilities using WBG's available technologies at reasonable cost.

WBG General Environmental, Health and Safety Guidelines include the following main items;

- Environmental
 - Air Emissions and Ambient Air Quality
 - Energy Conservation
 - Wastewater and Ambient Water Quality
 - Water Conservation
 - Hazardous Materials Management
 - Waste Management
 - Noise
 - Contaminated Land
- Occupational Health and Safety
 - General Facility Design and Operation
 - Communication and Training
 - Physical Hazards
 - Chemical Hazards
 - Biological Hazards
 - Radiological Hazards
 - Personal Protective Equipment
 - Special Hazard Environments
 - Monitoring
- Community Health and Safety
 - Water Quality and Availability
 - Structural Safety of Project Infrastructure
 - Life and Fire Safety
 - Traffic Safety
 - Transport of Hazardous Materials
 - Disease Prevention
 - Emergency Preparedness and Response
- Construction and Decommissioning
 - Environment
 - Occupational Health and Safety
 - Community Health and Safety

The environmental and social components within both the Project and its AoI encompass elements or activities related to assessing and managing environmental and social risks and impacts, labor and working conditions, resource efficiency, pollution prevention and management, community health and safety, biodiversity conservation, sustainable management of living natural resources, as well as stakeholder engagement and information disclosure. The World Bank's Environmental and Social Standards on these topics are included in the Environmental and Social Framework.

In addition to the WBG General EHS Guidelines, WBG Industry Sector Guidelines for Water and Sanitation is also applicable. Moreover, WB Good Practice Note on Addressing Sexual Exploitation and Abuse and Sexual Harassment (SEA/SH), and WB 2010 Access to Information Policy are other specific guides.

2.2.3 Comparison of Turkish EIA Regulation and WB ESSs

Since the main finance source of the Project is WB, the Project must be in compliance with the good international industry practice, including WB ESSs, WB Group's Environmental, Health and Safety (EHS) guidelines, performance standards and best practices documents alongside the national legislation.

The World Bank (WB) Environmental and Social Framework came into effect on 1 October 2018. The framework enhances the World Bank's commitment to sustainable development through

ten Environmental and Social Standards (ESS) that are designed to support Borrowers' environmental and social (E&S) risk management.

The Project and the social and environmental elements in the Area of Influence (AoI) of the Project include elements or activities that are related to the scope of ESS1, ESS2, ESS3, ESS4, ESS5, ESS6 and ESS10. The main objectives of these standards within the scope of the Project are presented below.

- ESS1: Assessment and Management of Environmental and Social Risks and Impacts,
- ESS2: Labour and Working Conditions,
- ESS3: Resource Efficiency and Pollution Prevention and Management,
- ESS4: Community Health and Safety,
- ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources,
- ESS10: Stakeholder Engagement and Information Disclosure.

ESS7 "Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities" and ESS9 "Financial Intermediaries" are not relevant to this project as there are no indigenous groups in Türkiye that meet the definition provided in ESS7 and the project does not involve a Financial Intermediary. When any OIZ's area is being finalized, the Ministry of Culture and Tourism gives information about cultural and historical areas. If any cultural and historical area is located in that area, those areas are cut off from OIZ's area. In case of any possible additional land requirement for the sub-projects outside the existing OIZ boundaries, subprojects that will have impacts on known and protected cultural heritage will be considered as ineligible and screened out from the project. Therefore, "ESS 8: Cultural Heritage" is not relevant within the project.

The gap analysis between the WB ESSs triggered by the Project and Turkish EIA Regulation is presented in Annex 14.

2.3 Project Standards

This section aims to provide the standards that are applicable to the Project. The most stringent amongst the national legislations and international standards is defined as Project Standard (see below table) that the Project will be in compliance with.

Table 2.4 Project Standards

Environmental Standards						
No	Topic	National Standards/ Requirements	Limit Values in National Legislation	International Standards/ Requirements	Limit Values in International Legislation	Project Standards
1	Noise	Regulation on Environmental Noise Control (Official Gazette Date/Number: 30.11.2022/32029) Annex- 2 "Table-1 Limit Values for ambient noise level"	Noise source: Industrial Facilities, Transportation: Day time (07:00-19:00): $L_{A_{eq, 5 \text{ min.}}} < 65 \text{ dB(A)}$ Evening time (19:00-23:00): $L_{A_{eq, 5 \text{ min.}}} < 60 \text{ dB(A)}$ Night time (23:00-07:00): $L_{A_{eq, 5 \text{ min.}}} < 55 \text{ dB(A)}$	WBG General EHS Guidelines: Environmental Noise Management Table 1.7.1 – Noise Level Guidelines Noise impacts should not exceed the levels specified in the Table 1.7.1, or result in a maximum increase in background levels of 3 dB at the nearest receptor location off-site.	Receptor: Residential; institutional, educational: Day time (07:00-22:00): One Hour $L_{A_{eq}} \text{ dB(A)} < 55 \text{ dB(A)}$ Night time (22:00-07:00): One Hour $L_{A_{eq}} \text{ dB(A)} < 45 \text{ dB(A)}$ Receptor: Industrial, commercial.: Day time (07:00-22:00): One Hour $L_{A_{eq}} \text{ dB(A)} < 70 \text{ dB(A)}$ Night time (22:00-07:00): One Hour $L_{A_{eq}} \text{ dB(A)} < 70 \text{ dB(A)}$	Receptor: Industrial, commercial: Day time (07:00-19:00): $L_{A_{eq, 5 \text{ min.}}} < 65 \text{ dB(A)}$ Evening time (19:00-23:00): $L_{A_{eq, 5 \text{ min.}}} < 60 \text{ dB(A)}$ Night time (23:00-07:00): $L_{A_{eq, 5 \text{ min.}}} < 55 \text{ dB(A)}$
2	Air Quality	Regulation on the Assessment and Management of Air Quality (Official Gazette Date/Number:	PM_{10} 1-Year: $40 \mu\text{g}/\text{m}^3$ 24-Hour: $50 \mu\text{g}/\text{m}^3$ (not to be exceedance more than 35 times per year)	WBG General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality Table 1.1.1.: WHO Ambient Air Quality Guidelines	PM_{10} 1-Year: $20 \mu\text{g}/\text{m}^3$ 24-Hour: $50 \mu\text{g}/\text{m}^3$ (99 th percentile (i.e.3-4 exceedance days per	Turkish Legislation has not described a limit value for $PM_{2.5}$. Therefore, in the assessment of the measurement result, the limit value set forth by the Ambient Air Quality and Cleaner Air for Europe (Directive 2008/50/EC) and WBG 24-hour

Environmental Standards						
No	Topic	National Standards/ Requirements	Limit Values in National Legislation	International Standards/ Requirements	Limit Values in International Legislation	Project Standards
		06.06.2008/26898) Annex – 1			year) PM _{2.5} 1-Year: 10 µg/m ³ 24-Hour: 25 µg/m ³ (99 th percentile (i.e.3-4 exceedance days per year)	limit values are used, which is 25 µg/m ³ for both of them. PM ₁₀ 1-Year: 20 µg/m ³ 24-Hour: 50 µg/m ³ (99 th percentile (i.e.3-4 exceedance days per year) PM _{2.5} 1-Year: 10 µg/m ³ 24-Hour: 25 µg/m ³ (99 th percentile (i.e.3-4 exceedance days per year)
		Industrial Air Pollution Control Regulation (Official Gazette Date/Number: 03.07.2009/27277 revised in the Official Gazette Date/Number: 6.11.2020/31296) Annex- 2 "Table-2.1 Mass Flows"	Non-stack Mass Flow CO: 50 kg/h Dust: 1 kg/h NOx (as NO ₂): 4 kg/h SOx: 6 kg/h TOC: 3 kg/h	WBG General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality	WBG General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality mention that: "Emissions do not result in pollutant concentrations that reach or exceed relevant ambient quality guidelines and standards by applying national legislated standards, or in their absence, the current WHO Air Quality Guidelines" Since National Standards exist, compliance with National Standards will be ensured.	The limit values for exhaust gas defined in Industrial Air Pollution Control Regulation will be complied in Project. Non-stack Mass Flow CO: 50 kg/h Dust: 1 kg/h NOx (as NO ₂): 4 kg/h SOx: 6 kg/h TOC: 3 kg/h

Environmental Standards														
No	Topic	National Standards/ Requirements	Limit Values in National Legislation			International Standards/ Requirements	Limit Values in International Legislation	Project Standards						
3	Effluent Water Quality	Regulation on Water Pollution Control (Official Gazette Date/Number: 31.12.2004/25687 and revised in the Official Gazette Date/Number 12.05.2023/32188.) Wastewater Discharge Standards Defined in Table 19- Discharge Standards of Mixed Industrial Wastewater to The Receiving Environment (Small and Large Organized Industrial Zones and Other Industries for Which Sector cannot be Determined)	Discharge Standards for the Treated Process Water to Receiving Environment in the Regulation on Water Pollution Control for planned WWTP: COD: 250 mg/L TSS: 200 mg/L Oil and grease: 20 mg/L Total Phosphorus (P): 2 mg/L Total Chrome: 2 mg/L Chrome (Cr ⁺⁶): 0.5 mg/L Lead (Pb): 2 mg/L Total Cyanide (CN ⁻): 1 mg/L Cadmium (Cd): 0.1 mg/L Ferrous (Fe): 10 mg/L Fluoride (F ⁻): 15 mg/L Copper (Cu): 3 mg/L Zinc (Zn): 5 mg/L Mercury (Hg): 0.05 mg/L Sulphate (SO ₄ ⁻²): 1500 mg/L Total Kjeldahl Nitrogen (TKN): 20 mg/L Fish Bioassay (TDF): 10 Color: 280 Pt-Co pH:6-9			WBG General EHS Guidelines: Environmental Wastewater and Ambient Water Quality	WBG General EHS Guidelines Environmental- Wastewater and Ambient Water Quality mention that: "Compliance with national or local standards for sanitary wastewater discharges or, in their absence, the indicative guideline values applicable to sanitary wastewater discharges shown in Table 1.3.1." Since National Standards exist, compliance with National Standards will be ensured.	The discharge criteria of the WWTP have been decided on the basis of the Water Pollution Control Regulation, Urban Wastewater Treatment Regulation, EU directives and WBG EHS Guidelines: Environmental Wastewater and Ambient Water Quality. COD: 250 mg/L TSS: 200 mg/L Oil and grease: 20 mg/L Total Phosphorus (P): 2 mg/L Total Chrome: 2 mg/L Chrome (Cr ⁺⁶): 0.5 mg/L Lead (Pb): 2 mg/L Total Cyanide (CN ⁻): 1 mg/L Cadmium (Cd): 0.1 mg/L Ferrous (Fe): 10 mg/L Fluoride (F ⁻): 15 mg/L Copper (Cu): 3 mg/L Zinc (Zn): 5 mg/L Mercury (Hg): 0.05 mg/L Sulphate (SO ₄ ⁻²): 1500 mg/L Total Kjeldahl Nitrogen (TKN): 20 mg/L Fish Bioassay (TDF): 10 Color: 280 Pt-Co pH:6-9						
4	Surface Water Quality	Regulation on Surface Water Quality-Water Quality Classes (Official Gazette Date/Number: 30.11.2012/ 28483) Annex – 5)	Parameter	Unit	Surface Water Quality Regulation Water Quality Classes			WBG General EHS Guidelines: Environmental Wastewater and Ambient Water Quality	WBG General EHS Guidelines Environmental- Wastewater and Ambient Water Quality mention that: "Discharges to surface water should not result	Parameter	Unit	Surface Water Quality Regulation Water Quality Classes		
					I (very good)	II (good)	III (moderate)					I (very good)	II (good)	III (moderate)
			Ammonium (NH ₄ ⁺)	mg/L	<0.2	1	>12			Ammonium (NH ₄ ⁺)	mg/L	<0.2	1	>12
			Colour	m ⁻¹	RES 436 nm: ≤ 1,5 RES 525 nm: ≤ 1,2	RES 436 nm: 3 RES 525 nm: 2,4	RES 436 nm: > 4,3 RES 525 nm: > 3,7			Colour	m ⁻¹	RES 436 nm: ≤ 1,5 RES 525 nm: ≤ 1,2	RES 436 nm: 3 RES 525 nm: 2,4	RES 436 nm: > 4,3 RES 525 nm: > 3,7

Environmental Standards														
No	Topic	National Standards/ Requirements	Limit Values in National Legislation					International Standards/ Requirements	Limit Values in International Legislation	Project Standards				
					RES 620 nm: ≤ 0,8	RES 620 nm: 1,7	RES 620 nm: 2,5					RES 620 nm: ≤ 0,8	RES 620 nm: 1,7	RES 620 nm: 2,5
			Oil and Grease	mg/L	<0.2	0.3	>0.3		in contaminant concentrations in excess of local ambient water quality criteria or, in the absence of local criteria, other sources of ambient water quality.”	Oil and Grease	mg/L	<0.2	0.3	>0.3
			Biological Oxygen Demanded BOD(BOD ₅)	mg/L	<4	8	>8		Since National Standards exist, compliance with National Standards will be ensured.	Biological Oxygen Demanded BOD(BOD ₅)	mg/L	<4	8	>8
			Dissolved Oxygen (DO)	mg/L	>8	6	<6			Dissolved Oxygen (DO)	mg/L	>8	6	<6
			Conductivity	µS/cm	<400	1000	>1000			Conductivity	µS/cm	<400	1000	>1000
			Chemical Oxygen Demanded (COD)	mg/L	<25	50	>50			Chemical Oxygen Demanded (COD)	mg/L	<25	50	>50
			Nitrate (NO ₃ ⁻)	mg/L	<3	10	>10			Nitrate (NO ₃ ⁻)	mg/L	<3	10	>10
			pH	-	6-9	6-9	6-9			pH	-	6-9	6-9	6-9
			Total Phosphorus (TP)	mg/L	<0.08	0.2	>0.2			Total Phosphorus (TP)	mg/L	<0.08	0.2	>0.2
			Orthophosphate (o-PO ₄)	mg/L	<0.05	0,16	>0.16			Orthophosphate (o-PO ₄)	mg/L	<0.05	0,16	>0.16
			Total Kjeldahl Nitrogen(, TKN)	mg/L	<0.5	1.5	>1.5			Total Kjeldahl Nitrogen(, TKN)	mg/L	<0.5	1.5	>1.5
			Total Nitrogen, (TN)	mg/L	<3.5	11.5	>11.5			Total Nitrogen, (TN)	mg/L	<3.5	11.5	>11.5
			Fluoride	µg/L	≤1000	1500	>1500			Fluoride	µg/L	≤1000	1500	>1500
			Manganese	µg/L	≤100	500	>500			Manganese	µg/L	≤100	500	>500
			Selenium	µg/L	≤10	15	>15			Selenium	µg/L	≤10	15	>15
			Sulphur	µg/L	≤2	5	>5			Sulphur	µg/L	≤2	5	>5
5	Groundwater Quality	Regulation on the Protection of Groundwater Against Pollution and Deterioration (Official Gazette Date/Number: 07.04.2012/ 28257) (Annex – 3)	Nitrate: 50 mg/L Total Pesticide: 0.5 µg/L For the other parameters given below (included in Annex-3 of the Regulation) no limit value is defined. Ammonium					WBG General EHS Guidelines: Environmental Wastewater and Ambient Water Quality	Environmental- Wastewater and Ambient Water Quality mention that: Properly designed and installed in accordance with local regulations and guidance to prevent any hazard to public health	Nitrate: 50 mg/L Total Pesticide: 0.5 µg/L For the other parameters (Ammonium, Arsenic, Mercury, Conductivity, Cadmium Chloride, Lead, Sulfate, Tetrachloroethylene, Trichloroethylene, Salinity) limit values defined for the surface waters will be used.				

Environmental Standards						
No	Topic	National Standards/ Requirements	Limit Values in National Legislation	International Standards/ Requirements	Limit Values in International Legislation	Project Standards
			Arsenic Mercury Conductivity Cadmium Chloride Lead Sulfate Tetrachloroethylene Trichloroethylene Salinity		or contamination of land, surface or groundwater. Although there is a national regulation, no limit value is set in the regulation. So, limit values for surface water are used for the assessment.	
6	Soil Quality	Regulation on Soil Pollution Control and Point Source Contaminated Fields (Official Gazette Date/Number: 08.06.2010/27605 revised in the Official Gazette Date/Number: 11.07.2013/28704), Annex-2 considering that the DOIZ includes mainly textile industry factories ¹ .	Antimony: 31 mg/kg Arsenic: 0.4 mg/kg Boron: - Cadmium: 70 mg/kg Chromium (VI): 235 mg/kg Copper: 3129 mg/kg Lead: 400 mg/kg Mercury: 23 mg/kg Nickel: 1564 mg/kg Selenium: 391 mg/kg Silver: 391 mg/kg Zinc: 23464 mg/kg Tin: 46929 mg/kg Titanium: 312857 mg/kg Total Petroleum Hydrocarbons (TPH): - Total Organic Halogens (TOX): -	WBG General EHS Guidelines: Environmental	Since limit values regarding soil quality are not given at WBG General EHS Guidelines: Environmental, compliance with National Standards will be ensured.	Antimony: 31 mg/kg Arsenic: 0.4 mg/kg Boron: - Cadmium: 70 mg/kg Chromium (VI): 235 mg/kg Copper: 3129 mg/kg Lead: 400 mg/kg Mercury: 23 mg/kg Nickel: 1564 mg/kg Selenium: 391 mg/kg Silver: 391 mg/kg Zinc: 23464 mg/kg Tin: 46929 mg/kg Titanium: 312857 mg/kg Total Petroleum Hydrocarbons (TPH): - Total Organic Halogens (TOX):-

¹ The parameters are selected by considering the classification given in Regulation on Soil Pollution Control and Point Source Contaminated Fields Annex-2, Table-2. NACE Code: 1330 (defined in Pollution Control and Point Source Contaminated Fields). Also limit values given in Regulation on Soil Pollution Control and Point Source Contaminated Fields Annex-1 are taken into consideration.

Social Standards						
No	Topic	National Laws / Regulations	International Standards	Project Standards	Non-Compliances /Corrective Actions	Targets
1	Labor and working conditions	Labor Law (No. 4857), published in the Official Gazette no. 25134 dated 10 June 2003	WB ESS2 Labor and Working Conditions	Working conditions and work-related rights and obligations of employers and employees working under an employment contract.	LMP	To develop and implement written labor management procedures applicable to the project.
2	Labor and working conditions	Law on Occupational Health and Safety (No. 6331), published in the Official Gazette no. 28339 dated 30 June 2012	WB ESS2 Labor and Working Conditions WBG General Environmental Health and Safety Guidelines.	Regulating duties, authority, responsibility, rights and obligations of employers and workers in order to ensure occupational health and safety at workplaces and improving existing health and safety conditions.	LMP	To develop and implement written labor management procedures applicable to the project.
3	Labor and working conditions	Regulation on Contractors and Sub-contractors, published in the Official Gazette no. 27010 dated 27 September 2008	WB ESS2 Labor and Working Conditions	Taking necessary actions mentioned in the Law.	LMP	To develop and implement written labor management procedures applicable to the project.
4	Stakeholder engagement	Laws on Right to Information (No. 4982), published in the Official Gazette no 25269 dated 24 October 2003	WB ESS10 Stakeholder Engagement and Information Disclosure	Ensuring the stakeholder engagement in line with the principles of equality, impartiality and transparency, which are the prerequisites of democratic and transparent administration.	GM	To develop and implement Stakeholder Engagement Plan for the project.

Social Standards						
No	Topic	National Laws / Regulations	International Standards	Project Standards	Non-Compliances /Corrective Actions	Targets
5	Environmental and Social Risks and Impacts	Regulation on the Environmental Impact Assessment (EIA) published in the official Gazette no. 31907 dated 29 July 2022	ESS1: Assessment and Management of Environmental and Social Risks and Impacts	Conducting the assessment as described by the law.	ESIA	To assess the environmental and social risks and impacts of the project throughout the project life cycle.
6	Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	Expropriation Law, published in the Official Gazette no. 18215 dated 8 November 1983	ESS5 Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	NA	NA	NA
7	Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	Amendment on Expropriation Law, published in the Official Gazette no. 24393 dated 5 May 2011.	ESS5 Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	NA	NA	NA

3 DESCRIPTION OF THE PROPOSED PROJECT

As mentioned before, DOIZ currently operates a wastewater treatment plant (WWTP) situated on a 28,836 m² plot within the DOIZ boundaries. Initially designed with a capacity of 42,000 m³/day, the WWTP was completed and became operational on December 31, 1997. The existing WWTP incorporates various units for physical, chemical, biological treatment, as well as sludge dewatering.

To date, the WWTP has been operating at full capacity in compliance with the national discharge standards. Consequently, maintenance and repair costs for machinery and equipment have risen, and there have been challenges in sourcing spare parts. Additionally, it has been recognized that the total wastewater volume will increase due to rising production capacities of companies within the DOIZ. Therefore, the construction of a planned WWTP is deemed essential for the safe and environmentally sound operation of the DOIZ.

The primary objective of this Project is to establish a second-stage WWTP with a daily capacity of 30,000 m³ in DOIZ. The Project will occupy an area of 26,840 m². The planned WWTP will specialize in the removal of floatable materials, grit, grease, organic pollutants, and hazardous substances from the wastewater. The treated wastewater will be discharged into Çürüksu Creek. Other facilities also discharge wastewater into Çürüksu Creek. Sampling studies have been conducted from upstream and downstream this location. These measurement values are presented in the Baseline Conditions section of this report.

The project has two main components, construction of WWTP and discharge line. In addition, the collector line and the electricity distribution line are the associated facilities of the project. 194 m of the project's discharge line is within the WWTP area and the remaining 281 m is outside the WWTP area, passing through cadastral roads. There will be no land acquisition for associated facilities and discharge line. The DOIZ purchased the parcel for the construction of the planned WWTP and transfer of land was completed on 15.12.2020, therefore WWTP does not require any land acquisition. Additionally, there will not be any land acquisition for the associated facilities that will be funded by DOIZ and the construction of them will be carried out in parallel with project components.

The total length of the Electricity Distribution Line (EDL), defined as the associated facility of the project, is 244 m, and a connection will be made from the pole number 3 located near the WWTP site to the separator pole to be erected inside the treatment plant. From here, the energy will be transported via underground cable to the transformer input cell located at the WWTP site. The distance between the transformer and pole number 3 is approximately 100 meters. There is no need for any land acquisition for the electricity distribution line.

For the Project, the pre-construction works will start and last for one month. The continuation of this process is the construction phase of the project, which will last 18 months. Also, the economic life of wastewater treatment plants is considered as 30 years.

There will be 5, 55 and 18 employees during the pre-construction, construction and operation phases of the project, respectively. During the pre-construction and construction phases of the Project, there will be a camp area where the staff can meet their basic requirements such as toilets and showers, but there will be no accommodation on the construction site.

While 2 construction machinery/equipment will be used in the pre-construction phase, 10 will be used in the construction phase. Also, since ready-mixed concrete will be used in construction, no cement/concrete unit will be in the Project Area.

The definition, duration and resource requirements of the activities to be carried out for all 3 phases of the Project are summarized in the Table 3.1.

Table 3.1 List of Activity for Each Phase of the Project

Phase	Activities	Description	Timeline	Resources Requirements
Pre-Construction	Site Preparation	<ul style="list-style-type: none"> This involves clearing, grading, and prepping the construction site, including digging and moving earth as needed. 	1 month	<ul style="list-style-type: none"> 5 personnel for land preparation works Machinery and equipment Domestic water for employees' use.
Construction	Constructing Physical Structures	<ul style="list-style-type: none"> Building the essential structures like treatment tanks, settling basins, and other units vital for wastewater treatment. 	All construction activities will last 18 months	<ul style="list-style-type: none"> 55 personnel Machinery and equipment Domestic water for employees' use
	Installing Pipelines and Networks	<ul style="list-style-type: none"> Setting up the network of pipes, both underground and above ground, that carry wastewater within the plant. 		
	Placing Mechanical Components	<ul style="list-style-type: none"> Installing machinery like pumps, motors, and aerators necessary for the treatment processes. 		
	Electrical Setup	<ul style="list-style-type: none"> Putting in place electrical systems, control panels, and wiring for monitoring and managing the treatment procedures. 		
	Handling Chemicals	<ul style="list-style-type: none"> Building facilities for storing and managing treatment chemicals like disinfectants and pH adjusters. 		
	Environmental Focus	<ul style="list-style-type: none"> Implementing measures like landscaping and erosion control to minimize the environmental impact during construction. 		
	Safety and Security	<ul style="list-style-type: none"> Installing safety features, fencing, and security systems to protect workers and prevent unauthorized access. 		
	Testing and Commissioning	<ul style="list-style-type: none"> Running tests and inspections to ensure the plant operates as intended and meets required standards before it goes operational. 		
Operation	Inflow Monitoring	<ul style="list-style-type: none"> Consistently overseeing the incoming wastewater flow at the plant to control and adapt treatment methods based on changes in flow rates and qualities. 	The economic life of wastewater treatment plant is 30 years.	<ul style="list-style-type: none"> 18 personnel Machinery and equipment Domestic water for employees' use Electricity usage
	Primary Treatment	<ul style="list-style-type: none"> Performing initial treatment methods like screening and sedimentation to eliminate large solids and floating debris from the incoming wastewater. 		
	Biological Treatment	<ul style="list-style-type: none"> Implementing biological treatment techniques, such as activated sludge or biological filters, to decompose organic matter and extract nutrients from the wastewater. 		
	Secondary Treatment	<ul style="list-style-type: none"> Implementing secondary treatment techniques to further cleanse the wastewater, often involving biological and 		

		chemical processes to remove residual pollutants.		
	Tertiary Treatment	<ul style="list-style-type: none"> Applying tertiary treatment methods like filtration or disinfection to attain elevated water quality standards prior to discharge 		
	Handling Chemicals	<ul style="list-style-type: none"> Building facilities for storing and managing treatment chemicals. 		
	Sludge Management	<ul style="list-style-type: none"> Handling and processing the sludge produced in the treatment process, which involves tasks like removing water, treatment procedures, and deciding whether to dispose of or reuse the remaining sludge. 		
	Effluent Discharge	<ul style="list-style-type: none"> Releasing treated wastewater (effluent) into receiving body according to regulatory standards 		
	Waste Management	<ul style="list-style-type: none"> Storing and disposing generated waste according to waste hierarchy. 		
	Maintenance and Repairs	<ul style="list-style-type: none"> Performing routine maintenance tasks, which involve inspecting equipment, making repairs, and replacing parts as needed, to guarantee that all plant components operate correctly. 		
	Process Optimization	<ul style="list-style-type: none"> Consistently improving treatment procedures by monitoring, making adjustments, and implementing upgrades to enhance efficiency and effectiveness 		
	Monitoring and Reporting	<ul style="list-style-type: none"> Consistently checking the quality of the discharged water, its environmental impact, and adherence to regulations, along with keeping records and submitting reports as mandated by governing bodies. 		
	Emergency Preparedness	<ul style="list-style-type: none"> Developing and implementing emergency response plans to address unexpected events like spills, equipment failures, or natural disasters to minimize environmental impacts and ensure worker safety. 		
	Staff Training and Development	<ul style="list-style-type: none"> Providing ongoing training and professional development opportunities for plant operators and staff to keep them updated on best practices, technologies, and safety protocols. 		

3.1 Project Location

The Project will be implemented in Pamukkale District of Denizli Province. DOIZ is located 600 m away from the Project Area and Honaz District border. Two districts (Honaz and Pamukkale) share a border between the Project area and DOIZ area (see Figure 3.2). The closest settlement in the immediate vicinity of the Project Area is Pinarkent neighbourhood. This neighborhood is located to the southwest of the Project Area. The Project Area location map is given in Figure 3.2.

The size of land allocated for the planned WWTP is 2.57 ha and the discharge line length is about 475 meters between WWTP and Çürüksu Creek.

The construction of the WWTP does not require expropriation of any private land. The area (parcel no 54) that WWTP will be constructed currently belongs to DOIZ. The DOIZ purchased this parcel for the construction of the planned WWTP and transfer of land was completed on 15.12.2020, therefore WWTP does not require any land acquisition. The title deed for this area is given in Annex 2. For the Project Area, there is no pending title transfer, compensation payment, ownership disputes. In addition, collector and discharge lines will not require any land acquisition process since their construction will be under the existing roads. Permission letter from Pamukkale Municipality for the use of existing roads for collector and discharge lines is given in Annex 3. For electricity distribution line to be used in the planned treatment facility, an official application cannot yet be made to ADM Electricity Distribution Company, since in order to apply in this regard, the project must first be approved by the MoIT. As a result of the negotiations between DOIZ officials and ADM Electricity Distribution Company, it was learned that the connection will be made to the separator pole to be erected inside the treatment plant from pole number 3, located near the WWTP area. From here, the energy will be carried to the transformer input cell to be located in the WWTP area via underground cable. The distance between the transformer and pole number 3 is approximately 100 meters. There is no need for any land acquisition process for the electricity distribution line.

According to CORINE 2018 data, the land use of the planned WWTP site is complex cultivation patterns. In addition, according to land use map prepared based on Environmental Master Plan for Aydın-Mugla-Denizli planning area, the Project Area shows agricultural land use characteristics that are agricultural land and irrigation area. However, currently the land is not used for agricultural purposes and is completely empty. Detailed information about land use is given in Section 4.1.2.

According to research conducted with current databases, the Project Area is located in the Sarayköy Plain, which is determined as the Great Plain Protected Area², which is declared as such by the Ministry of Agriculture and Forestry. There is no internationally recognized area in and around the Project Area. This subject is assessed in Section 4.2.4 in detailed way.

The photographs of Project Area taken during field study carried out 12 September 2023 are given in Figure 3.1.

² Plains with high agricultural production potential, where soil loss and land degradation develop rapidly due to various reasons such as erosion, pollution or misuse, are designated as Great Plain Protected Areas by the decision of the President of the Republic by taking the opinion of the board or boards.



Planned WWTP area



Discharge line area

Figure 3.1 The Photographs of Project Area

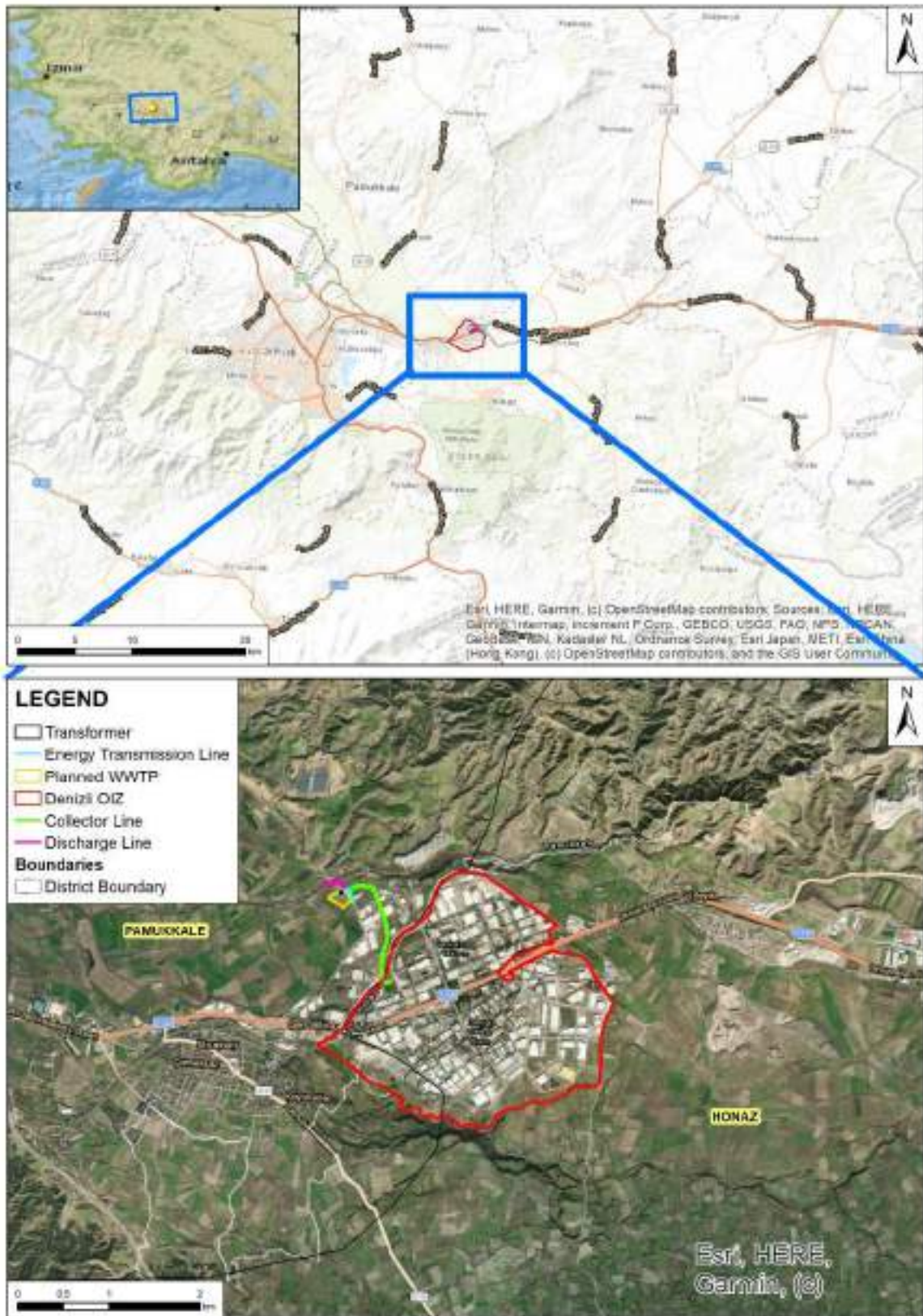


Figure 3.2 Project Area Location Map

3.2 Lifetime of the Project

According to Project Identification Document (PID) of the Project, economic life of wastewater treatment plants is considered as 30 years.

3.3 Permits and Management System of the DOIZ

DOIZ has Energy Management System Certificate and Quality Management System Certificate, which are valid until 17.11.2024 and 11.11.2024, respectively. In addition, Environmental Management System Certificate expired on 30.10.2023. In order to renew the certificate, inspections were carried out by experts at the Turkish Standards Institute Izmir System Certification Directorate on November 16-17, 2023. As a result of the examination, the renewal of the document has been approved, but the document has not yet been forwarded to DOIZ. Also, since the Zero Waste Management System has been established within DOIZ, it has a Zero Waste Certificate valid until 24.12.2025.

DOIZ has an Environmental Permit Certificate for wastewater discharge from the existing WWTP. This document is valid until 23.06.2028. Also, DOIZ has Continuous Wastewater Monitoring Systems (SAİS) approved by MoEUCC and the integrated comparison test must be performed every 3 months according to approval document.

In addition, DOIZ has a hazardous waste temporary storage permit issued by MoEUCC Provincial Directorate on 03.07.2020.

For the planned WWTP Project, non-agricultural use of parcel number 54, where the project will be constructed, was requested and approved by the Provincial Directorate of Agriculture and Forestry on 22.03.2023. Also, as mentioned in Section 2.1, collector and discharge lines will be constructed under the existing roads. Permission letter from Pamukkale Municipality for the use of existing roads for collector and discharge lines is taken from Pamukkale Municipality on 07.11.2022.

All these certificates, permits and letters are given in Annex 3.

Also, the Project-related permits to be taken are as follows;

- Construction License from MoEUCC Provincial Directorate before construction phase of the Project,
- Building License from Denizli Metropolitan Municipality before construction phase of the Project,
- Temporary Certificate of Operation from MoEUCC Provincial Directorate after construction phase of the Project,
- Operation License from MoEUCC Provincial Directorate before operation phase of the Project,
- Permit for electricity distribution line connection by ADM Electricity Distribution Company after project approval by MoIT,
- Wastewater Treatment Plant Identity Card from MoEUCC,
- Environmental Permit and License about Wastewater Discharge from MoEUCC Provincial Directorate in commissioning phase of the Project,
- Reducing the Risks of Major Industrial Accidents (BEKRA) notification to MoEUCC,
- Three (3) year Industrial Waste Management Plan from MoEUCC Provincial Directorate.

Additionally, for the construction of collector line following permits to be taken from related authorities prior to construction works:

- Permit from State Hydraulic Works (DSİ) for the water channels crossings,
- Permit from General Directorate of State Railways (TCDD) for the railway crossing.

The responses of the Authorities (given in Annex-6) are summarized in the below given Table 3.2.

Table 3.2 Summary of Responses of Authorities

Authority	Related Subject	Authority Opinion	Date
Aydem Electricity Retail Sales	Obtaining information about the power lines on the collector line route	Comments on power lines were directed to ADM Electricity Distribution Inc., the company responsible for distribution.	29.09.2023
ADM Electricity Distribution Inc.	Obtaining information about the power lines on the collector line route	<p>Since there is an underground line in the area to be excavated, it is necessary to request location and personnel to accompany the work from ADM Denizli Central Operation Management before the work starts.</p> <p>Vertical and horizontal safety distances must be provided between the electricity distribution line and all kinds of structures and additions to be built on the parcel(s) in question.</p> <p>In the event that the safety distances between the structures built / to be built on the parcel / parcels in question and the electrical facilities are neglected, all responsibility for the safety of life and property will belong to DOIZ.</p>	11.10.2023
Enerya Denizli Gas Distribution Inc.	Obtaining information about completed or planned investments on the collector line route	Since we do not have any completed or planned investments in the area in question, there is no drawback for our company regarding the work to be carried out.	01.11.2023
Türk Telekom Denizli Provincial Directorate	Obtaining information about communication lines on the collector line route	<p>Türk Telekom has local fiber optic cables, copper cables, underground and aboveground facilities that provide communication traffic on the aforementioned streets. In the works to be carried out in this context, the infrastructure on the work routes must first be protected; it is necessary to show the necessary sensitivity in order to prevent damage to the facilities, to work in coordination with Turk Telekom personnel assigned for on-site demonstration of the infrastructure and additional works, and to start asphaltting and parquet laying processes after Turk Telekom completes its work in the area where work is carried out.</p> <p>In the works to be carried out, the costs of damages to the infrastructure on the work routes (reserving all legal rights) will be recourse to DOIZ. In the event that possible routes will not be able to pass anywhere else after the aforementioned works; provided</p>	01.11.2023

		that this situation is first determined, it is necessary to immediately notify Turk Telekom with the determination and to request displacement. If it is understood by Turk Telekom that the displacement is mandatory as a result of the examinations to be made; The displacement process will be carried out following the deposit of the 1st discovery fee to be calculated. Otherwise, DOIZ will remain legally responsible for the damages that will occur on the route.	
DESKI - Denizli Water and Sewage Administration Directorate	Obtaining information about wastewater and drinking water lines on the collector line route	The projects are attached to opinion report.	11.10.2023
TCDD - General Directorate of State Railways	Receiving information about the passage of the collector line under the railroad	In order to make the passage under the railroad with the wastewater collector line, the amount of 25,772. 49 TRY (including VAT) must be paid to TCDD; the copy of the receipt must be signed and submitted to the TCDD Directorate. The transition fee must be paid, all pages of the attached contract must be initialed and signed in duplicate and sent to the TCDD Regional Directorate with a copy of the receipt.	11.12.2023
BOTAS	Obtaining information about the excavation to be carried out near ST 8" Denizli OIZ High Pressure Natural Gas Transmission Line	No crossing is allowed within the expropriation area, and in cases of necessity, vertical crossing over or under the pipeline is allowed with a letter of undertaking to be issued, provided that the required dimensions are complied with. No excavation should be carried out closer than 10 meters to the pipelines, and excavations to be carried out closer than 30 meters should be carried out under the supervision of technical personnel to be assigned by contacting BOTAS Aegean Operations Directorate.	17.11.2023

3.4 Wastewater Projection

A planned WWTP needs to be built due to the need for capacity increases in the existing facilities in the DOIZ. The flow rate of the planned WWTP will be 30,000 m³/day. Design flow data is presented in Table 3.3.

Table 3.3 Design Flow Rates for the Planned WWTP

Average Flow Rate (Qavg)	28,000	1,166	324
Minimum Flow Rate (Qmin)	26,000	1,083	300
Maximum Flow Rate (Qmax)	30,000	1,250	347

Source: DOIZ WWTP, Project Identification Document (PID), 2023.

In addition, the results of wastewater projection through to 2034 are given in Table 3.4.

Table 3.4 Assumptions for the Forecast of the Wastewater Generation Rate

Year	Total at peak flow days(m ³ /day)	Usage of the WWTP Capacity (%)
2024	12,115	40%
2025	13,840	46%
2026	15,565	52%
2027	18,120	60%
2028	20,675	69%
2029	23,230	77%
2030	25,785	86%
2031	28,340	94%
2032	29,170	97%
2033	30,000	100%
2034	30,000	100%

Source: DOIZ WWTP, Project Identification Document (PID), 2023.

3.4.1 Wastewater Characterization

The most important parameter in the process selection of the WWTPs and the sizing of the units is to determine the characteristics of the wastewater. In this regard, on site wastewater sampling and characterization analysis is one of the key studies in WWTP design.

While feasibility studies were carried out, wastewater inlet concentrations for 2021, measured in an accredited laboratory, were considered and the influent content for the planned WWTP was determined. Assumed inlet concentrations for the planned WWTP is given in Table 3.5 below. Considering there are mostly textile industry in DOIZ, there is not an expected change in wastewater characterization.

Table 3.5 Inlet Concentrations for the planned WWTP

Parameter	Unit	Concentration
Chemical Oxygen Demand (COD)	mg/L	2,750
Biological Oxygen Demand (BOD5)	mg/L	850
Total Suspended Solids	mg/L	1,200
Oil and Grease	mg/L	70
Total Phosphorus	mg/L	15
Total Chromium	mg/L	1
Chromium (Cr+6)	mg/L	0.5
Lead (Pb)	mg/L	1
Total Cyanide (CN ⁻)	mg/L	0.5
Cadmium (Cd)	mg/L	0.5
Iron (Fe)	mg/L	5
Fluoride (F ⁻)	mg/L	10
Copper (Cu)	mg/L	10
Zinc (Zn)	mg/L	3
Mercury (Hg)	mg/L	1
Sulphate (So4)	mg/L	2,500
Sulphite (SO ₃)	mg/L	25
Sulphur (S ²⁻)	mg/L	22
Total Nitrogen	mg/L	80
Adsorbable Organic Halogens (AOX)	mg/L	15
Fish Bioassay (TDF)	-	> 15
pH	-	11
Temperature	°C	45
Colour	Pt-Co	800
Conductivity	µs/cm	15,000

Source: DOIZ WWTP, Project Identification Document (PID), 2023.

3.4.2 Effluent Characterization

The effluent wastewater treated in the DOIZ WWTP will be discharged to the Çürüksu Creek. The discharge criteria of the WWTP have been evaluated on the basis of the Table 19 in Water Pollution Control Regulation (WPCR). The discharge standards determined by DOIZ with regulation limit values are provided in Table 3.6.

Table 3.6 DOIZ WWTP Discharge Standards

Parameter	Unit	Table 19 in WPCR	Discharge Standards Determined by DOIZ	
		Composite Sample 2 Hours	Composite Sample 2 Hours	Composite Sample 24 Hours
COD	(mg/L)	250	150	120
TSS	(mg/L)	200	80	60
Oil and grease	(mg/L)	20	7	5
TP	(mg/L)	2	2	1
Total Chromium	(mg/L)	2	2	1
Chromium (Cr ⁺⁶)	(mg/L)	0.5	0.5	0.5
Lead (Pb)	(mg/L)	2	2	1
Total Cyanide (CN)	(mg/L)	1	1	0.5
Cadmium (Cd)	(mg/L)	0.1	0.1	0.1
Iron (Fe)	(mg/L)	10	10	-
Fluoride (F)	(mg/L)	15	10	5
Copper (Cu)	(mg/L)	3	3	1
Zinc (Zn)	(mg/L)	5	5	2
Mercury (Hg)	(mg/L)	0.05	-	0.05
Sulphate (SO ₄ ⁻²)	(mg/L)	1500	1500	1500
Total Kjeldahl Nitrogen (TKN)	(mg/L)	20	12	8
Fish Bioassay (TDF)	-	10	10	10
Colour	(Pt-Co)	280	150	100
pH	-	6-9	6-9	6-9

Source: DOIZ WWTP, Project Identification Document (PID), 2023.

3.5 Wastewater Treatment Plant Components

To establish new facilities in the DOIZ and to meet the capacity increase demands of existing facilities, the requirement for a planned WWTP has arisen. Wastewater generated in DOIZ divided by collector lines and will be transferred to existing and planned WWTPs. After the wastewater is treated in planned WWTP, it will be discharged to Çürüksu Creek.

The planned WWTP, with a capacity of 30000 m³/day, includes physical, chemical and biological treatment units that enable the removal of substances such as toxic materials, phosphorus, nitrogen, organic pollutants, grit and grease. The units of the treatment plant are as follows:

- Inlet, coarse and fine screens,
- Aerated grit and grease removal chamber,
- Primary sedimentation tank,
- Sludge dewatering unit,
- Bio-phosphorus unit,
- Aeration unit,
- Sedimentation tank,
- Coagulation unit,

- Flocculation unit,
- Chemical sedimentation tank,
- Sludge equalization tank,
- Disinfection/Chlorination unit, and outlet.

The flow chart is given in Figure 3.3.

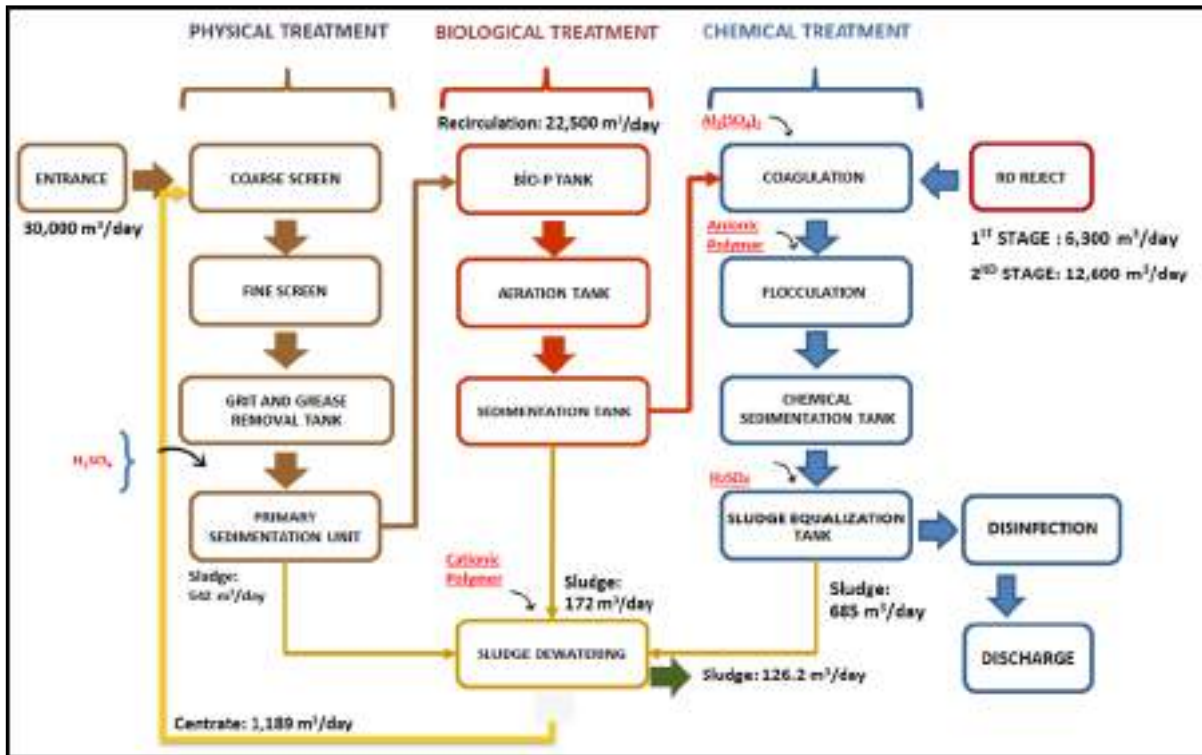


Figure 3.3 The Flow Chart

Source: Arbiotek Çevre Çözümleri, DOIZ Advanced Biological and Chemical Central Wastewater Treatment Plant, Facility Introduction Presentation

3.5.1 Physical Treatment System

3.5.1.1 Inlet, Coarse, and Fine Screen Units

Raw wastewater will undergo initial treatment by passing through a coarse screen. Coarse screen is used to eliminate larger particles, which not only safeguards the pumps and other mechanical and electrical components of the following units/process but also prevents potential clogging of the fine screen. The coarse screen will be installed within an open channel, with a chosen gap of 30 mm between its bars and positioned at a 45-degree angle relative to the horizontal. Subsequent to passing through the coarse screens, the wastewater will continue to fine screens for further solid removal to protect the pumps and other mechanical and electrical components of the following units/process similar to coarse screen. These fine screens will be positioned with 45-degree angle to the horizontal within an open channel, and the gap between them will be set at a range of 1.0 to 6.00 mm which will be determined depending on the specific needs of the wastewater characteristic of the Project.

3.5.1.2 Aerated Grit and Grease Removal Chamber

To prevent damage to mechanical equipment such as pumps and valves by gritty and gravel-like substances present in the wastewater, as well as to avoid pipe blockages caused by these materials, these substances will be confined with a grit chamber. Grit chambers utilize the principle of gravity's influence on particles of varying density to separate the heavier suspended particles from wastewater by facilitating their settling and subsequent capture. Grease and foam within the wastewater will be extracted using grease lamella and grease scrapers, which will be installed for collection in the same chamber. The grit will be transported to a grit separator using a grit pump, where it will be separated from the water, and the clarified water will be returned to inlet pump station. Both the grit scraper and grease scraper will be attached to an overhead bridge mounted on the chambers. Air supply for these processes to facilitate removal of lighter constituents of the wastewater will be provided by blowers located inside a dedicated blower building.

3.5.1.3 Primary Sedimentation Tank

Primary sedimentation involves the separation of solid materials that settle and those that float in specially designed tanks under stable conditions. Primary sedimentation tanks serve primary functions that are separating solid substances (known as sludge) from liquid through precipitation, separating and thickening solid materials such as foam, oil, and floating deposits from the liquid through flotation. By eliminating solids from the untreated wastewater, this process also removes some suspended solids and reduces the biological oxygen demand (BOD). Consequently, the organic load that needs treatment in the biological treatment unit is reduced. Additionally, the removal of foam from the untreated wastewater decreases the likelihood of foam formation in the aeration and settling tanks. These tanks are designed to enhance the performance of the biological treatment unit by aligning the quality and flow rate of the untreated wastewater and ensuring a consistent flow while eliminating solid materials if no separate unit is available.

The sludge portion of the wastewater is transferred from primary sedimentation unit to sludge dewatering with the design data of 542 m³/day. The remaining part is directed to the bio-P tank.

3.5.1.4 Sludge Dewatering Unit

For the purpose of dewatering the sludge, a centrifuge unit will be incorporated into the system. Specifically, sludge dewatering centrifuges have been carefully chosen to raise the sludge concentration from a minimum of 9.50 kg/m³ to an impressive 25% dry solid concentration. Following this process, the dewatered sludge is gathered in a designated temporary storage area before being responsibly transported to cement factories for proper disposal, carried out by licensed and reputable firms.

According to design data, the sludge concentrations coming from sedimentation tank and chemical sedimentation are 172 m³/day and 685 m³/day, respectively. After the sludge dewatering process, while the sludge concentration reaches 126.2 m³/day, the centrate with a concentration of 1189 m³/day is sent to the beginning of the treatment plant.

3.5.2 Biological Treatment System

3.5.2.1 Bio-phosphorus Unit

In the context of biological phosphorus removal, the process unfolds in two key stages. First, phosphorus is released within an anaerobic environment, where there is no electron acceptor. Subsequently, more of the released phosphorus is stored when an electron acceptor is present. This release of phosphorus hinges on the presence of easily decomposable dissolved organic carbon within the incoming water, which is stored within the microorganisms. When an electron acceptor becomes available, this stored carbon is utilized to sustain ongoing microbial activities, leading to the excessive storage of phosphorus for subsequent energy production.

To maintain the integrity of anaerobic conditions within the tanks, the oxidation-reduction potential will be systematically gauged using redox meters positioned within each tank. Furthermore, it is imperative that the oxygen concentration at the tank's entrance remains at zero. To accomplish this, an oxygen meter will be installed in the initial tank, enabling the continuous monitoring of oxygen concentration at the entry point.

3.5.2.2 Aeration Unit

The biological treatment process will consist of a two-stage approach, encompassing nitrification and denitrification. To facilitate nitrification, the appropriate volume of air will be supplied, leading to the conversion of ammonium nitrogen in the incoming water into nitrate nitrogen. This resulting nitrate will serve as the electron acceptor for the removal of biological oxygen demand.

3.5.2.3 Sedimentation Tank

The final sedimentation tanks play a crucial role in the treatment process, serving to both gather and eliminate sludge that settles naturally due to gravity. Simultaneously, they facilitate the separation of water from the colloidal activated sludge generated in the aeration tank. The separated water will be directed towards the treatment plant's outlet, while the sludge settling at the tank's base will be centralized using scrapers affixed to centrally driven traveling bridges. Subsequently, this sludge will be transported to the back circulation pump stations through gravitational means.

Furthermore, it is planned for the inclusion of surface scrapers, collection hoppers, and transmission lines within each tank to effectively collect any floating sludge present. This collected sludge will then be conveyed to the Return Activated Sludge (RAS) pumping station, utilizing foam pumps for the process.

3.5.3 Chemical Treatment System

3.5.3.1 Coagulation Tank

After the wastewater's pH is adjusted to the target level, it proceeds to the coagulation tanks where the coagulant is introduced. In this process, H_2SO_4 and $FeCl_3$ are selected as the coagulants. Turbine-type mixers are used to thoroughly blend the dosed substances within the coagulation tanks.

3.5.3.2 Flocculation Tank

In the flocculation process, the primary aim is to maximize the interaction between the suspended solids and the coagulant. Achieving this involves employing slow mixing to facilitate particle retention within the coagulant. The rotational speed of the softeners positioned in the center of the tanks will be set to a level that maintains the integrity of the formed flocs without causing them to disintegrate. Additionally, anionic polymer will be introduced to enhance the formation of these flocs.

3.5.3.3 Chemical Sedimentation Tank

The chemical sedimentation tank will receive wastewater from the coagulation and flocculation tanks via gravity. The bottom of the sedimentation tank is designed with an incline, and there are sludge cones positioned in the center. A circular scraper will assist in transferring settled sludge into these cones.

To prepare the wastewater from the chemical treatment for biological treatment, a neutralization system is in place to adjust its pH to the desired level. To achieve this, sulfuric acid or sodium hydroxide (NaOH) is continuously added to the outlet of the chemical sedimentation tank based on continuous pH measurements.

3.5.3.4 Sludge Equalization Tank

Sludge equalization tank is designed to homogenize and stabilize the characteristics of sludge produced during treatment stages. This tank will contribute to balancing variations in sludge composition and flow, ensuring a consistent and well-balanced sludge feed to downstream processes. The tank incorporates mixing mechanisms to prevent settling and stratification of solids, contributing to the stabilization of sludge by promoting continued biological and chemical transformations. After sludge equalization tank the treated water will be directed to chlorination unit for disinfection.

3.5.3.5 Disinfection/Chlorination Unit, and Outlet

Upon completion of the treatment, chlorination unit will introduce the treated water to chlorine to disinfect and kill harmful microorganisms. This chemical treatment is effective in reducing the risk of waterborne diseases. After the chlorination process disinfected water will be directed for discharge into the receiving water body through the outlet.

3.5.4 Sludge Management System

In the project, an extended aeration activated sludge system was chosen as the biological treatment unit. Thus, processes will be implemented to purify not only carbon, but also nitrogen and phosphorus. The reason for choosing this system is that the amount of waste sludge generated is lower, as the sludge waiting for a long time will lead to the oxidation of more volatile solids. Additionally, sudden proportional loading and temperature changes do not have a major impact on the system.

The sludge, whose density is increased by gravity in the sludge thickening pool, will be scraped with a low-speed scraper, transferred to the sludge pit and pumped to the screw press/decanter to be dewatered by pumps. Cationic polyelectrolyte will be dosed into the sludge in

order to reduce the volume of the sludge formed and increase the dewatering efficiency. The final sludge will be transferred to trucks and stored in a temporary storage area within the facility, and from there it will be transported to licensed facilities at regular intervals for disposal in accordance with legal conditions. Storage area should have secondary containment with impermeable floor to prevent leaks or spills. Proper ventilation system will be ensured if there is any need to store in a closed area. Sludge Management Plan will be developed by DOIZ before the operation phase and will be implemented during the operation phase.

3.6 Associated Facilities

Associated facilities to be constructed within the scope of DOIZ WWTP Project are electricity distribution line and collector line that allows the wastewater to be transferred to the planned WWTP.

It is planned to obtain energy from the distribution center named OSB TR-4, owned by ADM Electricity Distribution Company, through the 31.5 kV (3x3/0) conductor line (Electric Distribution Line). Energy will be received by placing a separator on the branch pole to be erected at the boundary of Project area by ADM and bringing it to the transformer input cell via cable. The energy received will be reduced to 400 Volts with our 2000 kVA transformer and will be used in WWTP.

An official application cannot yet be made to ADM Electricity Distribution Company for the energy needs to be used in the planned treatment facility, since in order to apply in this regard, the project must be approved by the Ministry of Industry and Technology. In case of approval, an official application will be made to ADM Electricity Distribution Company. As a result of the negotiations between DOIZ officials and ADM Electricity Distribution Company, it was learned that the connection will be made to the separator pole to be erected inside the treatment plant from pole number 3, located near the WWTP area. From here, the energy will be carried to the transformer input cell to be located in the WWTP area via underground cable. The distance between the transformer and pole number 3 is approximately 100 meters.

In addition, wastewater generated in DOIZ divided by collector lines and will be transferred to existing and planned WWTPs. To deliver wastewater coming from the facilities in the DOIZ to the planned WWTP, the collector line will be connected to existing wastewater pipeline and its length will be 1496 meters. It intersects with two water channels under the responsibility of DSI and a railway line under the responsibility of TCDD. Permission applications have been made for these intersections. Additionally, institutions were contacted in case there was any possible infrastructure on the collector line route. Application letters to State Hydraulic Works (DSİ) 212th Branch Directorate, AYDEM Electricity Retail Sales, Ministry of Energy and Natural Resources, Denizli Water and Sewage Administration Directorate (DESKİ), General Directorate of State Railways (TCDD) 3rd Regional Directorate, Türk Telekom Denizli Provincial Directorate, and ADM Electricity Distribution Inc. are given in Annex 5. Among these institutions, opinions were received from DESKİ and ADM Electricity Distribution Inc., and the relevant documents are given in Annex 6.

3.7 Project Schedule

The project schedule is presented in Table 3.7. As seen in the table, the bid preparation, bidding and bid evaluation period of the Project is expected to take six months. After this period, the pre-construction works will start and last for one month. The continuation of this process is the construction phase of the project, which will last 18 months. The defect notification period will start just after that and last for 12 months.

Table 3.7 Project Schedule

DOIZ Wastewater Treatment Plant Project																																							
Months	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37		
Bid preparation, bidding and bid evaluation	Orange	Orange	Orange	Orange	Orange	Orange																																	
Pre-construction							Yellow																																
Construction								Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green													
DLP																											Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue

4 BASELINE CONDITIONS

4.1 Physical Environment

4.1.1 Geographical Location and Topography

DOIZ Wastewater Treatment Plant Project is located in Honaz district of Denizli province. The satellite image of the Project Area located on the graben in the region is given in Figure 4.1. In order to better understand the topography, a regional Digital Elevation Model (DEM) was generated. The Digital Elevation Model (DEM) map including the A-A' section profile in W-E direction is also shown in Figure 4.2. According to the Digital Elevation Model created, the highest point of the region is approximately 615 m and the lowest point is located at an altitude of approximately 247 m.



Figure 4.1 Satellite Image of the DOIZ (red polygon), Collector Line (green polyline), Planned WWTP (yellow polygon) and Discharge Line (blue polyline)

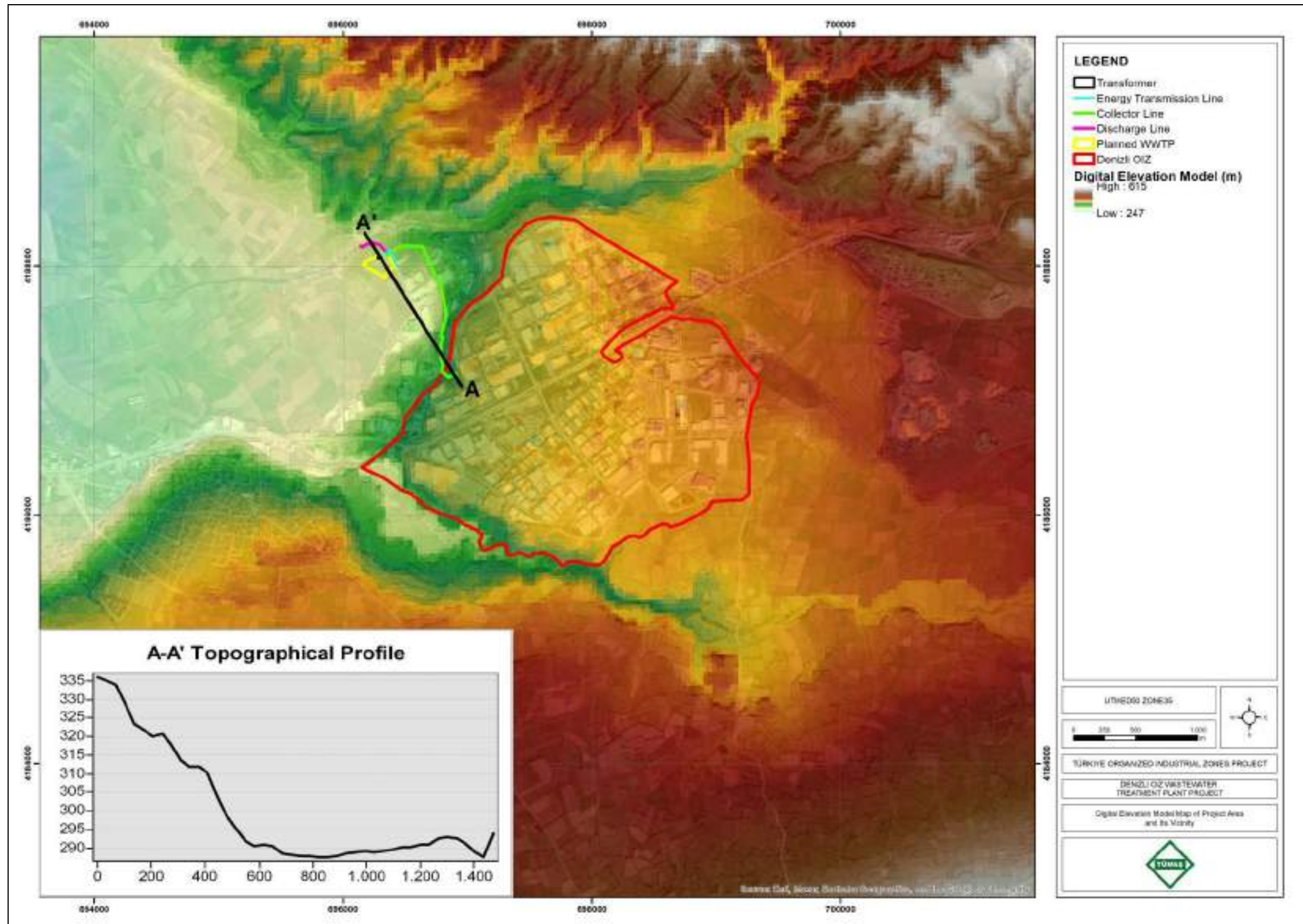


Figure 4.2 Digital Elevation Model Map of Project Area and Its Vicinity

4.1.2 Land Use and Property

DOIZ, established in 1982 near the Denizli-Afyon Karahisar road, has 213 industrial parcels on approximately 5,179,480 m² land. The first companies in the DOIZ started operating in 1988. Companies mainly engaged in textile, clothing and metal/non-metal production operate in the DOIZ. Recruitment capacity for the local area is approximately 30,000 people.

In DOIZ, the industrial parcel area is 3,838,480 m², and the existing Wastewater Treatment Plant area is 28,836 m². The remaining land of 1,312,164 m² consists of green areas, roads, parks and social facilities.

The area allocated for DOIZ's planned WWTP (parcel no 54) is located outside the boundaries of the DOIZ, however DOIZ purchased this parcel for the construction of the planned WWTP and transfer of land was completed on 15.12.2020 (see Annex 2). Photographs taken from the planned WWTP site during the site visit conducted by TÜMAŞ on September 12, 2023 are provided in Figure 4.3.



Figure 4.3 Photographs Taken from the Planned WWTP Site

According to CORINE 2018 data, the land use of the planned WWTP site has complex cultivation patterns³. The Land Use Map according to CORINE 2018 data is given in Figure 4.4. In addition, according to land use map prepared based on Environmental Master Plan for Aydın-Mugla-Denizli planning area, the Project Area shows agricultural land use characteristics that are agricultural land and irrigation area. The land use map according to Environmental Master Plan is presented in Figure 4.5.

Currently, there is no land use for any purpose in the Project Area. There are no unofficial land users or vulnerable/disadvantaged people at the site, either.

Within the scope of the Project, the treated wastewater will be discharged to Çürüksu Creek through discharge line to be constructed. The underground discharge line will follow the existing cadastral road. Therefore, the route which the discharge line will be passing through is currently used

³ Complex cultivation patterns: Mosaic of small cultivated land parcels with different cultivation types (annual and permanent crops, as well as pastures), potentially with scattered houses or gardens.

as transportation road. Since CORINE 2018 data does not include roads other than main roads in detail, subject area is classified as complex cultivation pattern. According to Figure 4.4, the land use type of area that discharge line to be constructed is complex cultivation patterns.

Based on communications carried out with DOIZ representatives, wastewater collector line will be constructed under the existing cadastral roads and there is no need for any expropriation. According to Figure 4.4, the land use types of area that collector line will be constructed is complex cultivation patterns and industrial and commercial units. It was observed during the site visit that the entire collector line route is located within the industrial area. Although it is not a component of the project, it will comply with WB ESSs as an associated facility. As another associated facility, the electricity distribution line is located on land with complex cultivation patterns as per Figure 4.4, however, it is observed that the existing roads will also be used for the distribution line.

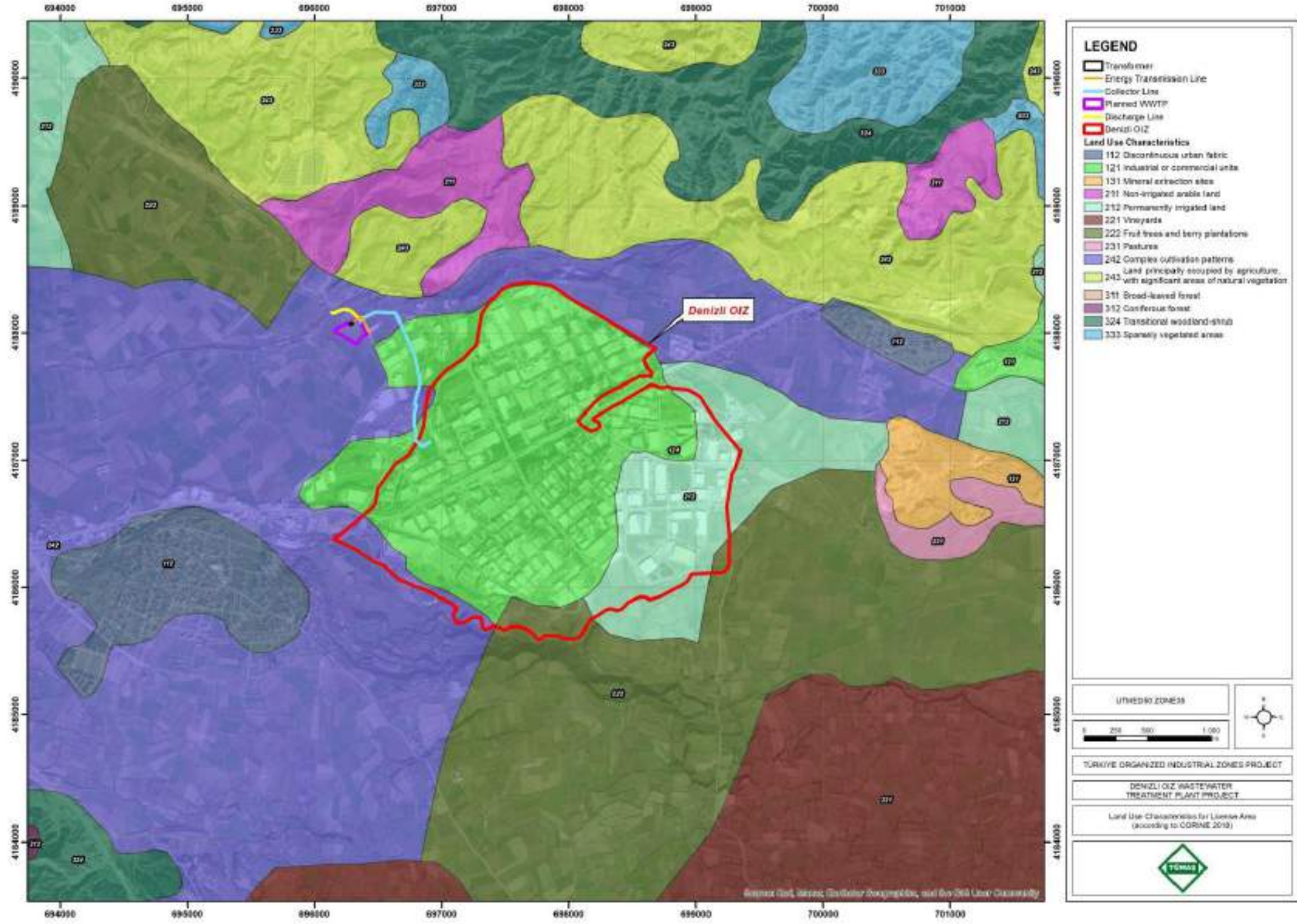


Figure 4.4 Land Use Map according to CORINE 2018 data

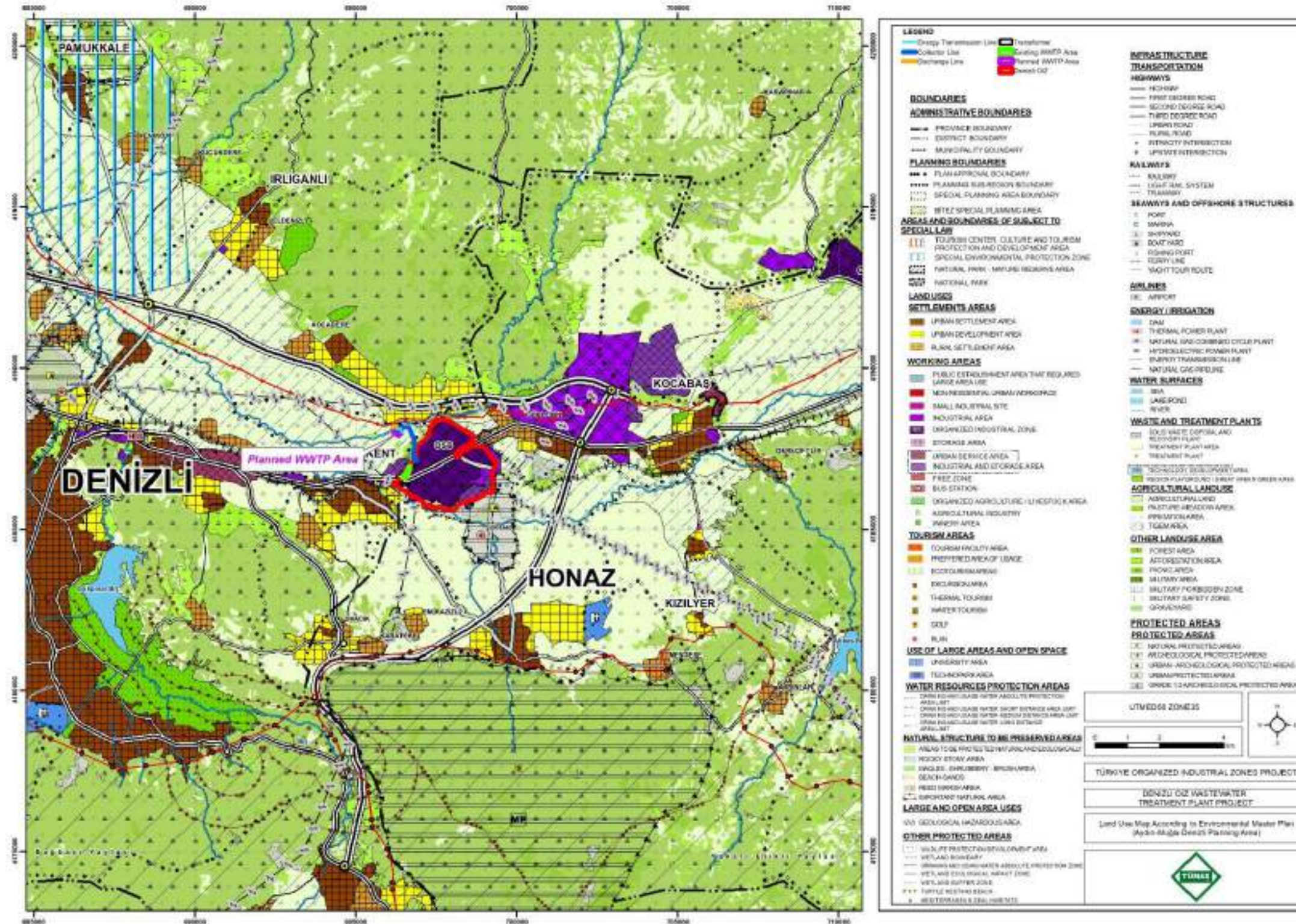


Figure 4.5 Land Use Map According to Environmental Master Plan

4.1.3 Climate Conditions and Meteorology

Denizli, situated in the Aegean Region, does not experience the typical Mediterranean climate that is renowned in this region. Instead, it predominantly features a continental climate in its central areas, setting it apart from the weather patterns of other cities in the Aegean Region. Detailed meteorological statistics are presented in Table 4.1. According to table, temperatures in Denizli typically fluctuate between 2°C and 35°C. July records the highest average temperature at 34.7°C, while January sees the lowest average temperature at 2.3°C. On average, the annual temperature in Denizli is 16.3°C. In terms of monthly precipitation, the highest average total occurs in January with 90.7 mm, whereas August registers the lowest at 10.8 mm.

Table 4.1 Long Term Meteorological Data of Denizli Province (1957-2022)

Parameter	January	February	March	April	May	June	July	August	September	October	November	December	Annual
	Last Climate Period (1957-2022)												
Avg. Temperature (°C)	5.9	7.2	10.1	14.7	19.6	24.3	27.3	27.0	22.6	17.1	11.6	7.6	16.3
Highest Avg. Temperature (°C)	10.5	12.4	15.9	21.0	26.5	31.4	34.7	34.6	30.2	23.9	17.5	12.3	22.6
Lowest Avg. Temperature (°C)	2.3	3.1	5.3	9.2	13.4	17.5	20.3	20.0	16.0	11.5	7.1	4.2	10.8
Avg. Sunshine Duration (hour)	3.7	4.5	5.6	7.0	9.0	10.9	11.7	10.9	9.2	6.8	5.0	3.5	7.3
Average Number of Rainy Days	12.15	10.76	11.20	10.02	8.77	5.32	2.09	1.98	3.05	5.91	7.58	12.23	91.1
Average Monthly Amount of Rain (mm)	90.7	70.5	63.4	50.9	42.8	27.6	14.5	10.8	16.0	35.6	54.7	90.1	567.6
Measurement Period (1957-2022)													
Highest Temperature (°C)	22.6	25.9	30.8	35.8	39.5	44.1	43.9	44.4	41.6	36.9	29.9	26.6	44.4
Lowest Temperature (°C)	-10.5	-11.4	-7.0	-2.0	2.7	7.9	12.6	11.6	6.6	-0.8	-4.5	-10.4	-11.4

Source: Turkish State Meteorological Service

4.1.4 Natural Hazards and Seismicity

The Aegean Region is a region that has been subjected to earthquakes and has a high potential for earthquakes in the future due to its complex tectonic pattern. Seismic activity is observed along the faults bounding the grabens. Seismic activity is linked to the movement of normal faults. The main normal faults bounding the edges of the grabens consist of many small segments with short lengths. Therefore, an earthquake on one of these short segments triggers other neighboring segments nearby, causing earthquakes to occur on these segments at a later time. Since the region consists of many interconnected grabens and horsts, an earthquake in one segment triggers the other nearby segments.

Faults of the neotectonic period are mostly dip-slip normal faults, and the faults observed in the Cardak and Tavas basins can be given as examples. Most of the faults of the neotectonic period are active faults. The most important of these are the Pamukkale fault zone, Denizli fault zone, Honaz fault and Kaklik Fault. These faults are normal dip-slip faults that developed during the Holocene period and generally have a northwest-southeast and east-west direction. There are also dip-slip normal faults dating back to the Quaternary period in the region. Cankurtaran fault can be given as an example. Cankurtaran fault is a dip-slip normal fault in the west of Honaz Mountain, oriented in north/northwest-south/southeast direction and inclined to the west.

Pamukkale Fault Zone is located approximately 850 m northwest of the planned wastewater treatment plant, the Denizli Fault Zone is located 4.1 km southwest, and the Honaz Fault is located approximately 6.8 km south of it. The fault map of the Project Area and its surroundings is shown in Figure 4.6.

The Project Area was taken as the center point and the epicenter distribution of earthquakes with magnitude $M \geq 5$ that occurred between 1900 and 2023 within a circle with a radius of 50 km is shown in Figure 4.7. The Project Area was examined on the interactive earthquake hazard map published by AFAD and it was determined that the maximum ground acceleration (PGA 475) of the Project Area was 0.491 g and the ground velocity (PGV 475) was 28.369 cm/s for a Recurrence Period of 475 years. As a result, the project area is located in a high-risk earthquake zone due to the presence of active faults and the occurrence of high magnitude earthquakes in the instrumental period. Earthquake risks were taken into account in the DOIZ WWTP design. The structures and buildings are designed in accordance with the requirements for "Earthquake Regulation" in terms of structural safety and the "Regulation on the Protection of Buildings from Fire" regarding Fire and Emergency Situations. The Regulations on the Protection of Buildings from fire is parallel with NFPA Life Safety Code. A map showing the PGV and PGA of the planned WWTP and its vicinity is given in Figure 4.8 and earthquake hazard map of Türkiye where the Project Area is marked is shown in the Figure 4.9.

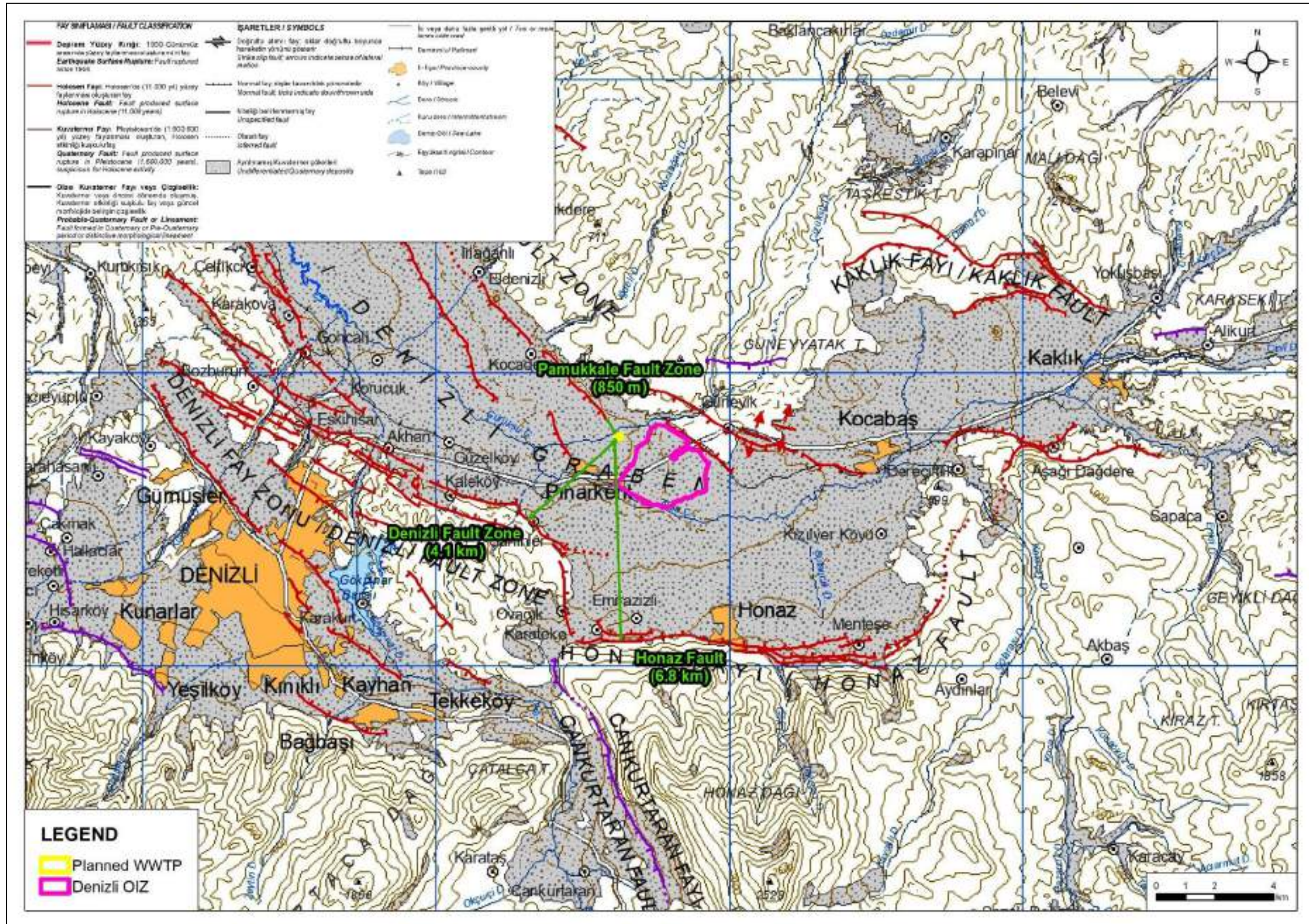


Figure 4.6 Active Fault Map of the Project Area and Its Vicinity (Emre, Ö., et al., 2011)

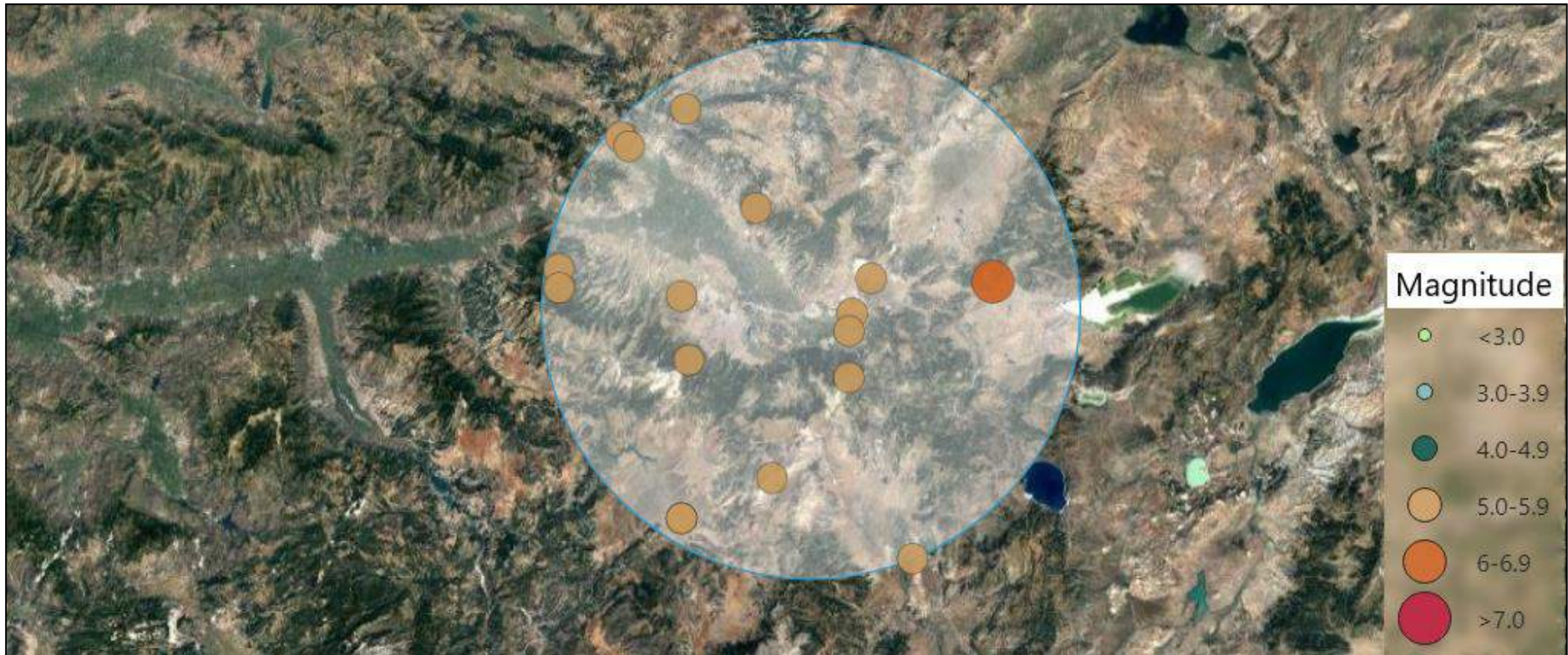


Figure 4.7 Earthquakes with M>5 with a radius of 50 km and the Center Point of which is the Project Area

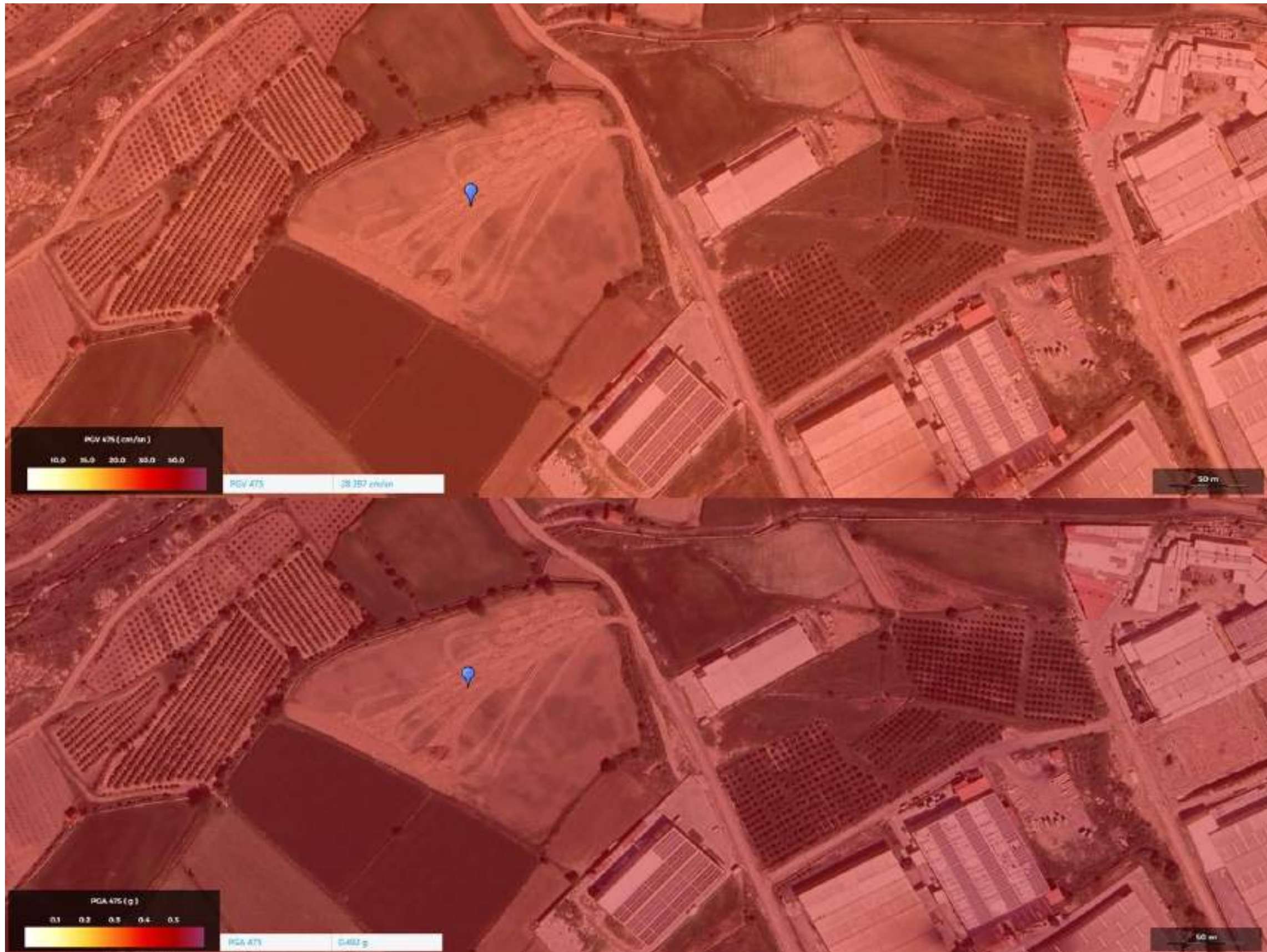


Figure 4.8 PGA (475) and PGV (475) Values of the Planned WWTP

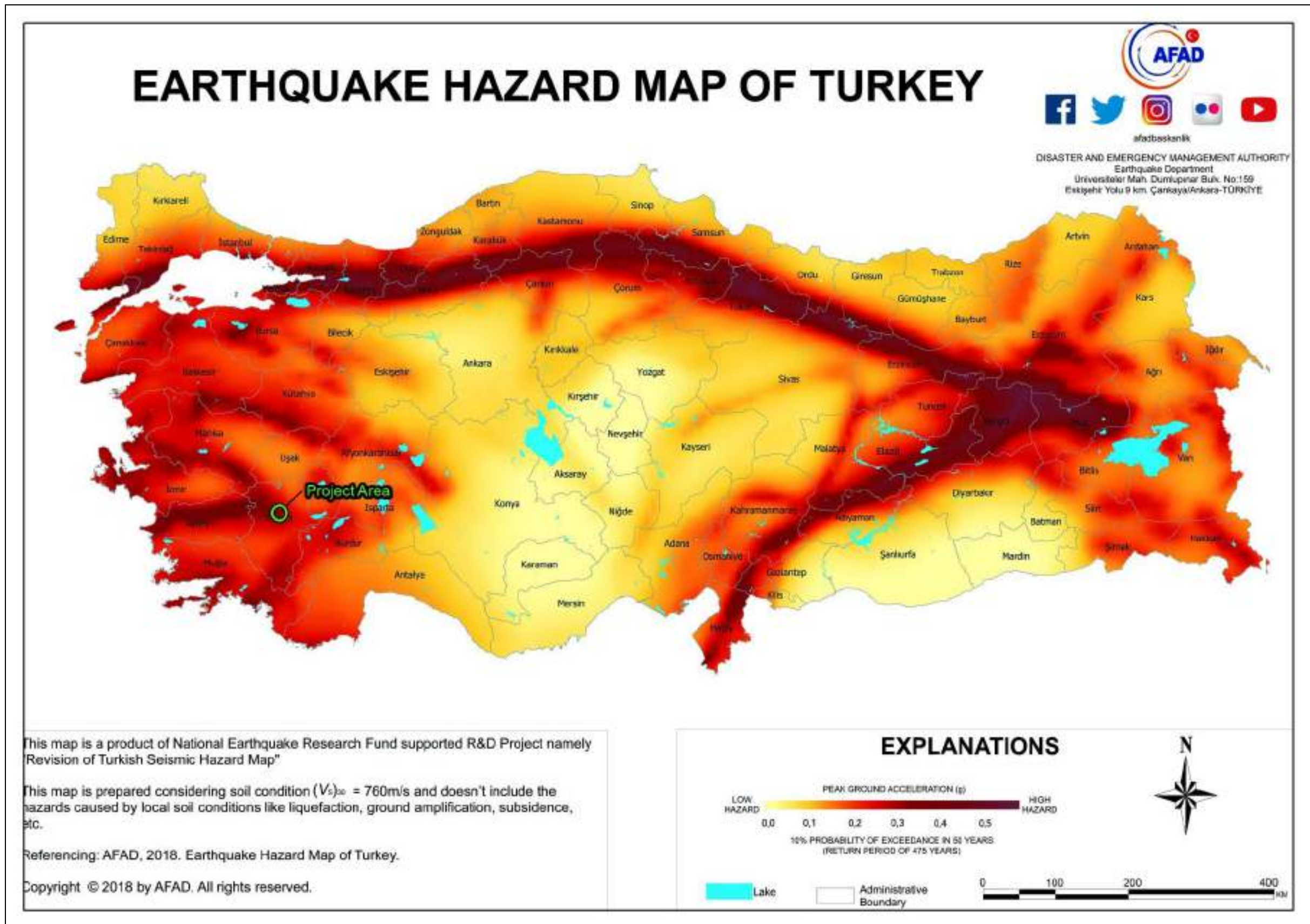


Figure 4.9 Earthquake Hazard Map of Türkiye

4.1.5 Geology, Hydrogeology and Hydrology

The Project Area is located within the Büyük Menderes Basin which is among the water basins allocated throughout Türkiye.

Büyük Menderes Basin is located in the west of the Anatolian peninsula. It is surrounded by Samsun Mountain, Cevizli Mountain, Elma Mountain and Murat Mountain in the north, Sandikli Mountains in the east, Madran Mountain and Babadağ and Bozdağları basin in the south. The total area of the river basin region, which covers approximately 3.3% of Türkiye's surface area, is 26,361 km².

Büyük Menderes River is the main river in the basin and the longest river in the Aegean Region. It originates from springs flowing from the plains between Sandikli, Dinar, Çivril and Honaz in Western Anatolia. It is fed by the waters filling Lake Isikli. It flows into the Aegean Sea, taking the Banaz Stream from Uşak and the Cine Stream from Muğla. The river is fed by many tributaries. Among the most important streams are Banaz, Akcay, Kufi, Dokuzsele, Geyre, Dipsiz, Cine and Hamam Stream.

Approximately 150 m north of the planned WWTP area, Çürüksu Creek flows in an east-west direction, and approximately 1.5 km to the south, Aksu Stream flows in an east-west direction and merges with Çürüksu Creek. There is Vali Recep Yazıcıoğlu / Gökpınar Dam approximately 8.5 km southeast of the planned wastewater treatment plant area. The hydrology map showing the hydrological status of the Project Area and its surroundings is shown in Figure 4.10.

Denizli-Çardak Basin, Uşak-Güre Basin and Tavas Basin are three major Paleogene-Neogene basins in the region. Of these, Çardak Basin begins with late Paleocene-early Eocene Dereçiftlik formation, resting on the basement units unconformably. It is unconformably followed by the rocks involved in Dazlaktepe member of middle Eocene Başçesme formation. The clastic rocks of Oligocene Çardak formation lie over these units unconformably. Çardak formation is unconformably overlain by late Miocene-Pliocene Çameli formation characterized as a terrigenous succession. Çameli formation is differentiated by 4 members as alluvial fan deposits of Kızılören member, a deltaic succession of İnceler member, lacustrine deposits of Akarca member and lacustrine limestones of Küllüce member. Denizli-Çardak Basin ends with late Miocene- Pliocene Taşlıtepe basalt, passing to Cameli formation.

The northern part of the region is defined under the name Inay Group of Usak-Gure Basin. Composed of early-Middle Miocene fluvial deposits, Balçıklidere member, a member of Ahmetler formation, laterally and vertically passes to middle-late Miocene Ulubey formation.

The units of Tavas Basin begin with alluvial fan deposits of Karadere formation at the bottom, overlain the basement units unconformably. It is followed by Cankurtaran formation characterized as a shallow marine-lagoon succession. Karadere and Cankurtaran formations are Oligocene in age. These are overlain by early Miocene Yenidere and Gülbağlık formation unconformably. The lower Yenidere formation contains alluvial fan, debris flow and braided river deposits, marking a terrigenous succession. Yenidere formation is conformably followed by Gülbağlık formation, presenting characteristics of a lagoon and shallow marine succession.

All these units in the region are unconformably covered by travertine, alluvial fan, slope debris and alluviums, which are cover deposits of Quaternary.

The generalized stratigraphic column section of the Project Area and its surroundings is given in Figure 4.11.

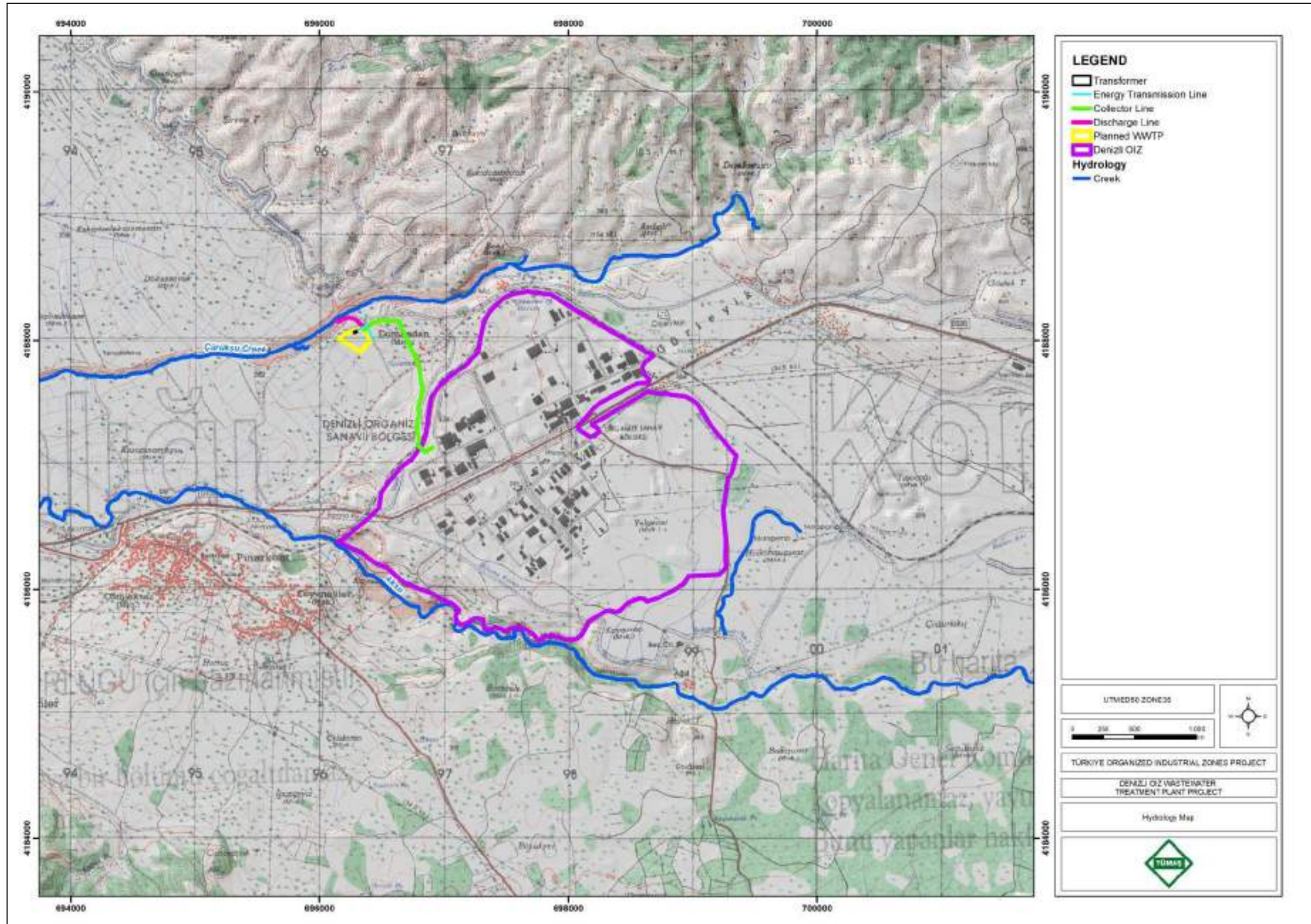


Figure 4.10 Hydrology Map of Project Area

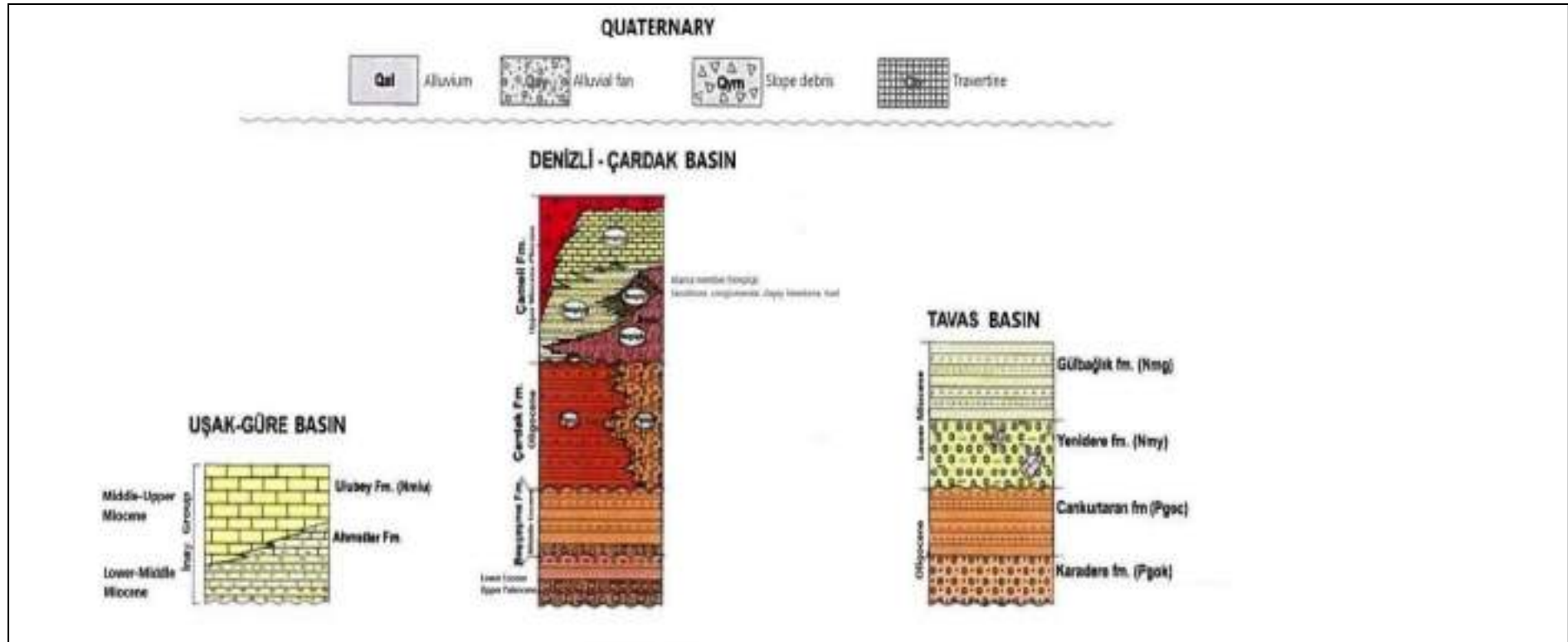


Figure 4.11 Generalized Stratigraphic Column Section of the Project Area and Its Surroundings

While part of the collector line is located in Quaternary aged alluvial fan, most of it is located in Quaternary aged travertine. Similarly, a large part of the discharge line is in Quaternary aged alluvial fan on the other hand, the part of the discharge line outside alluvial fans is located in alluvium. Considering the area allocated for the planned WWTP, it can be seen that the entire area is located in alluvial fan.

The Quaternary aged alluvial fans and alluvium fed directly by rainwater and indirectly by groundwater discharged from the limestones in the region, are the most important porous aquifers in the region. Since there are clayey levels in places at the lower levels of alluvial fans, it gives the aquifer a semi-pressurized feature. Geology map of Project Area and its surroundings is given in Figure 4.12.

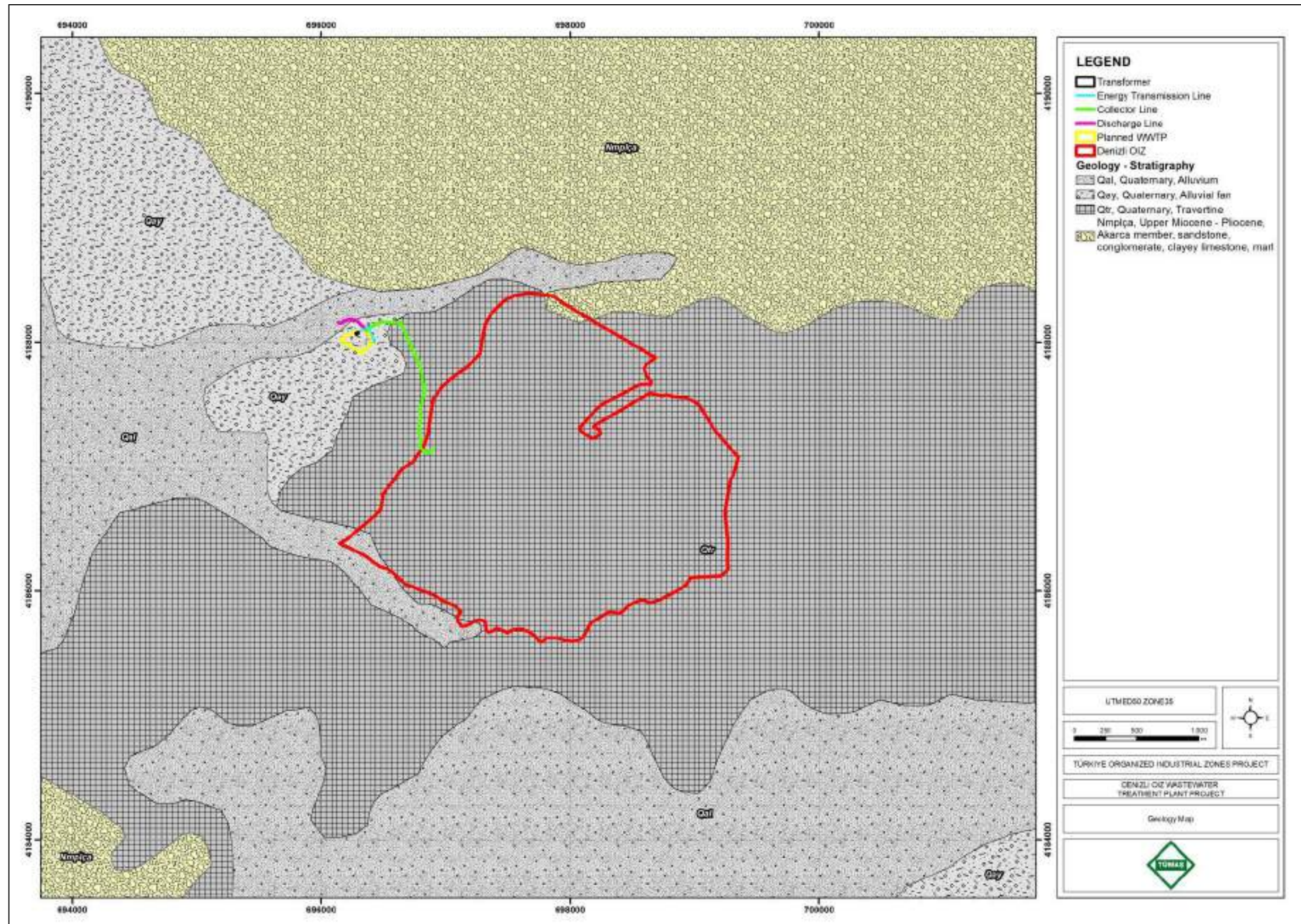


Figure 4.12 Geology Map of the Project Area

4.1.6 Soil and Soil Quality

Turkish General Directorate for Rural Services database defines the land use capabilities in eight (8) different classes as summarized in Table 4.2. These classes represent the agricultural potential of the soil. In this classification system, soils are categorized between Class I, which represent the arable lands on which agricultural activities can be conducted in the most efficient, economic and simplest way without causing erosion, and Class VIII, which represent the lands that are not arable, cannot even be used as grassland or forest areas but support only wildlife development or can be used as resting area or national park by human. Characteristics of each class are summarized in Table 4.2 (*Former Ministry of Agricultural and Rural Services, July 2008*).

Table 4.2 Agricultural Potentials Represented by Different Land Use Capability Classes and Their Characteristics

Class	Agricultural Potential	Definition of Land Use Capability
Class I	Agricultural lands suitable for agricultural soil cultivation	Class I lands are; flat or near flat, deep, fertile and easily cultivated so that the conventional agricultural methods can be applied; potential for water and soil erosion are minimal; have good drainage; are not prone to flood damage exposure; suitable for hoe plants and other intensively grown crops; Class I irrigated lands with low precipitation rates have slope values less than 1% slope, loamy structure, good water holding capacity and medium level permeability.
Class II		Class II lands are decent lands that can only be processed after taking some special precautions. Their difference from Class I lands is one or more of the limiting factors such as slight slope, moderate exposure to erosion, moderately thick soil, exposure to occasional moderate floods and a moderate level of moisture that can easily be isolated.
Class III		Class III lands are moderately good lands for hoe plants which can generate solid income provided they are utilized with a good cropping system and proper agricultural methods. Moderate slope, increased erosion sensitivity, excessive moisture, exposed soil, presence of stones, having a lot of sand and/or gravel, low water holding capacity and low yield are properties of this type of land.
Class IV		Class IV lands can be constantly utilized as meadows. Field crops can also be occasionally grown. High levels of slope, bad soil characteristics, erosion and climate are the factors limiting agricultural activities on these lands. Soils with low slopes and poor drainage are also classified as Class IV lands. These soils are not subject to erosion, but they are unsuitable for growing many agricultural products as they have a low yield and a tendency to suddenly dry up in the spring. In semi-arid regions, cropping systems incorporating legumes are generally not possible due to climate.
Class V	Agricultural lands not suitable for soil cultivation	Class V lands are reserved for long-life plantations such as meadows and forests as they generally are unsuitable for cultivated plants. A few factors such as stony structure and sogginess hinder cultivation here. The land is flat or near-flat. It is not subject to an excessive amount of wind and water erosion. Grazing and tree logging activities can be carried out on condition that a good soil cover is constantly maintained.
Class VI		Class VI lands require moderate precautions even when they are used as forest or meadow since they have quite a bit of slope and are subject to severe erosion. Exposed, soggy or very dry conditions make this type of land unsuitable for cultivation.
Class VII		Class VII lands have high slope, are stony and have been subject to violent erosion. Exposed soils, dry and/or some unfavourable conditions and swamps can be classified as Class VII soil. These can be used as forest or meadow without showing due care. If the vegetation on these soils diminishes, erosion can get quite violent.
Class VIII	Non-arable lands	Class VIII lands exhibit features that prevent them from being used as forest, meadow or cultivated land. This type of land is habitat to wild life and can also be used for recreational purposes or as catchment basins for streams. These include lands containing marshes, swamps, deserts as well as areas of high mountainous regions, rocky lands or lands with very deep craters.

Source: Former Ministry of Agricultural and Rural Services, July 2008

Map of major soil groups and land use capability classes for the Project Area is represented in Figure 4.13. According to the former Turkish General Directorate for Rural Services database analysis (1993), the great soil groups of the Project Area include alluvial soils and brown forest soils. In terms of land use capability, the Project Area is evaluated under the categories of Class I, Class III and Class VIII.

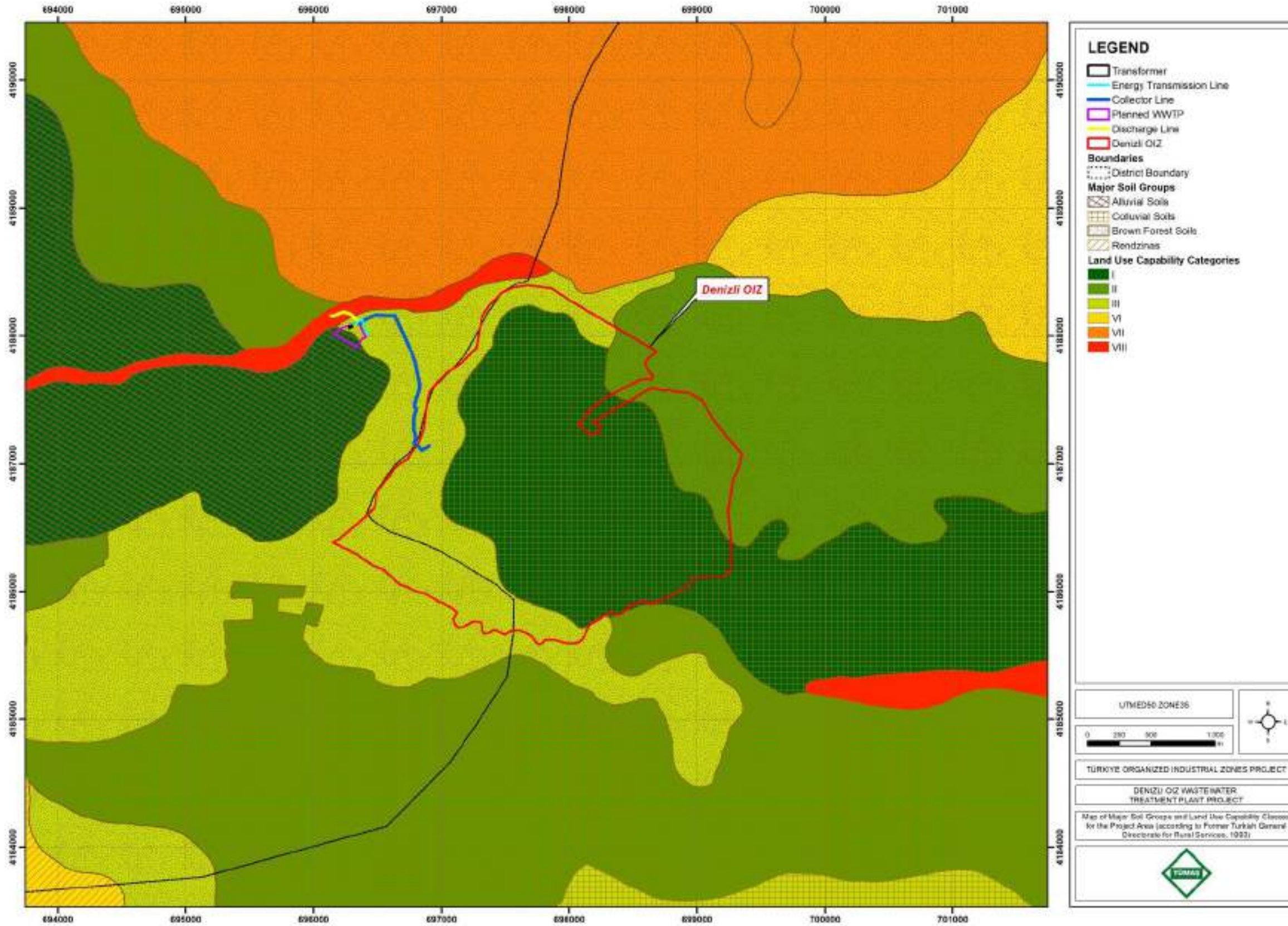


Figure 4.13 Major Soil Groups and Land Use Capability Classes for the Project Area

A soil quality analysis was carried out by ENCON Laboratory on the samples on October 10-11, 2023. The samples were taken from two (2) different locations (Soil-1 and Soil-2). The analysis results of the samples from Soil-1 (35S 696267/4187841) that is on planned WWTP area and Soil-2 (35S 696220/4187988) that is on neighboring land are presented in Table 4.3. The reason for choosing these measurement points is to understand whether there will be any impact on either the Project Area or the neighboring land during the project phases. One sample taken from Project Area will represent the soil quality for baseline conditions. Considering that after construction starts there will be a need for a reference sampling point outside the Project Area but having similar characteristics. The photographs taken during sampling are given in Figure 4.14. The analysis results reports are also given in Annex 7. Parameters to be analysed are selected based on Annex 2 of the Regulation on Soil Pollution Control and Point Source Contaminated Fields, considering that the DOIZ includes mainly textile industry factories. To compare the results of the sampling studies if there is any soil pollution on the site or not, the measurements are evaluated according to the Generic Pollutant Limit Values List in Annex-1 of the Regulation on Soil Pollution Control and Point Source Contaminated Fields. Also, the sampling locations are represented in Figure 4.15.



Soil-1 & Soil-2, respectively

Figure 4.14 Photographs Taken During Soil Sampling

Table 4.3 Analysis Results of Soil Samples of Project Area

Parameter	Unit	Limit Values	Soil-1	Soil-2
Antimony (mg/kg)	mg/kg	31	<1.0	<1.0
Arsenic (mg/kg)	mg/kg	0.4	6.60	10.99
Boron (mg/kg)	mg/kg	-	79.49	78.43
Cadmium (mg/kg)	mg/kg	70	<0.5	<0.5
Chromium (mg/kg)	mg/kg	235	<20.0	<20.0
Copper (mg/kg)	mg/kg	3129	11.73	12.85
Lead (mg/kg)	mg/kg	400	4.97	4.78
Mercury (mg/kg)	mg/kg	23	<0.1	<0.1
Nickel (mg/kg)	mg/kg	1564	196.46	136.37
Selenium (mg/kg)	mg/kg	391	<0.5	<0.5
Silver (mg/kg)	mg/kg	391	<0.5	<0.5
Zinc (mg/kg)	mg/kg	23464	53.34	44.11
Tin	mg/kg	46929	<1.0	<1.0

Parameter	Unit	Limit Values	Soil-1	Soil-2
Titanium	mg/kg	312857	199.18	199.70
Total Petroleum Hydrocarbons (TPH) (mg/kg)	mg/kg	-	<25.0	<25.0
Total Organic Halogens (TOX)	mg/kg	-	54.6	39.8

In evaluating the analysis results (of soil quality) to see if there is any soil contamination on the site, the measurements are evaluated according to the Generic Pollutant Limit Values List in Annex-1 of the Regulation on Soil Pollution Control and Point Source Contaminated Lands and the absorption limit values of the soil through ingestion and skin contact were taken as basis. Concerning the limit values, only the value of arsenic is determined to be above the limit value. Considering that it is the baseline value of the Project Area before the construction activities, it can be evaluated that the baseline soil condition of the Project Area has good quality except arsenic. Arsenic analysis result is above the limit value both in the project area and at the measurement point outside the project area. Therefore, it is thought that the geochemical soil structure of the region is of this nature.

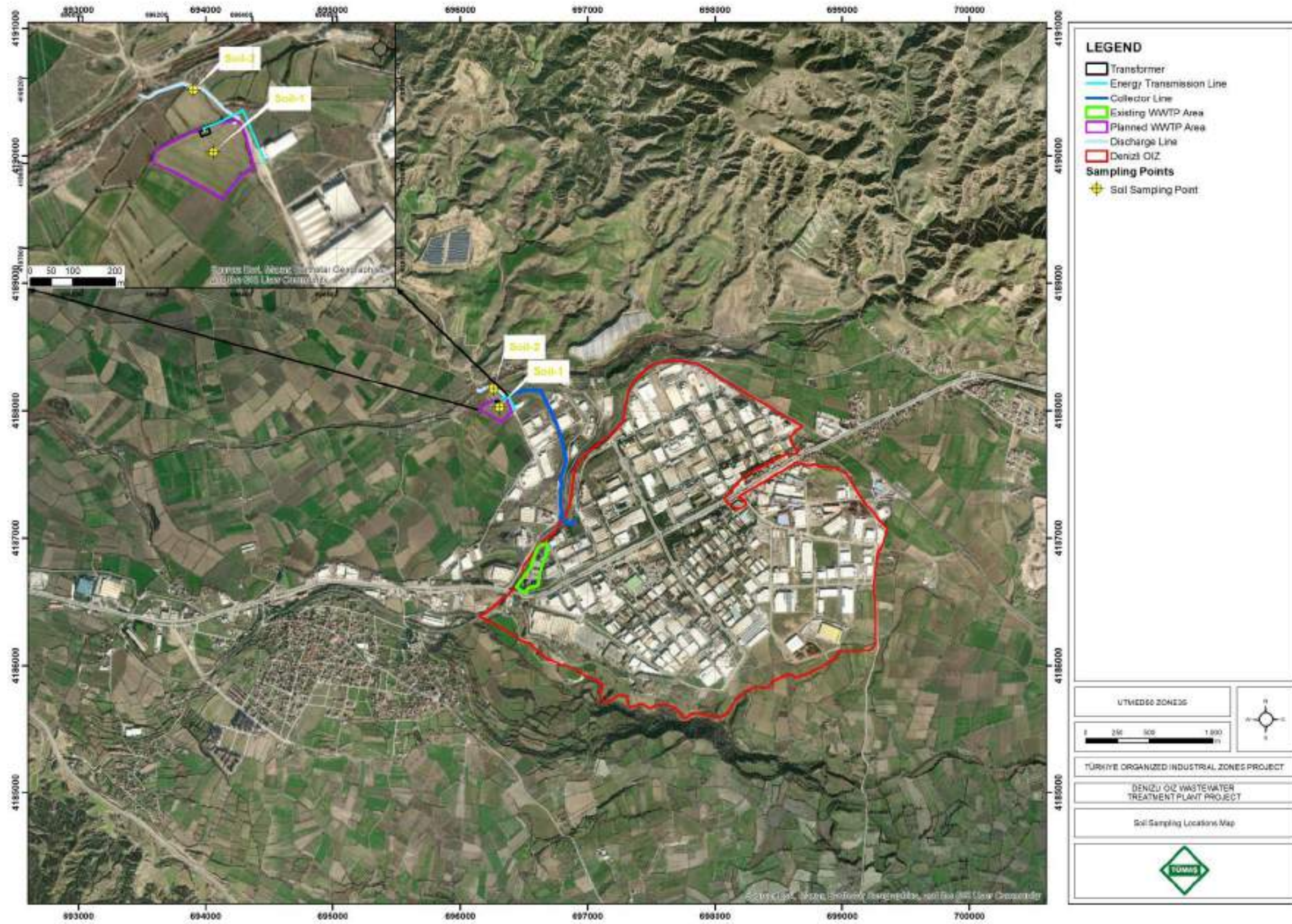


Figure 4.15 Soil Sampling Locations Map

4.1.7 Water Quality

The effluent of the planned WWTP will be discharged to Çürüksu Creek that is continuously flowing. The discharge criteria of the planned WWTP have been decided on the basis of the Water Pollution Control Regulation. Aksu Stream that Çürüksu Creek meets is determined as sensitive water body according to the Regulation on Identification of Sensitive Water Bodies and the Areas affecting these Water Bodies and shown in Figure 4.32.

During the site visit conducted by TÜMAŞ on September 12, 2023, uncontrolled wastes around the Çürüksu Creek were seen. The photographs taken from the Çürüksu Creek are provided in Figure 4.16. It is not known exactly where these wastes originate. The content is mostly marble and plaster-like waste. In addition, during the stakeholder consultation meeting held in 24.10.2023, participants from the industrial facilities outside the DOIZ received verbal information that these wastes were disposed of from a marble facility in the surrounding area. In addition, although the majority of the waste seems to be marble industry waste, there are also sacks of pesticides, waste tires and domestic waste. Therefore, it is estimated that the waste may originate from the surrounding facilities and agricultural activities.



Downstream of planned discharge point



Upstream of planned discharge point

Figure 4.16 Photographs Taken from the Çürüksu Creek

A water quality analysis was carried out by ENCON Laboratory on the samples on September 10-11, 2023. The samples were taken from two (2) locations where are upstream (35S 696166/4188036) and downstream (35S 696059/4187958) of planned discharge point. The surface

water quality sampling locations are shown in Figure 4.17. The distance of the upstream and downstream measurement points to the planned discharge point is 15 m and 110 m, respectively. There are uncontrolled waste disposals which are not under the control of DOIZ, as mentioned above, at the riverbanks between upstream and downstream sampling points. Additionally, there is another wastewater discharge line which is not under the control of DOIZ, near the DOIZ existing WWTP discharge point which are located between upstream and downstream sampling points. Surface water measurement results of the Çürüksu Creek are given in Table 4.4 together with the water quality classification criteria stipulated in the Surface Water Quality Regulation.

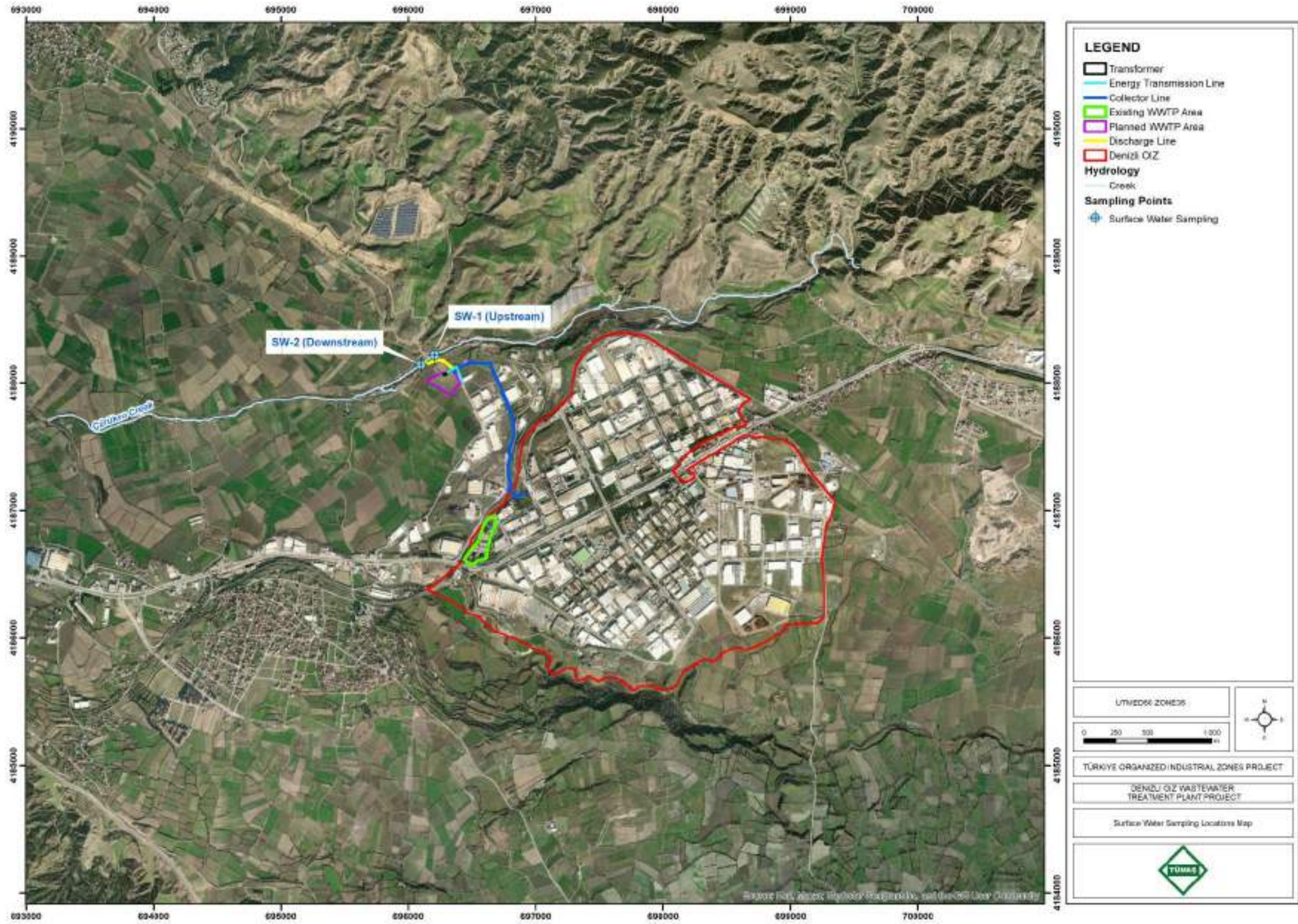


Figure 4.17 Surface Water Sampling Locations Map

Table 4.4 Measurement Results of Çürüksu Creek Surface Water

PARAMETER	SW-1 Upstream	SW-2 Downstream	Unit	Surface Water Quality Regulation Water Quality Classes		
	Surface Water	Surface Water		I (very good)	II (good)	III (moderate)
Color (436 nm)	0	0.001	1/m	≤1.5	3	>4.3
Color (525 nm)	0	0	1/m	≤1.2	2.4	>3.7
Color (620 nm)	0	0	1/m	≤0.8	1.7	2.5
Ammonium (NH ₄ ⁺)	<0.026	<0.026	mg/L	<0.2	1	>1
Oil and Grease	<0.2	0.400	mg/L	<0.2	0.3	>0.3
Biological Oxygen Demand (BOD ₅)	<3.0	<3.0	mg/L	<4	8	>8
Dissolved Oxygen (DO)	9.40	9.20	mg/L	>8	6	<6
Conductivity	2320.0	2280.0	μS/cm	<400	1000	>1000
Chemical Oxygen Demand (COD)	<5.0	<5.0	mg/L	<25	50	>50
Nitrate (NO ₃ ⁻)	22.2	22.0	mg/L	<3	10	>10
pH	8.06	8.03	-	6-9	6-9	6-9
Total Phosphorus(TP)	<0.01	<0.01	mg/L	<0.08	0.2	>0.2
Orthophosphate (o-PO ₄ ⁻)	<0.02	<0.02	mg/L	<0.05	0,16	>0.16
Total Kjeldahl Nitrogen(TKN)	<0.5	0.99	mg/L	<0.5	1.5	>1.5
Total Nitrogen(TN)	5.04	5.98	mg/L	<3.5	11.5	>11.5
Floride	<20.0	<20.0	μg/L	≤1000	1500	>1500
Manganese	27.26	25.06	μg/L	≤100	500	>500
Selenium	68.6	50.2	μg/L	≤10	15	>15
Sulphur	<2.0	<2.0	μg/L	≤2	5	>5

Source: ENCON Laboratory Analysis Results (See Annex-7)

The water quality classes defined in the Surface Water Quality Regulation are summarized in Table 4.5 Water Quality Classes and this table is used for the assessment of the results.

Table 4.5 Water Quality Classes

Water Quality Classes	Description
Class I (very good)	1) Surface waters with high potential to be drinking water, 2) Water usable for recreational purposes, including those requiring body contact such as swimming, 3) Water usable for trout production, 4) Usable water for animal production and farm needs.
Class II (good)	1) Surface waters that have the potential to be drinking water, 2) Water usable for recreational purposes, 3) Water usable for fish production other than trout, 4) Irrigation water provided that it meets the irrigation water quality criteria determined by the legislation.
Class III (moderate)	Water and industrial water that can be used for aquaculture after appropriate treatment, except for facilities that require qualified water such as food and textile.

As seen in Table 4.4, upstream of the planned discharge location of the Çürüksu Creek is classified as Class III (moderate) in terms of conductivity, nitrate and selenium parameters and Class II (good) due to TN parameter. Other measured parameters belong to Class I (very good).

On the other hand, downstream of the discharge location is classified as Class III (moderate) in terms of oil and grease, conductivity, nitrate and selenium and Class II (good) in terms of TN and TKN. Other measured parameters belong to Class I (very good).

In addition to surface water, groundwater sampling was also be generated within the scope of Project on September 10-11, 2023 by ENCON Laboratory. The analysis results are given in Table 4.6. Parameters are selected as per Regulation on the Protection of Groundwater Against Pollution and Deterioration, Annex-3 and additional parameters are also included by considering agricultural activities around the project area. Sampling was carried out in a single location (35S 696593/4187782), which was stated by DOIZ officials to be the closest well to the project area. In addition, while selecting the measurement point, the Technical Assistance document for the Transformation of Basin Protection Action Plans into River Basin Management Plans published by the Ministry of Agriculture and Forestry was also examined. This location is presented in Figure 4.18.

Table 4.6 Groundwater Analysis Results

PARAMETER	Results	Unit	Regulation on the Protection of Groundwater Against Pollution	Surface Water Quality Regulation Water Quality Classes		
				I	II	III
Ammonium	0.410	mg/L	-	<0.2	1	>1
Arsenic	<10.0	µg/L	-	-	-	-
Mercury	<1.0	µg/L	-	-	-	-
Conductivity	1124.0	µS/cm	-	<400	1000	>1000
Cadmium	<5.0	µg/L	-	-	-	-
Chloride	6.74	mg/L	-	-	-	-
Lead	<10.0	µg/L	-	-	-	-
Nitrate	3.74	mg/L	50 mg/L	<3	10	>10
Nitrite	0.0164	mg/L	-	-	-	-
Sulfate	280.5	mg/L	-	-	-	-
Tetrachloroethylene	<0.2	µg/L	-	-	-	-
Total Phosphorus	0.118	mg/L	-	<0.08	0.2	>0.2

Total Pesticide	<0.1	µg/L	0.5 µg/L	-	-	-
Trichloroethylene	<0.2	µg/L	-	-	-	-
Salinity	0.58	‰	-	-	-	-

Source: ENCON Laboratory Analysis Results (See Annex-7)

In the Annex-2 of Regulation on the Protection of Groundwater Against Pollution, limit values for nitrate and total pesticides were determined as 50 mg/L and 0.5 µg/L. When the results of the analysis are evaluated, it is seen that these two parameters are below the limit values. Since no limit values are determined for other parameters in the mentioned regulation, the evaluation of some parameters is conducted according to the limit values defined in Surface Water Quality Regulation. According to evaluation, groundwater is classified as Class II (good) in terms of ammonium, nitrate and TP parameters and Class III (moderate) due to conductivity parameter as can be seen from Table 4.6.

There are many reasons for high ammonium, conductivity, nitrate and phosphorus levels in groundwater. Some of these were fertilizers and animal waste used in agriculture, improperly treated sewage and septic systems, some industrial facilities and wastewater resulting from these facilities.

As defined in the Project Identification File approved by the Provincial Directorate of Environment, Urbanization and Climate Change water samples were collected and analyzed from the borehole with coordinates ITRF Y 432494.58, X 4187379.31 – ED-50 Y 432529.09, X 4187564.18 – UTM 6 Degree ED-50 Y 696624.98, X 4187963.40, which is an existing well around the Project Area. The parameters for the water borehole with the provided coordinates are as follows:

Static Level: 25 meters
Dynamic Level: 55 meters
Depth: 100 meters
Flow Rate: 7 L/s.

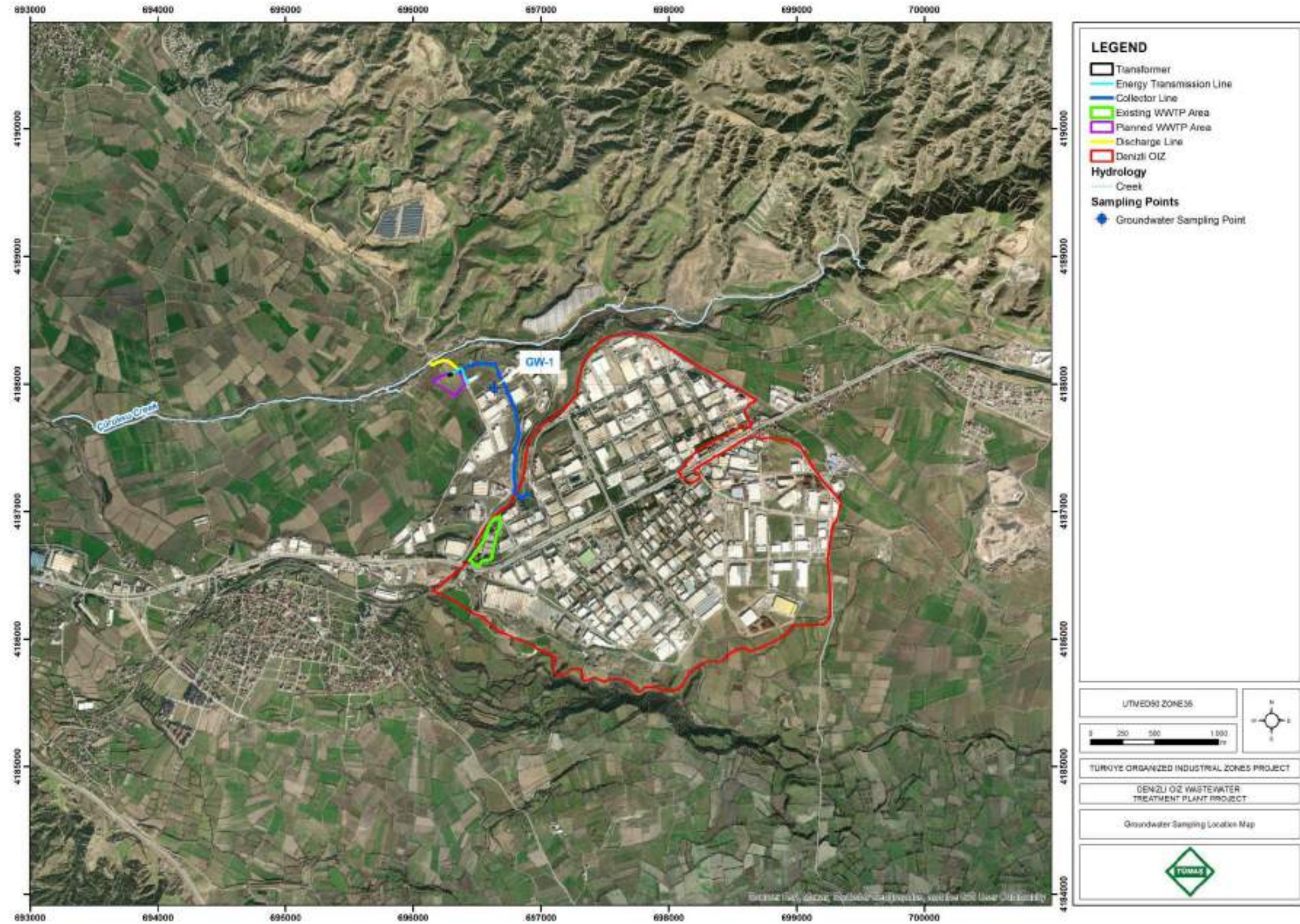


Figure 4.18 Groundwater Sampling Location Map

4.1.8 Waste and Wastewater Management

Pursuant to the Environmental Law No. 2872, it is prohibited to directly or indirectly deliver, store, transport, dispose of all kinds of waste and residues to the receiving environment, in violation of the standards and methods determined in the relevant regulation. Wastes generated in DOIZ are managed in accordance with the requirements of the Waste Management Regulation. Additionally, DOIZ has a Zero Waste Certificate valid until 24.12.2025 (see Annex 3), since the Zero Waste Management System has been established.

Wastes generated in DOIZ are temporarily stored within the borders of DOIZ. For the temporary storage of hazardous wastes (see Figure 4.19), DOIZ has a hazardous waste temporary storage permit issued by MoEUCC Provincial Directorate on 03.07.2020 (see Annex 3). The hazardous wastes generated are sent to licensed facilities with the licensed vehicles according to their type.



Figure 4.19 Temporary Storage Area for Hazardous Waste

According to 2021 Environmental Status Report for Denizli Province prepared by MoEUCC Provincial Directorate, in Honaz district where DOIZ located, domestic solid waste is currently disposed of at a dump site. It is planned to establish the Honaz Solid Waste Transfer Station to bring the solid waste collected from Honaz district to the Kumkısıık Solid Waste Disposal Facility. In this way, waste will be disposed of in landfills instead of dump sites.

For wastewater management, DOIZ currently has a WWTP situated on a 28,836 m² parcel of land within the DOIZ boundaries. This facility encompasses a closed area of 910 m² and an open area spanning 16,450 m². It was originally designed to accommodate a daily wastewater processing capacity of 42,000 m³ and was officially commissioned on December 31, 1997.

Wastewater is brought to the WWTP via the sewer network within the DOIZ. As a precaution to eliminate possible pipe blockages generated in sewer network, there is a pipe opening/cleaning equipment within the DOIZ.

The existing WWTP is equipped with various units for physical, chemical, biological treatment, as well as sludge dewatering. The general layout of the existing WWTP is shown in Figure 4.20. In addition, the photographs of existing WWTP are given in Figure 4.21.

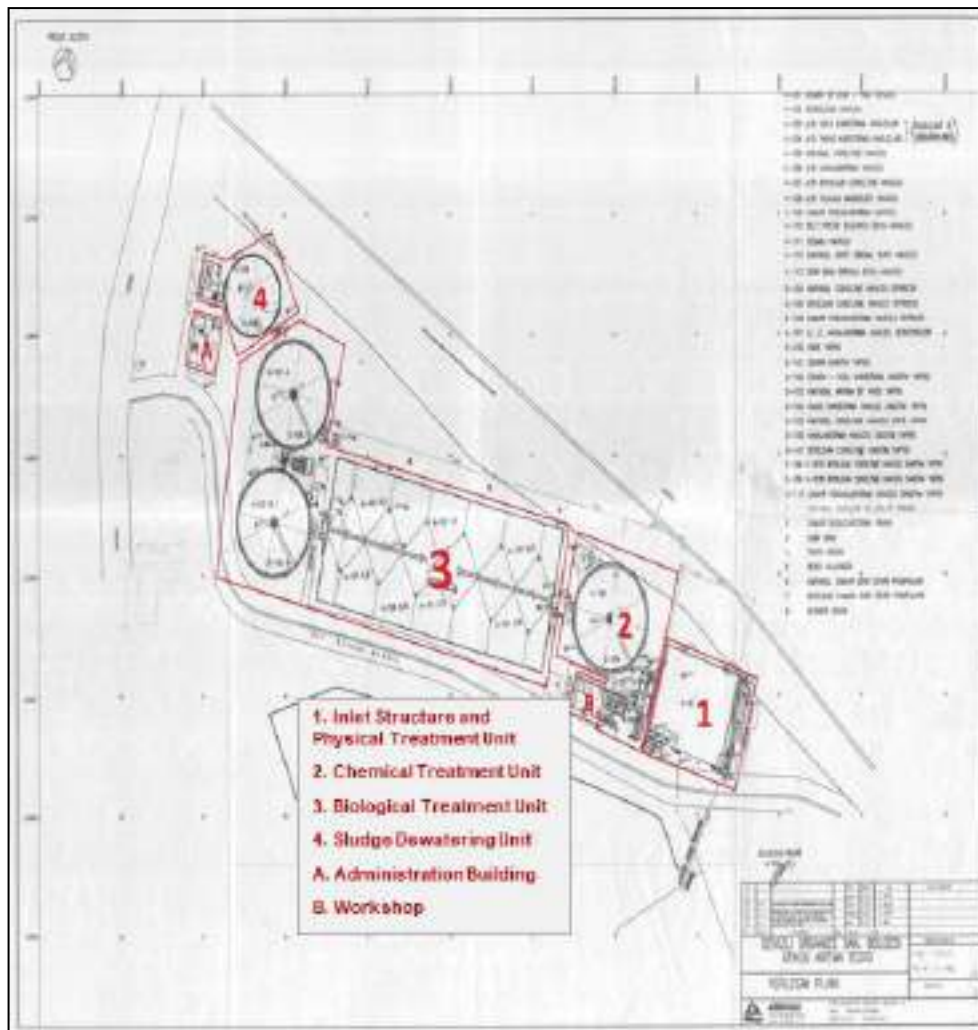


Figure 4.20 General Layout of Existing WWTP



Figure 4.21 Photographs of Existing WWTP in DOIZ

Also, the sludge from existing WWTP is stored in the temporary storage area located within the borders of DOIZ as represented in Figure 4.22.



Figure 4.22 Temporary Storage Area for Sludge

DOIZ hasn't been prosecuted and there were no fines issued to the DOIZ regarding any environmental and social issues in the past 5 years.

Currently 15 personnel are working in existing WWTP and their titles are:

- 1 Environmental Engineer as Facility Manager
- 1 Chemist as Deputy Facility Manager
- 2 Chemical Technician as Laboratory Technician
- 1 Environmental Technician
- 3 Mechanical Technician
- 1 Electrical Technician
- 1 Sludge Drying Operator
- 1 Unskilled Worker
- 3 Security Guard
- 1 Office Boy

The discharge point for WWTP effluent is located at Çürüksu Creek, which has long been subjected to the environmental risks resulting from improper discharges of industrial wastewater. The photograph of discharge point belongs to existing WWTP taken during field study carried out 12 September 2023 are given in Figure 4.23.



Figure 4.23 Photograph of Existing Discharge Point

Within the scope of ESIA, the sampling from effluent of existing WWTP was conducted on 10th and 11th of September, 2023. The analysis results are given with the wastewater discharge standards defined in Water Pollution Control Regulation in Table 4.7. According to results, all measured values are below the limit values specified in the regulation.

Table 4.7 Effluent of Existing WWTP Analysis Results

Parameter	Unit	Limit Value for 2-Hour Composite Sample	Measurement Results
COD	(mg/L)	250	53.78
TSS	(mg/L)	200	31.00
Oil and grease	(mg/L)	20	<10.0
TP	(mg/L)	2	0.118
Total Chromium	(mg/L)	2	<0.005
Chromium (Cr ⁺⁶)	(mg/L)	0.5	<0.1
Lead (Pb)	(mg/L)	2	<0.01
Total Cyanide (CN ⁻)	(mg/L)	1	<0.01
Cadmium (Cd)	(mg/L)	0.1	<0.005
Iron (Fe)	(mg/L)	10	0.032
Fluoride (F ⁻)	(mg/L)	15	<0.02
Copper (Cu)	(mg/L)	3	0.034
Zinc (Zn)	(mg/L)	5	0.150
Mercury (Hg)	(mg/L)	0.05	<0.001
Sulphate (SO ₄ ⁻²)	(mg/L)	1500	622.5
Total Kjeldahl Nitrogen (TKN)	(mg/L)	20	10.81
Fish Bioassay (TDF)	-	10	<10.0
Colour	(Pt-Co)	280	201.3
pH	-	6-9	7.71

4.1.9 Air Quality and Odor

An analysis was conducted by ENCON Laboratory on October 10, 2023 in order to determine the baseline condition of the air quality of the Project Area. Air quality measurement results are given

in Table 4.8 together with the Project standards. Air quality measurement location (35S 696406/ 4187720) is shown in Figure 4.24.

Table 4.8 Air Quality Measurement Results

Parameter	Averaging Period	Project Standards in $\mu\text{g}/\text{m}^3$	Measurement Results in $\mu\text{g}/\text{m}^3$
PM ₁₀	1-Year	20	-
	24-Hour	50	72.27
PM _{2.5}	1-Year	10	-
	24-Hour	25	59.99

According to measurement results, PM₁₀ and PM_{2.5} baseline measurement results are above the project standards. The reason for this situation is that the measurement was carried out on the border of a spinning factory and in an area where there is traffic between industrial facilities that are located the near of the road to the planned WWTP.

Additionally, considering the Project Area and existing facilities there is no odor generating facility. By nature, the existing WWTP generates odor especially related to sludge handling building, however the WWTP is located within the DOIZ area and there is no sensitive receptor around it. According to the information provided by DOIZ, there is no complaint received regarding odor problem. It should also be noted that there is no sensitive receptor around the planned WWTP.

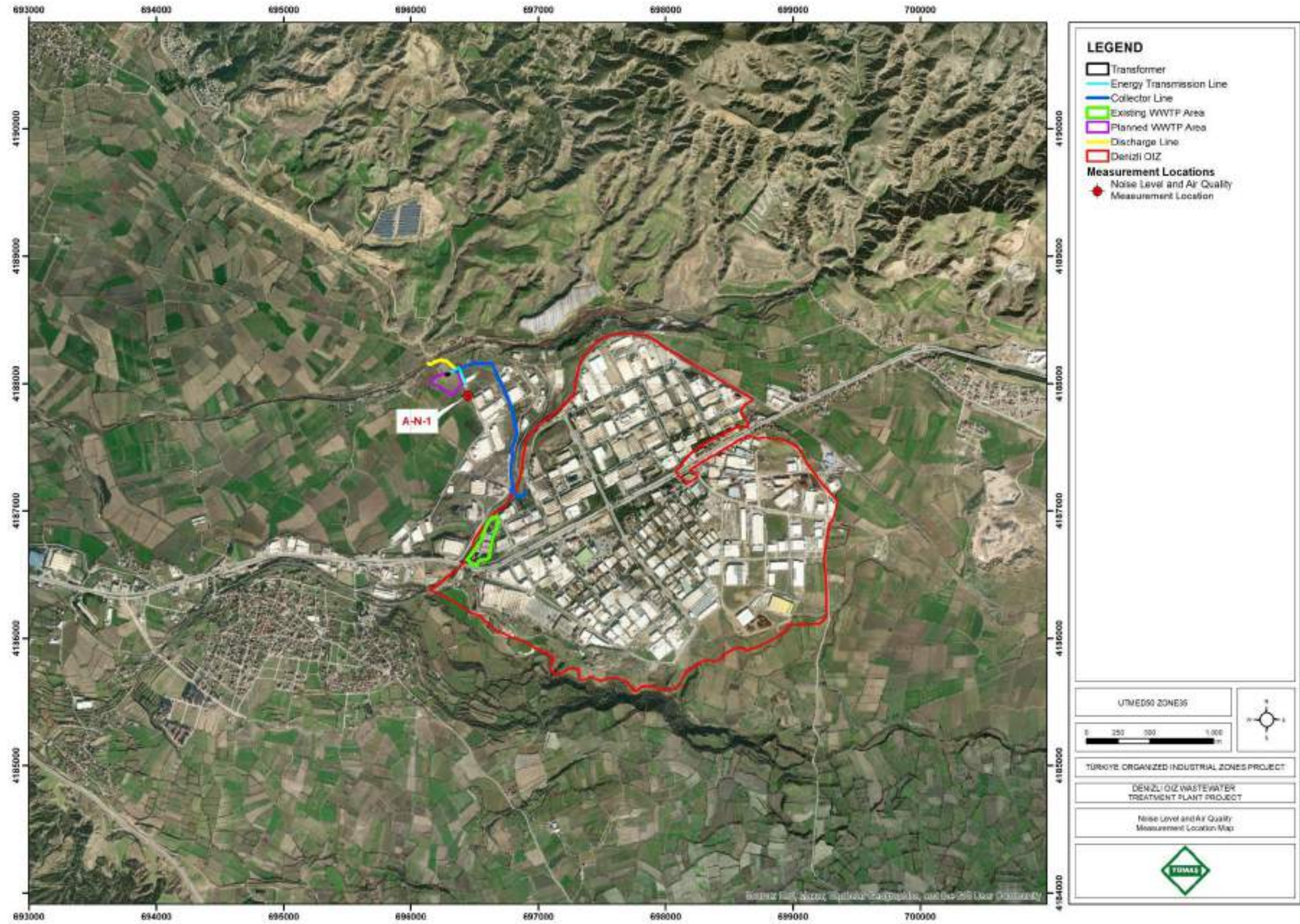


Figure 4.24 Air Quality and Noise Level Measurement Location Map

4.1.10 Noise Level

To determine the background noise level, a measurement study was conducted at one location (35S 696406/4187720) that is same with air quality measurement point. The location was selected based on its potential sensitivity to noise impacts during construction and operation considering that it is the closest facility to the Project Area. The measurement location is presented in Figure 4.24. The distance of this location to the planned WWTP site is 35 meters. The background noise measurements were carried out on October 9-10, 2023 by ENCON Laboratory and the results are presented in Table 4.9.

Table 4.9 Background Noise Level Measurement Results

Measurement Point	Type of the Receptor	Measurement Coordinates (UTMED50-Z35)		Measurement Results and Limit Values (Leq) (dBA)		
		X	Y	Day time (07.00-19.00)	Evening time (19.00-23.00)	Night time (23.00-07.00)
A-N-1	Institutional	696406	4187720	70.0	61.5	61.9
Project Standards				65	60	55

Source: ENCON Laboratory Analysis Results (See Annex-7)

As can be seen from Table 4.9, the background noise levels for the measurement location are below the daytime and night time project standards. The reason why the daytime noise result is very close to project standard is that the measurement was carried out at the border of a factory where production takes place and in an area where there is traffic between industrial facilities located near of the road to the planned WWTP.

4.2 Ecology and Biodiversity

Studies of the biological environment of this Project Area and the potential impact area have been carried out in September 2023 through a site visit. The studies covered terrestrial and aquatic environments, including flora and fauna species, vegetation and habitat descriptions.

Biodiversity baseline studies have been conducted with desk and field studies to determine the baseline conditions in the Project Area. This baseline data/information collection provides an overall picture of the conditions and sensitivities in the area that should be considered when assessing potential impacts and developing relevant mitigation measures.

The overall approach to establishing baseline conditions within the context and objectives outlined above included the following means of data collection and interpretation:

- Review of relevant literature.
- Field research in the study area.
- Interpretation of satellite images, where available.
- Communication with the local people of the study area during the field studies.

Biodiversity baseline field studies were carried out by Prof. Dr. Zafer Ayas from Hacettepe University, Department of Biology, on 23rd September 2023.

The distribution of flora and fauna species in the DOIZ WWTP Project Area and their biological activities (breeding, feeding, harbour status) have been determined through the studies carried out, and measures/recommendations for the protection of these species are presented in this ESIA report.

Definition of the Study Area

The Biodiversity Study Area has been determined based on distinct biodiversity components, taking into account the varying impacts of the project on each of these components. Research has been conducted to assess terrestrial flora species and vegetation within the footprint of project components and associated facilities. For terrestrial fauna species and aquatic environment study, a 150-meter radius around the WWTP Project Area and a 50-meter radius around the collector line have been researched. The biodiversity study area is shown in Figure 4.27.

The Biodiversity Study Area has been designated to examine the habitat and species within the Project Area and its surroundings. The 150-meter radius was determined based on expert opinion to create a study area that encompasses different habitats, both terrestrial and aquatic, and assess the impact of environmental changes around the WWTP Project Area. Furthermore, factors affecting species, such as dust and noise, were taken into consideration.

During the research, the 150-meter radius was established as a suitable area for conducting a detailed biological study to assess the effects of the WWTP Project Area and related facilities. Given the collector line in the industrial zone, examining a 50-meter radius around the construction site was deemed appropriate for determining the impacts on fauna species and habitats.

The Biodiversity Study Area, devised based on expert opinions, was chosen to align with the few homogenous fauna components found within the Project Area that have adapted to anthropogenic influences.

Methodologies

Flora

The species observed in the area were recorded and samples of unidentified species were collected. The data obtained from previous floristic studies in the area and literature review were used in the preparation of floristic lists. The results are presented in Table 4.10.

The families were listed in the floristic lists in alphabetical order. The Turkish names of each plant species were also included in the list. For the Turkish names of plants, "Türkçe Bitki Adları Sözlüğü" (Dictionary of Turkish Plant Names) was used (Baytop, T., 1997). In addition, the phytogeography of the plant, its existence (or non-existence) in the area, its abundance, its endemism and IUCN categories (Ekim et al., 2000), the habitat types where it grows and the altitudes where it is observed were also included in the list. The list of plant species in the Project Area and its surroundings is presented in Table 4.10. Definitions of abbreviations and symbols are also given in the legend.

The floristic list is prepared according to the phylogenetic order of Turkish flora as gymnosperms (Gymnospermae) and angiosperms (Angiospermae). The families under these groups have also been presented in the phylogenetic order of Turkish Flora. The names of the species were given with their authors and their local names, if any, phytogeographical areas, endemic species, threat categories for endemic and rare species, altitudes where they are observed, their habitats and abundance were listed respectively.

Fauna

The basic principles and methods underlying the faunistic studies are summarised below. The faunistic studies involved direct field observations, surveys and literature reviews within the Project Area and its surroundings to determine the faunal components.

Faunistic fieldwork was carried out in the Project Area and its surroundings. To identify species and their preferred habitat, nests-offspring-footprints (especially for birds and mammals),

droppings-faeces-food remains (especially for mammals), skin-horn-shield (e.g. carapax), and footprints were examined.

Species were not hunted, collected or killed during the identification process. Direct observation with advanced optical equipment was used to identify mammals and birds. After identification, the species were released. To identify bird species, transect and point counting methods were used instead of netting and mantrap methods, and faunistic observations were made on foot and/or by vehicle. Maps at a scale of 1:25,000 and the Google Earth application with MAPinr were used during the fieldwork.

Data on biotopes, biogenetic reserves, endemic species, threatened species and wildlife habitats were also collected and evaluated. The conservation status of the fauna components was determined according to the Turkish Red Lists, Bern Convention, CITES and IUCN European Red Lists.

The fauna inventory includes mammals, birds, reptiles and amphibians. The scientific name, habitat, endemism, population density, risk category, status in the Bern Convention and possible risks for each species are also included in this study. All this information is given in Table 4.11.

Aquatic Biodiversity

An aquatic habitat identification and assessment study was conducted in Çürüksu Creek, around the planned discharge point and existing WWTP discharge point. In this context, a biodiversity expert conducted a comprehensive examination, which included a literature review, fieldwork, and survey studies.

Following the field studies to determine the state of the aquatic habitat, the species that inhabit Çürüksu Creek were identified through field observations, surveys, and a review of existing literature.

Fish species were identified as an indicator group primarily affected by the construction activities. The impact of WWTP effluent on aquatic ecosystems and the necessary mitigation measures were also assessed.

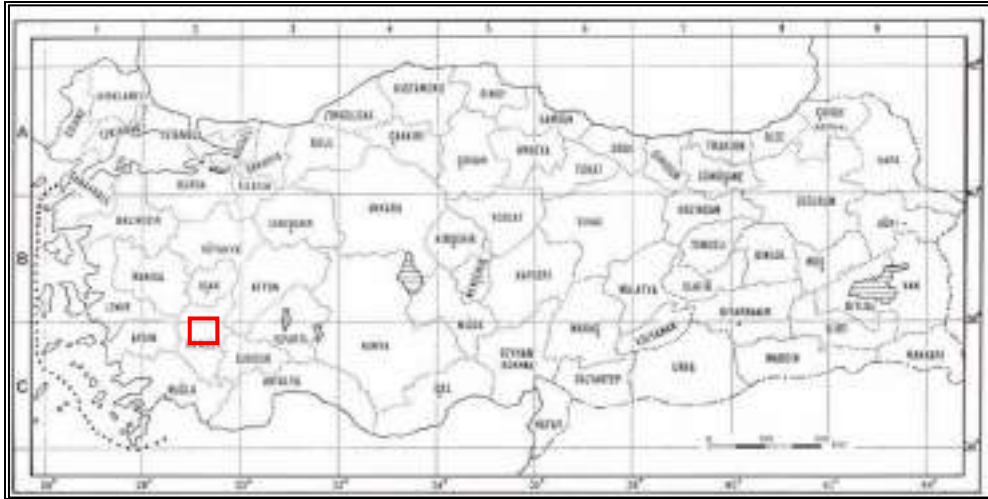
In this regard, the following studies were conducted as part of the aquatic research:

- Assessment of the national and international protection status and endemism of aquatic species.
- Evaluate the project's impact on the aquatic environment and the proposed mitigation measures.

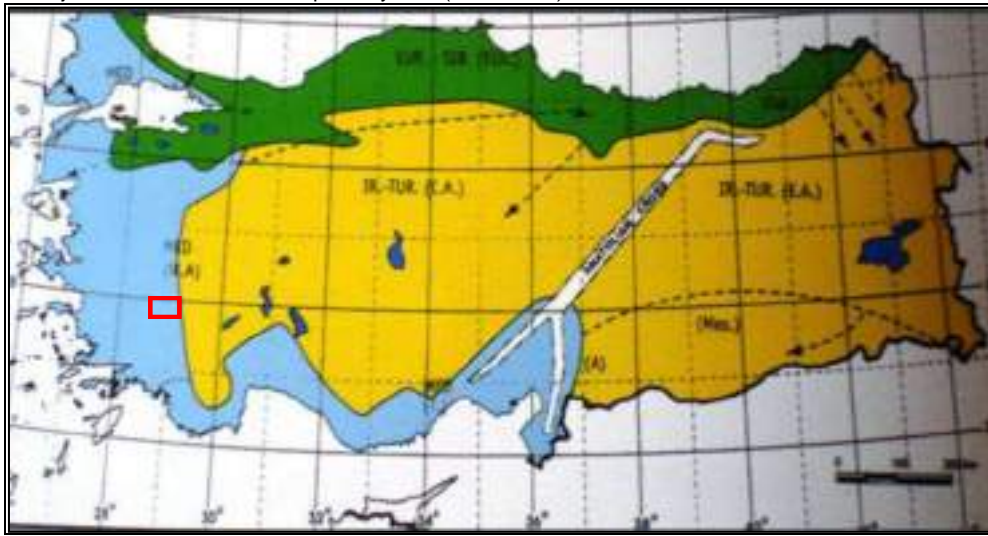
4.2.1 Terrestrial Flora and Habitats

Habitat Classification of the Project Area

The Project Area is in the transition zone of the Mediterranean and Central Anatolian regions, in other words, between the Mediterranean and Irano-Turanian Phytogeographical Region, as seen in Figure 4.25. The Project Area is located in the C2 grid in the grid square system of the flora of Türkiye.



a. Project Location in the Grid Square System (Davis 1988)



b. Phytogeographical Regions Map in Türkiye (www.ktu.edu.tr)

Davis P.H., Harper P.C. and Hege I.C. (eds.), 1971. Plant Life of South-West Asia. The Botanical Society of Edinburgh
 EUR.-SIB. (EUX): Europa-Siberian Region (Euxine sub-region); Col.: Colsic sector of the Euxine sub-region
 MED.: Mediterranean Region (Eastern Mediterranean sub-region); W.A.: Western Anatolia region; T.: Taurus Region; A.: Amanos Region
 IR.-TUR.: Iran-Turanian Region; C.A.: Central Anatolia Region; E.A.: Eastern Anatolia Region (Mes: Mesopotamia) X: Central European/Balkan subregion of possibly Euro-Siberian region (mt): Mountain

Figure 4.25 Bioecological Location of the Project Area

According to WB ESS6, natural habitat is areas composed of viable assemblages of plant and/or animal species of largely native origin and/or where human activity has not essentially modified an area's primary ecological functions and species composition. Modified habitats are areas that may contain a large proportion of plant and/or animal species of non-native origin, and/or where human activity has substantially modified an area's primary ecological functions and species composition. Modified habitats may include areas managed for agriculture, forest plantations, reclaimed coastal zones, and reclaimed wetlands. Modified habitats have been determined in the Project Area.

The Project Area is located adjacent to DOIZ and has been subjected to various human-induced impacts from industrial and agricultural activities. As a result, it has been entirely transformed into an anthropogenic area, losing its natural or semi-natural habitat characteristics.

Through field observations carried out as part of this ESIA,, the vegetation communities in and around the Project Area have been classified into two primary categories: cultivated (modified) agricultural lands and vegetation strips around them.

The Project Area is not a natural habitat for wildlife. Virtually the entire region has been converted into irrigated and arid agricultural lands. Currently, the area has been no ecological function for wildlife or the ecosystem.

During the observations made in Çürüksu Creek, it has been observed that the creek is possibly polluted with uncontrolled waste disposal and existing wastewater discharge around the Project Area. It is not related to the existing the WWTP, but there are also other discharges to the discharge point and uncontrolled solid waste disposal from other facilities (not located in the OIZ) in the region. Waste has been observed on the banks of the creek around the proposed discharge point (mainly at the upstream of proposed discharge point). Additionally, the discharge of the existing wastewater treatment facility operated by the DOIZ and the discharge of wastewater from industrial facilities that are not within the DOIZ but located near the Project Area are also located downstream of the proposed discharge point. All these factors create risk for the pollution of the creek. In meetings with local people and stakeholders, it was stated that there are no fish species in the creek. Riparian vegetation with anthropogenic effects has been observed extending along the creek.

The habitat types within the Study Area are determined with desktop studies using satellite imagery according to EUNIS Habitat Classifications. It is also based on CORINE 2018 data. After the field studies, expert observations have been verified, and habitat types have been revised.

Photographs of the EUNIS habitat types identified within the Biodiversity Study Area can be found in Figure 4.26, while the EUNIS habitat types map is shown in Figure 4.27. The EUNIS habitat types present in the Biodiversity Study Area, along with their explanations, are detailed below:

- I1.5: Bare tilled, fallow or recently abandoned arable land
- J2.3: Rural industrial and commercial sites still in active use
- C2.5: Temporary running waters
- F9.1: Riverine scrub in anthropogenic impacts
- J6.1: Waste resulting from building construction or demolition



WWTP Area (I1.5)



Collector Line Route (J2.3)



Discharge Point of WWTP (C2.5) and Anthropogenic Riverine Scrub (F9.1)



Uncontrolled waste and pollution on the riverside (J6.1)

Figure 4.26 Photographs of habitat types of the Project Area

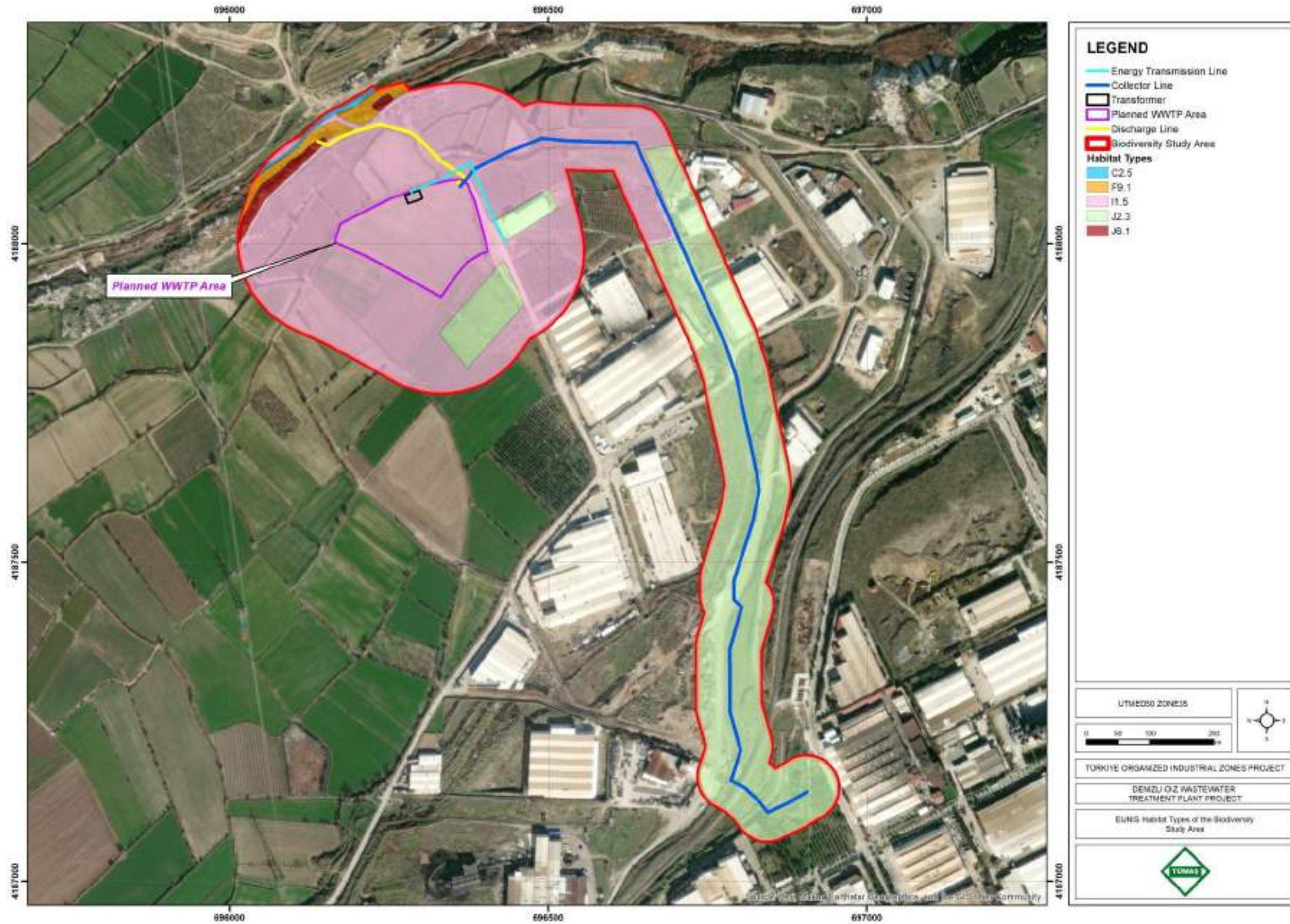


Figure 4.27 EUNIS Habitat Types of the Biodiversity Study Area

Terrestrial Flora

The Aegean region, especially Denizli and its vicinity are well known regarding their floristic diversity. This area marks a transitional zone between the Mediterranean and Irano-Turanian floristic regions. After conducting field studies carried out as part of this ESIA, 43 flora species and subspecies belonging to 20 different families have been identified. The distribution of these flora species based on their phytogeographic regions is as follows:

Mediterranean Region	: 8 species; 18%
Common	: 35 species; 82%

The Project Area consists of modified vegetation. Thus, it has been determined that the flora species consist of herbaceous plants and widely distributed species. According to field studies and literature reviews, the flora species in and around the Project Area are presented in Table 4.10.

None of the 43 identified flora species are endemic. In addition, there are no protected flora species as per the BERN and CITES conventions. Photographs of some flora species identified in the Project Area are given in Figure 4.28.



Daucus caroto



Ranunculus isthmicus



Trifolium campestre



Convolvulus arvensis



Poa bulbosa



Rosa canina

Figure 4.28 Photographs of some flora species identified in the Study Area

Table 4.10 Flora Species in and around the Project Area

FAMILY	NO	SPECIES/TAXON	P.G.R	Endemism		IUCN	BERN	CITES	Altitude (m)	Habitat		Relative Abundance					Resource
				RE	CE					1	2	1	2	3	4	5	
RANUNCULACEAE	1	<i>Ranunculus isthmicus</i> Boiss. subsp. <i>stepporum</i> Davis	Mediterranean	–	–	–	–	–	200-300	x		x					O-L
	2	<i>Nigella nigellastrum</i> (L.) Willk	Common	–	–	–	–	–	200-300		x		x				O-L
PAPAVERACEAE	3	<i>Hypecoum procumbens</i> L.	Mediterranean	–	–	–	–	–	200-300	x			x				O-L
	4	<i>Papaver rhoeas</i> L.	Common	–	–	LC	–	–	200-300	x	x		x				O-L
CRUCIFERAE	5	<i>Descurainia sophia</i> (L.)	Common	–	–	–	–	–	200-300		x		x				O-L
	6	<i>Clypeola jonthlasi</i> L.	Common	–	–	–	–	–	200-300	x			x				O-L
CARYOPHYLLACEAE	7	<i>Minuartia hamata</i> (Hauskn.) Mattf.	Common	–	–	–	–	–	200-300	x		x					O-L
	8	<i>Holosteum umbellatum</i> L. var. <i>Umbellatum</i>	Common	–	–	–	–	–	200-300	x	x		x				O-L
	9	<i>Petrorhagia cretica</i> (L.) Ball & Heywood	Common	–	–	–	–	–	200-300	x			x				O-L
	10	<i>Dianthus zonatus</i> Fenzl. var. <i>zonatus</i>	Common	–	–	–	–	–	200-300	x			x				O-L
CHENOPODIACEAE	11	<i>Noaea mucronata</i> (Forssk.) Aschers. & Schweinf.	Common	–	–	–	–	–	200-300	x		x					O-L
RUTACEAE	12	<i>Haplophyllum suaveolens</i> (DC.) G.Don var. <i>suaveolens</i>	Common	–	–	–	–	–	200-300	x		x					O-L
ANACARDIACEAE	13	<i>Paliurus spina-christi</i> Miller	Common	–	–	–	–	–	200-300	x		x					O-L
LEGUMINOSAE	14	<i>Hippocrepis unisiliquosa</i> L. subsp. <i>unisiliquosa</i>	Common	–	–	–	–	–	200-300	x		x					O-L
	15	<i>Hymenocarpus circinnatus</i> (L.) Savi.	Mediterranean	–	–	–	–	–	200-300	x	x		x				O-L
	16	<i>Trifolium stellatum</i> L. var. <i>stellatum</i>	Common	–	–	–	–	–	200-300	x	x		x				O-L
	17	<i>Trifolium campestre</i> Schreb.	Common	–	–	–	–	–	200-300	x	x		x				O-L
ROSACEAE	18	<i>Rosa canina</i> L.	Common	–	–	LC	–	–	200-300	x		x					O-L
UMBELLIFERAE	19	<i>Torilis leptophylla</i> (L.) Reichb.	Common	–	–	–	–	–	200-300	x	x	x					O-L
	20	<i>Eryngium campestre</i> L. var. <i>campestre</i>	Common	–	–	–	–	–	200-300	x	x	x					O-L
	21	<i>Scandix iberica</i> Bieb.	–	–	–	–	–	–	200-300	x	x	x					O-L
	22	<i>Daucus carota</i> L.	Common	–	–	LC	–	–	200-300	x	x		x				O-L
DIPSACACEAE	23	<i>Scabiosa argentea</i> L.	Common	–	–	–	–	–	200-300	x			x				O-L
COMPOSITAE	24	<i>Centaurea solstitialis</i> L. subsp.	Common	–	–	–	–	–	200-300	x			x				O-L

FAMILY	NO	SPECIES/TAXON	P.G.R	Endemism		IUCN	BERN	CITES	Altitude (m)	Habitat		Relative Abundance					Resource
				RE	CE					Anx1	1	2	1	2	3	4	
		<i>solstitialis</i>															
	25	<i>Lapsana communis</i> L.	Common	–	–	–	–	–	200-300	x		x				O-L	
	26	<i>Cirsium vulgare</i> (Savi) Ten.	Common	–	–	–	–	–	200-300	x	x	x				O-L	
	27	<i>Echinops ritro</i> L.	Common	–	–	–	–	–	200-300	x		x				O-L	
OLEACEAE	28	<i>Olea europaea</i> L. var. <i>sylvestris</i> (Miller) Lehr.	Mediterranean	–	–	–	–	–	200-300	x		x				O-L	
SCROPHULARIACEAE	29	<i>Veronica multifida</i> L.	Mediterranean	–	–	–	–	–	200-300	x		x				O-L	
	30	<i>Parentucellia latifolia</i> (L.) Caruel subsp. <i>latifolia</i>	Mediterranean	–	–	–	–	–	200-300	x			x			O-L	
CONVOLVULACEAE	31	<i>Convolvulus arvensis</i> L.	Common	–	–	–	–	–	200-300	x	x		x			O-L	
LABIATAE	32	<i>Lamium amplexicaule</i> L.	Common	–	–	–	–	–	200-300	x	x		x			O-L	
	33	<i>Salvia viridis</i> L.	Mediterranean	–	–	–	–	–	200-300	x	x		x			O-L	
	34	<i>Mentha longifolia</i> (L.) Hudson subsp. <i>typhoides</i> (Briq.) Harley var. <i>typhoides</i>	Common	–	–	–	–	–	200-300	x			x			O-L	
	35	<i>Thymra spicata</i> L. var. <i>spicata</i>	Common	–	–	–	–	–	200-300	x			x			O-L	
FAGACEAE	36	<i>Quercus coccifera</i> L.	Common	–	–	LC	–	–	200-300	x			x			O-L	
LORANTHACEAE	37	<i>Viscum album</i> L. subsp. <i>album</i>	Common	–	–	LC	–	–	200-300	x			x			O-L	
EUPHORBIACEAE	38	<i>Euphorbia rigida</i> Bieb.	Mediterranean	–	–	–	–	–	200-300	x			x			O-L	
GRAMINEAE	39	<i>Poa bulbosa</i> L.	Common	–	–	–	–	–	200-300	x			x			O-L	
	40	<i>Hordeum bulbosum</i> L.	Common	–	–	LC	–	–	200-300	x			x			O-L	
	41	<i>Hordeum murinum</i> L.	Common	–	–	LC	–	–	200-300	x			x	x		O-L	
	42	<i>Echinaria capitata</i> (L.) Desf.	Common	–	–	–	–	–	200-300	x	x		x			O-L	
	43	<i>Piptatherum coeruleascens</i> (Desf.) P. Beauv.	Common	–	–	–	–	–	200-300	x			x			O-L	

Resource
O: Direct
Observation
L: Literature
A: Public
Survey
H: Habitat
Suitability

RELATIVE ABUNDANCE
1: Very Rare
2: Rare
3: Moderate
4: Abundant 5: Very abundant

1: Cultivated/Agricultural
Areas
2: Habitats between
agricultural fields

END: ENDEMISM:
RE: Regional
Endemic,
CE: Common
endemic

P.G.R
Phytogeographic Region

4.2.2 Terrestrial Fauna

A total of six species of mammals (belonging to six families), 13 species of birds (belonging to 11 families), six species of reptiles (belonging to four families) and two species of amphibians (belonging to two families) are identified in the study area based on field sampling and observation, communication with local people and literature review. The complete list of all fauna is given in Table 4.11, explaining the symbols and abbreviations used in the legend. Photographs of some fauna species identified in the Study Area are given Figure 4.29.

None of the fauna species are endemic. In addition, there are no protected fauna species as per the IUCN categories and CITES conventions.

Mammals

A total of six mammals belonging to six families were identified in the Study Area. Three mammal species (European hare: *Lepus europaeus*, Harting's field mouse: *Microtus hartingi*, and red fox: *Vulpes vulpes*) were directly observed. Other mammals were not directly observed but were reported by residents, and their presence was confirmed through animal tracks and signs. Literature also supports the existence of these species in the area. Only one vole burrow was observed in the study area.

Birds

The habitats, habitat functions, and status of the 13-bird species observed in the Study Area. Of these, six (55%) are non-passerines, and seven (45%) are passerines. The composition of bird species in the study area is relatively homogeneous, ranging from raptors to small passerines, due to the general availability of suitable foraging habitats. Most species are residents, summer visitors, and widely distributed across different regions of Türkiye. There are no endemic or protected bird species, and the Project Area is not within the main bird migration route.

Reptiles and Amphibians

A total of six reptile species (belonging to four families) and two amphibian species (belonging to two families) were identified in the Study Area through direct sampling and observation. Among the reptile species, one is a tortoise, three are lizards, and two are snakes. *Testudo graeca* falls into the "Vulnerable (VU)" category, but it is a common and widespread species in Türkiye. The Grass Snake, *Natrix natrix*, was found as a single individual near the canals close to the Project Area.

The amphibians (*Bufo viridis* and *Rana ridibunda*) observed in the study area were detected near Çürüksu Creek and canals. All the reptile and amphibian species identified in the study area are widespread throughout Türkiye or the Aegean region.



Testudo graeca



Ophisops elegans



Pica pica



Lacerta trilineata



Apus apus



Motacilla alba



Corvus corone corone



Upupa epops

Figure 4.29 Photographs of some fauna species identified in the Study Area

Table 4.11 Fauna Species in and around the Project Area

FAUNA GROUPS	FAMILY	SPECIES	NAME in ENGLISH	Habitat	Habitat Function	IUCN	BERN		PROJECT AREA		CITES	RESOURCES		
							Ann - 2	Ann- 3	Inside	Outside		O	L	A
AMPHIBIANS	BUFONIDAE	<i>Bufo viridis</i>	Common Toad	2	feeding-going around	LC	X		X	X		X	X	
	RANIDAE	<i>Rana ridibunda</i>	Marsh frog	2	feeding-going around	LC		X		X		X	X	
REPTILES	TESTUDINIDAE	<i>Testudo graeca</i>	Spur-thighed Tortoise	1-2	feeding-going around	VU	X			X		X	X	
	AGAMIDAE	<i>Agama stellio</i>	Hardim	1-2	feeding-going around	LC	X			X		X	X	
	LACERTIDAE	<i>Lacerta trilineata</i>	Balkan green lizard	1-2	feeding-going around	LC	X		X	X		X	X	
		<i>Ophisops elegans</i>	Snake-eyed lizard	1-2	feeding-going around	LC	X			X		X	X	
	COLUBRIDAE	<i>Natrix natrix</i>	Grass snake	1-2	feeding-going around	LC		X				X	X	X
		<i>Dolicophis caspius</i>	Whip snake	1-2	feeding-going around	LC	X			X			X	X
BIRDS	CICONIIDAE	<i>Ciconia ciconia</i>	White stork	1-2	passing through/over	LC	X					X	X	
	ACCIPITRIDAE	<i>Buteo rufinus</i>	Long-legged buzzard	1-2	hunting-feeding going around	LC	X			X		X	X	
	COLUMBIDAE	<i>Columba livia</i>	Rock pigeon	1-2	feeding-going around	LC		X	X	X		X	X	
		<i>Streptopelia decaocto</i>	Dove	1-2	feeding-going around	LC		X	X	X		X	X	
	APODIDAE	<i>Apus apus</i>	Common swift	1-2	feeding-going around	LC		X	X	X		X	X	
	MEROPIIDAE	<i>Merops apiaster</i>	Bee-eater	1-2	passing through/over	LC	X			X		X	X	
	UPUPIDAE	<i>Upupa epops</i>	Hoope	1-2	feeding-going around	LC	X			X				
	ALAUDIDAE	<i>Galerida cristata</i>	Crested lark	1-2	feeding-going around	LC		X		X		X	X	
	HIRUNDINIDAE	<i>Hirundo rustica</i>	Barn swallow	1-2	feeding-going around	LC	X		X	X		X	X	
	MOTACILLIDAE	<i>Motacilla alba</i>	White wagtail	1-2	feeding-going around	LC	X			X		X	X	
	CORVIDAE	<i>Pica pica</i>	Magpie	1-2	feeding-going around	LC	-	-	X	X		X	X	
<i>Corvus corone</i>		Hooded crow	1-2	feeding-going	LC	-	-							

		<i>corone</i>			<i>around</i>									
	PASSERIDAE	<i>Passer domesticus</i>	House sparrow	1-2	<i>feeding-going around</i>	LC	-	-	X	X		X	X	
MAMMALIANS	ERENACIDAE	<i>Erinaceus concolor</i>	Hedgehog	1-2	<i>feeding-going around</i>	LC	X			X		X	X	
	CROCIDURIDE	<i>Crocidura leucodon</i>	Bicolored Shrew	1-2	<i>feeding-going around</i>	LC		X		X			X	
	LOPERIDAE	<i>Lepus europaeus</i>	Hare	1-2	<i>feeding-going around</i>	LC		X		X		X	X	X
	RODENTIA	<i>Microtus hartingi</i>	Agean vole	1-2	<i>feeding-going around</i>			X	X	X		X	X	
	SUIDAE	<i>Sus scrofa</i>	Wild boar	1-2	<i>feeding-going around</i>	LC								
	CANIDAE	<i>Vulpes vulpes</i>	Red fox	1-2	<i>feeding-going around</i>	LC	X				X		X	X

Resource RELATIVE ABUNDANCE INSIDE : in the project site and density" individuals" END: ENDEMIZM: 1:Cultivated/Agricultural Areas
O: Direct Observation 1: Very Rare OUTSIDE : project site vicinity RE: Regional Endemic, 2:Habitats between agricultural fields
L: Literature 2: Rare "surroundings-impact area" CE: Common endemic
A: Public 3: Moderate
Survey 4: Abundant 5:
H: Habitat Very abundant
Suitability

4.2.3 Aquatic Biodiversity

In researching the aquatic environment of Çürüksu Creek, the primary objective is to initially identify fish species, which are the indicator group most impacted by construction and operational activities.

Waste has been observed on the banks of the creek around the proposed discharge point (mainly at the upstream of proposed discharge point). Additionally, the discharge of the existing wastewater treatment facility operated by the DOIZ and the discharge of wastewater from industrial facilities that are not within the DOIZ but located near the Project Area are also located downstream of the proposed discharge point. All these factors create risk for, and this has led to the pollution of the creek. In meetings with local people and stakeholders, it was stated that there are no fish species in the creek. Riparian vegetation with anthropogenic effects has been observed extending along the creek.

It has been observed that Çürüksu Creek is currently heavily polluted due to uncontrolled waste dumping. As observed during site visits and considering the type of wastes, the wastes are not from DOIZ. Additionally, during the stakeholder meetings and interviews with DOIZ representatives, it was confirmed that wastes are mainly originated by another company and public. During meetings with residents, it was reported that no fish species have been observed in the creek. No fish species were observed in the field study.

Field study and literature research confirms the absence of fish species in Çürüksu Creek. Fish species in the Aksu Stream, where Çürüksu Creek meets, have been determined through literature research and are presented in Table 4.12. These species, not observed in Çürüksu Creek, where the discharge will occur, inhabit the Aksu Stream. These species are endemic to the Büyükmenderes Basin.

The fish species identified in the Aksu River are mobile species due to their feeding, migration, and breeding behaviors. Although they are not currently observed in Çürüksu Creek, it should be noted that potential changes resulting from environmental and climate variations, as well as ecological activities, may lead these species to migrate to Çürüksu Creek in future.

Table 4.12 Possible Fish Species in Aksu Stream (Guclu et al., (2013).

ORDER	FAMILY	SPECIES	ENGLISH NAME	IUCN
Cypriniformes	Cyprinidae	<i>Squalius fellowesii</i> (Günther, 1868)	Chub	LC
Cypriniformes	Cyprinidae	<i>Alburnoides cf. smyrnae</i> Pellegrin, 1927	-	-
Cypriniformes	Cyprinidae	<i>Barbus pergamonensis</i> Karaman, 1971	Anatolian Barbel	LC
Cypriniformes	Cyprinidae	<i>Luciobarbus kottelati</i> Turan, Ekmekçi, İlhan & Engin, 2008	Menderes barbel	VU
Cypriniformes	Nemacheilidae	<i>Oxynoemacheilus cf. cinicus</i> Erk'Akan, Nalbant & Özeren, 200	Sakarya Bleak	DD

4.2.4 Protected Areas

Nationally Protected Areas

To identify and evaluate the protected areas within the Project Area and its immediate vicinity, desktop studies and literature research were carried out using the databases of the relevant institutions within the scope of the Project. For this purpose, the sensitive area list available in Annex 5 of the EIA Regulation was used as a reference. This list covers areas that need to be protected by international conventions that Türkiye is a contracting party and nationally declared protected areas.

Considering the specified list, a map showing the protected areas according to national legislation in and around the Project Area and their distances has been prepared and shown in Figure 4.30. The evaluations related to the indicated areas are presented therein.

No National Parks, Nature Parks, Nature Monuments or Nature Reserve Areas defined in Articles 2 and 3 of the National Parks Law are in the Project Area. The nearest National Park is Honaz Mountain National Park, 3 km south of the planned WWTP area. There is also Çakıroluk Nature Reserve Area, located 19.7 km southwest of the planned WWTP area.

The map of prohibited and open hunting areas prepared by the Ministry of Agricultural and Forestry, General Directorate of Nature Conservation and National Parks, is presented in Figure 4.31. There are no Wildlife Protection Areas, Wildlife Development Areas and Wild Animal Nestling Areas determined by the Land Hunting Law in the Project Area.

The Project Area is located in the Büyük Menderes River Basin. The Çürüksu Creek, which is a seasonal creek, flows into the Büyükenderes River, passing 100 m to the north of the Project Area, which is the discharge point of the planned WWTP. Aksu Stream rising from Honaz Mountain, used for irrigation purposes by State Hydraulic Works (DSI), merges with Çürüksu Creek, which is determined as a sensitive water body, during the screening process, passes through the southwest and west of the DOIZ borders and passes 1.5 km away from the Project Area. The sensitive water body is a body of water that is determined to be eutrophic or may become eutrophic in the near future if necessary precautions are not taken. This definition is done in the Regulation on Determining Sensitive Water Bodies and the Areas Affecting These Masses and Improving the Water Quality published in the Official Gazette dated 23.12.2016 and numbered 29927 by the Ministry of Agriculture and Forestry and Down Çürüksu Creek is defined as sensitive water body by Ministry of Agriculture and Forestry. Figure 4.32 illustrates the map of the sensitive water body published by the Ministry of Agriculture and Forestry. Accordingly, Aksu Stream, where Çürüksu Creek meets, has been determined as a Sensitive Area. This does not impose any additional requirements for the Project.

The Project Area is located in the Sarayköy Plain, which is determined as the Great Plain Protected Area, which is declared as such by the Ministry of Agriculture and Forestry. Therefore, the Soil Protection Board of Denizli Provincial Directorate of Agriculture and Forestry has prepared a Soil Protection Project for the measures to be taken during the construction and operation phase of the Project. Within the scope of this Soil Protection Project, it was stated that measures should be taken to make a protection band in the form of trees, to germinate the garden areas of the Project and to plant tall plants that will serve as a windscreen on the protection band. A protection band will be formed between the road bordering the land where the facility will be built and the parcels on the other borders. Within this protection band, grassing and ornamental plants will be planted parallel to the wall and 1.5m inside the wall to protect the soil in the project area garden. When the facility is in operation, a wire fence protection band will be built for protection purposes to prevent damage the surrounding agricultural lands and to clarify the boundaries of the parcel where the facility will be established. The roads to be used will not pass through agricultural areas. Besides, adverse environmental impact can be minimized by preventing dust formation during the construction phase and correct operation of the plant in the operational phase.

Internationally Recognized Areas

Internationally recognized areas exclusively defined according to WB ESS6 (2018) are UNESCO World Heritage Natural Sites, Biosphere Reserves, Ramsar Wetlands of International Importance, Key Biodiversity Areas (KBA), Important Bird Areas, and Alliance for Zero Extinction Sites.

Using up-to-date data, internationally recognized areas in and around the Project Area have been determined and mapped with their distances (see Figure 4.33). Accordingly, the evaluation is as follows:

There are no internationally recognized areas in and around the Project Area. The closest recognized areas are as follows: Honaz Mountain KBA / Important Plant Area (IPA) are located 6.6 km south, and Akdağ-Denizli KBA is located 8.3 km southwest of the Project Area.

As a result, according to research conducted with current databases, there is no internationally recognized area in and around the Project Area.

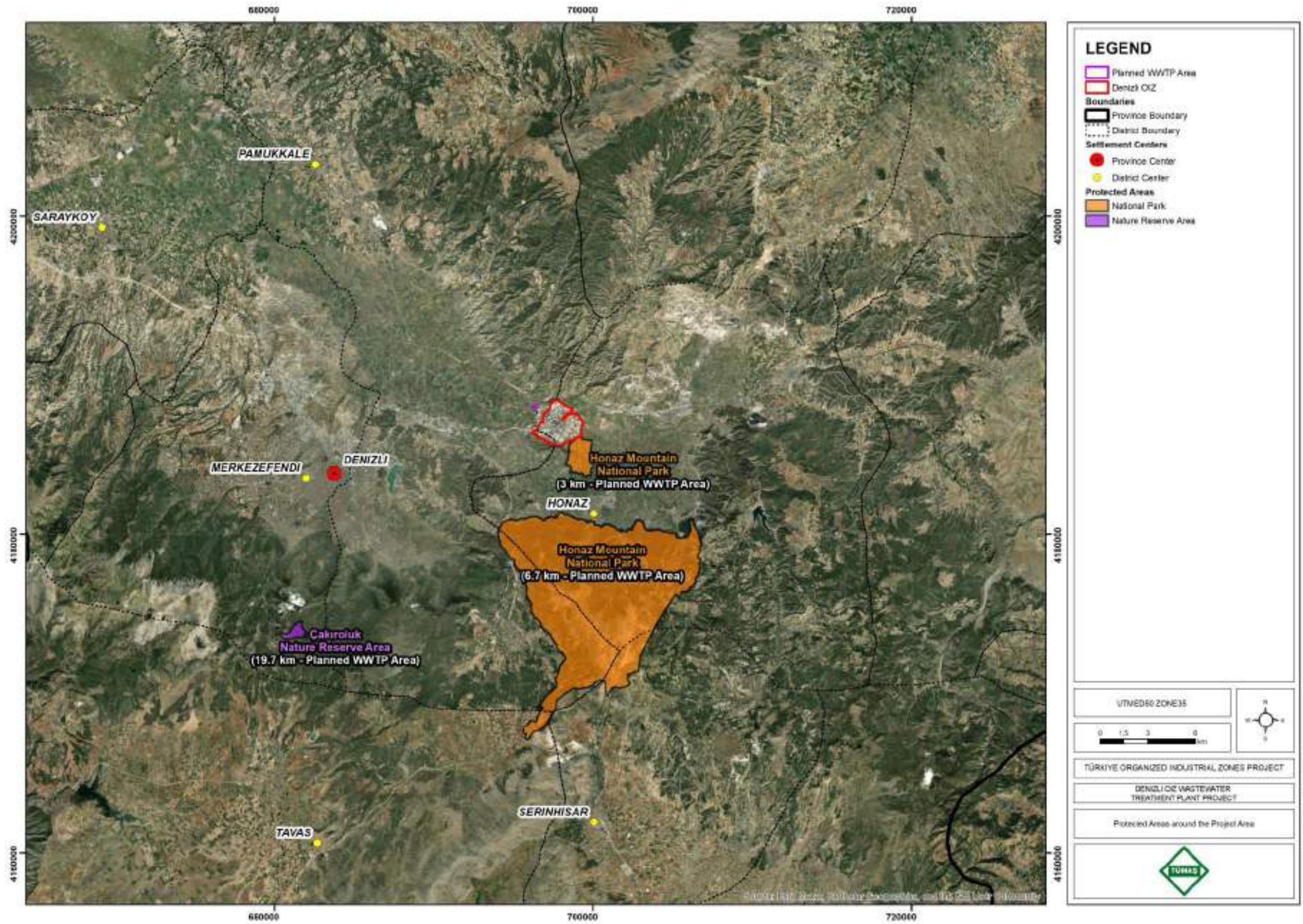


Figure 4.30 Nationally Protected Areas around the Project Area

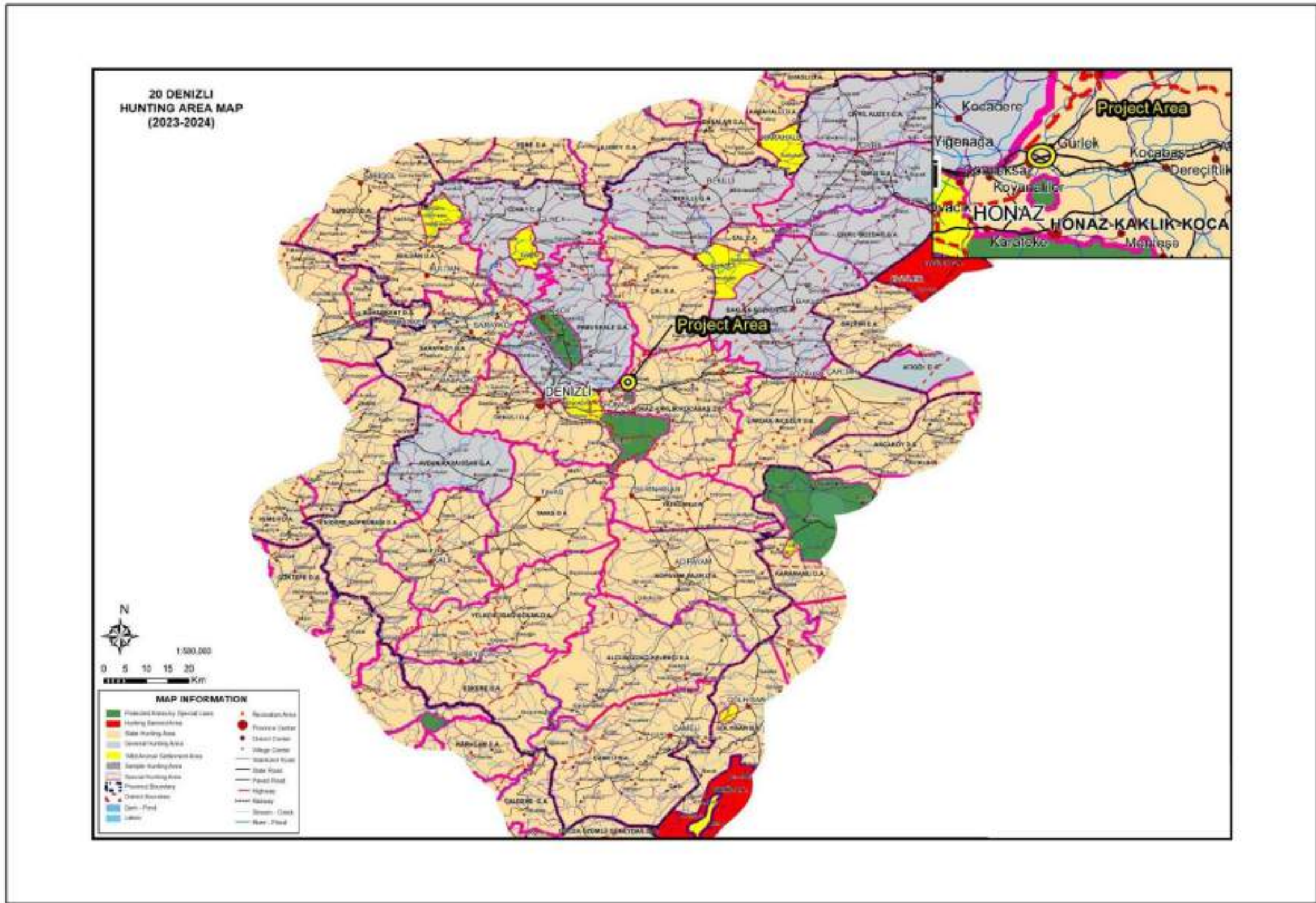


Figure 4.31 Denizli Hunting Area Map

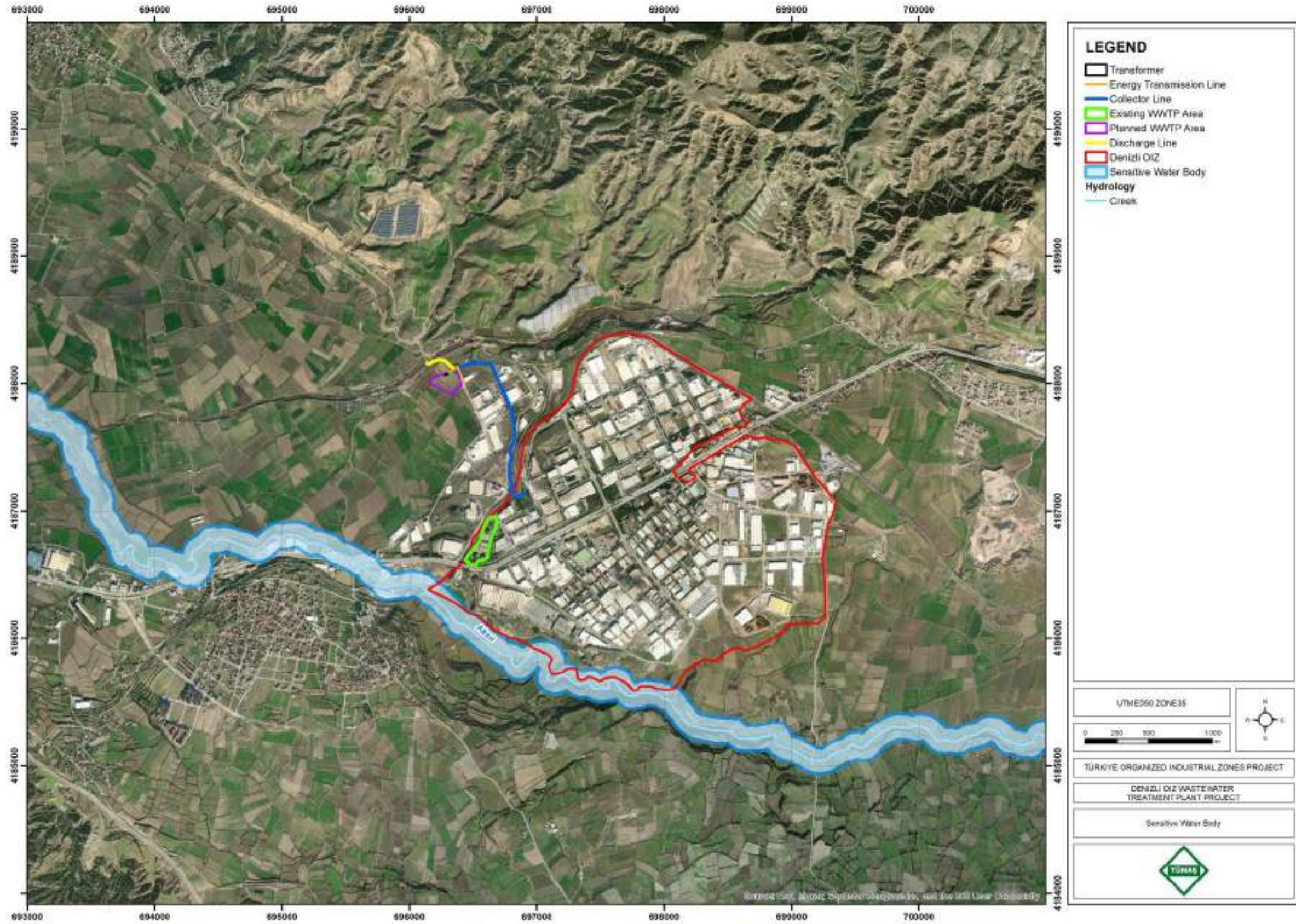


Figure 4.32 Sensitive Water Body around the Project Area

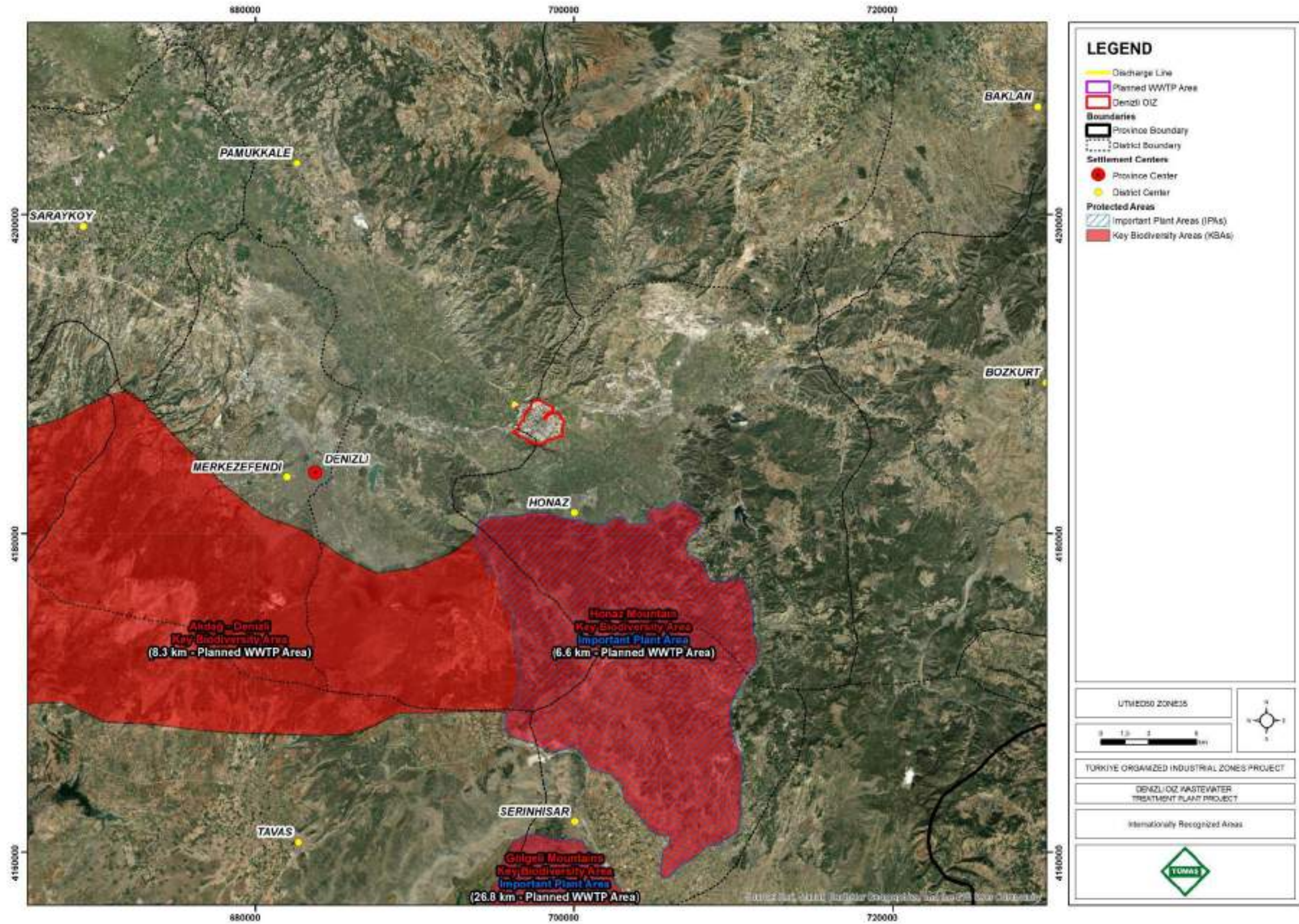


Figure 4.33 Internationally Recognized Areas around the Project Area

4.3 Socio-Economic Environment

Socio-economic issues within the scope of ESIA are structured under seven sub sections. Key information and statistics are provided to identify the social environment and set a baseline for social impact of the Project.

The project area is located in the Pınarkent Neighbourhood of the Pamukkale district. Denizli Province. The WWTP will be constructed on the land registered as Koyunaliler⁴ Neighbourhood parcel no 54. The size of land allocated for the planned WWTP is 2.57 ha and currently belongs to DOIZ. The DOIZ purchased this parcel for the construction of the planned WWTP and transfer of land was completed on 15.12.2020, therefore WWTP does not require any land acquisition.

The Area of Influence (Aoi) for the social impact assessment is identified as

- Pınarkent neighbourhood where WWTP will be located,
- Farmers (owner or user of the agricultural parcels) who are irrigating from Çürüksu Creek,
- DOIZ,
- Factories near WWTP (to the west of DOIZ).

The Project's Social Area of Influence is given in Figure 4.34.

⁴ Denizli became metropolitan municipality by the Act 6360 which came into effect at the 2014 local elections and changed the local administrative organization and like other metropolitan municipalities, its border overlap with provincial borders. Before Pınarkent neighbourhood established, there were two settlements Koyunaliler and Çömleksaz. Old divisions and names are still used.

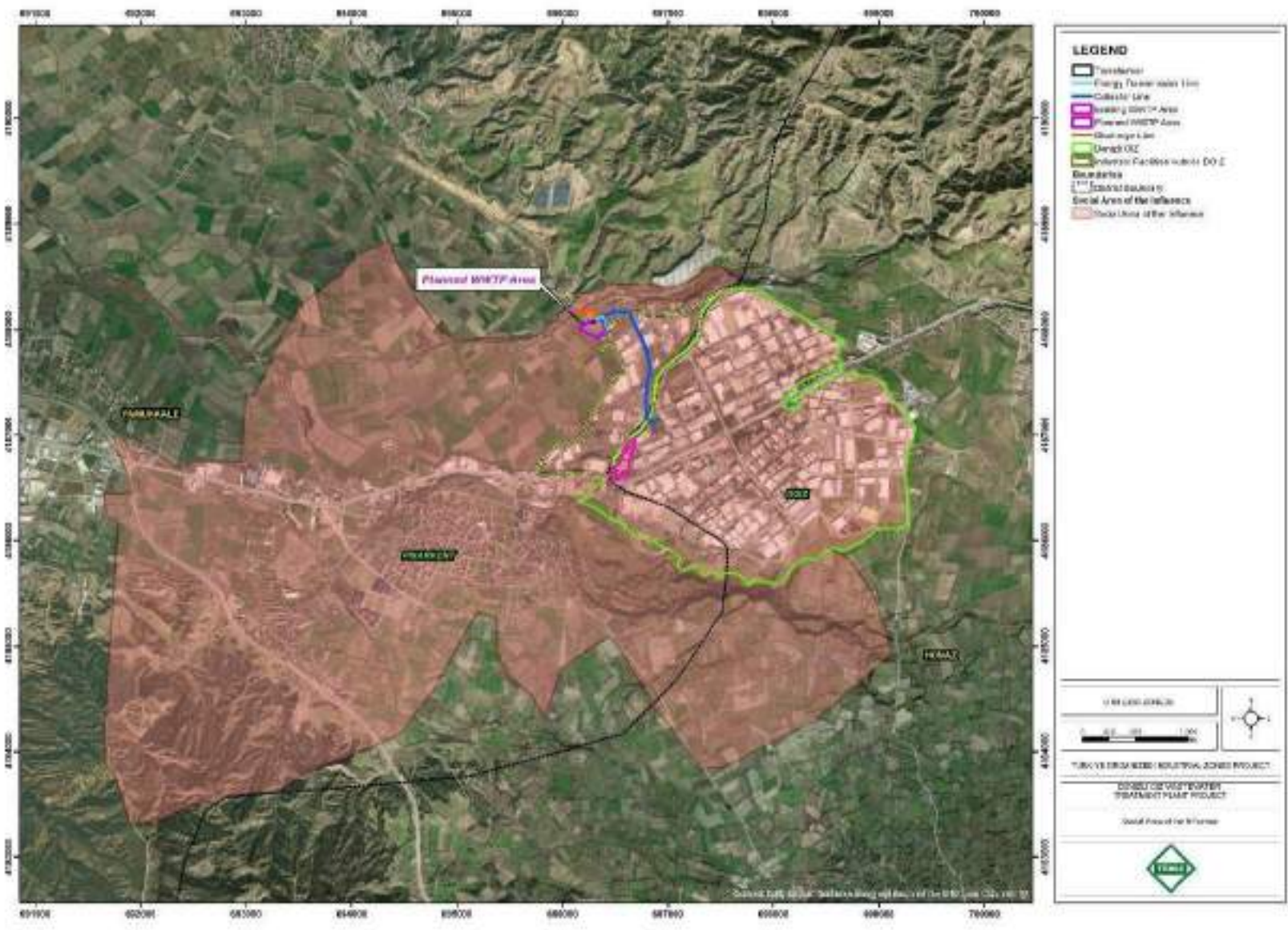


Figure 4.34 Social Area of Influence

Socio-Economic Development Index studies allow for determining the development index and trends of districts, provinces and regions as well as benchmarking. According to the Socio-Economic Development List of Provinces and Regions Study (2017), Denizli is listed as the 10th most developed province out of 81 provinces and located within the 2nd degree-developed level (Acar, et al., 2019). According to the Socio-Economic Development Index of Districts Study (2022), Pamukkale district is listed as the second most developed district of Denizli (98 out of 973 districts of Türkiye) and located within the 2nd degree development level (Acar, et al., 2022). Map showing the development level of districts is given in Figure 4.35.

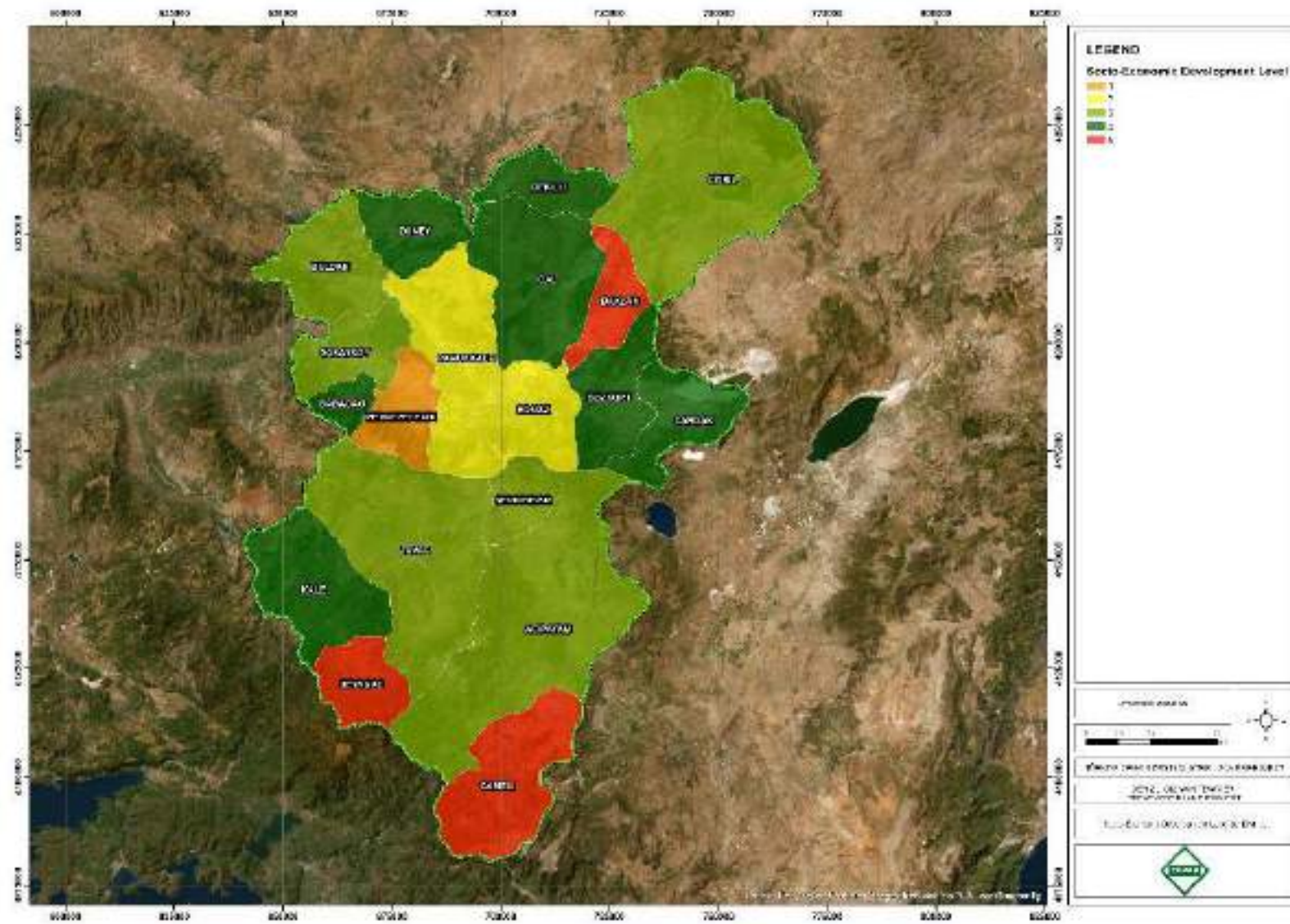


Figure 4.35 Socio-Economic Development Level by District (2022)
 Source: Acar, et al., (2022).

4.3.1 Demography and Population

The closest settlement to the project area is Pınarkent neighborhood at a distance of 1.7 km. Before the 2013 reorganisation, Pınarkent was a town. Pınarkent is situated to the east of Denizli City and Recep Yazıcıoğlu Dam. It is both on the railway to İzmir and state highway D-320 to Aegean Sea coast. The distance to Denizli City is 12 kilometres.

According to Address Based Population Registration System Results (ABPRS) the population of Pamukkale district which is one of the metropolitan districts of Denizli has increased regularly since 2013 when the district was established by the Act 6360. The population, which was 311.496 in 2013, increased to around 347,926 in 2022. The population of Pamukkale tends to increase.

Pınarkent neighbourhood reached its highest population in 2017 with a population of 6,886 and after that year its population started to decrease. Therefore, it can be concluded that the population of Pınarkent tends to decrease. The population of Pınarkent neighbourhood was 6,778 in 2022. Although the population of Pınarkent decreases, during the head of neighbourhood interview it stated that there is immigration from Afyon, Uşak, Balıkesir, Manisa and Burdur, about 50 families (average 200 people) migrate to the neighborhood annually.

About 25% of the population is below the age of 18 (Turkstat, 2023a). There is no detailed data on age dependency⁵ for Pınarkent neighborhood, but when the age dependency figures for Pamukkale district are examined, it is seen that age dependency ratio tends to decrease, as in all of Turkey. In terms of total age dependency ratio, Pamukkale has a lower value than Turkey but higher than Denizli. Child dependency ratio (%) is higher than the elderly dependency ratio (%) like Turkey and Denizli. This indicates that share of the child population is high.

Table 4.13 Age Dependency Rate (%), 2022

	Child (0-14) Dependency Ratio (%)	Elderly (65+) Dependency Ratio (%)	Total (0-14, 65+) Age Dependency Ratio (%)
Pamukkale	26.77	12.25	39.02
Denizli	27.58	17.3	44.88
Türkiye	32.25	14.55	46.8

Source: TurkStat, 2023a

There is no data on household size for Pınarkent neighbourhood, but the average household size figures for Pamukkale district (2.82) is at the same level with Denizli's figure (2.85) and below the Turkey's averages (3.17) (TurkStat, 2023a).

Table 4.14 Average Household Size, 2022

	Average Household Size
Pamukkale	2.82
Denizli	2.85
Türkiye	3.17

Source: TurkStat, 2023a

⁵ Age dependency ratio is the ratio of dependents--people younger than 15 or older than 64--to the working-age population--those ages 15-64. Data are shown as the proportion of dependents per 100 working-age population.

4.3.2 Cultural Heritage

Pamukkale and Honaz districts are very rich in terms of cultural heritage. Although there are no known cultural heritage sites or cultural resources in the project area or near the project site, there is an 3rd grade archaeological site at the southern border of the OIZ. The sites under protection of the Law on the Protection of Cultural and Natural Assets No. 2863 with 1st and 3rd degree Archaeological Site at the vicinity of project area are listed below:

- Denizli Province, Honaz District, Emirazizli Village, Emirazizli Mound 1st Degree Archaeological Site
- Denizli Province, Honaz District, Colossae Ancient City 1st and 3rd Degree Protected Area
- Denizli Province, Honaz District, Emirazizli Neighborhood, Kümbet Tepe, 1st Degree Archaeological Site
- Denizli Province, Honaz District, Kızılyer, Yukarı Neighborhood, Odanınbaşı, Tumulus 1st Degree Archaeological Site
- Denizli Province, Honaz District, Kocabaş Neighborhood, Kurugat, 1st Degree Archaeological Site
- Denizli Province, Honaz District, Gürlek Neighborhood, 1st Degree Archaeological Site
- Denizli Province, Pamukkale District Pinarkent Necropolis Area 1st and 3rd Degree Protected Area
- Denizli Province, Pamukkale District Kocadere Mound 1st Degree Archaeological Site
- Denizli Province, Pamukkale District Kocadere 1st Degree Archaeological Site (Aydın Kültür Varlıklarını Koruma Bölge Kurulu Müdürlüğü, 2023a and 2023b)

Archaeological Protected Areas are given in Figure 4.36.

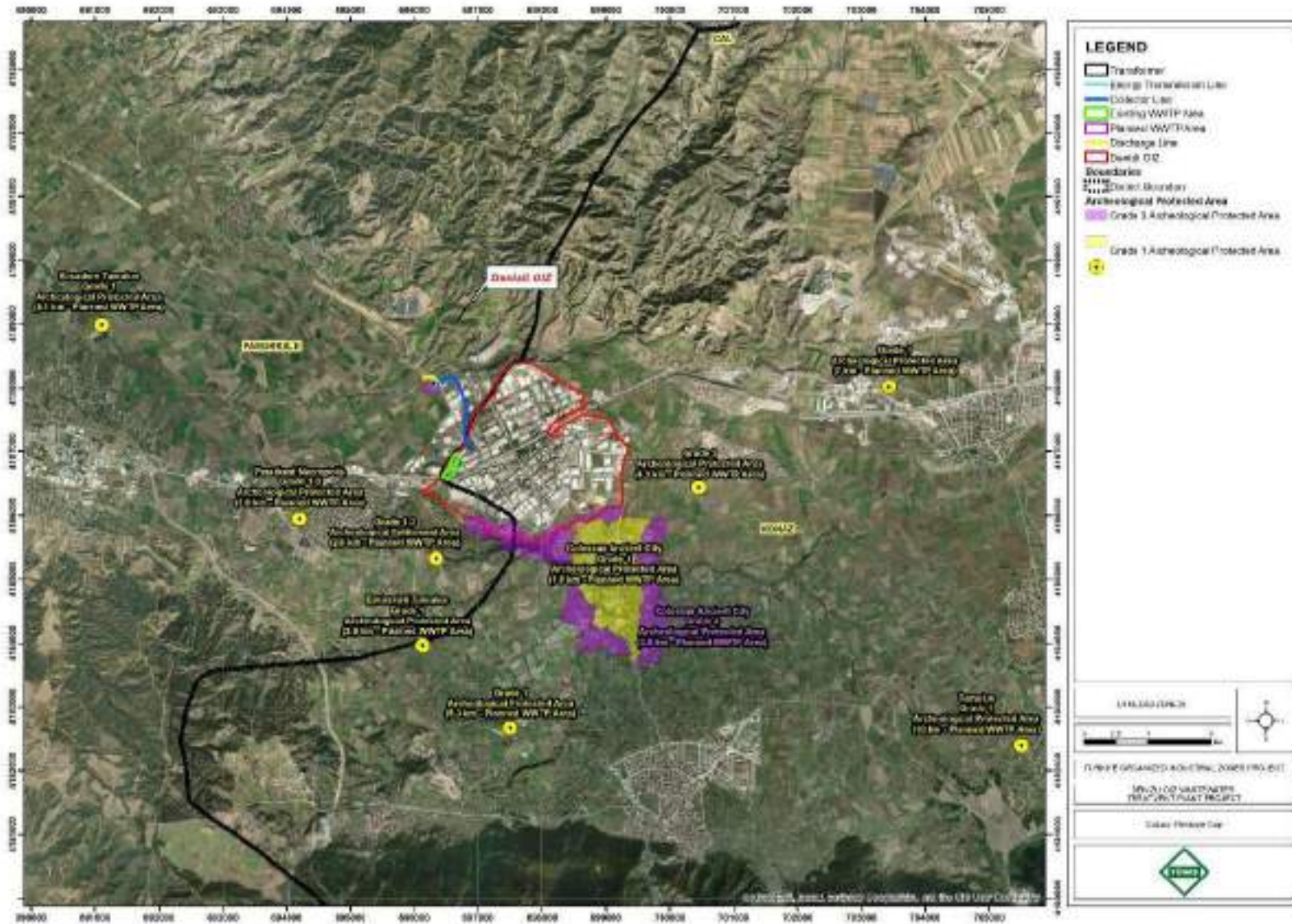


Figure 4.36 Archaeological Protected Areas
 Source: Aydın Kültür Varlıklarını Koruma Bölge Kurulu Müdürlüğü, 2023a and 2023b

4.3.3 Economic Characteristics, Livelihood and Employment

According to Provincial Gross Domestic Product (2021) data (TurkStat, 2023b), the services sector has the largest share (45.2%) in Denizli. The services sector is closely followed by industry (44.8%). The share of agriculture (4.3%) is relatively low. Although the services sector has the largest share in Denizli, the share of the services sector is below Turkey's average (62.6%). The share of the agricultural sector is higher than Türkiye's average. This situation shows that economy of Denizli is on the process of shifting from agriculture to industry and services sector in the future.

According to the top 500 companies ranking conducted by the Istanbul Chamber of Industry (ITO, 2023), there are 10 companies from Denizli among the top 500 companies in Turkey. Economic activities in Pamukkale district are mainly industry, agriculture, livestock, culture and tourism (Denizli Ticaret Odası, 2020).

The majority of the working population (80% - 90% in the words of the Head of Neighborhood) of Pınarkent Neighborhood works at DOIZ and then in agricultural sector.

There are 215 firms with about 3,000 employees at the DOIZ. There are also industries, which are located in the Pınarkent Neighborhood, at the west of DOIZ and near to the project area. There are 31 companies located at the west of DOIZ and near to the project area.

There is a women's cooperative in the neighborhood. Agricultural activities are carried out mostly within the Sarayköy large plain. The number of farmers registered in Farmer Registration System (FRS) is only 66 and the total registered land is 13,248 da (Denizli Provincial Directorate of Agriculture and Forestry, 2023).

There are Eieiht plains in Denizli with high agricultural production potential, where soil loss and land degradation rapidly develop due to various reasons such as erosion, pollution, misuse or false use, were declared as "Great Plain Protection Area" and taken under conservation by the Decree dated 21.01.2017 (Official Gazette, 2017). Within the scope of this decision, Denizli Sarayköy Plain which is located to the north of Pınarkent and to the east of the DOIZ was accepted as a protected area.

Data on cultivated area and yield of notable products in Pınarkent is given in Table 4.15.

Table 4.15 Cultivated Area and Yield of Notable Products in Pınarkent Neighborhood, 2023

Products	Number of farmers	Cultivated Area (da)	Yield (kg)
Wheat	80	2,190	600
Sweetcorn (Silage)	68	2,035	5,000
Sweetcorn (Grain)	48	1,070	1,250
Cotton	30	870	550
Quince	44	540	2,000
Clover	15	270	1,350
Grape	10	260	1,500
Pomegranate	30	250	2,050
Barley	20	230	350

Source: Denizli Provincial Directorate of Agriculture and Forestry, 2023.

Livestock data of Pınarkent neighborhood is given in Table 4.16.

Table 4.16 Pınarkent Neighbourhood – Livestock Data

Title	No
Number of bovine	445
Number of ovine	1,521
Number of poultry	60,000
Milk production (cow)	0 L
Cattle farming facility 1-5 heads	25
Cattle farming facility 6-10 heads	6
Cattle farming facility 11-20 head	4
Cattle farming facility 21-30 head	1
Cattle farming facility larger than 30 heads	6
Ovine breeding facility 0-25 heads	12
Ovine breeding facility 26-50 heads	5
Ovine breeding facility 51-100 head	6
Ovine breeding facility 101-200 head	8
Ovine breeding facility larger than 200 heads	2

Source: Denizli Provincial Directorate of Agriculture and Forestry, 2023.

Grants, supports and projects (aid) data are given in Table 4.17.

Table 4.17 Pınarkent Neighbourhood – Grants, Supports and Projects

Institutions	Type	Content	Year	N of Beneficiary	Total Amount
TKDK	Grant	Business	2014	0	1,612,577
TKDK	Grant	Business	2015	0	219,383
TKDK	Grant	Business	2020	0	487,520
MoAF	Support	Sheep goat	2022	0	22,175
MoAF	Support	Calf	2022	0	24,238
MoAF	Support	Difference payment	2022	0	9,387
MoAF	Supporting	Use of certified seeds	2022	3	2,582
MoAF	Supporting	Fodder plant	2022	13	41,555
					2,419,417

Source: Denizli Provincial Directorate of Agriculture and Forestry, 2023.

The number of agricultural training provided in 2022 by Denizli Provincial Directorate of Agriculture and Forestry in the neighbourhood was 1 and the number of beneficiaries was 10 (Denizli Provincial Directorate of Agriculture and Forestry, 2023).

When comparing total population with above given data on agriculture and livestock it can be concluded that agriculture and livestock is secondary and tertiary economic activity for income generation.

4.3.4 Education and Health

According to the statements of head of Pınarkent neighborhood, there are kindergarten, primary school, secondary school, nursery school and public education center in the neighborhood. The high school is located in the neighboring neighborhood. There is a family health center and a doctor serving in the neighborhood. Education and health centres within the social Aol are shown in Table 4.18 and Figure 4.37, indicating their respective distances to the Project Area.

There are no sensitive receptors near the Project Area.

Table 4.18 Distance to Education and Health Centers

Center	Distance (km)
Vocational and Technical Anatolian High School	1.4
OIZ Health Center	1.7
Health Center	1.9
Pınarkent Secondary School	2.1
Pınarkent Primary School	2.1
Şahinler Primary School	3.9

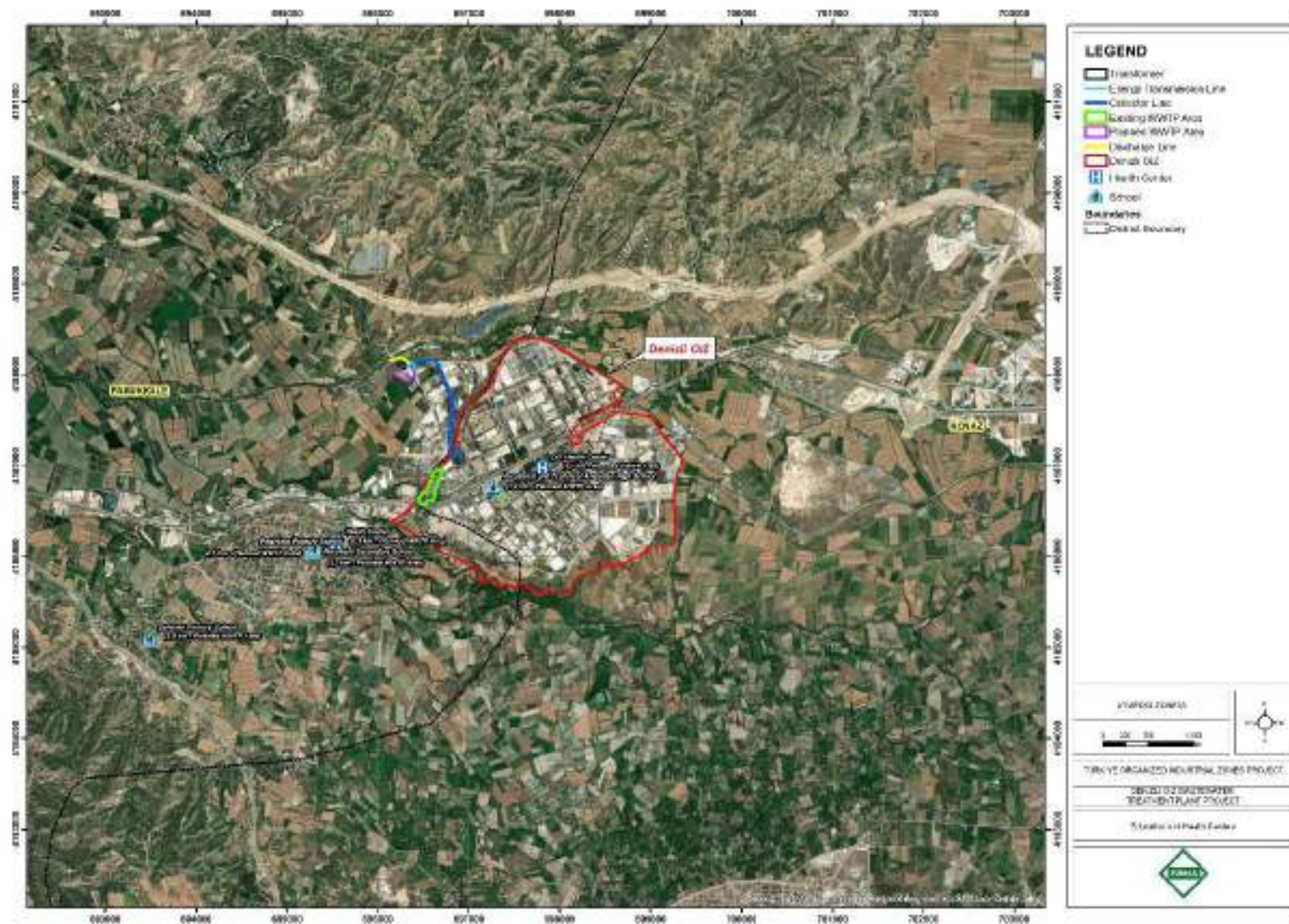


Figure 4.37 Education and Health Centres

4.3.5 Vulnerable Groups and Social Equity

According to WB ESF, social risks and impacts, including risks that project impacts fall disproportionately on individuals or groups who, because of their particular circumstances, may be disadvantaged or vulnerable should be taken into account.

Disadvantaged or vulnerable refers to those who may be more likely to be adversely affected by the project impacts and/or more limited than others in their ability to take advantage of a project's benefits. Such an individual/group is also more likely to be excluded from/unable to participate fully in the mainstream consultation process and as such may require specific measures and/ or assistance to do so. This will take into account considerations relating to age, including the elderly and minors, and including in circumstances where they may be separated from their family, the community or other individuals upon whom they depend (WB ESF)

Within the Project, vulnerable or disadvantaged groups may include but are not limited to the following:

- Individuals over 65 years of age living alone;
- Physically or mentally handicapped;
- People who have a chronic illness or are bedridden;
- Women heads of households;
- Poor people who live on state or association aid;
- Persons who are economically dependent on unique natural resources;
- Peasants who do not own land and work daily on other people's land;
- Refugees.

According to the information provided by the headmen of neighbourhood, information about vulnerable/disadvantaged individuals/groups is presented in Table 4.19.

Table 4.19 Vulnerable Groups at Aol

Individuals over 65 years of age living alone	Women-Headed Families	Poor Families*	Physically / Mentally disabled	Refugee
5	17	12	13	65

* Make a living with aids
 Source: Head of Neighbourhood Interview, 2023

According to the information provided by the headmen of neighborhood, there is a Syrian population in the Pinarkent neighborhood (about 65 people). They are not in a situation where they will be socially affected by the project because they have no direct or indirect relationship with the project area. The headmen of neighbourhood stated that 100-150 people benefited from social assistance and it was stated that there is no conflict in the neighborhood.

4.3.6 Infrastructure Services

There are two markets and shops selling food in the neighbourhood. There are protected areas and culturally important places in the neighbourhood (please refer to Figure 4.30, Figure 4.33, and Figure 4.36). There is plumbing system in the houses. There is no village fountain but a sewer system exists in the neighborhood. The following table represents the infrastructure services at Pinarkent neighbourhood.

Table 4.20 Infrastructure Services at Pınarkent Neighbourhood

Water Resource	Sewerage System	Waste Management	Mass Transportation Vehicle
Municipal water	Sewage system	Collected by Pamukkale Municipality	Municipal Bus/ minibus

Source: Head of Neighbourhood Interview, 2023

It was learned during the head of Neighbourhood interview that Karaköprü location was used as a picnic area by the neighbourhood residents. The head of Neighbourhood mentioned four most important problems of the Neighbourhood as below:

- 1) Infrastructure (Drinking water line)
- 2) Superstructure (Road)
- 3) Zoning plans
- 4) High school

Two of the mentioned problems are related with infrastructure.

4.3.7 Traffic and Transportation

The project area which is registered as Koyunaliler⁶ neighbourhood parcel 54 is located at the west of Denizli OIZ. It is possible to access the project area via D320 Denizli – Afyon State Highway (Cafer Sadık Abalıoğlu Bulvarı), Street 200 and Street 213. Unlike the existing transportation route, there is no need for any new structure like road, bridge etc. for the project. The project area is about 1,890 m from the D320 Denizli - Afyon State Highway.

D320 Denizli - Afyon State Highway is a divided road and has 2 lanes in each way. According to the 2022 state highways traffic volume map published by the General Directorate of Highways, the annual average daily traffic on D320 Denizli - Afyon State Highway traffic segment passing through the south of the OIZ is 28,190 vehicles. Of these vehicles, 18,115 are automobiles, 3,919 are medium goods vehicles, 325 are buses, 2,722 are trucks and 3,109 are articulated trucks (KGM, 2023).

Street 200 and Street 213 are cadastral streets with an unstable width, max width of the streets is 7,5- 8 m. The streets are earth road (unpaved) and do not have sidewalks for pedestrians (Figure 4.38 and Figure 4.39).

⁶ Denizli became metropolitan municipality by the Act 6360 which came into effect at the 2014 local elections and changed the local administrative organization and like other metropolitan municipalities, its border overlap with provincial borders. Before Pınarkent neighbourhood established, there were two settlements Koyunaliler and Çömleksaz.



Figure 4.38 View from Street 200

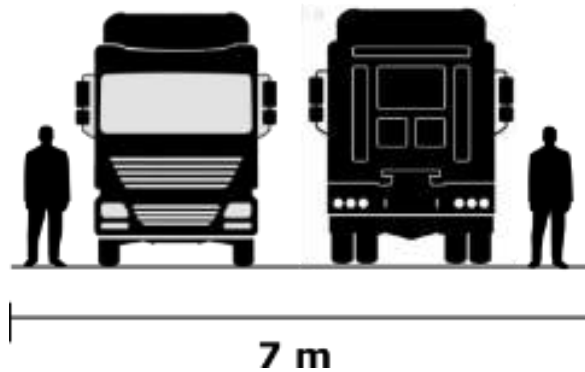


Figure 4.39 Section of the Street 200

The factories located at the outside of and at the west of the OIZ also use these streets. The traffic route and the vehicle traffic of the companies in the region are shown in Table 4.21.

Table 4.21 The vehicle traffic of the companies

Company	Sector	Number of Employees	Daily Traffic Generation
Beysu Global Energy	Waste Recovery Company	50	20 round trips
Denizli Kaya Textile	Textile	500	30 round trips
Microplas Plastic	Packaging	41	8 round trips
Europte Glass	Glass Processing Center	227	NA
AFZ Textile	Textile	177	7 round trips
GMK Velvet	Textile	82	10 round trips
Denba Packaging	Packaging	100	10 round trips

There is no traffic light at D320 and Street 200 intersection (Figure 4.40), considering the traffic volume of the D320 and construction related traffic, it can be concluded that this intersection is risky for project and also for the community.



Figure 4.40 D320 and Street 200 intersection

5 ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS OF THE PROJECT

The main purpose of an environmental and social impact assessment is to identify and assess the potential positive and adverse impacts/risks that may be caused by the Project activities on the natural environment and on the socio-economic wellbeing and conditions of the population (community and workforce) at local and regional level. The following assessment is based on the Project characteristics and pre-construction, construction and operation activities and the baseline conditions in the Project Area.

As a result of this assessment, relevant mitigation measures were developed to avoid, minimize, mitigate and off-set significant adverse impacts and enhance beneficial impacts. Furthermore, the significance of Project-induced residual adverse effects on the environment and community after implementation of the mitigation measures are assessed. And finally, planned monitoring activities for checking effectiveness of the proposed mitigation measures are identified.

5.1 Scoping of Environmental and Social Risks and Impacts

The first step in the ESIA is the scoping process of the planned Project activities and the environmental and social aspects they would interact with in order to identify the issues to be focused on in the ESIA study. This approach provided the means to identify the potential interactions may have on a range of resources/receptors within the Project Area of Influence (Aoi).

According to WB ESS1 Assessment and Management of Environmental and Social Risks and Impacts;

- *The environmental and social assessment will be conducted in accordance with ESS1, and will consider, in an integrated way, all relevant direct, indirect and cumulative environmental and social risks and impacts of the project, including those specifically identified in ESS1–10. The breadth, depth, and type of analysis undertaken as part of the environmental and social assessment will depend on the nature and scale of the project, and the potential environmental and social risks and impacts that could result*
- *The environmental and social assessment will also identify and assess, to the extent appropriate, the potential environmental and social risks and impacts of Associated Facilities. The Borrower will address the risks and impacts of Associated Facilities in a manner proportionate to its control or influence over the Associated Facilities. To the extent that the Borrower cannot control or influence the Associated Activities to meet the requirements of the ESSs, the environmental and social assessment will also identify the risks and impacts the Associated Facilities may present to the project.*

Considering the potential interactions between project activities and environmental receptors, project impacts need to be evaluated on the following issues:

- Environmental Risks and Impacts on Physical and Biological Environment
 - Air quality and odor
 - Soil and contaminated land
 - Water resources and use
 - Noise and vibration
 - Resources and waste
 - Pesticide use and management
 - Biological environment and natural resources
 - Landscape and visual (Aesthetics)
- Social Risks and Impacts of the Project
 - Population and demography

- Cultural Heritage
- Economy/Employment
- Vulnerable/Disadvantaged groups
- Land acquisition
- Working conditions and labour management
- Community health and safety
- Occupational health and safety
- Traffic and transportation

The assessment will be generated to the project's potential risks and impacts, taking into account all relevant environmental and social risks and impacts that may arise over the entire duration (pre-construction, construction and operation activities) of the project. This comprehensive assessment will encompass direct, indirect, and cumulative factors, including those that have been specifically identified in all ESSs. In other words, cumulative impact assessment will be carried out as part of ESIA after all risks and impacts arising from the project have been evaluated.

5.2 Impact Assessment Approach and Methodology

The goal of impact assessment and definition of mitigation measures is to identify, assess, and understand the significance of potential impacts—both positive and negative—as well as risks on identified receptors and resources, based on specific assessment criteria. This process involves developing and outlining measures to prevent or reduce any potential adverse effects, while also enhancing potential benefits. Additionally, it includes reporting on the significance of the remaining impacts after mitigation efforts have been implemented.

While making the impact assessment, collected data from desk study and outcomes of site visits were taken into consideration. The assessment of environmental and social impacts/risks has been done based on the criteria provided below using mainly expert judgement, relevant standards and guidelines:

- **Nature of the impact:** Positive (+), Negative (-)
- **Type of Impact:** Direct, Indirect, Cumulative
- **Extent/area of Impact:** On-site/project footprint, Local, Regional, National
- **Duration of Impact:** Short term, Mid-term, Long term, Permanent
- **Likelihood of Impact Occurrence:** Very likely/certain, Likely, Unlikely

The magnitude and severity of the adverse impacts have been assessed based on the criteria given above and significance of the impacts has been determined based on this assessment and sensitivity of the receiver/source exposed to the impact, as much as possible. The sensitivity of the environment to change refers to how susceptible the natural surroundings are to alterations or disturbances, including those that may be introduced by a project.

The matrix given in Table 5.1 combines the sensitivity information with the magnitude of impacts. The significance of the impact is first designated without mitigation measures and then evaluated with proposed mitigation measures. This evaluation serves to determine the significance of the residual impacts (impact left after employing mitigation measures).

Table 5.1 Impact Significance Matrix*

Sensitivity of Receptor	Magnitude of Impact			
	High	Medium	Low	Negligible/None
High	High	High	Medium	Negligible/None
Medium	High	Medium	Low	Negligible/None
Low	Medium	Low	Low	Negligible/None

The overall objective of the social impact assessment is to identify social impacts, risks, and mitigation measures within the scope of the Project. The assessment analyses the project affected area and community members from a gender equality perspective. The social impact assessment process began with the review of E&S screening report, introductory meetings with the MoIT PIU and DOIZ. Specific questions were considered during the assessment are as follows:

- What are the structural characteristics of the affected area?
- What are the socio-economic characteristics of the community members in the area?
- What is the characteristic of the lands located surroundings of the project? What kind of agricultural activities are carried out?
- Will the project positively impact women's economic and work opportunity? Does the project present any opportunity to increase women's productivity or earnings?
- Does the project have the potential to increase gender based violence or other forms of risk to women, men, children?

Since there are different groups living in the project area, different outreach strategies appropriate to each group, were applied to conduct the assessment. After the process of preliminary meetings, official correspondence with the MoIT PIU and DOIZ on the provision of key statistics and information was initiated.

The Provincial Directorate of Agriculture and Forestry and Denizli Municipality are the key institutions to obtain information on the size and quality of agricultural lands, product patterns, parcels as well as users in the region. Since the majority of agricultural landowners reside in Pinarkent neighbourhood, announcement and outreach efforts began with the contribution of head of village.

An industrial area is located outside the borders of the DOIZ (near Project area) and each facility operates autonomously. In addition, there are abandoned or newly built constructions in the area. Since the companies are already in dialogue with the DOIZ, contact information was obtained through the DOIZ and the Provincial Directorate of Industry. Discussions were held by bringing companies together.

Social impact assessment was conducted through desk review and field work. At desk review stage, key information was collected through related institutions. A preliminary gap analysis was conducted on existing sources based on type, level, context, and up-to-date information. Policies, plans, academic studies, maps, news were reviewed during the desk review. Semi structured questionnaires were the main tool on the assessment. The field work was started with the contribution of head of Pinarkent village (mukhtar) as key informant. During the field studies interviews with five key informants including the head of the neighbourhood, three landowners/ users, community members, representatives of 10 firms out of the DOIZ and representatives of 7 firms from DOIZ were held. Besides meeting with Provincial Directorate of Agriculture and Forestry (Agricultural Infrastructure Branch Infrastructure) and DESKİ General Manager were held.

Social impact assessment allowed an initial understanding of the project's potential risks and impacts that are typical for location, and context. Based on the results obtained through the assessment, key impacts, both positive and negative, as well as risks, were identified.

5.3 Potential Area of Influence (Aoi)

The scope of the project's potential impact area is outlined in the Environmental Impact Assessment Regulation, which defines it as the area influenced by the project before, during, and after its operation. This impact area varies depending on the type of impact and environmental factors (such as physical, biological, and social).

In the context of ESS1, the impact area is described as encompassing identified physical elements, aspects, and facilities within the project that are expected to create impacts. Environmental and social risks and impacts are assessed within the project's area of influence.

To assess environmental and social risks/impacts caused by the project on vicinity of the Project Area, firstly the area of influence (Aol) is determined. The Aol of the Project is defined to encompass the following as appropriate:

- The area likely to be affected by: (i) the Project (e.g. Project sites, immediate air shed and watershed, or transport corridors) and the Project Sponsors' activities and facilities that are directly owned, operated or managed (including by contractors) and that are a component of the project (e.g. tunnels, access roads, borrow and disposal areas construction camps); (ii) impacts from unplanned but predictable developments caused by the project that may occur later or at a different location; or (iii) indirect project impacts on biodiversity or on ecosystem services upon which Affected Communities' livelihoods are dependent.
- Associated facilities, which are facilities or activities that are not funded as part of the project and, in the judgment of the Bank, are: (a) directly and significantly related to the project; (b) carried out, or planned to be carried out, contemporaneously with the project; and (c) necessary for the project to be viable and would not have been constructed, expanded or conducted if the project did not exist.
- Cumulative impacts that result from the incremental impact, on areas or resources used or directly impacted by the project, from other existing, planned or reasonably defined developments at the time the risks and impacts identification process is conducted.

The Project components and associated facilities are considered for the determination of Aol of the Project according to the abovementioned descriptions. The potential Aol related with environmental aspects includes;

- DOIZ area,
- Industrial facilities located between DOIZ and Project area,
- Planned WWTP area,
- Discharge line (50 m corridor with 25 meters on each side of the line),
- Electricity distribution line (50 m corridor with 50 meters on each side of the line),
- The collector line (50 m corridor with 25 meters on each side of the line), and
- Downstream of discharge point to Aksu River (the length is approximately 2950 meters and the width is 50 m corridor with 25 meters on each side of the line).

For the determination of the social Aol, settlements around the Project area which would be affected by the Project are considered and the social Aol is drawn accordingly. Pınarkent neighborhood is the closest neighborhood which is approximately 1.5 km away from the Project area.

According to ESS1, it is important to identify potential risks and impacts early in the project cycle. While determining the Area of the Influence of the Project, the entire OIZ borders were included since the entire Organized Industrial Zone will benefit from the wastewater treatment plant. Since the collector line and electricity distribution line are also within these boundaries, the impact areas of these components are also in this area. The discharge line flows into Çürüksu Creek. Since there is a direct impact on Çürüksu Stream, the area up to the point where the stream connects to Aksu River (3 km) has been determined as the impact area. In the impact area of the discharge line, a distance of 20 meters from the right and left of the line was taken into account. In the Wastewater Treatment Plant area, the impact area was determined based on a 20-meter distance to agricultural lands outside the OIZ area.

Maps showing area of influence and social area of influence prepared within the scope of ESIA are presented in Figure 5.1 and Figure 5.2 .

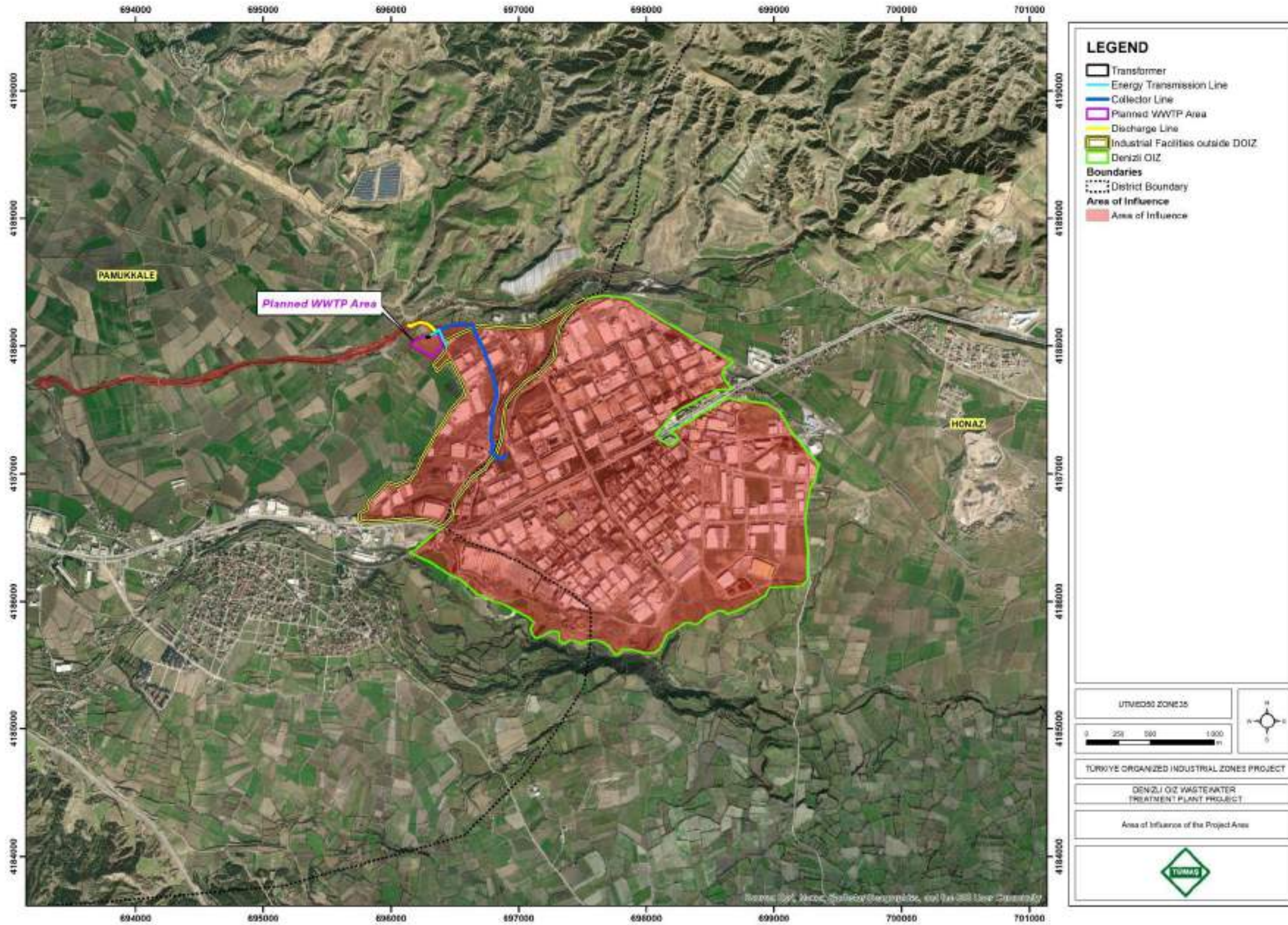


Figure 5.1 Aol of the Project

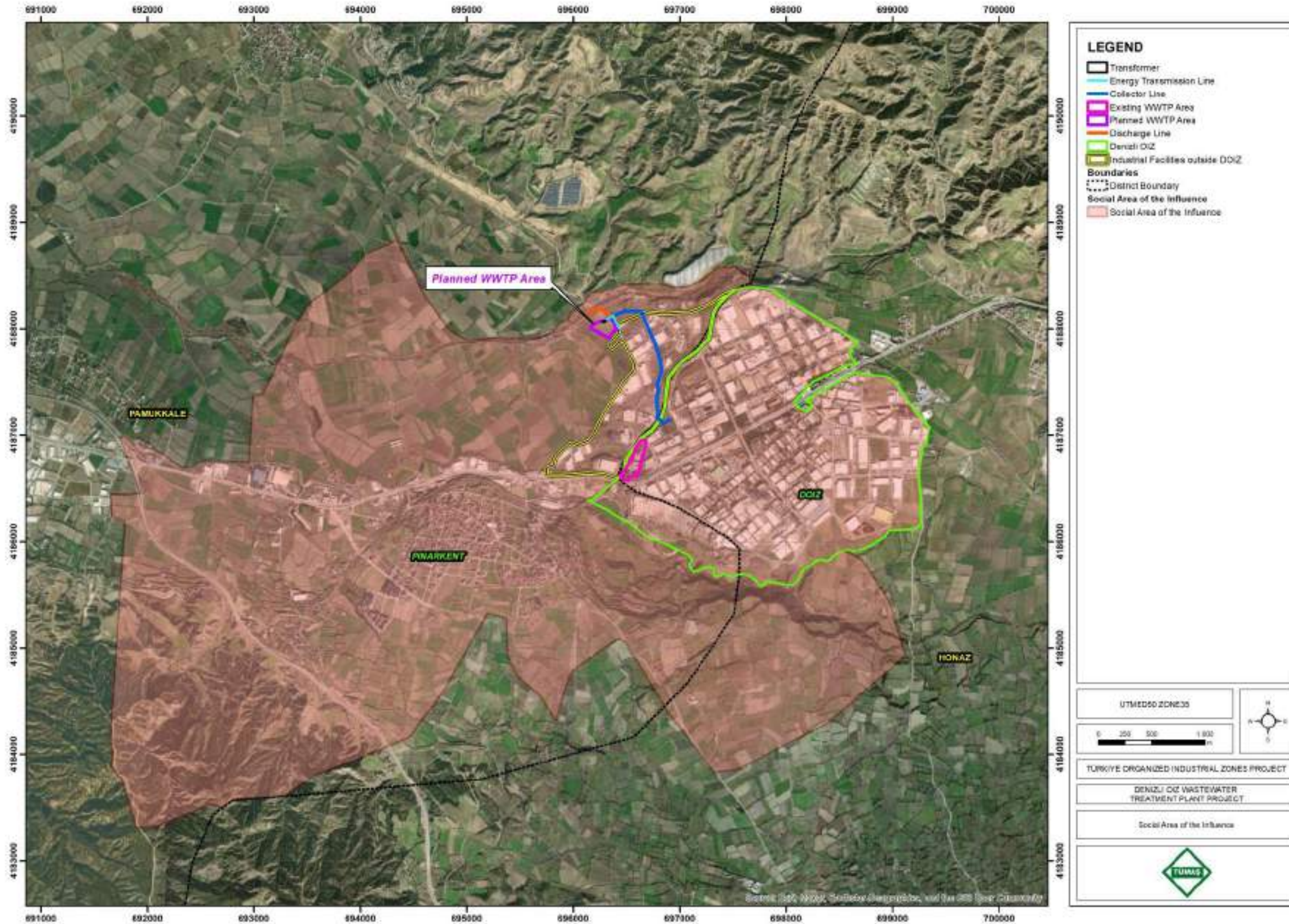


Figure 5.2 Social Aol of the Project

5.4 Determination of Environmental and Social Impact Level and Significance

In Table 5.2, identification of the level of environmental and social impacts for three Project phases (pre-construction, construction and operation phases) is presented.

The assessment of the sensitivity criteria provided below are based on mainly baseline conditions, relevant standards, guidelines and expert judgement.

Air Quality and Odor

When evaluating the sensitivity of a specific site, it's essential to adhere to local ambient air quality conditions in the surrounding area. It's important to consider whether the proposed development might impact these conditions or results in exceedance of acceptable levels of ambient air quality.

Soils and Contaminated Lands

Turkish General Directorate for Rural Services represent the soil classes for their agricultural potential of the soil. Soil sensitivity in a project area is determined by its agricultural potential, erosion risk, and contamination susceptibility. Areas with high agricultural potential, erosion risk, or previous industrial or intensive agricultural use are considered more sensitive.

Water Resources

The sensitivity of a project area to environmental changes is affected by the presence and ecological health of nearby water bodies, with higher ecological integrity and lower pollution levels increasing sensitivity. Additionally, the tolerance of water bodies to hydrological changes influences sensitivity, with lower tolerance indicating greater sensitivity.

Noise and Vibration

The sensitivity of a project area to noise and vibration is influenced by factors such as the density of settlements and vulnerable populations exposed to these disturbances. Additionally, sensitivity is heightened in areas already experiencing high levels of noise and vibrations, as well as in designated areas for protection, and where sensitive ecological receptors are present.

Resources and Waste

Sensitivity criteria for resource and waste management hinge on the condition of receptors and effective waste handling practices. This encompasses considerations such as water availability and quality, precise waste storage facilities and requirements, as well as strategies for energy conservation encompassing fuel and electricity management.

Landscape and Visual (Aesthetics)

The visual sensitivity of a project area is influenced by the density of settlements and people, tourist attractions, road infrastructure, and the presence of archaeological or cultural sites within its visual zone of influence. Additionally, sensitivity is heightened by the presence of natural parks or protected areas within this zone.

Biological Environment

The sensitivity of a habitat is determined by several factors, including the number of species present, especially threatened or endemic ones, as well as the presence of protected species and invasive alien species. Additionally, sensitivity increases with the presence of natural habitats, threatened or protected habitats, critical habitats, and significant nursery, spawning, or feeding grounds, along with migration routes.

Socioeconomic Environment

The socioeconomic environment of a community greatly influences its sensitivity to project impacts. Factors such as the presence of skilled personnel, a diverse business ecosystem, and ample resources contribute to reduced sensitivity. Additionally, access to education facilities and the overall level of education in the population play significant roles in shaping community sensitivity.

Community Health and Safety and Security

The sensitivity of communities to project impacts is influenced by the level of healthcare available, with areas lacking sufficient healthcare services being more sensitive. Additionally, the presence of communicable diseases and existing environmental health determinants such as pollution further heighten sensitivity. Overall, communities with existing health issues are more sensitive to project-induced exposure to environmental hazards.

Labor Force and Working Conditions

The sensitivity of local communities to positive impacts of a project is influenced by factors such as the presence of skilled personnel relevant to the project and a well-structured business community. Additionally, areas with concentrated business activities and abundant resources can affect community sensitivity. Moreover, the presence of education facilities and the level of education among the population also contribute to community sensitivity.

Table 5.2 Matrix Table with Identification of Impact Level in Terms of Environmental and Social Attributes

No	Environmental and Social Attributes	Impact																	Sensitivity of the Receptor	Magnitude of the Impact	Impact Significance without Mitigation Measures	Impact Significance with Mitigation Measures
		Nature		Type			Extent/area			Duration				Likelihood of Occurrence								
		Positive (+)	Negative (-)	Direct	Indirect	Cumulative	On-site/ Project footprint	Local	Regional	National	Short term	Mid-term	Long term	Permanent	Very likely/certain	Likely	Unlikely					
																		High	High	High	High	
																		Medium	Medium	Medium	Medium	
																		Low	Low	Low	Low	
																		Negligible/None	Negligible/None	Negligible/None	Negligible/None	
A. PRE-CONSTRUCTION PHASE																						
1. Air Quality																						
1	Increase in dust concentration		✓	✓			✓				✓							Medium	Low	Low	Low	
2	Exhaust emissions (CO, SO _x , PM, TOC and NO _x)		✓	✓			✓				✓							Medium	Low	Low	Low	
3	Impact on human health		✓		✓			✓										Medium	Low	Low	Negligible/None	
2. Soils and Contaminated Lands																						
1	Loss of topsoil at the WWTP area		✓	✓			✓						✓					Medium	Medium	Medium	Low	
2	Erosion potential		✓	✓			✓					✓						Low	Low	Low	Low	
3	Contamination of soil		✓	✓			✓					✓						Medium	Medium	Medium	Low	
3. Water Resources																						
1	Change in surface water quality		✓	✓				✓			✓							Medium	Low	Low	Low	
2	Change in groundwater quality		✓	✓			✓				✓							Medium	Low	Low	Low	
4. Noise and Vibration																						
1	Increase in noise level		✓	✓				✓			✓							Low	Low	Low	Low	
5. Resources and Waste																						
1	Resources used during works		✓	✓				✓			✓							Low	Low	Low	Negligible/None	

No	Environmental and Social Attributes	Impact																Sensitivity of the Receptor	Magnitude of the Impact	Impact Significance without Mitigation Measures	Impact Significance with Mitigation Measures
		Nature		Type			Extent/area			Duration				Likelihood of Occurrence							
		Positive (+)	Negative (-)	Direct	Indirect	Cumulative	On-site/ Project footprint	Local	Regional	National	Short term	Mid-term	Long term	Permanent	Very likely/ certain	Likely	Unlikely				
2	Improper waste management		✓	✓			✓			✓				✓		Medium	Low	Low	Low		
6. Landscape and Visual (Aesthetics)																					
1	Impairment of quality of life due to the overall presence of annoying construction works and activities and altered landscape		✓	✓			✓			✓				✓		Low	Medium	Low	Low		
7. Biological Environment																					
1	Damage or loss of terrestrial habitats and flora species		✓	✓			✓			✓				✓		Low	Medium	Low	Low		
2	Disturbing/harming of terrestrial fauna species		✓		✓		✓			✓				✓		Low	Low	Low	Negligible/ None		
3	Damage or loss of aquatic habitat and/or aquatic species		✓		✓		✓			✓				✓		Medium	Low	Low	Negligible/ None		
8. Socioeconomic Environment																					
1	Infrastructure damage		✓	✓			✓			✓				✓		Low	Low	Low	Negligible/ None		
9. Community Health and Safety and Security																					
1	Trespassing and community encroachment		✓	✓		✓				✓				✓		Low	Medium	Low	None/ Negligible		
2	Gender Based Violence (GBV), Sexual Exploitation Abuse / Sexual Harassment (SEA/SH)		✓	✓			✓				✓			✓		High	Medium	Medium	Low		
10. Labor Force and Working Conditions																					

No	Environmental and Social Attributes	Impact																Sensitivity of the Receptor	Magnitude of the Impact	Impact Significance without Mitigation Measures	Impact Significance with Mitigation Measures
		Nature		Type			Extent/area			Duration			Likelihood of Occurrence								
		Positive (+)	Negative (-)	Direct	Indirect	Cumulative	On-site/ Project footprint	Local	Regional	National	Short term	Mid-term	Long term	Permanent	Very likely/certain	Likely	Unlikely				
1	Working conditions and protecting the workforce		✓	✓			✓				✓				✓			Medium	Low	Low	Low
2	Workers' exposure to work-related occupational health and safety (OHS) risks		✓	✓			✓				✓				✓			High	High	High	Low
3	Workers Engaged by Third Parties and the Supply Chain		✓	✓			✓				✓				✓			Medium	Low	Low	Low
B. CONSTRUCTION PHASE																					
1. Air Quality																					
1	Increase in dust concentration		✓	✓			✓				✓				✓			Medium	Low	Low	Low
2	Exhaust emissions (CO, SO _x , PM, TOC and NO _x)		✓	✓			✓				✓				✓			Medium	Low	Low	Low
3	Impact on human health		✓		✓			✓							✓			Medium	Low	Low	Negligible/None
2. Soils and Contaminated Land																					
1	Erosion potential		✓	✓			✓				✓				✓			Low	Low	Low	Low
2	Contamination of soil		✓	✓			✓				✓				✓			Medium	Medium	Low	Low
3. Water Resources																					
1	Change in surface water quality		✓	✓			✓			✓					✓			Medium	Low	Low	Low
2	Change in groundwater quality		✓	✓			✓			✓					✓			Medium	Low	Low	Low
4. Noise and Vibration																					
1	Increase in noise level		✓	✓			✓			✓					✓			Low	Low	Low	Low

No	Environmental and Social Attributes	Impact																Sensitivity of the Receptor	Magnitude of the Impact	Impact Significance without Mitigation Measures	Impact Significance with Mitigation Measures
		Nature		Type			Extent/area			Duration				Likelihood of Occurrence							
		Positive (+)	Negative (-)	Direct	Indirect	Cumulative	On-site/ Project footprint	Local	Regional	National	Short term	Mid-term	Long term	Permanent	Very likely/certain	Likely	Unlikely				
5. Resources and Waste																					
1	Resources used during works		✓	✓			✓			✓				✓			Low	Low	Low	Negligible/None	
2	Improper waste management		✓	✓			✓			✓					✓		Medium	Low	Low	Low	
6. Landscape and Visual (Aesthetics)																					
1	Impairment of quality of life due to the overall presence of annoying construction works and activities and altered landscape		✓	✓			✓			✓				✓			Low	Medium	Low	Low	
7. Biological Environment																					
1	Damage or loss of terrestrial habitats and flora species		✓		✓		✓			✓					✓		Low	Low	Low	Negligible/None	
2	Disturbing/harming of terrestrial fauna species		✓		✓		✓			✓					✓		Low	Low	Low	Negligible/None	
3	Damage or loss of aquatic habitat and/or aquatic species		✓		✓		✓			✓					✓		Low	Low	Low	Negligible/None	
8. Socioeconomic Environment																					
2	Infrastructure damage		✓	✓			✓			✓					✓		Low	Low	Low	Negligible/None	
9. Community Health and Safety and Security																					
1	Trespassing and community encroachment		✓	✓		✓				✓					✓		Low	Medium	Low	None/Negligible	

No	Environmental and Social Attributes	Impact														Sensitivity of the Receptor	Magnitude of the Impact	Impact Significance without Mitigation Measures	Impact Significance with Mitigation Measures		
		Nature		Type			Extent/area			Duration			Likelihood of Occurrence								
		Positive (+)	Negative (-)	Direct	Indirect	Cumulative	On-site/ Project footprint	Local	Regional	National	Short term	Mid-term	Long term	Permanent	Very likely/ certain					Likely	Unlikely
2	Gender Based Violence (GBV), Sexual Exploitation Abuse / Sexual Harassment (SEA/SH)		✓	✓			✓					✓		✓			High	Medium	Medium	Low	
10. Labor Force and Working Conditions																					
1	Working conditions and protecting the workforce		✓	✓		✓				✓				✓			Medium	Low	Low	Low	
2	Workers' exposure to work-related occupational health and safety (OHS) risks		✓	✓		✓				✓				✓			High	High	High	Low	
3	Workers Engaged by Third Parties and the Supply Chain		✓	✓		✓				✓				✓			Medium	Low	Low	Low	
B. OPERATION PHASE																					
1. Air Quality and Odour																					
1	Odorous gas emission		✓	✓			✓				✓			✓			Medium	Low	Low	Low	
2	Exhaust emissions (CO, SOx, PM, TOC and NOx)		✓	✓		✓				✓				✓			Medium	Low	Low	Low	
3	Impact on human health		✓		✓		✓			✓				✓			Medium	Low	Low	Negligible/ None	
2. Soils and Contaminated Land																					
1	Contamination of Soil		✓		✓	✓				✓					✓		Medium	Low	Low	Negligible/ None	
3. Water Resources																					
1	Change in overall physicochemical water quality of Çürüksu Creek	✓		✓				✓			✓			✓			Positive				

No	Environmental and Social Attributes	Impact														Sensitivity of the Receptor	Magnitude of the Impact	Impact Significance without Mitigation Measures	Impact Significance with Mitigation Measures		
		Nature		Type			Extent/area			Duration				Likelihood of Occurrence							
		Positive (+)	Negative (-)	Direct	Indirect	Cumulative	On-site/ Project footprint	Local	Regional	National	Short term	Mid-term	Long term	Permanent	Very likely/ certain					Likely	Unlikely
2	Change in groundwater quality		✓		✓					✓						✓	Medium	Low	Low	Low	
4. Noise and Vibration																					
1	Increase in Noise Levels		✓	✓			✓							✓		✓	Medium	Low	Low	Low	
5. Resources and Waste																					
1	Resources used for operation		✓	✓				✓				✓		✓			Low	Low	Low	Negligible/ None	
2	Generation of different types of waste in the WWTP site		✓	✓				✓				✓			✓		Medium	Low	Low	Low	
3	Sludge generation		✓	✓				✓				✓		✓			Medium	Medium	Medium	Low	
6. Landscape and Visual (Aesthetics)																					
1	The existence of the WWTP		✓	✓				✓						✓		✓	Low	Low	Low	Low	
7. Biological Environment																					
1	Damage or loss terrestrial habitats and flora-fauna species		✓		✓			✓		✓						✓	Low	Negligible/ None	Low	Negligible/ None	
2	Damage or loss of aquatic habitat and/or aquatic species		✓		✓			✓		✓						✓	Low	Low	Low	Negligible/ None	
8. Socioeconomic Environment																					
1	Infrastructure damage		✓	✓				✓		✓						✓	Low	Low	Low	Negligible/ None	
9. Community Health and Safety																					
1	Trespassing and community encroachment		✓	✓			✓									✓	Low	Medium	Low	None/ Negligible	

No	Environmental and Social Attributes	Impact																			
		Nature		Type			Extent/area			Duration				Likelihood of Occurrence			Sensitivity of the Receptor	Magnitude of the Impact	Impact Significance without Mitigation Measures	Impact Significance with Mitigation Measures	
		Positive (+)	Negative (-)	Direct	Indirect	Cumulative	On-site/ Project footprint	Local	Regional	National	Short term	Mid-term	Long term	Permanent	Very likely/ certain	Likely	Unlikely	High	High	High	High
																		Medium	Medium	Medium	Medium
Low	Low																	Low	Low		
Negligible/ None	Negligible/ None	Negligible/ None	Negligible/ None																		
2	Community's exposure to disease due to improper handling of wastes, including sludge		✓	✓			✓			✓					✓		Low	Medium	Low	Negligible/ None	
3	Failure of operation		✓	✓				✓		✓					✓		Medium	Medium	Medium	Low	
10. Labor Force and Working Conditions																					
1	Working conditions and protecting the workforce		✓	✓		✓				✓				✓			Medium	Low	Low	Low	
2	Gender Based Violence (GBV), Sexual Exploitation Abuse / Sexual Harassment (SEA/SH)		✓	✓			✓				✓				✓		High	Low	Medium	Low	
3	Workers' exposure to work-related occupational health and safety (OHS) risks		✓	✓		✓				✓				✓			High	High	High	Low	
4	Workers Engaged by Third Parties and the Supply Chain		✓	✓		✓				✓				✓			Medium	Low	Low	Low	

5.5 Environmental Risks and Impacts (Physical Environment)

The anticipated impacts for each phase of the project are presented in this section. The risks and impacts of the project have been evaluated according to the relevant ESSs that are listed in the Table 5.3.

Table 5.3 ESS List Concerning the Project

Physical Environment	Relevant ESS
5.1.1 Air Quality and Odor	ESS1, ESS3
5.5.2 Soil and Contaminated Land	ESS1, ESS3
5.5.3 Water Resources and Use	ESS1, ESS3
5.5.4 Noise and Vibration	ESS1, ESS3
5.5.5 Resources and Waste	ESS1, ESS3
5.5.6 Pesticide Use and Management	ESS1, ESS3
5.5.7 Landscape and Visual Aesthetic	ESS1
Biological Environment	ESS1, ESS6
Socio-Economic Environment	Relevant ESS
5.6.1 Population/Demography	ESS1
5.6.2 Cultural Heritage	ESS1, ESS8
5.6.3 Economy/Employment	ESS1
5.6.4 Vulnerable/Disadvantaged Groups	ESS1
5.6.5 Land Acquisition	ESS1, ESS5
5.6.6 Working Conditions and Labor Management	ESS1, ESS2
5.6.7 Community Health and Safety	ESS1, ESS4
5.6.8 Occupational Health and Safety	ESS1, ESS2
5.6.9 Traffic and Transportation	ESS1

5.5.1 Air Quality and Odor

Pre-Construction Phase

In the pre-construction phase of the project, topsoil stripping will be carried out during the land preparation process. During the field study, it was observed that the topsoil was damaged in approximately at 1/3 of the planned WWTP area of 2.57 ha. For this reason, topsoil stripping will be carried out in an area of 2/3 of the land, that is, 1.71 ha. Table 5.4 showing the amount of uncontrolled and controlled dust emissions resulting from the topsoil stripping process. Details of calculation are given in Annex 8 of this ESIA.

Table 5.4. Uncontrolled and Controlled Dust Emissions

Sources	Emissions		Unit
	Uncontrolled	Controlled	
Dismantling/Excavation	0.57	0.285	kg/hour
Storage	0.03306	0.01653	

In addition to the dust emissions, there will be exhaust emissions of heavy construction machinery. Primary emissions from exhaust gases of vehicles are NO_x, CO, TOC, SO_x and PM. Emission characteristics depend on parameters such as; age of the vehicle, engine speed, working temperature, ambient temperature and pressure, type and quality of fuel. Dust and gas emissions from vehicles are given in Table 5.5.

Table 5.5 Estimated Emission amount of the Pollutants to be caused by pre-construction activities (Based on Diesel Consumption)

Pollutant	Project Standards (kg/h)	Emissions (g/h)
CO	50	0.7225
NOx	4	3.4425
PM	1	0.255
SOx	6	0.2125
TOC	3	0.255

According to the calculations, the total amount of uncontrolled and controlled PM₁₀ emissions are expected as 0.603 kg/hour and 0.302 kg/hour, respectively. According to the European Environment Agency, it is recommended that 10% of PM₁₀ emissions be calculated as PM_{2.5}⁷. In this case, PM_{2.5} is 0.0603 kg/hour and 0.0302 kg/hour, respectively. These emission rates are calculated based on the worst-case scenario that all vehicles will operate at a single point with uncontrolled condition. It is found that the emission rate for uncontrolled and controlled activities are below the project standards. When the calculated CO, NOx, PM, SOx and TOC values are evaluated, it is seen that they are also below the project standards. Therefore, impacts related to dust emissions are in low significance. With implementation of a set of mitigation measures that are presented in Section 7, any related impacts on air environment will be reduced.

Construction Phase

The excavation resulting from construction activities will be used as foundation filling material, and in case of excess, it will be stored and disposed of as specified in the "Regulation on the Control of Excavation Soil, Construction and Demolition Waste". Table 5.4 showing the uncontrolled and controlled dust emissions resulting from the excavation process. Details of calculation are given in Annex 8.

Table 5.6. Uncontrolled and Controlled Dust Emissions

Sources	Emissions		Unit
	Uncontrolled	Controlled	
Dismantling/Excavation	3.4268	1.7134	kg/hour
Loading	1.3707	0.6854	
Transportation	0.0036	0.0018	
Storage	0.3313	0.1656	

As in the pre-construction phase of the Project, there will be exhaust emissions of heavy construction machinery, in addition to the dust emissions. Primary emissions from exhaust gases of vehicles are NO_x, CO, and PM. Emission characteristics depend on parameters such as; age of the vehicle, engine speed, working temperature, ambient temperature and pressure, type and quality of fuel. Dust and gas emissions from vehicles are given in Table 5.7

Table 5.7 Estimated Emission amount of the Pollutants to be caused by construction activities (Based on Diesel Consumption)

⁷ <https://www.eea.europa.eu/publications/emep-eea-guidebook-2023/part-b-sectoral-guidance-chapters/2-industrial-processes-and-product-use/2-a-mineral-products/2-a-5-b-construction/view>.

Pollutant	Project Standards (kg/h)	Emissions (g/h)
CO	50	3.6125
NO _x	4	17.2125
PM	1	1.275
SO _x	6	1.0625
TOC	3	1.275

According to the calculations, the total amount of uncontrolled and controlled PM₁₀ emissions are expected as 5.1324 kg/hour and 2.5662 kg/hour, respectively. According to the European Environment Agency, it is recommended that 10% of PM₁₀ emissions be calculated as PM_{2.5}. In this case, PM_{2.5} is 0.51324 kg/hour and 0.25662 g/hour, respectively. These emission rates are calculated based on the worst-case scenario that all vehicles will operate at a single point with uncontrolled condition. It is found that the emission rate for uncontrolled and controlled activities are above the project standard, which is 1 kg/hour. When the calculated CO, SO_x, NO_x, TOC and PM values are evaluated, it is seen that they are below the the project standards. Therefore, impacts related to dust emissions are in medium significance since the uncontrolled emissions are higher than limit values. With implementation of a set of mitigation measures that are presented in Section 7, any related impacts on air environment will be reduced.

Operation Phase Impacts

Considering impact on air quality, odor problems can arise if there is any problem with operation. Occasionally, minimal and local odor formation may occur from physical treatment and sludge treatment units of WWTP. Wastewater treatment operations may emit hydrogen sulphide, methane, gaseous or volatile chemicals used for disinfection processes and bio aerosols. Among those, hydrogen sulphide and methane gases are the most significant odorous gas. Also, due to the sludge treatment that will be performed in the WWTP, ammonia, sulphur compounds, fatty acids, aromatic compounds and some hydrocarbons can also cause odour. Petroleum and organic solvents are also sources of disruptive odour. However, if the effective operation will be provided, there would not be any odor problem.

On the other hand, the prevailing wind direction in Denizli is northwest. Since there is no residential area and no sensitive receptor in the wind direction, no odor impact is expected.

Air quality measurements will be carried out upon grievances. Anyone who has a complaint about odor will be able to use the Grievance Mechanism, which will be active in both phases of the project.

The impacts on air quality that will occur during the operation phase of the project will be low and they will be managed/prevented with mitigation measures provided in Section 7.

5.5.2 Soil and Contaminated Land

Pre-Construction and Construction Phases

The minor impacts that could occur on the soil environment during pre-construction and construction phases are listed below. These impacts are localized and restricted to the construction site.

- Disturbance of the natural soil and land structure as a result of soil stripping, levelling, excavation and filling activities, work of construction machinery,
- Mixing of soil layers as a result of excavation activities;

- Soil contamination risk due to leakage and spill of fuels, paints and oils that will be used for the construction machinery and equipment;
- Soil pollution, which may occur in case of uncontrolled storage or disposal of solid and/or liquid wastes to be generated within the scope of the Project
- Improper replacement of soil to its original position; and
- Erosion risk due to topsoil stripping and excavation activities.

Topsoil stripped during the pre-construction phase of the project will be stored within the DOIZ and used in green areas within the boundaries of the DOIZ. In addition, hazardous and non-hazardous wastes generated in DOIZ are temporarily stored within the DOIZ and mitigation measures will be applied to prevent potential soil pollution that may arise from waste generation.

These impacts can be easily managed and mitigated to low in significance with the implementation of the mitigation measures presented in Section 7. DOIZ will ensure that the contractor will prepare and implement a Soil Management Plan that is in line with the WB ESS1 and WBG General EHS Guidelines.

Operation Phase

In the operation phase of the Project, the activities will have a limited physical interaction with the environment. In the operation phase of the Project, no additional significant direct impacts on topography, soil and land use are anticipated under the normal operating conditions. Impacts of the operation phase of the Project are related to the risks that arise during repair and maintenance works, such as spillage/leakage of wastewater, oil and chemicals to soil. In addition, in accordance with the "Soil Protection Project" specially prepared for the Project, the protective layer consisting of tall plants and trees will be established during the construction phase of the Project. This protective layer will be maintained during operation to sustain its positive impacts on control and soil preservation. The extent of these negative impacts will be limited with the Project's footprint, the significance of the impacts on soil environment would be considered as low if mitigation measures will not be applied accordingly. With the implementation of mitigation measures, the residual impacts will be negligible in significance. The defined mitigation measures are presented in Section 7.

5.5.2.1 Soil Protection Project

The Soil Protection Project has been prepared to be submitted to Denizli Provincial Directorate of Agriculture and Forestry in accordance with the Soil Conservation and Land Use Law No. 5403. The purpose of this project is to protect the agricultural land where the treatment plant will be built and the surrounding land. This report also includes measures to be taken to prevent damage to agricultural activities on the land to be used and to protect the natural texture. The immovable subject to the project is adjacent to the OIZ zone. There are cadastral road, OIZ zoned area, agricultural land, drainage canal, agricultural fields and parcels of land in the vicinity. Physical-biological environmental impacts from the Project may include impacts on water resources, aquatic and terrestrial ecosystems, soil resources, land use, air quality, noise and vibration, and infrastructure services. In addition, potential impacts on the socio-economic environment include expropriation, water rights, social and economic structure.

As a vegetative measure, instead of surface grazing measures on the project area, measures will be taken with tree rows and protection bands. A protection band will be formed between the road bordering the land where the facility will be built and the parcels on the other borders. Within this protection band, grasses and ornamental plants will be planted parallel to the wall and 1.5m inside the wall to protect the soil in the project area garden. Domestic solid wastes that will be generated by the personnel during the development plan works should not be thrown on the land. Care will be taken to ensure that such wastes are collected in separate containers suitable for their nature and taken to the nearest municipal garbage dumping site at appropriate intervals and disposed of. During the periods

when the facility is in operation, a wire fence protection band will be built on the curtain concrete for protection purposes in order not to damage the surrounding agricultural lands and to clarify the boundaries of the parcel where the facility will be established. No unauthorized soil will be taken from the land outside the project area and activities that will disrupt the natural structure of the land will be avoided. No material will be left in the safety belt area under any circumstances, storage, permanent or temporary construction will not be carried out. Spray irrigation will be carried out to prevent dust formation on stabilized roads to be used by vehicles, especially in hot weather. In order to minimize dusting on the land, irrigation controlled unloading and filling operations, tarpaulin and sediment sweeping measures will be taken on the vehicle. Care will be taken to ensure that the roads to be used do not pass through agricultural areas. The damage to the roads will be seen and repaired by the operator.

Within the scope of the mentioned project, changes in topography are possible. This project has been prepared in order to identify these damages before the activity and to take measures.

5.5.3 Water Resources and Use

Pre-construction Phase Impacts

During the pre-construction phase, employees' needs will create water supply requirement. The utility water used will be supplied by obtaining a construction site subscription from the Pamukkale Municipality network by the Contractor. The total amount of daily water requirement is calculated based on the multiplication of the number of employees that will be working at the peak time of the phase and the daily water requirement for a person, which is 228 L/cap/day (TurkStat, 2022). The number of personnel required is determined as 5. Therefore, the daily water requirement of employees during the pre-construction phase will be;

$$5 \text{ employees} \times 0.228 \text{ m}^3/\text{cap}/\text{day} = 1.14 \text{ m}^3/\text{day}$$

During the pre-construction works, there will be dust due to topsoil stripping activities and the operation of equipment in the field, and the amount of water required to suppress it and irrigate green areas will be 8 m³/day. Accordingly, it is anticipated that a total of 9.14 m³ of water will be used per day during the pre-construction period.

Bottled water will be used for the drinking water needs of the personnel. The quality of drinking water that will be supplied to the Project shall be in compliance with the Regulation Concerning the Water Intended for Human Consumption together with the internationally accepted standards, such as WHO and WBG's General EHS Guidelines.

On the other hand, pre-construction activities may pose the potential for accidental release/leakages of petroleum-based products, such as lubricants, hydraulic fluids, or fuels during their storage, transfer, or use in equipment. All chemical storage containers, including diesel fuel and hazardous liquid waste drums/containers should be placed so as to minimize the risk of soil, surface water and groundwater contamination during the pre-construction.

As part of the Project, there is no planned groundwater extraction, and as such, no adverse effects on the groundwater table are anticipated. Furthermore, there are no intentions to utilize groundwater or discharge into groundwater resources. By implementing adequate measures for preventing spills and chemical leaks, it will be ensured that groundwater quality remains unaffected.

In the pre-construction phase of the Project, the impact on the surface water resources will be direct and negative with short - term duration and low in significance. These impacts will be mitigated by the implementation of the mitigation measures presented in Section 7.

Construction Phase Impacts

During the construction phase, employees' needs and dust suppression will create water supply requirement. The water used for dust suppression and utility water will be supplied by obtaining a construction site subscription from the Pamukkale Municipality network by the Contractor. There will be no accommodation on the construction site, and water use will be limited to the working hours of the employees. The total amount of daily water requirement is calculated based on the multiplication of the number of employees that will be working at the peak time of the phase and the daily water requirement for a person, which is 228 L/cap/day (TurkStat, 2022). The number of personnel required is determined as 55. Therefore, the daily water requirement of employees during the construction phase will be;

$$55 \text{ employees} \times 0.228 \text{ m}^3/\text{cap}/\text{day} = 12.54 \text{ m}^3/\text{day}$$

During the construction works, there will be dust due to excavation operations and the operation of construction equipment in the field, and the amount of water required to suppress it and irrigate green areas will be 8 m³/day. Accordingly, it is anticipated that a total of 20.54 m³ of water will be used per day during the construction period.

Since ready-mixed concrete will be used in construction, no additional water is needed for concrete preparation.

Bottled water will be used for the drinking water needs of the personnel. The quality of drinking water that will be supplied to the Project shall be in compliance with the Regulation Concerning the Water Intended for Human Consumption together with the internationally accepted standards, such as WHO and WBG's General EHS Guidelines.

Water to be used in dust suppression during the construction phase of the Project will be absorbed by soil or lost by evaporation. Therefore, there will not be any surface runoff formation or wastewater generation due to watering for dust suppression.

For the employees, portable toilets will be installed at the construction site. The wastewater will be collected with the help of septic trucks and sent to the existing Wastewater Treatment Plant located within the borders of DOIZ.

On the other hand, construction activities may pose the potential for accidental release/leakages of petroleum-based products, such as lubricants, hydraulic fluids, or fuels during their storage, transfer, or use in equipment. All chemical storage containers, including diesel fuel and hazardous liquid waste drums/containers should be placed so as to minimize the risk of soil, surface water and groundwater contamination during the construction.

Construction activities that will be carried out close to Çürüksu Creek are limited with discharge line construction. As it is explained in the above sections, discharge line will be constructed on the cadastral road and there is no topsoil on the subject route. Although there is very minor anticipated impact regarding sedimentation in the Çürüksu River creek, it is proposed that excavated materials will not be stored close to riverbank and necessary measures are considered as given in Section 7.

As part of the Project, there is no planned groundwater extraction, and as such, no adverse effects on the groundwater table are anticipated. Furthermore, there are no intentions to utilize groundwater or discharge into groundwater resources. By implementing adequate measures for preventing spills and chemical leaks, it will be ensured that groundwater quality remains unaffected.

In the construction phase of the Project, the impact on the surface water resources will be direct and negative with short - term duration and low in significance. These impacts will be mitigated by the implementation of the mitigation measures presented in Section 7.

Operation Phase Impacts

During the operation phase of the Project, the water supply requirement will arise due to employee needs. The total amount of daily water requirement is calculated based on the multiplication of the number of employees that will be working and the daily water requirement for a person, which is 228 L/cap/day (TurkStat, 2022) Daily water requirement will be provided from municipal water network. The number of personnel required is determined as 18. Therefore, the daily water requirement of employees during the operation phase will be;

$$18 \text{ employees} \times 0.228 \text{ m}^3/\text{cap}/\text{day} = 4.104 \text{ m}^3/\text{day}$$

In addition to the water requirement of employees, 8 m³/day water will be used in irrigation of green areas. On the other hand, 6 m³/day of additional water is required for treatment processes such as cleaning screening units and washing internal surfaces of treatment units, while 16 m³ of water is required daily in areas such as sludge dewatering units, chemical preparation processes, hazardous waste temporary storage areas, workshops, etc. Furthermore, 4 m³/day of water is required to wash concrete floors and roads.

During the operation phase of WWTP, the facilities will use and store some chemicals such as acids and bases for pH control. In addition, maintenance chemicals will be used at the facility during the maintenance of the machines, engines and pumps. All storage tanks and drums will be stored in accordance with the MSDSs and placed in concrete areas with proper secondary containments and adequate ventilation. When necessary, spill kits, absorbent pads or materials and absorbent sands will be provided near the chemical storage areas at all times. Thus, the risk of soil, surface water and groundwater contamination during the operation will be minimized.

In the operation phase, generated wastewater will be treated in the proposed WWTP. Additionally, the WWTP discharge will be in compliance with the Project Standards. It is highly unlikely that the plant would need a complete shutdown. The capacity of the plant is sufficient for carrying the flow during short term pauses and necessary mitigation measures will be taken in case of any breakdown or natural disaster that may occur during the operation phase. If the designed WWTP encounters the abovementioned stalls longer than expected, nutrition levels will be maintained at the biological treatment units, aeration will be stopped after one day for aerobic processes. Recirculation will be turned down for anaerobic processes and pH regulation and nutrition dosing will be conducted only when the gas production is less than 10% of the original gas production. DOIZ will ensure that the contractor will prepare an Emergency Preparedness and Response Plan for the impacts resulting from such problems. In the event of a possible breakdown, the impact will be eliminated in a short time. By implementing these mitigation measures, the adverse effects on water sources resulting from uncontrolled wastewater discharge during emergencies will be eliminated.

In the operation phase, the impact on groundwater may be seen due to accidental oil leakages in the areas where the maintenance of WWTP equipment is carried out as well as improper disposal of wastes. This may affect the groundwater quality in the Project Area, and if necessary, mitigation measures will be taken such as training of the personnel on spills/leakages, implementing spill response procedures, soil and/or groundwater monitoring in case of major accidents, etc. Measures were also taken against possible damage and fractures in the design of the collector line to be passed through the zoned roads of Pamukkale Municipality. In fact, no additional wastewater connection will be made. Wastewater will flow from the collector line gravitational force and will not be exposed to any pressure. The pipe to be used will be in the Ø1000 mm SN8 HDPE HDPE Corrug and the pipes with necessary tests against breaking and damage will be used. However, it can be concluded that the impacts will be low in significant upon implementation of the mitigation measures and adherence to good engineering methods.

To conclude, the operation phase impacts of the Project are generally found to be positive on water resources since the discharge of wastewater into the water body will be done after it is treated. However, measures defined in Table 7.3 should be taken to prevent any unexpected deterioration in the receiving water quality. During the operation phase of the Project, the impacts on surface water will be direct and positive with long-term duration.

5.5.4 Noise and Vibration

Pre-construction Phase Impacts

During pre-construction phase of the Project, the noise would be potentially generated by vehicles and machinery to be used during land preparation activities. Since the planned WWTP is in an industrial area, there are no sensitive receptors such as health centers, schools, mosques in the immediate vicinity of the Project Area. The noise generated during pre-construction phase is calculated and given in Annex 9. The distribution of noise depending on distance graph with Project Standard is presented in Figure 5.3 as summary of the calculations. As seen in the graph, the results are above the Project standard up to a distance of 50 meters, while after a distance of 50 meters the results are below the Project standard.

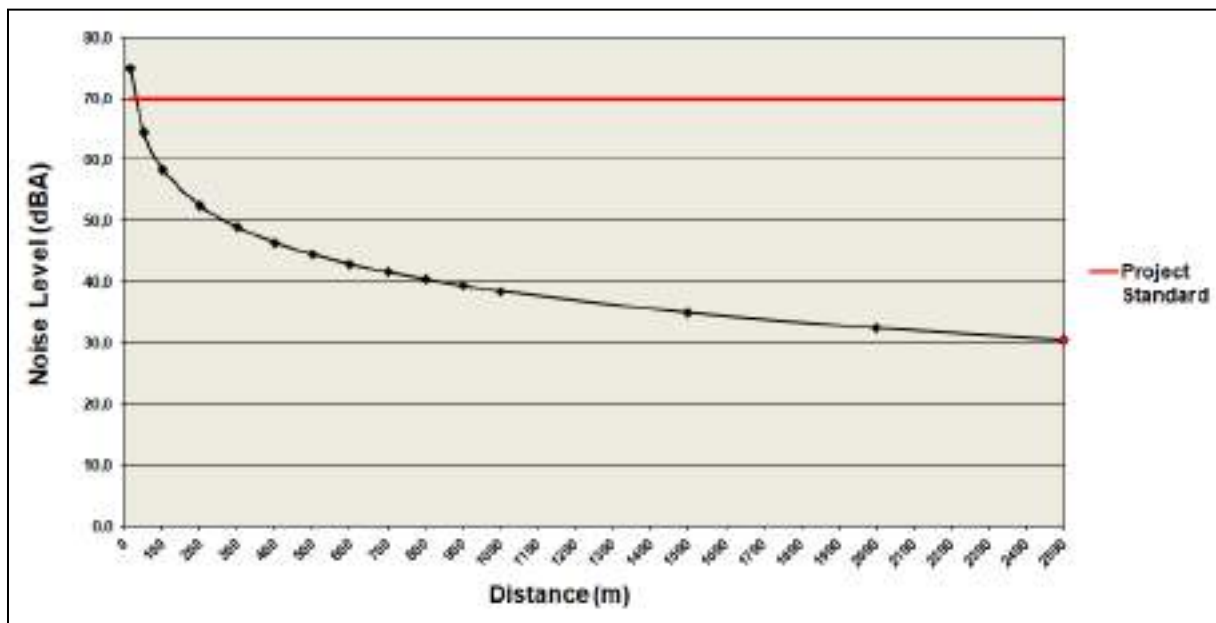


Figure 5.3 The Distribution of Noise Depending on Distance for Pre-construction Phase

In any case, the noise level of the WWTP area measured at a distance of 100 meters to determine the baseline condition of the project area is above the project standard. According to WB EHS General Guideline; noise impacts should not exceed the limit values, or result in a maximum increase in background levels of 3 dB at the nearest receptor location off-site. The details about the noise level are summarized in Table 5.8.

Table 5.8 Noise Level Results for Pre-construction Phase

Background Noise Level (dBA)	Project Standard (dBA)	Calculated Noise Level at 100 m distance	Background Noise Level +3

						dBA	
Day Time (07.00- 19.00)	Evening Time (19.00- 23.00)	Night Time (23.00- 07.00)	Day Time (07.00- 19.00)	Evening Time (19.00- 23.00)	Night Time (23.00- 07.00)	70.3	70+3=73 > 70.3
70	61.5	61.9	65*	60*	55-		

*For the cases of background noise is greater than the Project standards, WB EHS General Guideline is taken into account as noise impacts should not exceed the limit values, or result in a maximum increase in background levels of 3 dB at the nearest receptor location off-site.

Since background noise level is higher than the project standard and according to WB EHS General Guideline; overall noise level should not exceed 70+3 dBA, limit value is taken as 73 dBA.

According to the table, the limit values are met since the pre-construction noise calculation result is 70.3 dBA at a distance of 100 meters away WWTP area.

Vibration that will affect humans or the structure in the vicinity is not expected to occur as there will be no blasting activity within the Project.

Therefore, in the pre-construction phase of the Project, the noise impacts will be direct and negative with short - term duration and low in significance. These impacts will be mitigated by the implementation of the mitigation measures presented in Section 7.

Construction Phase Impacts

The Project activities within the construction phase are associated with a range of activities that generate noise. The noise would be potentially generated by transportation vehicles, machinery and outdoor equipment to be used for the preparation of the site and the construction activities. Since the planned WWTP is in an industrial area, there are no sensitive receptors such as health centers, schools, mosques in the immediate vicinity of the Project Area. The noise generated during construction phase is calculated and given in Annex 9. The distribution of noise depending on distance graph with Project Standard is presented in Figure 5.4 as summary of the calculations. As seen in the graph, the results are above the Project standard up to a distance of 100 meters, while after a distance of 100 meters the results are below the Project standard.

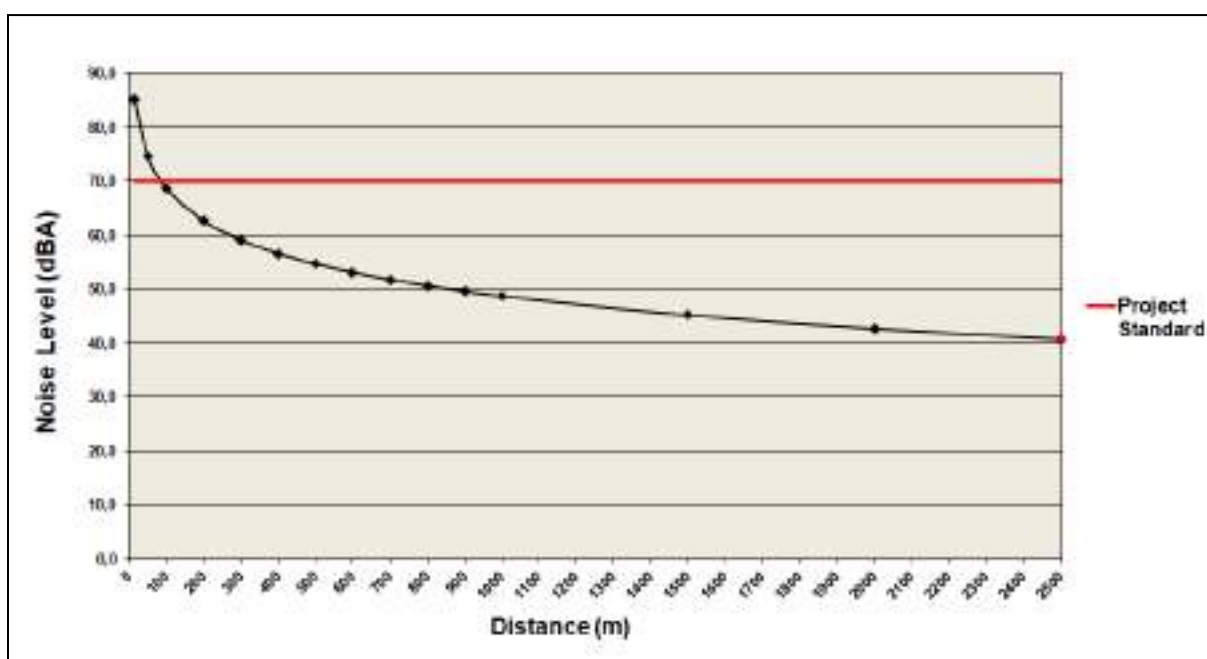


Figure 5.4 The Distribution of Noise Depending on Distance for Construction Phase

In any case, the noise level of the WWTP area measured at a distance of 100 meters to determine the baseline condition of the project area is above the project standard. According to WB EHS General Guideline; noise impacts should not exceed the limit values, or result in a maximum increase in background levels of 3 dB at the nearest receptor location off-site. The details about the noise level are summarized in Table 5.9.

Table 5.9 Noise Level Results for Construction Phase

Background Noise Level (dBA)			Project Standard (dBA)			Calculated Noise Level at 100 m distance	Background Noise Level +3 dBA
Day Time (07.00-19.00)	Evening Time (19.00-23.00)	Night Time (23.00-07.00)	Day Time (07.00-19.00)	Evening Time (19.00-23.00)	Night Time (23.00-07.00)		
70	61.5	61.9	65*	60*	55*	72.4	70+3=73 > 72.4

**For the cases of background noise is greater than the Project standards, WB EHS General Guideline is taken into account as noise impacts should not exceed the limit values, or result in a maximum increase in background levels of 3 dB at the nearest receptor location off-site.*

Since background noise level is higher than the project standard and according to WB EHS General Guideline; overall noise level should not exceed 70+3 dBA, limit value is taken as 73 dBA.

According to the table, the limit values are met since the construction noise calculation result is 72.4 dBA at a distance of 100 meters away WWTP area.

Vibration that will affect humans or the structure in the vicinity is not expected to occur as there will be no blasting activity within the Project.

Therefore, in the construction phase of the Project, the noise impacts will be direct and negative with short - term duration and low in significance. The noise level of the equipment and machinery will be kept at a minimum with proper mitigation measures such as the use of silencers and with regular maintenance which is presented in Section 7.

Operation Phase Impacts

During the operation phase of the Project, the noise will be generated from WWTP equipment such as engines, compressors, pumps and blowers. The level of noise generated from the equipment is expected to be constant as all equipment will be in operation during the plant operation hours (24 hours).

Equipment generating noise during the operation of the plant will be located in isolated closed buildings and some of them will be submerged in wastewater. So, no significant noise is expected to be generated during the operation of the WWTP.

Worst-case scenario has been taken into account during noise level calculations for the pre-construction and construction phases of the project. It's expected that during the operational phase, environmental noise levels will significantly decrease compared to these earlier phases. This anticipation is because the sources of noise during operation will primarily be contained within closed areas, generating less noise than the machinery and equipment used in pre-construction and construction. Additionally, there are no sensitive receptors in close proximity to the project area. However, in case of a complaint, the noise level will be measured and monitored.

As a good practice, during the procurement of equipment and machinery, sound levels given in the technical specifications/data sheet will be taken into consideration. In all works during the operations, relevant provisions and limit values of national legislations and WBG General EHS Guidelines and Sectoral Guidelines will be complied with.

Therefore, in the operation phase of the Project, the noise impacts will be direct and negative with short - term duration and low in significance. These impacts will be mitigated by the implementation of the mitigation measures presented in Section 7.

5.5.5 Resources and Waste

As a result of the use of resources, construction and operation/maintenance activities as well as domestic requirements of the personnel, different types of waste will be generated throughout the lifetime of the Project.

All the waste to be generated during the pre-construction, construction and operation phases of the Project are required to be properly managed in line with the requirements of national waste management legislation and international good practice in order to avoid impacts on soils, nearby water resources and flora and fauna elements. This section identifies the waste to be generated in this context and assesses the impacts associated with waste generation.

The possible sources that will generate various types of waste are listed below:

- Municipal solid waste,
- Packaging waste such as wood, paper, cardboard and plastic, etc.,
- Hazardous and special waste that may be generated within the scope of the land preparation, construction and operation phases of the Project can be listed as contaminated vessels, cloths and overheads, waste batteries and accumulators, waste oils, etc.,
- Excavation and construction waste,
- Final sludge from treatment plant.

Waste to be generated in the scope of the Project activities will be managed in accordance with the waste management hierarchy as given in Figure 5.5. In this respect, waste generation will be avoided/prevented at the source. In cases where prevention is not possible at the source, respectively; minimization of waste generation, selection of materials that will not cause generation of hazardous waste as much as possible, separate collection of waste according to their type (hazardous, non-hazardous, recyclable, etc.), reuse of generated waste at the site as much as possible, assessment of alternatives such as recycling and energy recovery for waste (where reuse is not possible) will be considered. The final step in the hierarchy of waste management involves the final disposal of waste in accordance with relevant regulations, where reuse, recycling and energy recovery options are not possible.

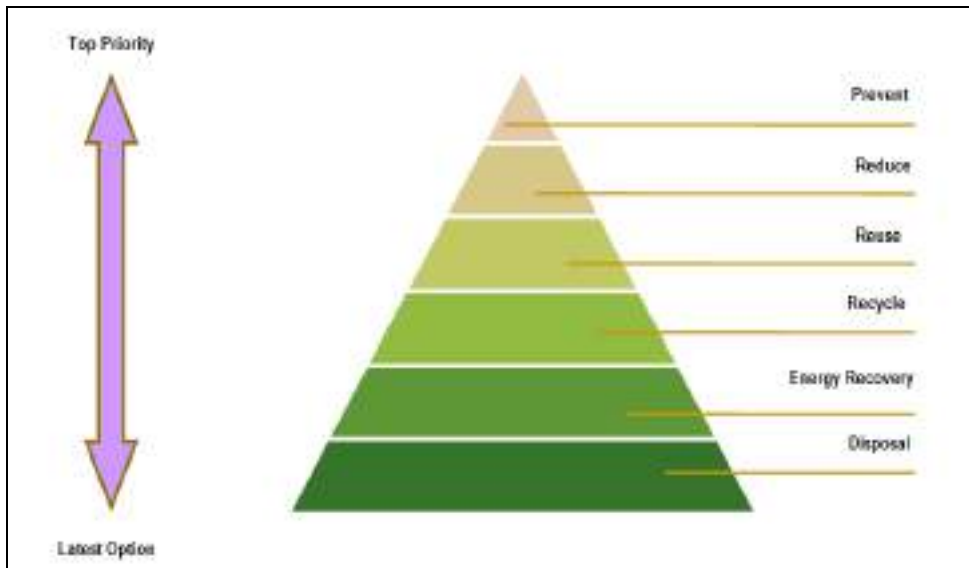


Figure 5.5. Waste Management Hierarchy

Pre-construction and Construction Phase

There will be no cement/concrete unit in the Project Area for the concrete that will be used in the pre-construction and construction phases of the project. Cement/Concrete will be supplied from the nearby concrete plant. There are three concrete batching plants within approximately 15 km of the Project Area.

During the pre-construction and construction phases of the Project, activities such as topsoil stripping, levelling, construction and installation of the main operation and auxiliary units, procurement of ready mixed concrete and other materials, transportation and assembly of units and equipment will be carried out. Solid waste types expected to be generated within the scope of these activities are; municipal wastes, packaging wastes of system equipment (e.g., wood, cardboard, plastic, etc.), hazardous waste, special waste, excavation and construction waste (e.g., scrap metal, wood, concrete waste, etc.) and waste system equipment (panels, cables, electronic components). Hazardous and special waste might contain chemical substances (e.g., paint, solvent) or packaging materials and cloths contaminated with oils, waste oils resulting from operation and maintenance of machinery and vehicles, solvents, accumulators, batteries, filters, machine parts.

Waste to be generated during the pre-construction and construction phases of the Project will be managed in accordance with the waste management hierarchy (avoidance, re-use, recycling, energy recovery and disposal). Contractors will take mitigation measures described in Section 7.1.

All the wastes to be generated during the pre-construction and construction phases of the Project are required to be properly managed in line with the requirements of national waste management legislation and international good practice in order to avoid adverse impacts on soils, nearby water resources and flora and fauna elements.

Hazardous waste will be stored in special compartments in the Temporary Storage Area allocated for this purpose, in containers, separated from the non-hazardous waste as indicated in Waste Management Regulation. This area will have an impermeable base/ground and will be protected from the surface flows and rain. Additionally, necessary drainage for the area will be provided. Hazardous waste will be collected and disposed of by companies selected by DOIZ among companies licensed by the MoEUCC.

Table 5.10 lists the types of waste that can be generated during the pre-construction phase and construction phase of the Project and their waste codes according to the waste lists given in the annexes of the Waste Management Regulation.

Table 5.10. List of Possible Waste Types to be generated during Pre-construction and Construction Phase of the Project

Waste Code	Definition of Waste Code
13	Oil Wastes and Liquid Fuel Waste (Excluding Edible Oils, 05 and 12)
13 02	Waste Engine, Transmission and Lubrication Oils
15	Waste Packages, Unspecified Absorbents, Wipes, Filter Materials and Protective Clothing
15 01	Packaging Waste (Including Packaging Waste Separately Collected by the Municipality)
15 02	Absorbents, Filter Materials, Cleaning Cloths and Protective Clothing
16	Waste Not Specified Otherwise in the List
16 06	Batteries and Accumulators
17	Construction and Demolition Waste (Including Excavations from Contaminated Sites)
17 01	Concrete, Brick, Tile and Ceramic
17 02	Wood, Glass and Plastic
17 04	Metals (Including Alloys)
17 05	Soil (Including Excavations from Contaminated Sites), Stones and Dredging Sludge
17 09	Other Construction and Demolition Waste
20	Municipal Waste Including Separately Collected Fractions (Domestic and Similar Commercial, Industrial and Institutional Waste)
20 01	Separately Collected Fractions (Except 15 01)
20 03	Other Municipal Waste

Municipal waste within the scope of the Waste Management Regulation are referred to as domestic waste or commercial, industrial and institutional waste similar to domestic waste in terms of its content or structure, which are defined with waste code of 20, in the Waste List given in Annex-4 of the Regulation and of whose management responsibility belongs to the Municipality. Therefore, these types of waste will be stored separately from hazardous waste and recyclable waste and will be collected regularly by the municipality. Municipal waste will be managed in the same way as it is currently managed in DOIZ. As mentioned before, in Honaz district where DOIZ is located, domestic solid waste is currently disposed of at a dump site. It is planned to establish the Honaz Solid Waste Transfer Station to bring the solid waste collected from Honaz district to the Kumkısıık Solid Waste Disposal Facility. In this way, waste will be disposed of in landfills instead of dump sites.

In order to determine the amount of municipal waste to be generated at site, the average daily municipal waste per person is taken as 1.13 kg according to the municipal waste statistics of TurkStat in year 2014 (TurkStat, 2020). The estimated amount of municipal waste to be generated during the pre-construction phase and construction phase of the Project, based on the number of people working, is given below. This amount includes also separately collected fractions such as paper, cardboard, glass, metal, plastic, etc. together with biodegradable wastes.

For pre-construction phase:

- 5 people x 1.13 kg/person/day=5.65 kg/day

For construction phase:

- 55 people x 1.13 kg/person/day=62.15 kg/day

There will be no cafeteria in the construction site. Thus, there will be no food preparation related waste generation within the context of the Project. The food will be supplied through catering services.

The general composition of the municipal waste in Türkiye is as demonstrated in Figure 5.6 according to the results of the solid waste composition determination study made within the scope of the Solid Waste Master Plan Project. 34% of municipal waste consists of kitchen waste. Separately collectable and recyclable fractions such as paper, cardboard, bulk cardboard, plastic, glass and metal constitute 25% of municipal waste.

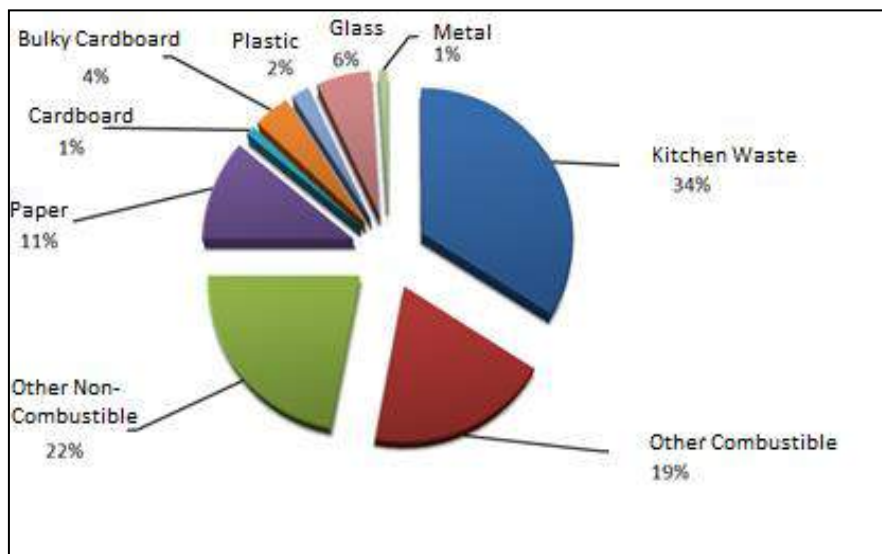


Figure 5.6. Composition of Municipal Waste (former Ministry of Science, Industry and Technology, 2014)

Considering the information provided in Figure 5.6, it is also valid for the municipal waste to be generated within the scope of the Project. The only difference will be the kitchen waste percentages since there will be no kitchen/cafeteria in the Project. By reflecting this and the assumption of only 5% food waste, the composition of the municipal waste will be as follows:

- Food Waste : 5%
- Other Combustible : 27%
- Other Non-combustible : 31%
- Paper : 16%
- Cardboard : 2%
- Bulky Cardboard : 6%
- Plastic : 3%
- Glass : 8%
- Metal : 2%

Now, it can be said that 0.28 kg of food waste and 2.09 kg of separately collectable and recyclable waste will be generated daily during the pre-construction phase of the Project. Also, the remaining 3.28 kg of daily produced waste is in the category of other combustible and non-combustible waste.

In addition, 3.1 kg of food waste and 23 kg of separately collectable and recyclable waste will be generated daily during the construction phase of the Project. Also, the remaining 36.05 kg of daily produced waste is in the category of other combustible and non-combustible waste.

Waste vegetable oil will not be generated at the site during the construction activities as meals for the staff will be provided by catering companies. End-of-life tire generation and storage will not take place due to the fact that the tire changes of the construction machines and other vehicles to be used at this stage will be carried out at the facilities in the region providing service for this purpose. Besides, there will not be any significant amount of medical waste generation at site within the scope of the Project, as there will be no infirmary at the project site and hospitals located in Pamukkale District will be used for possible medical interventions in case of an incident during the activities.

Topsoil stripping and levelling works will be carried out at certain locations in order to flatten the area during the pre-construction phase of the Project. For all activities regarding excavation storage, transport and reuse; provisions of Regulation on the Control of Excavation, Construction and Demolition Waste will be complied with.

The construction machinery will require oil changes during the pre-construction and construction phase of the Project, at least once in every two-month period of the phase. Oil changes of the construction machinery will be carried out at services licensed for the maintenance of the machinery. Thus, there will be no waste oil generation in the pre-construction and construction phase of the Project.

The annual amount of waste battery per person in Türkiye is six and this value corresponds to 140 grams (*abrogated Ministry of Environment and Forestry, General Directorate of Environmental Management, 2009*). According to this, the annual waste battery production of 5 people to be employed during the pre-construction phase of the Project is calculated as 0.7 kg and 55 people to be employed during the construction phase of the Project is calculated as 7.7 kg.

The excavations that will occur during the construction of the WWTP will be used as filling material. Excavation wastes that cannot be used will be disposed of in areas determined by both the Metropolitan Municipality and the District Municipality, as specified in the "Regulation on the Control of Excavation Soil, Construction and Demolition Wastes". The land under the responsibility of Honaz Municipality, which will be used to store the excavation waste resulting from the project, is approximately 5 km away from the Project Area.

In addition to waste generation, domestic wastewater resulting from workers will be generated during the pre-construction and construction phases. This type of wastewater will originate from facilities where the needs of employees are met, such as eating areas, toilets, and shower. According to TurkStat (2022), the average daily amount of wastewater per person is 197 L. Using this data, total wastewater generation for pre-construction and construction phases is calculated below:

For pre-construction phase: 5 people x 197 L/person = 985 L = 0.985 m³

For construction phase: 55 people x 197 L/person = 10835 L = 10.835 m³

After the wastewater is collected in a sealed septic tank close to the construction site, it will be pumped with vacuum trucks at regular intervals and given to the currently operated wastewater treatment plant for treatment. Also, the sludge from existing WWTP is stored in the temporary storage area located within the borders of DOIZ.

No significant impact resulting from waste generation is expected due to the nature and scale of the Project, as explained above. Therefore, the impact is assessed as direct and negative with short term duration, local and low significance. However, mitigation measures proposed in Section 7.1 in order to prevent and/or minimize likely impacts will be implemented.

Operation Phase

In the operation phase, there might be waste generation resulting from damaged, malfunctioned or end-of-life equipment and material that could be replaced or controlled during maintenance and repair activities to be performed periodically or in case of a breakdown. Also, procurement of new equipment, pieces and others will also result in the generation of packaging waste. Besides, personal protective equipment, clothes and rags used during maintenance and repair activities might result in a limited amount of waste generation. Generated municipal wastes during operation phase will be collected by Pamukkale Municipality as in construction phase.

18 workers are expected to be employed in the Project's operation phase. Therefore, municipal waste generation will be 20.34 kg/day and using the same approach as in pre-construction and construction, the recyclable portion of the municipal waste and the amount of food waste will be 7.53 kg/day and 1.02 kg/day, respectively. Moreover, in addition to recycling municipal waste, recyclable waste such as packaging waste, paper, cardboard, plastic and scrap metals are expected to be taken into account. After such wastes are collected separately, they will be sent to licensed facilities according to the type of waste and will be managed in accordance with the waste management hierarchy. If possible, recycling and recovery will be carried out.

In the operation phase of the Project, due to the oil change needs of equipment such as blowers, there will be limited amount of waste oil generation.

Table 5.11 lists the waste types and waste codes that may occur during the operational phase of the project, according to the waste lists given in the Waste Management Regulation's Annex. The wastes generated during the operation phase will be stored in a temporary waste storage area.

Table 5.11 List of Possible Waste Types to be generated during Operation Phase

Waste Code	Definition of Waste Code
13	Oil Wastes and Liquid Fuel Waste (Excluding Edible Oils, 05 and 12)
13 02	Waste Engine, Transmission and Lubrication Oils
13 03	Waste Insulation and Heat Conduction Oils
15	Waste Packages, Unspecified Absorbents, Wipes, Filter Materials and Protective Clothing
15 01	Packaging Wastes (Including Packaging Waste Separately Collected by the Municipality)
15 02	Absorbents, Filter Materials, Cleaning Cloths and Protective Clothing
16	Waste Not Specified Otherwise in the List
16 02	Electrical and Electronic Equipment Waste
16 06	Batteries and Accumulators
19	Waste from Waste Management Facilities, Offsite Wastewater Treatment Plants and Water Preparation Facilities for Human Consumption and Industrial Use
19 08	Wastewater Treatment Plant Waste Not Described otherwise
20	Municipal Waste Including Separately Collected Fractions (Domestic and Similar Commercial, Industrial and Institutional Wastes)
20 01	Separately Collected Fractions (Except 15 01)
20 03	Other Municipal Wastes

The most important waste that will be generated as a result of the activities of the planned WWTP is sludge together with the screenings. The solid content of the sludge that will be generated will be increased through the sludge dewatering unit. The water that will be extracted from the sludge cake will be sent back to the inlet of the planned WWTP. The resulting sludge cake with an amount of 126.2 m³/day, will be stored in the Hazardous/Non-Hazardous Temporary Storage Area to be built

within the borders of DOIZ. After sludge is analysed in an accredited laboratory, it will be disposed of in licensed companies according to the waste class produced.

The impact is assessed as direct and negative with long term duration, local and low in significance. However, mitigation measures proposed in Section 7.1 in order to prevent and/or minimize likely impacts will be implemented.

5.5.6 Pesticide Use and Management

In accordance with ESS3, WB attaches importance to the use and management of pesticides in projects. According to WB ESF, the Borrower will ensure that all pesticides used will be manufactured, formulated, packaged, labeled, handled, stored, disposed of, and applied according to relevant international standards and codes of conduct, as well as the EHSGs.

The following criteria apply to the selection and use of such pesticides: (a) they will have negligible adverse human health effects; (b) they will be shown to be effective against the target species; and (c) they will have minimal impact on nontarget species and the natural environment. The methods, timing, and frequency of pesticide application are aimed to minimize damage to natural enemies.

In addition, for any project involving significant pest management issues or any project contemplating activities that may lead to significant pest and pesticide management issues, the Borrower will prepare a Pest Management Plan (PMP). A pest management plan will also be prepared when proposed financing of pest control products represents a large component of the project.

Pre-Construction and Construction Phases:

There will be soil removal and relocation during the land preparation and construction phases. Therefore, pesticide control during these phases on formerly agricultural land involves management and mitigation requirement for environmental and health risks if there is a historical pesticide use because pesticides will not be used in these phases. Sampling for pesticides was conducted with the baseline investigations and the resulting pesticide concentrations were found to be below limitations set by relevant regulations. The detailed results are available in the (see Table 4.6). Pesticide-free construction practices are adopted to prevent the introduction of new pesticides, accompanied by worker training on safety and proper handling. Ongoing monitoring and testing of soil and water quality, coupled with transparent communication with regulatory authorities and the local community, contribute to a proactive and compliant approach. Overall, the goal is to facilitate the responsible transformation of the land for non-agricultural purposes and construction of WWTP while minimizing environmental impact.

Operation Phase:

Excessive accumulation of active sludge and/or sludge cake during operation phase may cause problems with insects, flies or rodents. For this reason, the sludge and sludge cake that will be transported by licensed companies and will be sent for disposal without too much sludge/sludge cake accumulation, or if it the wait is necessary, precautions will be taken such as adding lime to the activated sludge to prevent formation of odor and accumulation of insects, flies and rodents. DOIZ stated that pesticides are not used for the existing WWTP and the same operation procedures will be implemented for the WWTP. This approach reflects the organization's dedication to environmentally friendly practices throughout the entire lifecycle of the wastewater treatment plant. As a result, the community and the environment are expected to remain unaffected by the use of pesticides in the operation phase of the project.

5.5.7 Landscape and Visual (Aesthetics)

Pre-construction Phase

During the pre-construction phase of the Project, the operation of construction machinery and equipment may disturb the landscape of the Project Area. The removal of topsoil can cause landscape and visual effects.

The impact is assessed as direct and negative with short-term duration, local and low significance.

Construction Phase

During the construction phase of the Project, the operation of construction machinery and equipment may disturb the landscape of the Project Area. The excavation activities, trenching, etc. can cause landscape and visual effects. However, the absence of sensitive receptors such as residential areas near the project area is an advantage in terms of visual impact, and those affected are limited to industrial facilities.

The impact is assessed as direct and negative with short-term duration, local and low significance.

Operational Phase

In order to avoid any visual impact during the operation phase of the project, the planned WWTP will be painted in colors suitable to the background. Also, trees will be planted at the borders of the WWTP. This protection band will be surrounded by a wall from the outside. Grass and ornamental plants will be planted within 1.5 meters of the wall. In addition, tall plants such as cypress, pine and firethorn will be planted at 3m x 4m intervals within the protection band.

In the operational phase, no impacts on the landscape other than the WWTP area are expected. The possible impacts during the operation phase will be the maintenance periods of the equipment in WWTP. During the maintenance works, as the works will be done in a limited area, the landscape of the site will not be affected in a significant way. However, during maintenance works, the work area will be determined and limited to that area to minimize impacts on the landscape.

The impact is assessed as direct and negative with permanent duration, local and low significance.

5.6 Biological Environment

In this section, the sensitivity of terrestrial and aquatic ecosystems, as well as the identified flora and fauna species within the project and impact areas will be assessed, followed by a magnitude impact on biodiversity and impact assessment. Consequently, the assessment of impacts on habitats and flora/fauna is given in Table 5.13.

Significance Criteria

The WB ESS6, Biodiversity Conservation and Sustainable Management of Living Natural Resources criteria were used to identify Critical Living Areas in the Study Area. : rules were used to identify Critical Living Areas in the Study Area. WB criteria for identifying Critical Habitats include:

- a) Habitat of significant importance to Critically Endangered or Endangered species, as listed in the IUCN Red List of threatened species or equivalent national approaches;
- b) Habitat of significant importance to endemic or restricted-range species;
- c) Habitat supporting globally or nationally significant concentrations of migratory or congregatory species;
- d) Highly threatened or unique ecosystems; and
- e) Ecological functions or characteristics that are needed to maintain the viability of the biodiversity values described above in (a) to (d).

The level of sensitivity of species and habitats are determined according to Table 5.12., and for the evaluation of the significance of the impacts on biodiversity of pre-construction, construction and operation phases of the project, the categorization matrix given in Chapter 4 is used.

Determining the ecological sensitivity criteria, the criteria used in defining critical habitat in WB ESS6 Guidance Note are considered. Accordingly, if a biodiversity component meets the critical habitat criteria; its sensitivity is evaluated as “High”. Habitats and species that are globally widespread but locally or nationally protected species are assessed as “Medium” sensitivity. Natural habitats that do not meet the criteria for either medium or high sensitivity are assessed as low sensitivity. The criteria are also explained in Table 5.12.

Table 5.12 Criteria for Sensitivity/Value of Resource/Receptor (Ecology and Biodiversity)

Ecosystem Component	Sensitivity/Value Level		
	High (3)	Medium (2)	Low (1)
Designated Areas	Areas that meet the criteria of the IUCN's Protected Area Categories Ia, Ib and II. Key Biodiversity Areas (KBAs), which encompass Important Bird and Biodiversity Areas (IBAs). UNESCO Natural and Mixed World Heritage Sites. Sites that fit the designation criteria of the Alliance for Zero Extinction (AZE).	Nationally protected areas declared by the Ministry of Agriculture and Forestry (such as national parks, wetlands, nature reserves, wildlife conservation areas)	N/A
Habitats	Habitats that trigger critical habitat under the (d) and I criteria. Habitats that support species of High sensitivity.	Areas of habitat that represent >1% distribution within Türkiye or are threatened at a national level. Habitats that support species of Medium sensitivity.	Natural habitats that do not meet the criteria for either medium or high sensitivity. Habitats that support species of Low sensitivity.
Species	Species populations that trigger critical habitat under the (a), (b) and (c) criteria	Nationally/ regionally important concentrations of a Vulnerable (VU) species, or locally important concentrations of Critically Endangered (CR) and/or Endangered (EN) species. Locally important populations of endemic / rangelimited species. Populations of migratory species that represent >1 % of the national population.	Locally important populations of Near Threatened (NT) or Vulnerable (VU) species, or locally important populations of species listed on Annexes to the Bern Convention.

The sensitivities of the biodiversity components identified in the Project Area and that will be affected by the project are explained under the following headings.

Terrestrial and Aquatic Habitats

The terrestrial habitat identified in the Project Area is a modified area, as detailed with expert opinions in Section 4.2. No natural terrestrial habitat has been identified where the WWTP and the route where the collector line will be built.

The Project Area is adjacent to DOIZ and has been subjected to various human-induced impacts from industrial and agricultural activities. As a result, it has been entirely transformed into an anthropogenic area, losing its natural or semi-natural habitat characteristics.

As detailed in Section 4.2.3, no terrestrial area is sensitive in terms of biodiversity in the Project Area and its immediate surroundings.

As a result of all these studies, an assessment is done according to Table 5.12, and it has been determined that no habitat could be considered sensitive in the Project and impact area.

As detailed in Section 4.2.3, the sensitive water body is a body of water determined to be eutrophic or may become eutrophic in the near future if necessary precautions are not taken.

No sensitive species were found in the studies carried out within the scope of ESIA in Çürüksu Creek. Therefore, it is not a sensitive area, according to Table 5.12. However, apart from these criteria, the evaluation has been made to consider the negative effects of the waste in the creek on the habitat. The aquatic habitat of Çürüksu Creek (Sarıçay) is assessed as 'medium' sensitive due to the presence of waste observed along the creek's banks near the proposed discharge point, the discharge from the existing wastewater treatment facility operated by DOIZ, and the wastewater discharge from industrial facilities located near the Project Area but not within the DOIZ.

Terrestrial and Aquatic Flora and Fauna Species

The Project Area consists of modified vegetation. Thus, it has been determined that the flora species mainly consist of herbaceous plants and widely distributed species. None of the identified flora species are endemic. There are no protected flora species as per the BERN and CITES conventions. According to national and international red lists, flora species are not in endangered, critical and vulnerable categories.

Fauna species in the Project and impact area are also found in other areas in Türkiye or the region; most species are widespread (either in Türkiye or the Aegean).

The terrestrial fauna species identified in the Project Area and impact area are species adapted to modified habitats. None of the identified mammals, birds, reptiles and amphibian species is endemic or protected species, as detailed in Section IV.2. Also, the number of species and population density are low due to anthropogenic effects.

According to IUCN, *Testudo graeca* is in the "Vulnerable (U)" category. Still, this species is common in Türkiye, and the population abundance in the Project Area is not considered important by the expert.

It was reported that no fish species have been observed in the Çürüksu creek. No fish species were observed in the field study.

The fish species identified in the Aksu River are mobile species due to their feeding, migration, and breeding behaviors. Although they are not currently observed in Çürüksu Creek, it should be noted that potential changes resulting from environmental and climate variations, as well as ecological activities, may lead these species to migrate to Çürüksu Creek in future. However, in the current situation, due to the pressure on the creek, these species do not inhabit the creek. The sighting of these species in Çürüksu Creek will indicate the improvement in the aquatic habitat.

As a result, in assessment according to Table 5.12, flora and fauna species determined in the Project Area are considered not sensitive.

Pre-Construction Phase

Terrestrial Habitats and Flora Species

The primary impact of the Project on habitats and flora species will be in the pre-construction period. Topsoil stripping will be carried out during the pre-construction phase, and this will cause the populations and habitats of the flora species given in Table 4.10 to be lost from the area.

Since the habitat of the area is currently modified, the abundance and number of species in the area are low, and the species in question are not of critical or endemic importance, the threat status of these species is not expected to change due to the Project.

Aside from the loss of habitat in the Project Area, the overall impact of pre-construction activities, such as waste and effluent generation and air emissions, on vegetation and flora species is considered minimal. It is known that dust emissions that may occur, especially during the land preparation phase, will prevent plants from photosynthesizing by closing their stomata. In this context, the mitigation measures given in Chapter VII will be followed.

The magnitude of pre-construction activities on the terrestrial habitat and flora species has been evaluated as medium.

As explained in the previous title, the habitat and flora species identified in the Project Area are not considered sensitive. As a result, the Project's impact on terrestrial flora species and habitats during the pre-construction phase is considered low.

Terrestrial Fauna Species

Terrestrial fauna species in the Project Area and its vicinity will be affected by disturbance from pre-construction activities because of topsoil stripping and habitat loss.

The fauna species that depend partly or totally on the habitats to be lost are the ones that will be mainly affected by the Project. The fauna determination studies were carried out, and no sensitive species were determined in the Project and impact area.

The impacts of pre-construction activities on fauna can be considered two components. The first component is the direct impacts because of the degradation and loss of habitats due to pre-construction activities. Indirect impacts are disturbances from noise, dust and human activity in the pre-construction area. Another impact of the pre-construction phase will be the vehicle traffic. The fauna species which have limited mobility will be prone to fauna mortality. All these effects can be eliminated by taking appropriate measures (see Section 7).

Most medium to large mammals and birds will leave the construction sites due to pre-construction impacts and move towards similar habitats in the immediate vicinity.

The magnitude of pre-construction activities on the terrestrial fauna species has been evaluated as low.

The fauna determination studies were carried out, and no sensitive species were determined in the Project and impact area.

As a result, the Project's impact on terrestrial fauna species during the pre-construction phase is considered low.

Aquatic Biodiversity

Controlled disposal of the waste generated during the land preparation works to be carried out during the pre-construction phase is very important to prevent the Çürüksu Creek from being negatively affected by the project-related works.

No pre-construction work will be done in Çürüksu Creek. Avoiding interfering with the stream during work to be carried out on the stream edge will prevent excessive sediment and residue formation.

The magnitude of pre-construction activities on the Çürüksu Creek has been evaluated as low.

As explained in the previous title, it has been determined that the Çürüksu Creek has been evaluated as "medium" sensitive.

As a result, the Project's impact on aquatic biodiversity during the pre-construction phase is considered low.

Construction Phase

Terrestrial Habitats and Flora Species

The primary impact that may occur on flora and habitats during the construction works to be carried out within the scope of the Project is waste and air emissions. In this context, the mitigation measures given in Chapter 7 will be followed.

The magnitude of construction activities on the terrestrial habitat and flora species has been evaluated as low.

As a result, the Project's impact on terrestrial habitats and flora species during the construction phase is considered low.

Terrestrial Fauna Species

The impacts of construction activities on fauna are disturbances from noise, dust and human activity in the construction area. Another impact will be the vehicle traffic.

Most medium to large mammals and birds will leave the construction sites due to impacts and move towards similar habitats in the immediate vicinity.

The magnitude of construction activities on the terrestrial fauna species has been evaluated as low.

As a result, the Project's impact on fauna species during the construction phase is considered low.

Aquatic Biodiversity

Controlled disposal of the wastes generated during construction is essential to prevent the Çürüksu Creek from being negatively affected by the project-related works.

No construction work will be done in Çürüksu Creek. Construction works will occur in the riparian vegetation in the coastal areas. As a result, deteriorations in coastal stability may be observed. Avoiding interfering with the stream during work to be carried out on the stream edge will prevent excessive sediment and residue formation.

The magnitude of construction activities on the Çürüksu Creek has been evaluated as low.

As explained in the previous title, it has been determined that the Çürüksu Creek has been evaluated as "medium" sensitive.

As a result, the Proj'ct's impact on aquatic biodiversity during the construction phase is considered low.

Operation Phase

Terrestrial Habitats and Flora-Fauna Species

The operation activities of the Project are not anticipated to have an adverse impact on terrestrial species and habitats. Terrestrial fauna species that have already adapted to anthropogenic influences are expected to persist in similar habitats in the vicinity of the Project Area once the construction works are concluded. The impact of the Project's operation phase on terrestrial biodiversity has been assessed as negligible.

As a result, the Project's impacts on terrestrial habitats and flora-fauna species during the operation phase are considered negligible.

Aquatic Biodiversity

It has been determined that the aquatic environment is currently under anthropogenic influences, which is explained in the above headings. With the planned WWTP, treated water will be discharged into the creek, local and national legislation regarding wastewater discharge will be complied with and the water quality in Çürüksu Creek will be monitored regularly during the operation phase.

That can be a step towards conserving biodiversity and improving the water quality of the receiving bodies. That is considered the most significant positive impact of the Project on the aquatic environment. As a result, the Project's impacts on aquatic biodiversity during the operation phase are considered low.

Table 5.13 Assessment of Impacts on Habitats and Flora/Fauna

Ecosystem Component	Project Phase	Sensitivity	Magnitude	Type of Impact	Impact Significance Before Mitigation
<i>Terrestrial Habitat and Flora</i>	Pre-construction	Low	Medium	Adverse	Low
<i>Terrestrial Fauna</i>	Pre-construction	Low	Low	Adverse	Low
<i>Aquatic Biodiversity</i>	Pre-construction	Medium	Low	Adverse	Low
<i>Terrestrial Habitat and Flora</i>	Construction	Low	Low	Adverse	Low
<i>Terrestrial Fauna</i>	Construction	Low	Low	Adverse	Low
<i>Aquatic Biodiversity</i>	Construction	Medium	Low	Adverse	Low
<i>Terrestrial Habitat and Flora</i>	Operation	Low	Negligible	Adverse	Negligible
<i>Terrestrial Fauna</i>	Operation	Low	Negligible	Adverse	Negligible
<i>Aquatic Biodiversity</i>	Operation	Medium	Low	Adverse	Low

5.7 Social Impacts of the Project

Social impacts identified during the pre-construction, construction and operation periods. Since the project site will be built on a land purchased from a person, there will be no land acquisition. Since there is no cultural area in the project site - considering that the construction volume will be small - no impact is expected before construction. In the context of the project, the negative and positive impacts that can be observed before construction and operation are as follows:

5.7.1 Population/Demography

Pre-construction, Construction and Operation Phases

For the Project, the pre-construction works will start and last for one month. The continuation of this process is the construction phase of the project, which will last 18 months.

There will be 5, 55 and 18 employees during the pre-construction, construction and operation phases of the project, respectively. The accommodation needs of the employees will be met by renting a house, hotel or hostel in the area closest to the construction site will be decided upon the determination of the Contractor after the tender. During the pre-construction and construction phases of the Project, there will be a camp area where the staff can meet their basic requirements such as toilets and showers.

The construction period of the project will last 18 months, 8 hours a day (1 shift), 30 days a month and 55 personnel will work. Workers are entitled to a minimum of one day off (24 hours) after working continuously for six days. According to the Labour Management Procedures of the TOIZ Project, the employee's consent shall be required for overtime work. Total overtime work shall not be more than two hundred seventy hours in a year. For work at extra hours, each extra hour shall be remunerated at one and a quarter times the normal hourly rate for workers who work less than 45 hours a week. If the employee who has worked overtime or at extra hours so wishes, rather than receiving overtime pay she/he may use, as free time, one-hour and thirty minutes for each hour worked overtime and one hour and fifteen minutes for each extra hour worked. There will be a camp area where the staff can meet their basic requirements such as toilets and showers, but there will be no accommodation on the construction site

Similarly, during the operation period of the project, it is planned to work 12 months a year, 30 days a month, 24 hours a day, 3 shifts. The number of employees is expected to be 18 people. The employee's consent shall be required for overtime work. Total overtime work shall not be more than two hundred seventy hours in a year. In work at extra hours, each extra hour shall be remunerated at one and a quarter times the normal hourly rate for workers who work less than 45 hours a week. If the employee who has worked overtime or at extra hours so wishes, rather than receiving overtime pay she/he may use, as free time, one-hour and thirty minutes for each hour worked overtime and one hour and fifteen minutes for each extra hour worked.

Considering the project structure and the distance of the settlement to the project site, no impact on population and demographics is expected during the pre-construction, construction and operation period. The nearest residential community is about 2 kilometres (Pınarkent Neighbourhood) away from the WWTP area. Therefore, the construction activities will not cause major destruction or disturbance to the host community living in nearby areas.

5.7.2 Cultural Heritage

Pre-construction and Construction Phases

No significant impacts on archaeological and cultural heritage are expected in the construction phase of the Project.

As required by Article 4 of Law on the Conservation of Cultural and Natural Properties (Law No. 2863), Chance Finds Procedure (see Annex 11) to be included in ESMP and bidding documents will be implemented during land preparation and construction works. In this context, related Civilian Authority or Museum Directorate will be informed latest in three days in case of finding any movable or immovable cultural asset by chance during construction works. Construction works will be stopped immediately, the related site will be secured by the Contractor and works will not proceed until official

information is received. In case of any damage on protected areas or cultural assets due to the Project during the construction phase, the responsible party is the Contractor.

The impact is assessed as direct and negative with short-term duration, on-site and low significance.

Operation Phase

No significant impacts on archaeological and cultural heritage are expected in the operation phase as there is no activity other than the maintenance/repair works, which will be limited.

5.7.3 Economy/Employment

A positive impact on the economy and employment is expected during the construction and operation phases of the project.

Pre-construction and Construction Phases

The project does not involve access restriction, resettlement or physical displacement of any persons. No damage of livelihood income for the households. Therefore, loss of employment/jobs is not expected either as a result of the project. However, the project has a potential to create employment opportunities for Pınarkent.

Considering the number of employees and the distance, excessive labour influx as a result of construction is not expected during the project. The workforce will be mainly recruited from the surrounding localities and neighborhoods, skilled labour may be provided nonlocally.

Operation Phase

A two-way employment increase is expected during the operation period. One of these is the workforce that will be needed with increasing capacity, and the second is the employment need that may arise as a result of the DOIZ's productivity studies with companies. The employment projections of the companies that will benefit from the project operation phase are as follows:

Table 5.14 The Employment Projections of the Companies

Companies	Employment need (estimated) (# of people)
Altınbaşak Textile	-
Basaranlar Construction Materials	21
Veritas Textile Apparel	-
Denbassan Printing	38
Rateks Printing	-
Gokhan Textile	-
Kemal Ugurlu Textile	104
Akürün Textile	108
Tosunoglu Textile	50
Faber Mermercilik	-
Total	321

As mentioned by the DOIZ, currently, 18,997.60 m³/day of wastewater is generated from the companies given in the table above. All wastewater from these companies will be treated with a new collector line. In this case, the amount of wastewater coming to the currently operated 42,000 m³/day treatment plant, which has reached full capacity, will be approximately 23,000 m³/day.

Thus, businesses that want to establish new dyehouses within the borders of the OIZ and intend to increase their capacity will be given a permit of 19,000 m³/day of wastewater. With the permission to be granted, it is expected that 5-6 additional new dye houses (1,500-2,500 m³/day) will

be established in the Region. There may be a capacity increase in 2-3 of the existing dyehouses. In this regard, a total of 600-720 people will be employed in the 5-6 new paint shops to be established, and 70-105 people will be employed in the 2-3 companies that will increase their capacity.

Thus, as a result of this investment, 991 to 1,146 people is expected to work in the enterprises and 18 new personnel will be employed in the new treatment facility. It was stated by the HV that there were people working on construction projects in the neighborhood.

It has been stated by the companies that the needs that will arise during the pre-construction, construction and operation periods will be met from the neighboring neighbourhoods. The list of neighbourhoods that may be affected by local employment is given in Table 5.15.

Table 5.15 The List of Neighbourhoods that may be Affected by Local Employment

	Approximate Distance to OIZ Borders	Approximate Distance to the Project Area
Pınarkent Neighbourhood	500 m	1.7 km
Gürleyik Neighbourhood	0 m	2.3 km
Kocadere	4.3 km	2.9 km
Güzelköy Village	4.4 km	4.3 km
Kale	4.6 km	4.5 km
Emirazizli	3.5 km	5.5 km
Ovacık	4.5 km	6 km
Honaz District Centre	3.5 km	6.4 km

5.7.4 Vulnerable/Disadvantaged Groups

Pre-construction, Construction and Operation Phases

The sub-project doesn't have differentiated impacts on women and men, different ethnic groups or social classes during pre-construction, construction and operation phases. Priority will be given to local people and women in the recruitment process for the project. No negative impact on gender equality or women's empowerment is expected. Positive impacts in terms of employment opportunities anticipated as skilled, semi-skilled and un-skilled personnel from surrounding localities will get direct and indirect employment during pre-construction, construction and operation phases (approximately 5-10 people for construction and 2-4 people for operation). The construction activities do not require additional/skilled labour from outside the locality and do not attract forced labour and/or child labour. The actions to be taken during the project do not seem to affect public safety adversely.

5.7.5 Land Acquisition

No expropriation has been made on the project land. The project land was privately owned land and purchased by DOIZ from the landowner through willing buyer and seller agreements on 15.12.2020 and has no pending title transfer, compensation payment, ownership disputes, etc. The proposed WWTP will be connected to the existing WWTP and the planned discharge point through pipes to be constructed along the existing roads and intersects with railway and irrigation channel. All necessary measures will be taken by the DOIZ for the restoration of roads during the excavation and construction works. The proposed discharge lines will not require any land acquisition process however permissions are required. Permission letter from Pamukkale Municipality for the use of existing roads and permission letter from TCDD for passing under railway are received however letter from DSİ has not been received at the time of this report prepared. The permission letters are given in Annex-6.

Any damage to surrounding infrastructure (land, structures, crops, assets etc) during construction and operation will be compensated by the contractor (during construction phase) and DOIZ (during operation phase).

5.7.6 Working Conditions and Labor Management

Labor Management Procedures (LMP) have been prepared for Turkey Organized Industrial Zones Project. It aims to project workers' rights and ensure the management and control of activities that may pose labour-related risks. It describes how MoIT will comply with the requirements of World Bank Environmental and Social Standard 2 (ESS 2), "Labor and Working Conditions", and with national legislation on the labour, employment and occupational health and safety issues.

Labour relations are governed by the provisions of the Turkish Labor Law (4857 numbered). The Law of Turkish on Occupational Health and Safety (numbered 6331) provides for provisions on occupational health and safety and applies to direct and contracted workers, including foreign workers. Social Security and General Health Insurance Law (Law No: 5510) regulates social insurance and general health insurance.

DOIZ will be responsible for human resources during the construction and operation phases. The Project will comply with national labour, social security and occupational health and safety laws and the principles and standards. The Project will comply with national labour, social security and occupational health and safety laws and the principles and standards of the International Labour Organization convention. Based on the national principles contained in the International Labour Organization convention, the Project Proponent will take the following measures:

- Not employ children during the construction phase under 18 years of age,
- Eliminate forced labour and ensure a Human Resources Policy in compliance with the European Convention on Human Rights and the Turkish Constitution,
- Elimination of discrimination based on language, race, sex, political opinion, philosophical belief and religion in labour relations,
- Ensuring workers' access to the right to collective bargaining (Law No. 6356 on Trade Unions and 4857 Labour Law on Collective Bargaining),
- Ensure workers receive written contracts
- Ensure access to an effectively functioning Project grievance mechanism.

DOIZ will be responsible for the followings:

- Review and approve the contractor's labour management plans that should be in line with the LMP prior to the construction phase,
- Review and approve the contractor's OHS plan prior to the construction phase,
- Monitor that contractors/subcontractors fulfil their obligations to contracted workers as set out in relevant procurement documents in accordance with ESS2, national labour and OHS laws,
- Keeping records of recruitment and employment processes of direct reports,
- Monitor the potential risks of child labour, forced labour and serious safety issues in relation to primary support workers,
- Monitor the training of relevant project staff,
- Ensure that a grievance mechanism for project workers is established and implemented and that workers are informed about it,
- Monitor the training of employees on Code of Conduct and to monitor their compliance,
- Monitor that occupational health and safety standards are met in workplaces in line with national occupational health and safety legislation, ESS2 OHS requirements, occupational health and safety plan,
- Monitoring employees' compliance with work behaviour rules,

- Establish and implement a procedure for documenting specific project-related incidents such as occupational accidents, illnesses and time-loss accidents.
- In cases of severe, fatal and mass accidents, informing law enforcement, Labor Inspectorate and MoIT,

In addition to legal requirements and the Labor Management Procedures, the contractor will be responsible for the followings:

- Employ or engage qualified social, labour and occupational safety experts to implement the project-specific labour management procedure, occupational health and safety plans and manage the performance of subcontractors,
- Develop a labour management plan for review and approval of DOIZ,
- Develop an OHS plan for review and approval of DOIZ,
- Ensure labour management plan and OHS plan are in place and applied by all contract and subcontracted workers,
- Supervise subcontractors' adherence to the labour management procedure and OHS plans,
- Keeping records of the recruitment and employment processes of contracted employees,
- Follow up the employment process of subcontracted workers to ensure that it is carried out in accordance with this labour management procedure and national labour law,
- Developing and implementing a grievance mechanism for employees, evaluating complaints from contracted and subcontracted workers,
- Provide written contracts to the contracted workers with job descriptions, wages, working hours, rights and duties fully described,
- Provide regular induction training to employees, including but not limited to OHS, social familiarization, Code of Conduct, Sexual Harassment/Sexual Abuse prevention training,
- Ensure that all contractor and subcontractor employees understand and sign the Code of Conduct before starting work,
- Establish and implement a procedure for recording/ documenting specific project-related incidents such as occupational accidents, illnesses and time-loss accidents,
- Notify law enforcement, Labor Inspectorate and OIZ in case of severe, fatal and mass accidents.

Pre-construction and Construction Phases

In order to protect the workforce DOIZ will ensure measures to prohibit child labour and forced labor. All Turkish Laws related to child labor, forced labor, discrimination, freedom of association, Occupational Health and Safety (OHS), right of association, minimum wage, and collective bargaining shall be complied with. In this respect, children under 18 years of age will not be employed during the construction and operation phases. The contractors will develop an age verification system to ensure no one under 18 years old is involved in project activities. Also, all workers on the project will receive written contracts with relevant information (e.g job description, working hours, wages, rights and responsibilities, Code of Conduct).

Pre-construction and construction works may involve procurement of services from third parties. In such cases DOIZ will ensure that contractors are reputable and legitimate enterprises and have an appropriate effective environmental and social systems, procedures and capacity for managing, and monitoring risks and impacts of the project that will allow them to operate in a manner consistent with the labor conditions required by DOIZ as per the LMP. In addition to this DOIZ will monitor the performance of contractors such that the human rights policy and labor rights of all workers are exercised properly and include suitable non-compliance measures in their contracts and

will ensure that workers of contractors have access to the overall grievance mechanism to be established for the laborers in the scope of the Project. DOIZ will monitor its primary supply chain for safety issues related to supply chain workers and where necessary will introduce procedures and mitigation measures to ensure that suppliers are taking steps to prevent or to correct life-threatening situations. In order to realize those, DOIZ will prepare a Contractor Management Plan before the pre-construction phase and ensure its implementation through pre-construction and construction phases.

In case when personnel or material or services required for the works to be carried out in a construction project cannot be sourced from local sources, technical personnel with adequate capacity or materials that meet international standards may have to be brought from outside the Project area. In such case suppliers, potential suppliers and potential job-seekers might move to the close vicinity of the Project area to provide goods and services to the Project and thereby create an influx in the region. Such a situation of workforce influx, people who will work on the Project or provide goods and services to the project should be quickly accommodated. It is the Contractor's responsibility to provide the necessary accommodation for the personnel.

5 employees in the pre-construction phase and 55 employees in the construction phase are expected to be employed. Due to the technical nature of the Project, unskilled labor is expected to be recruited locally and skilled labor is expected to be recruited non-locally. In order to avoid the negative impacts of the workforce influx, DOIZ will give priority to the local people in recruitment, and this will be added to the terms of the contracts of the Contractor and possible subcontractors in order to ensure this. In contract process, DOIZ will request the contractor to plan the workforce and request from the contractor to prepare a Workforce Management Plan before recruitment process if the requirement for a workforce other than the one specified in this ESIA is seen. DOIZ will evaluate and submit this plan to MoIT for approval.

Training

DOIZ and the Contractor will conduct training for the workers immediately after the recruitment process to ensure the workers' ability to carry out their duties effectively and safely. The training to be provided will at least cover labor rights, contractual requirements, OSH, Code of Conduct, GM and communication channels, as well as gender-based violence (GBV), sexual harassment (SH), sexual exploitation and abuse (SEA) to prevent a possible future dispute, unacceptable behavior (gender-based violence, sexual harassment, sexual exploitation and abuse etc.) within the workplace, and/or in relations with local communities. Compliance with the rules of code of conduct, including GBV and SH/SEA will be in the contract articles of the personnel.

Operation Phase

DOIZ will fulfill its responsibilities towards the workforce in accordance with WB ESF ESS2, LMP and national legal obligations at all stages of the Project. In order to protect the workforce DOIZ will ensure measures to prohibit employment of children less than 18 years of age and forced labor. The contractors will develop an age verification system to ensure no one under 18 years old is involved in project activities. Moreover, DOIZ will establish a Human Resources Policy that complies with the European Convention on Human Rights and the Turkish Constitution and will ensure workers' access to the right to collective bargaining, as stipulated by Law No. 6356 on Trade Unions and 4857 Labor Law on Collective Bargaining. Discrimination in labor relations, based on language, race, sex, political opinion, philosophical belief, and religion, will be systematically prohibited/eliminated. An effectively functioning Grievance Mechanism (GM) will also be established for the Project, addressing concerns transparently in accordance with WB ESF ESS2 and LMP of the Project. Workers will be provided with comprehensive written contracts containing essential details such as job descriptions, working hours, rights and duties, a code of conduct, and information on the workers' GM. In a proactive effort to minimize potential impacts on neighboring communities, the Project Owner will provide facilities within the Project Area, including food, sanitary facilities, and resting areas, in accordance with the needs of employees. All rights of the workforce protected by WB ESF ESS2

and/or national laws related to freedom of association, Occupational Health and Safety (OHS), and minimum wage shall be complied with. Impacts on workforce related to working conditions and labor management will be effectively mitigated through the implementation of the Labor Management Plan, developed before pre-construction phase by the Contractors in compliance with the provisions of the Labor Law and WB ESF ESS2 and the Labour Management Procedures (LMP) of the Project.

Operation phase may involve procurement of services from third parties such as security and catering services. In such cases DOIZ will ensure that service providers are reputable and legitimate enterprises and have an appropriate effective environmental and social systems, procedures and capacity for managing, and monitoring risks and impacts of the project that will allow them to operate in a manner consistent with the labor conditions required by DOIZ. In addition to this DOIZ will monitor the performance of service providers such that the human rights policy and labor rights of all workers are exercised properly and include suitable non-compliance measures in their contracts and will ensure that workers of service providers have access to the overall grievance redress mechanism to be established for the laborers in the scope of the Project. DOIZ will monitor its primary supply chain for safety issues related to supply chain workers and where necessary will introduce procedures and mitigation measures to ensure that suppliers are taking steps to prevent or to correct life-threatening situations. In order to realize those, DOIZ will continue to comply with the Contractor Management Plan during operation phase activities.

18 employees in the operation phase are expected to be employed for the Project. In order to avoid the negative impacts of the workforce influx, DOIZ will give priority to the local people in recruitment, and this will be added to the terms of the contracts of service providers in order to ensure this. In contract process, DOIZ will request service providers to plan the workforce and request from the service providers to comply with the Workforce Management Plan before recruitment process if the requirement for a workforce other than the one specified in this ESIA is seen.

Training

DOIZ and the Contractor will conduct training for the workers immediately after the recruitment process to ensure the workers' ability to carry out their duties effectively and safely. The training to be provided will at least cover labor rights, contractual requirements, OSH, Code of Conduct, GM and communication channels, as well as gender-based violence (GBV), sexual harassment (SH), sexual exploitation and abuse (SEA) to prevent a possible future dispute, unacceptable behavior (gender-based violence, sexual harassment, sexual exploitation and abuse etc.) within the workplace, and/or in relations with local communities. Compliance with the rules of code of conduct, including GBV and SH/SEA will be in the contract articles of the personnel.

5.7.7 Community Health and Safety

ESS4 recognizes that project activities, equipment, and infrastructure can increase community exposure to risks and impacts. According to ESS 4, Borrowers will identify risks and impacts and propose mitigation measures in accordance with the mitigation hierarchy.

Pre-construction and Construction Phases

The community health and safety issues are associated with risk factors that may arise from the construction and operation periods of the Project. It is predicted that the local community may be affected by dust, noise and traffic, especially during the construction period.

Street 200 and Street 213 are earth road (unpaved) this will create dust at dry seasons.

The contractor will take necessary health and safety measures during construction activities under the direction of the DOIZ, such as using appropriate warning signs and signage and dust suppression during dry seasons.

Street 200 and Street 213 are cadastral streets with an unstable width, max width of the streets is 7,5- 8 m and do not have sidewalks for pedestrians. This creates risk for community (especially employees of firms near to project area as they are also using these streets). In order to minimise the impact of traffic activities, which are expected to intensify during the construction phase, working hours should be adjusted to avoid peak hours of transport.

There is no traffic light at D320 and Street 200 intersection (Figure 4.36), considering the traffic volume of the D320 and construction related traffic, it can be concluded that this intersection is risky for project and also for the community. DOIZ will inform KGM to take necessary measures (warning signs and signage, traffic light etc).

The Traffic Management Plan will be prepared and including and detailing these risks and associated mitigation measures. Additionally, an Emergency Response Plan to manage risks and take preventive measures will be prepared. Project staff, local community and responders will be informed about this plan.

In addition, risks of Gender Based Violence (GBV) and sexual abuse, exploitation and harassment might arise. Awareness raising and training for the labor force regarding these subjects will be provided. Also, training for employees regarding the Code of Conduct (see Annex 11) will be conducted. Within this regard, Gender Based Violence (GBV) and sexual abuse, exploitation and harassment risks during pre-construction and construction phases are assessed as direct and negative. GM, GBV, SEA/SH trainings will be given to all personnel before the construction and DOIZ will create partnership with local civil society organization to report workers' misconduct and complaints/reports on gender-based violence or harassment through the GM. With the implementation of mitigation measures proposed above, these impacts/risks will be reduced to low in significance.

The construction waste will be managed as defined in the Resources and Wastes section in order to minimize the negative effects on community health, safety and security.

The construction works and waste disposal during the pre-construction and construction phases of the Project will be performed by contractors. Therefore, any damage to infrastructure will be repaired (with supervision of DOIZ) or compensated by contractors promptly in accordance with the responsible authority, such as KGM or DOIZ will closely monitor such issues.

Emission, noise and waste generation: Impacts associated with emissions, noise and waste generation will be managed with the proper Emission, noise and waste generation: implementation of mitigation measures mentioned previously in the related sections of this report.

Pre-construction and construction works will involve increased traffic of heavy vehicles and equipment at local level and traffic interruptions. Accidents and incidents leading to fatalities could result from traffic operations while transporting equipment and materials to construction sites as well as from truck and vehicle movements. Impacts associated with traffic are discussed in detail in Section 5.6.9 of this report.

The farmers of nearby cultivated agricultural lands and the employees working at nearby industrial facilities in Pınarkent Industry Zone might get affected by limited/short-term adverse impacts of dust from construction.

In addition, it should be noted that the irrigation channels located close to the project site are likely to be affected by dust - although stakeholders expect that they will not be affected in this regard.

The treated wastewater will be discharged with a pipeline to be constructed through the existing roads, there will be only short-term excavation works therefore no additional impacts from construction of discharge line are expected to occur to the host community living or working in nearby areas.

Another risk would be community trespassing to the WWTP site and active worksites. The risks associated with this issue would be easily mitigated to negligible significance through implementation of mitigation measures presented in Section 7.1.

Public health risks to contagious diseases or transmission (e.g., HIV/AIDS, Malaria, etc.) for project workers or communities are not expected during the construction.

In line with that, the WWTP contractor and OIZ will take necessary mitigation measures to minimize any potential risks on nearby agricultural lands and livelihoods during the construction and operation stages so that the project will not cause any permanent or temporary damage or loss of livelihood facilities, other assets and natural resources use.

Operation Phase

Similar to the impacts during the construction phase, improper handling of waste would create negative impacts on community health and safety. Differently from the construction phase, sludge will be generated as a result of the operation of the WWTP. In case that the final sludge is not handled properly and/or disposed of in an uncontrolled manner, the magnitude of its impact on community health and safety would be somewhat significant. Impacts associated with sludge management are discussed in detail in the Section 5.5.5 of this report.

There will be an increase in the traffic load between the WWTP site and sludge disposal sites in the operation phase. This increase will be lower than the one anticipated to occur during the pre-construction and construction phases since material transport during the operation phase will be limited with the disposal of wastes and sludge generated. Impacts associated with traffic are discussed in detail in the Section 5.6.9 of this report.

Any damage to infrastructure (e.g. land, structures, crops and other assets) during waste disposal activities will be repaired (with supervision of DOIZ) or compensated by contractors promptly in accordance with the responsible authority, such as KGM or DOIZ will closely monitor such issues.

In the operation phase of the WWTP, there would be times when the entire plant or specific units need shutdown due to excessive precipitation, planned or unplanned maintenance requirements, or any other foreseen or unforeseen challenges. A shut-down has major consequences for wastewater treatment, especially biological wastewater treatment. Stopping a physical-chemical treatment generally does not present many problems; however, turning down of biological treatment units has major impact on the speed of the start-up process, which directly affects effluent quality. The significance of the shutdown or failure related impacts on community health and safety would be medium without proper implementation of mitigation measures. If the biological units in the WWTP are closed, full treatment cannot be carried out in the facilities, and this increases the risk of spreading epidemic diseases and also causes environmental and water pollution.

Similar to the construction phase, community trespassing to the active worksites is also a risk in operation phase. The risks associated with this issue would be easily mitigated to negligible significance through the implementation of mitigation measures presented in Section 7.1.

5.7.8 Occupational Health and Safety

Measures relating to occupational health and safety will be applied to the project. The OHS measures will include the requirements of ESS2, and will take into account the General EHSs and, as appropriate, the industry-specific EHSs and other GIIP.

Pre-construction Phase

The pre-construction phase of the Project includes land preparation, leveling, topsoil stripping, and the use of heavy-duty vehicles. As described in the WBG EHS Guidelines for Water and Sanitation, work at sanitation facilities is often physically demanding and may involve hazards such as open water, trenches, slippery walkways, and with energized circuits/heavy equipment. Vehicular movements can cause accidents resulting in injuries and death. OHS risks and impacts will be managed and mitigated by OHS Management Plan and Risk Assessment (including Emergency Plans) to be prepared by the Contractor before pre-construction phase in line with WB EHS Guidelines and ESF ESS2, and national regulations.

Moreover, Occupational Health and Safety (OHS) risk might arise due to risks of contamination, emission of dust and production of noise during the site preparation. In addition, risks of Gender Based Violence (GBV) and sexual abuse, exploitation and harassment might arise. Training to labor force regarding these subjects will be provided. Also, training for employees regarding the Code of Conduct (see Annex 12) will be conducted. A comprehensive list of anticipated OHS risks and hazards for the pre-construction and construction phases of the Project is given in Table 5.16.

Table 5.16. Anticipated OHS Risk and Hazards for Pre-construction and Construction Phases

Risk/Hazard	Elaboration
Falls from Heights	Unprotected edges and openings. Inadequate scaffolding or ladder safety. Roofs without proper guardrails.
Slips, Trips, and Falls	Uneven or slippery surfaces. Poor housekeeping. Lack of warning signs
Manual Handling and Ergonomics	Lifting heavy objects without proper equipment. Repetitive tasks and incorrect postures leading to musculoskeletal disorders.
Machinery and Equipment	Lack of machine guarding. Malfunctioning tools and equipment. Inadequate training for equipment operators
Electrical Hazards	Exposed wiring. Faulty electrical equipment. Inadequate grounding. Lack of waterproofing in open and/or areas prone to water accumulation.
Excavation and Trenching	Cave-ins and collapses. Lack of protective systems. Presence of underground utilities.
Chemical and Hazardous Substances	Exposure to harmful substances like lead, solvents and petrochemicals. Inadequate personal protective equipment (PPE). Poor ventilation.
Noise and Vibration	Excessive noise levels. Lack of hearing protection.
Confined Spaces	Inadequate ventilation. Lack of proper entry and exit procedures. Presence of hazardous atmospheres.
Fire Hazards	Inadequate fire prevention measures. Poor storage of flammable materials. Lack of fire extinguishers and emergency exits.
Traffic and Vehicle Hazards	Inadequate traffic control. Collisions between vehicles and workers. Lack of proper signage.
Structural Collapse	Weak or unstable structures.

	Inadequate bracing or shoring. Overloading of structures.
Weather Conditions	Extreme temperatures (heat or cold). High winds and storms. Slippery surfaces due to rain or snow.
Biological Hazards	Exposure to mold or bacteria. Contaminated water sources.

Within this regard, workers' exposure to work-related occupational health and safety risks during pre-construction phase is assessed as direct and negative with short term duration, local and high in significance. These significant impacts will be meticulously monitored and managed. However, with the implementation of mitigation measures proposed in Section 7.1, these impacts/risks will be reduced to low in significance. All OHS related management plans/procedures/documents required to be prepared before pre-construction phase are given in Table 5.17.

Table 5.17. OHS Related Management Plans and Procedures for Pre-Construction and Construction Phases

No	Plan/Procedure Name
1	OHS Risk Assessment
2	OHS Management Plan
3	Emergency Preparedness and Response Plan
4	Labor Management Plan
5	Code of Conduct
6	OHS Training Schedule (as a part of training programme)
7	<p>OHS Procedures:</p> <ul style="list-style-type: none"> • Confined Space Entry Procedure • Working at Height Procedure • Restricted Area Access Procedure • Fire Safety Procedure • Noise Control Procedure • Personal Protective Equipment Procedure • Emergency Evacuation Procedure • Hazard Communication Procedure • Electrical Safety Procedure • Hand and Power Tool Safety Procedure • Material Handling and Storage Procedure

Construction Phase

The construction phase of the Project includes excavation, backfilling, working in high places, and the use of heavy-duty vehicles. As described in the WBG EHS Guidelines for Water and Sanitation, work at sanitation facilities is often physically demanding and may involve hazards such as open water, trenches, slippery walkways, working at heights and confined spaces energized circuits and heavy equipment. All construction-related hazards and risks are summarized in Table 5.18. Vehicular movements can cause accidents resulting in injuries and death. In addition, working at height can result in physical injury in case of a possible fall. While working in confined spaces can lead to various damages due to oxygen deficiency and risk explosion. Moreover, Occupational Health and Safety (OHS) risk might arise due to risks of contamination, emission of dust and production of noise during the construction phase. OHS risks and impacts will be managed and mitigated by OHS Management Plan (including Emergency Plans) and Risk Assessment that were prepared by the Contractor before pre-construction phase in line with WB EHS Guidelines and ESF ESS2, and national regulations. DOIZ will ensure that the Contractor will continue to comply with the OHS Management Plan and Risk Assessment and the Contractor will ensure all the employees are trained on the OHS Management Plan and renew the training if necessary. Besides in this phase OHS Management Plan (including Emergency Plan) and Risk Assessment will be updated considering operation phase activities.

In addition, risks of Gender Based Violence (GBV) and sexual abuse, exploitation and harassment might arise. Training to labor force regarding these subjects will be provided. Also, training for employees regarding the Code of Conduct (see Annex 12) will be conducted. Within this regard, Gender Based Violence (GBV) and sexual abuse, exploitation and harassment risks during operation phase is assessed as direct and negative with long term duration, local and medium in significance. However, with the implementation of mitigation measures proposed in Section 7.1, these impacts/risks will be reduced to low in significance.

Table 5.18 Hazards and Risks at Construction Stage

Hazard	Risks
Working at height	Worker falls from height Item falls from height
Falling into the trench	Worker/ visitor/member of the public fall into the trench
Collapse	Openings, trench, tunnel, confined space collapses on worker during operations
Moving objects	Worker/visitor/member of the public struck by moving plant or equipment during operations (note: this includes 'missiles' released at speed from the plant or equipment)
Slips, trips and falls	Worker or visitor slips, trips or falls in the workplace
Noise	Worker exposed to short or long-term noise above legislated/ recommended levels during operations
Hand-arm vibration syndrome	Worker exposed to short or long-term vibration during operations
Material and manual handling	Worker lifts weight or undertakes manual activity that exceeds the limit of their biomechanical capacity
Traffic Accident	Traffic accident in and out of project site
Asbestos	Worker/member of the public exposed to unbonded asbestos whilst conducting operations
Airborne fibres & materials - respiratory diseases	Worker exposed to toxic and/or hazardous substances whilst conducting operations
Electricity	Worker contacts live electrical source during operations

Within this regard, workers' exposure to work-related occupational health and safety risks during construction phase is assessed as direct and negative with short term duration, local and high in significance. However, with the implementation of mitigation measures proposed in Section 7.1, these impacts/risks will be reduced to low in significance.

Operation Phase

The operation phase of the Project includes sludge handling, dewatering, storage and transferring, working in high or confined/closed places, and the use of heavy-duty vehicles, machines and equipment. As described in the WBG EHS Guidelines for Water and Sanitation, work at sanitation facilities is often physically demanding and may involve hazards such as open water, wastewater tanks, slippery walkways, working at heights and confined spaces, energized circuits and heavy equipment. Vehicular movements can cause accidents resulting in injuries and death. In addition, working at height can result in physical injury in case of a possible fall. Work at water and sanitation facilities may also involve entry into confined spaces which will expose workers to occupational safety risks and accidents. In the operation phase of the Project, some impacts may occur due to the use of the treatment chemicals and air emissions from WWTP. In addition, there may be impacts caused by maintenance and repair works. Moreover, Occupational Health and Safety (OHS) risk might arise due to risks of contamination, emission of dust and production of noise during the construction phase. In addition, risks of Gender Based Violence (GBV) and sexual abuse, exploitation and harassment might arise.

OHS risks and impacts will be managed and mitigated by updating existing OHS Management Plan and a renewed Risk Assessment (including Emergency Plans) that will be updated in accordance with risks, hazards and challenges of operation phase of the Project by the DOIZ before operation phase. DOIZ will ensure that the employees will comply with the Operation Phase OHS Management Plan and Operation Phase Risk Assessment and will ensure all the employees are trained on the OHS Management Plan and renew the training when necessary. All OHS related management plans/procedures/documents required to be prepared before operation phase are given in Table 5.19. In addition, a comprehensive list of anticipated OHS risks and hazards for the operation phase of the Project is given in Table 5.20.

Table 5.19. OHS Related Management Plans and Procedures Operation Phase

No	Plan/Procedure Name
1	Renewed OHS Risk Assessment
2	Updated OHS Management Plan
3	Updated Emergency Preparedness and Response Plan
4	Labor Management Plan
5	Code of Conduct
6	OHS Training Schedule (as a part of training programme)
7	<p>OHS Procedures:</p> <ul style="list-style-type: none"> • Confined Space Entry Procedure • Restricted Area Access Procedure • Fire Safety Procedure • Noise Control Procedure • Personal Protective Equipment Procedure • Emergency Evacuation Procedure • Chemical Handling and Storage Procedure • Sludge Handling • Transfer and Storage Procedure • Lockout/Tagout Procedure for Equipment Maintenance • Hazardous Material Spill Response Procedure • Emergency Shutdown Procedure • Electrical Safety Procedure • Biological Hazards Control Procedure • Respiratory Protection Procedure • Fall Protection Procedure for Elevated Platforms • Wastewater Sampling and Analysis Procedure

Table 5.20. Anticipated OHS Risk and Hazards for Operation Phase

Risk/Hazard	Elaboration
Chemical Exposure	Handling and storage of chemicals used in the treatment process. Exposure to hazardous gases and fumes. Inadequate personal protective equipment (PPE).
Biological Hazards	Contact with sewage and wastewater. Exposure to bacteria, viruses, and other pathogens. Inadequate hygiene practices.
Confined Spaces	Entry into tanks, pipes, or confined areas. Lack of proper ventilation. Presence of toxic gases.
Noise and Vibration	Operation of pumps, blowers, and other equipment. Long-term exposure to high noise levels.
Mechanical Hazards	Operation and maintenance of rotating equipment. Entanglement in moving parts.

	Inadequate machine guarding.
Slips, Trips, and Falls	Wet and slippery surfaces. Uneven walkways and platforms. Inadequate lighting.
Electrical Hazards	Use of electrical equipment in wet environments. Faulty wiring and connections. Lack of proper grounding.
Heat Stress and Thermal Exposure	Exposure to hot environments, especially during maintenance. Inadequate hydration measures. Lack of shaded rest areas.
Fire Hazards	Presence of flammable materials. Electrical fires due to faulty equipment. Inadequate fire suppression systems.
Pressure and Hydraulic Hazards	Operation of high-pressure systems. Risk of hydraulic system failures. Inadequate training on pressure-related safety.
Hazardous Waste Management	Handling and disposal of hazardous waste generated during treatment. Exposure to harmful substances during waste management. Compliance with waste disposal regulations.

Within this regard, workers' exposure to work-related occupational health and safety risks is assessed as direct and negative with long term duration, local and medium in significance. However, with the implementation of mitigation measures proposed in Section 7.1, these impacts/risks will be reduced to low in significance.

5.7.9 Traffic and Transportation

Pre-construction and Construction Phases

As a result of Project preconstruction and construction activities, the need to transport material and products will lead to increased traffic, mainly heavy vehicles on the existing road network. The critical section of the transportation route is Street 200 and Street 213 which are cadastral streets with an unstable width (7,5- 8 m) and unpaved. The hourly capacity of this road is about 1,000 passenger car equivalents (PCE or passenger car unit -PCU) for each lane. This value is equal to about hourly 300 trucks for each lane. As a result, there will be increase in traffic but the road has the necessary carrying capacity. The additional traffic can lead to delays in transportation times and increased congestion, particularly in critical locations that are already subject to intense traffic. The impact will be short-term duration and low in magnitude.

Some construction areas will be open to traffic, therefore the contractor will take necessary health and safety measures during construction activities under the direction of the DOIZ, such as training of workers, using appropriate warning signs and signage and speed limits.

Street 200 and Street 213 are cadastral streets with an unstable width, max width of the streets is 7,5- 8 m and without sidewalks for pedestrians. This creates risk for community (especially employees of firms near to project area as they are also using these streets). In order to minimise the impact of traffic activities, which are expected to intensify during the construction phase, working hours should be adjusted according to the peak hours of transport.

As mentioned in the community health and safety section there is no traffic light at D320 and Street 200 intersection (Figure 4.40), considering the traffic volume of the D320 and construction related traffic, it can be concluded that this intersection is risky for project and also for the community. DOIZ will inform KGM to take necessary measures (warning signs and signage, traffic light etc)

DOIZ will ensure that the contractor will prepare and implement a Traffic Management Plan that is in line with the WB ESS1 and WBG EHS Guidelines (both general and sector specific). The Traffic Management Plan will be prepared by the Constructor 30 days prior to the commencement of the works and the employees will be trained on the plan;

The Traffic Management Plan should include details about the following;

- o construction plan by phases,
 - o beginning and duration of work,
 - o overview of the existing conditions near the construction sites,
 - o identification of affected areas,
 - o identification of community health issues associated with project traffic impact,
 - o mitigation measures,
 - o traffic diversion plans, including zones of entry and exit, routes for towing of material, turnaround points, parking areas, zones of interlocking with other traffic roads etc.,
 - o routes/temporary passages for pedestrians and vehicles,
 - o traffic controls for each expected intervention, including illustrations of barriers, paths, signalization plan, warning signs etc.,
 - o requirements for special vehicles, for example, those of large dimensions,
 - o construction works paths (access, ramps, loading, unloading),
 - o connection roads for supply vehicles and storage of material,
 - o expected interaction of pedestrians and vehicles,
 - o roles and responsibilities of persons on construction site regarding traffic management
- and
- o instructions on the procedures regarding traffic control, including urgent situations.

Operation Phase

During the operation phase of the Project, the need for sludge and waste disposal will lead to increased traffic, particularly heavy-duty vehicles, on the existing road network. This heightened traffic may contribute to potential delays in transportation times and heightened congestion, particularly in critical areas already prone to intense traffic. To ensure the safe and secure handling of waste, all wastes generated during this phase will be meticulously managed and transferred by only licensed companies to disposal. DOIZ will continue to strictly adhere to speed limitations imposed on waste trucks on the Project area, to minimize any potential adverse impact on the local traffic conditions. Therefore, the effect of the Project on traffic and transportation during the operation phase is assessed to be long duration and low impact.

5.8 Potential Cumulative Impacts

Project-level environmental and social impacts of the Project have been assessed in the previous chapters of this ESIA Report. This Chapter aims to assess the potential cumulative impacts that may result from the incremental impacts from other past, existing or future (reasonably foreseeable) developments/activities implemented or planned in the region. Cumulative Impact Assessment Methodology and Data Sources are given in Annex 10.

The cumulative impact assessment is carried out step by step below in accordance with the methodology described above.

Step 1: Scoping Phase I – Valued Ecosystem Components (VECs), Spatial and Temporal Boundaries

For the initial determination of VECs, environmental and social issues within the scope of the impact assessment conducted for the Project Area in the previous sections of this ESIA report will be

taken into account. VECs to focus on in the Cumulative Impact Assessment (CIA) were selected as follows:

- Land use
 - Agricultural land
- Water resources
 - Creek
- Protected areas
 - Great Plain Protected Area
- Socio-economy
 - Pınarkent Neighbourhood
 - Existing roads

Regarding the temporal dimension of impacts, the assessment will cover, to the maximum extent possible, the impacts of present and reasonably foreseeable future developments that will correspond to the economic life of the Project.

Step 2: Scoping Phase II – Other Activities and Environmental Drivers

Within the scope of the Project, other present and future (reasonably foreseeable) activities/developments located in the CIA area within the scope of CIA studies at the first stage will affect the status of VECs selected desk-based assessment of databases. The list covering all secondary projects in CIA area is given in Table 5.21. According to desk research, there are no future projects that can be evaluated within the scope of the CIA, as there are no planned projects that have received project approval. The last column of the table describes the potential of other projects/activities/developments to influence selected VECs.

Table 5.21 Other Projects/Activities/Developments in Aol

Other Projects/Activities/ Developments	Location	Status	Potential for Affecting the Selected VECs	
			Yes	No
Industrial Facilities in DOIZ	Honaz District	At operation stage	✓	
Industrial Facilities Outside DOIZ	Pamukkale District	At operation stage	✓	

In the Cumulative Impact Assessment for the Project, only the projects/activities/developments that have the potential to affect selected VECs are marked as “Yes” in the last column of Table. CIA practices will be considered in accordance with the VEC-centered perspective. The planned WWTP area and discharge line will be named as source project within the scope of CIA. Map showing the source and secondary projects in the CIA area is given in Figure 5.7.

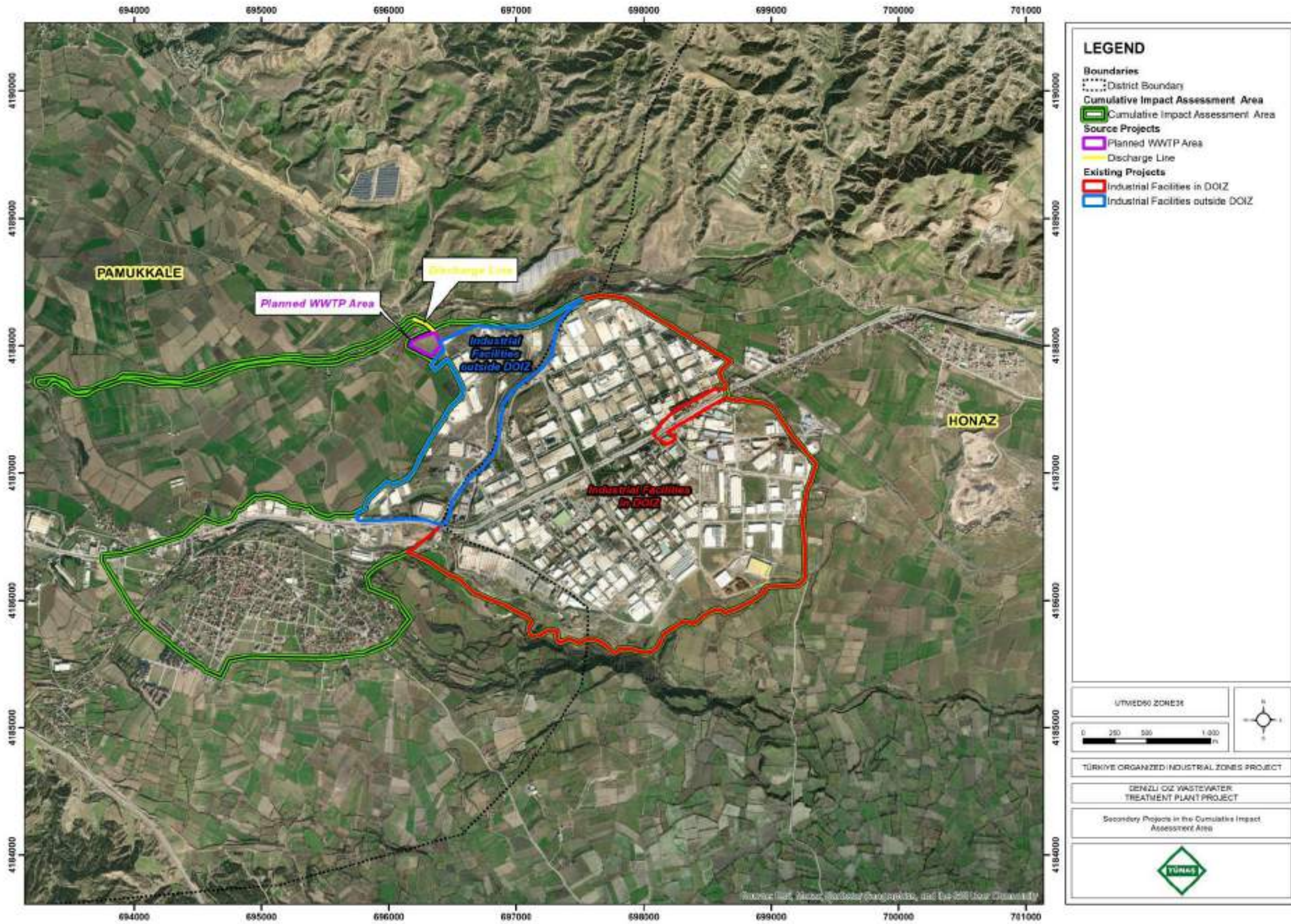


Figure 5.7 Secondary Projects in the Cumulative Impact Assessment Area

Step 3: Establish Information on Baseline Status of VECs

The baseline conditions for VECs to be evaluated in this study will be based on the information gathered for each environmental and social issue under the ESIA process. Relevant information on VECs is provided in the relevant sections of this ESIA Report.

Step 4: Assess Cumulative Impacts on VECs

The results of the evaluation of the cumulative impacts of the source Project on the selected VECs along with other projects/activities/developments identified in the region are summarized in Table 5.22. Evaluation is based on a qualitative approach. The interaction between the other projects and VECs covered in the Cumulative Impact Assessment is shown on the map in Figure 5.8.

Within the scope of the assessment, the cumulative impact potential on the VECs was evaluated by considering the **“Industrial Facilities in DOIZ and Industrial Facilities Outside DOIZ”** affecting the Project.

In this context, the potential for cumulative impacts on each VEC has been classified as none, low, moderate or high depending on the criteria described below.

- None; If the VEC will only be affected by the source Project;
- Low; If VEC will be affected by only 1 other project in addition to the source Project;
- Moderate; If VEC will be affected by 2 more projects in addition to the source Project;
- High; If the VEC will only be affected by 3 or more projects in addition to the source Project.

As can be seen from the assessment, there is two existing projects interacting with the source Project and there is a VEC that causes a “moderate” cumulative impact potential.

It should be noted that the assessment is limited to the level of technical knowledge currently available to practitioners of this Cumulative Impact Assessment. In addition, the assessment is based on currently known projects, so any changes to projects could change the impact status of VECs.

VECs that are cumulatively impacted are given in the table below and other VECs that are not affected are out of the scope and left out of the table.

Table 5.22 Interaction of Projects with Selected VECs

VECs		Source Project	Existing Projects		Cumulative Impact Potential
		<i>DOIZ WWTP & Discharge Line</i>	<i>Industrial Facilities in DOIZ</i>	<i>Industrial Facilities Outside DOIZ</i>	
Land Use					
WWTP area	Agricultural lands				Moderate
Discharge line					Moderate
Water Resources					
WWTP area	Çürüksu Creek				Moderate
Discharge line					Moderate

VECs		Source Project	Existing Projects		Cumulative Impact Potential
		<i>DOIZ WWTP & Discharge Line</i>	<i>Industrial Facilities in DOIZ</i>	<i>Industrial Facilities Outside DOIZ</i>	
Protected Areas					
WWTP area	Great Plain Protected Area				Low
Discharge line					Low
Socio-Economy					
WWTP area	Existing roads				Moderate
Discharge line					Moderate
WWTP area	Pinarkent Neighbourhood				Moderate
Discharge line					Moderate

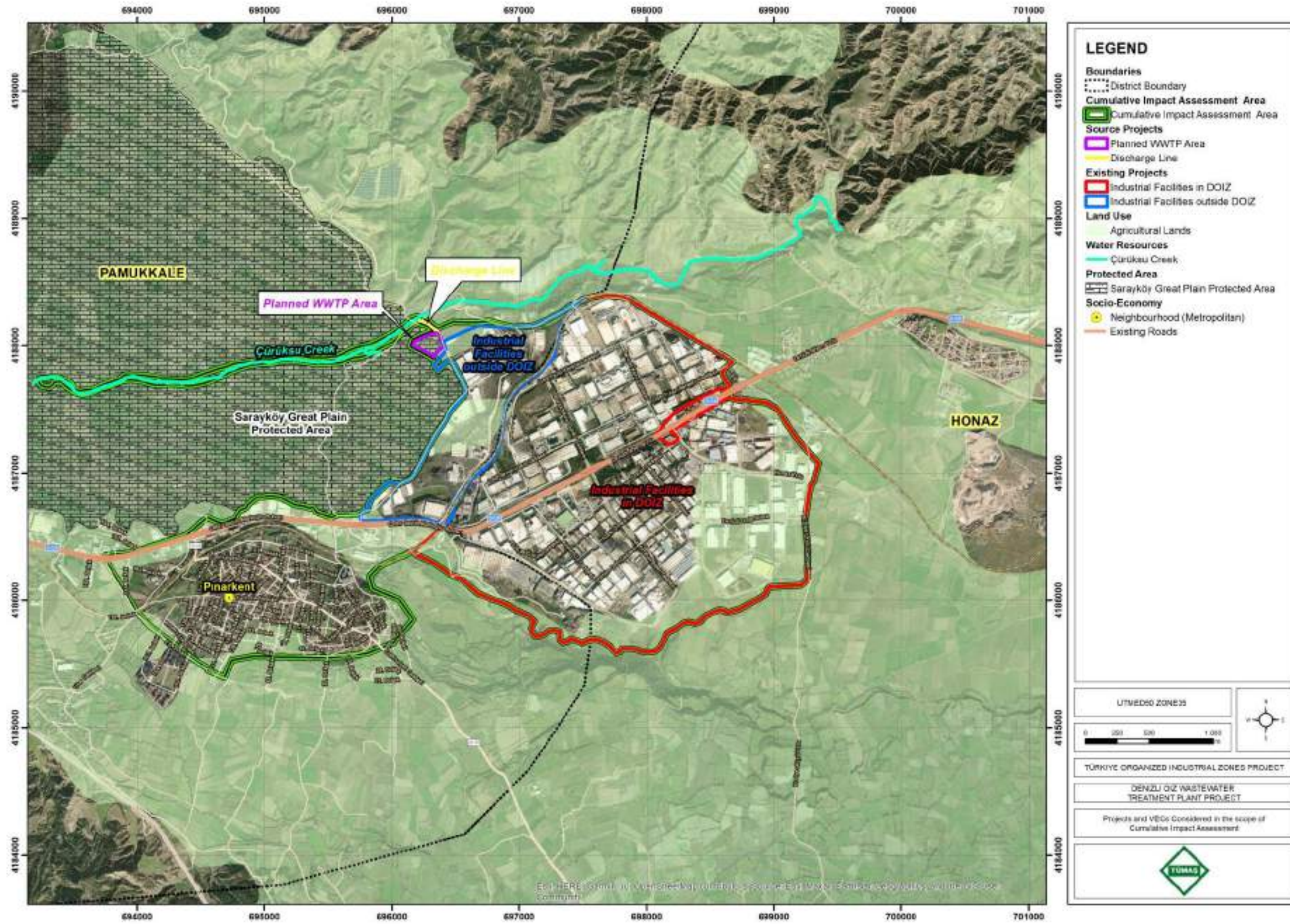


Figure 5.8 Projects and VECs Considered in the Scope of Cumulative Impact Assessment

Step 5 and Step 6: Assess Significance of Predicted Cumulative Impacts and Management of Cumulative Impacts – Design and Implementation

Table 5.23 lists VECs with low, moderate, or high cumulative impact potential (as assessed in Step 4). The significance of the cumulative impacts was then determined according to the criteria given section of assessment methodology.

Table 5.23 Significance of Potential Cumulative Impacts

VECs		Cumulative Impact Potential	Significance of Cumulative Impact
Land Use			
WWTP area	Agricultural lands	Moderate	Moderate
Discharge line		Moderate	Moderate
Water Resources			
WWTP area	Çürüksu Creek	Moderate	Moderate
Discharge line		Moderate	Moderate
Protected Areas			
WWTP area	Great Plain Protected Area	Low	Minor
Discharge line		Low	Minor
Socio-Economy			
WWTP area	Existing roads	Moderate	Moderate
Discharge line		Moderate	Moderate
WWTP area	Pınarkent Neighbourhood	Moderate	Moderate
Discharge line		Moderate	Moderate

Since cumulative impacts result from the actions of more than one stakeholder, responsibility for the management of these impacts encompasses all stakeholders. It is important that individual development requires individual actions to eliminate or minimize their contribution. The measures to be taken to minimize the impacts at the project level within the scope of the Project have been explained in the previous sections of this ESIA.

It is recommended that, the following specific actions that may be necessary to effectively manage cumulative impacts:

- Project mitigation to minimize cumulative impacts of the source Project, industrial facilities in DOIZ and industrial facilities outside DOIZ, including adaptive management approaches to project mitigation will be applied (see Section 7.1);
- Collaborative engagement in industrial facilities in and outside DOIZ cumulative impact management strategies will be ensured;
- Coordination between industrial facility operators and regional authorities with respect to managing issues affecting community in Pınarkent Neighbourhood due to construction of the Project and operation of industrial facilities in and outside DOIZ will be ensured. With this coordination, there will be communication between society and facilities based on a complaint mechanism.

- Management of risk of potential cumulative impacts associated with concurrent road use by industrial facilities in and outside DOIZ will be provided.
- Coordination between industrial facilities and regional authorities with respect to possible failure emergency plan will be ensured during construction of the Project and operation of industrial facilities.

The monitoring programs presented in this report to evaluate the effectiveness of mitigation measures will be implemented and, when necessary, the mitigation measures defined in section 7.1 will be updated.

6 ASSESSMENT OF PROJECT ALTERNATIVES

Current WWTP in the area with 42,000 m³/day is serving the industries within the DOIZ. Recently, with the expansion of DOIZ with the new incoming investments, industrialists' demands for additional parameters other than the specified parameters by lowering the discharge limits of the auditor institutions and a decrease in required parameters, current WWTP is working at full capacity and making it difficult to perform maintenance/replacement of the units.

6.1 No Project Alternative

Without the construction of a new wastewater treatment plant (WWTP), the current WWTP lacks the necessary hydraulic capacity to meet future demand. Additionally, there is a shortage of equipment and components that require replacement within the existing WWTP. The escalating issues with machinery also present a potential threat to the Çürüksu Creek, the receiving water body.

Furthermore, due to the insufficient capacity of the existing WWTP, DOIZ is unable to grant permission for additional investments aimed at increasing production capacity. This limitation has a detrimental impact on employment opportunities.

6.2 Maintenance, Improvement or Extension Investment

This project is an expansion project, where the planned WWTP will operate concurrently with the existing WWTP.

6.3 Process Evaluation and Comparison

The processes are evaluated for their advantages/disadvantages on the phosphorus and nitrogen removals can be seen in Table 6.1.

Table 6.1 Process Evaluation and Comparison

Process	Advantages	Disadvantages
A²O	<ul style="list-style-type: none"> Provides alkalinity for nitrification. Production of sludge with good settling properties. Operation is simple. Saves energy. Widely used. 	<ul style="list-style-type: none"> Reduced phosphorus removal efficiency. Nitrogen removal efficiency is limited depending on the internal recycling rate.
Extended Aeration ASP	<ul style="list-style-type: none"> Simplicity of operation and design. Provides better carbon removal. Ability to tolerate shock flow rate and toxic substance load. Provides stable and relatively low amounts of sludge production. 	<ul style="list-style-type: none"> Requires larger volume reactor. High ventilation costs. Suitable for low flow facilities. Lower phosphorus removal due to longer sludge age.
5-Stage Bardenpho	<ul style="list-style-type: none"> It provides very good nitrogen removal (3-5 mg/l output TN value). Production of sludge with good settling properties. 	<ul style="list-style-type: none"> Phosphorus removal is poor. Requires larger volume reactor. High energy cost.
UCT	<ul style="list-style-type: none"> Better phosphorus removal efficiency. Provides good phosphorus removal in wastewater with poor organic matter content. Production of sludge with good settling properties. Good nitrogen removal. 	<ul style="list-style-type: none"> Complex operation. Requires additional recirculation process.
Modified UCT	<ul style="list-style-type: none"> It gives better results than the UCT process in terms of phosphorus removal. 	<ul style="list-style-type: none"> Pretty complex operation. Requires additional anoxic tank compared to standard UCT process. Requires additional recirculation

		<ul style="list-style-type: none"> process. Requires larger anaerobic volume.
Johannesburg	<ul style="list-style-type: none"> Better phosphorus removal efficiency. Requires a lower volume than other processes. 	<ul style="list-style-type: none"> It requires an additional anoxic tank compared to the A2O process.
Modified Johannesburg	<ul style="list-style-type: none"> Phosphorus removal efficiency was improved. 	<ul style="list-style-type: none"> Requires additional recirculation compared to the Johannesburg process.
Sequencing Batch Reactor (SBR)	<ul style="list-style-type: none"> Opportunity for operational flexibility in nitrogen-phosphorus removal. No final sedimentation and recirculation required. It provides low output SS with a good sedimentation and discharge system. 	<ul style="list-style-type: none"> A very complex operation in terms of process control. Design complexity. Effluent quality requires a safe discharge system. Phosphorus removal is inconsistent. Suitable for low flow facilities.
Step Feed Reactor	<ul style="list-style-type: none"> Provides flexible operation. It provides an advantage in taking peak rainy weather flow rates into the facility (high flow rate is fed to the last anoxic tank). 	<ul style="list-style-type: none"> Highly complex operation (Flow adjustment/control operation, ventilation control system). Design work is complex. Requires more qualified operator.
Simultaneous Nitrification and Denitrification (SND)	<ul style="list-style-type: none"> Low oxygen demand (energy consumption) Does not require internal recirculation. Simple adaptation to existing installations. 	<ul style="list-style-type: none"> Requires more qualified operators in the operation.

Evaluation of comparison table above is briefly summarized below;

- Stable removal of sludge from the system is only possible with the extended aeration activated sludge process. However, the Extended ASP requires a larger aeration pool volume, and it is recommended for small capacity facilities.
- Considering that the Johannesburg (JHB) process is an improved modification of the UCT and MUCT processes and the above-mentioned advantages over these processes, the JHB process should be preferred instead of the UCT and MUCT processes if it is to be used.
- When looked at in terms of ease of operation and reliability of the processes, it can be seen that the A2O and long-aeration activated sludge process stands out in terms of design, ease of operation and process reliability.
- It is seen that the SBR system differs from other processes in terms of design and operating system and is a suitable alternative for relatively small facilities.

A matrix is constructed according to the parameters and their importance and processes are evaluated to obtain the best alternatives. This matrix is given below in Table 6.2.

Table 6.2. Decision Matrix

Parameters	Importance level	Extended Aeration ASP	A ² O	Step Feed Reactor	5-Stage Bardenpho	UCT	Modified UCT	Simultaneous nitrification and Denitrification	Johannesburg	Modified Johannesburg	Sequencing Batch Reactor (SBR)
Ensuring Discharge Standards	25	10	9	9	9	9	9.5	9	9	10	7
Operations and Maintenance Difficulty	20	7	8	6	7.5	7	6.5	8	7.5	7.5	6
Land Requirements	20	10	7	7	6.5	7	7.5	7	6.5	6.5	8
Operation and Maintenance Costs	15	7	9	8	7	7	6.5	8	8	7	8

Investment Costs	10	7	8	8.5	7.5	7	6.5	8	8	8	7.5
Resistance to Flow and Load Changes	5	10	7	6	7	7	7	7	7	7	9
Resistance to Toxic Substances	5	8	7	6	7	7	7	7	7	7	7
Total Weighted Score	100	8.55	8.1	7.5	7.1	7.5	7.5	7.95	7.75	7.85	7.3

As a result of the evaluation of the important parameters that should be taken into consideration in process selection and their effects on alternative processes, it is seen that the most advantageous processes for the project in question are the Extended ASP as the best alternative and the A²O Process as the second-best alternative.

6.4 Process Selection

In the wastewater treatment plant planned to be built as a result of negotiations with Denizli Organized Industrial Zone Directorate, units in the wastewater treatment plant are decided as given below;

As Physical Preliminary Treatment Units:

- Mechanical Coarse, and Fine Screens,
- Aerated Grit and Grease Removal Chamber,
- Primary Sedimentation Tank
- Sludge Dewatering Unit,

As Biological Treatment Units:

- Bio-P Unit,
- Aeration Unit,
- Sedimentation Tank,

As Chemical Treatment Units:

- Coagulation Tank,
- Flocculation Tank,
- Chemical Sedimentation Tank.
- Sludge Equilization Tank
- Disinfection Unit.

Sludge treatment units are planned to obtain sludge with at least 22% TS by using a centrifugal decanter for sludge dewatering.

As stated above in the Table 6.1 that provide combined nitrogen and phosphorus removal and in the evaluations regarding process selection principles, wastewater characterization along with treated water quality is the most decisive factor for process selection. In order to determine the wastewater characterization accepted for the design, the parameters in the regulations, wastewater characteristics in similar facilities and detailed wastewater analysis results conducted in the region were taken into consideration. Based on this, it was deemed appropriate to choose it in a way that provides biological nitrogen and phosphorus removal efficiency and can also obtain stabilized sludge. The final decision is made to go for Extended ASP process after evaluation of alternatives and considering the operation and units of the currently working WWTP in the DOIZ in order to enable employees to adapt more easily to the new treatment plant.

6.5 Location Alternative

DOIZ currently owns the project area and the project location is outside the OIZ area. Other organizations outside the OIZ will also join the OIZ. Regarding this, DOIZ has submitted an application

to expand its borders. The current location has been deemed suitable by DOIZ when evaluated in terms of meeting the need for capacity increase and gravity flow.

Gravity flow for wastewater refers to a method of transporting wastewater using the force of gravity rather than relying on pumps or other mechanical means. In gravity flow systems, wastewater flows downhill due to the natural pull of gravity, traveling through pipelines or channels to reach treatment facilities or disposal points. These systems can be more cost-effective and simpler to maintain compared to systems that require pumping stations or other mechanical components.

All wastewater will be collected and transported to the treatment plant via gravity flow, minimizing energy consumption. The planned WWTP will specialize in the removal of floatable materials, grit, grease, organic pollutants, and hazardous substances from the wastewater.

7 MITIGATION AND MONITORING PLANS

7.1 Mitigation Plans

This section presents cost effective and feasible measures to reduce adverse environmental and social impacts to acceptable levels. The mitigation measures are presented in Table 7.1, Table 7.2 and Table 7.3. During the implementation of the mitigation plan, Project Standards as described in Chapter 2.3 will be complied with.

These mitigation measures will be applied at the Area of Influence including the associated facilities. In case different parties, contractors are involved they will be informed on these requirements and be asked to comply the requirements of the ESIA, i.e. the ESIA and the requirements will be included in the bidding documents for the Project components and associated facilities.

Table 7.1 Mitigations for the Pre-construction Phase

Issue	Potential Impact	Impact Significance Before Mitigation	Mitigation Measure	Impact Significance After Mitigation	Cost of Mitigation (if substantial)	Responsible Party/Parties
Physical Environment						
Air Quality:and Odor Dust Emissions	Reducing air quality surrounding the Project Area, Temporarily reduced line of sight on nearby roads and highways, Possible health hazards due to extended exposure to high dust emissions in the Project Area. Possibility of erosion with strong winds.	Low	<ul style="list-style-type: none"> DOIZ will ensure that the contractor will prepare and implement an Air Quality and Emissions Management Plan that is in line with the WB ESSs and WBG EHS Guidelines (both general and sector specific). The Air Quality and Emissions Management Plan will be prepared by the Contractor 30 days prior to commencement of the works to ensure and the employees will be trained on the Air Quality and Emissions Management Plan; Dust will be minimized from open area sources, including storage piles, by using control measures such as installing enclosures and covers and increasing the moisture content; Speed limitations will be defined and obeyed for construction vehicles; The drop height of potentially dust generating materials will be kept as low as possible; Dust suppression methods will be applied at construction sites to mitigate Project-related dust emissions. In this respect, the upper layers of the work sites/materials will be kept at a humidity level of about 10%. Watering will be applied at any time necessary including night time, weekends or off-days by using pressurized distribution or spraying systems that would ensure even distribution of water; If there is traffic flow on the existing roads near the work sites, dust suppression measures will be continuously applied to ensure traffic safety. If there is no traffic existing in the local roads, dust suppression measures will be applied only at local residential areas; All vehicles to be used in transportation activities will obey the speed limits set out in the Regulation on Highway Traffic. Vehicle speeds are proposed to be limited to 30 km/h on unpaved surfaces; Loading and unloading operations will be performed without throwing/scattering; Wind shields/barriers will be placed at work sites such as material storage areas to prevent dust dispersion where necessary; Solid screens or barriers that are at least as high as any stockpiles on site will be erected at the boundaries of the construction site adjacent to the crops and/or field; Special attention will be paid to the grievances of adjacent field and/or garden owners and relevant measures will be taken immediately; Any damage caused by insufficient or lack of dust suppression (transportation of dust to a residential area, wind borne dust deposits etc.) measures will be compensated by the contractor. The asphalt roads will be used as much as possible, Compliance with the air emission limit values stipulated in national legislation and WBG General EHS Guidelines will be ensured. Dust measurements will be conducted if any grievance regarding dust generation is received and mitigation measures will be enhanced in this respect such as increasing wet suppression/watering activities, further reducing speed/traffic if deemed necessary, considering both national and WBG EHS Guidelines limit values. 	Low	Included in construction cost	Contractor DOIZ Construction Supervision Consultant
Air Quality:and Odor: Exhaust Emissions	Reducing air quality surrounding the Project Area, Possible health hazards due to extended exposure to high emissions in the Project Area. Increase in CO, SOx, PM, TOC and NOx emissions.	Low	<ul style="list-style-type: none"> Well and adequately maintained vehicles will be used. Regular maintenance of machinery and equipment will be ensured; All vehicles to be used in transportation activities will be issued an emission control stamp; Construction vehicles will not be permitted to keep engines running while waiting to enter the site or waiting on-site; Relevant provisions of the Regulation on Air Pollution Control Sourced from Industry, the Regulation on Exhaust Gas Emission Control and Regulation on the Assessment and Management of Air Quality will be complied with to minimize air emissions sourced from construction machinery and trucks; Optimal utilization of the available construction equipment and materials in such a way that reduces greenhouse gas emissions; Speed restrictions will be adopted by construction vehicles and optimal use of equipment to optimize fuel efficiency; Regular maintenance of construction vehicles and equipment will be applied; Energy uses associated with construction vehicles and equipment will be monitored; Training will be performed for project personnel regarding energy efficiency. 	Low	Included in construction cost	Contractor DOIZ Construction Supervision Consultant
Soil and Contaminated Land: Preserving Topsoil	Loss of topsoil, Possibility of increased risk of erosion	Medium	<ul style="list-style-type: none"> DOIZ will ensure that the contractor will prepare and implement a Soil Management Plan that is in line with the WB ESSs and WBG General EHS Guidelines (both general and sector specific). The Soil Management Plan will be prepared by the Contractor 30 days prior to commencement of the works and the employees will be trained on the Soil Management Plan; Topsoil will be stripped to a sufficient depth (minimum 20 cm) prior to the start of the land preparing activities. To avoid soil compaction, stripping operation will not be done when soil is wet. The average height of top soil stacks will be 1.5 meters. The side slope of these stacks will not exceed 3:1 (h:v); Stripping of topsoil will not be conducted earlier than required to prevent the erosion of soil (wind and water); At the end of the land preparing phase, the stored topsoil will be used for landscaping; 	Low	Included in construction cost	Contractor DOIZ Construction Supervision Consultant

			<ul style="list-style-type: none"> No materials will be left or stored in the surrounding areas of the project area as stated in the Soil Protection Project. No soil will be taken without permission from the land outside the designated Project area, and activities that will deteriorate the natural structure of the land will be avoided. Excavated topsoil will later be used in Protection Band (Protection Band is explained in the construction phase) and landscaping. The stripped topsoil will not be used for agribusiness. 			
Soil and Contaminated Land: Erosion Potential	Possibility of increased risk of erosion, Possibility of increased dust emissions caused by wind erosion.	Low	<ul style="list-style-type: none"> The Contractor will take additional mitigation measures, such as soil sampling, in case of a requirement revealed and or potential for existence contamination by the monitoring and/or any complaint. By establishing a suitable drainage system in the field, the potential impact of surface runoff will be minimized. In this context, drainage channels will be constructed in accordance with the topographical conditions of the site; Pre-construction activities will be undertaken in the dry weather condition as much as possible to avoid surface runoff effects on stripped topsoil; Stripping of topsoil will not be conducted earlier than required to prevent the erosion of soil (wind and water); Circulation of heavy machinery to In the Project Area will be limited; The disturbed areas and soil stock piles will be kept moist to avoid wind erosion of soil and the pile height will not be higher than 2 m; Topography will be restored to provide stabilization immediately after the completion of construction at each location. 	Low	Included in construction cost	Contractor DOIZ Construction Supervision Consultant
Soil and Contaminated Land: Soil Contamination	Contamination of soil, Possibility of contamination of underground waters close to the surface, Scatter/dispersion of contaminated soil due to improper handling, transferring and disposal of the contaminated soil, Improper reuse of contaminated soil as landscaping,	Medium	<ul style="list-style-type: none"> In order to minimize the impacts on soil environment, the amount of soil that could be subject to compaction and contamination/pollution will be minimized by ensuring the use of only the designated work sites and routes for the construction machinery and equipment and field personnel; The fuel required for the construction equipment and vehicles to be used within the site during pre-construction phase will be supplied primarily from the nearest station; if deemed necessary, fuels that may possibly be stored at site will be stored in the areas where necessary impermeability precautions (including secondary containment) are taken; Machinery and equipment will be checked regularly for leaking oil and fuel; The provisions of the Regulation on the Control of Excavation Soil, Construction and Demolition Wastes shall be complied with during pre-construction phase of the Project; In case of accidental oil or fuel leakage/spill from machinery and equipment, the spread of leakage and spillage will be prevented with absorbent materials and spill kits. Provisions of the Regulation on the Control of Soil Pollution and Sites Contaminated by Point Sources shall be complied with within the scope of the Project; Wastes and wastewater to be generated during the pre-construction phase of the Project will be stored and disposed in a controlled manner in accordance with the Waste Management Regulation and Regulation on the Control of Excavation, Construction and Demolition Wastes, WB ESSs, WBG General EHS Guidelines and in line with the management practices described in this report; According to requirements specified in the Regulation on the Control Soil Pollution and Sites Contaminated by the Point Source, in terms of a possible soil contamination in the area, DOIZ is obliged to notify the MoEUCC on possible soil pollution in the Project Area according to the procedure defined in the regulation. Based on the inspections that will be carried out by the MoEUCC, if the site will be defined as a contaminated site that needs to be cleaned up, the site will be cleaned up by firms authorized by the MoEUCC and DOIZ will be the responsible entity to ensure clean up. Within the scope of cleanup activities, the following measures will be taken for the contaminated areas during the pre-construction phase: <ul style="list-style-type: none"> Vehicles containing any stripped soil will be suitably covered to limit potential dust emissions and truck bodies and tailgates will be sealed to prevent any discharge during transport; Only licensed waste haulers will be used to collect and transport contaminated soil to an appropriate treatment/disposal site and illegal disposal of the soil will be prohibited; Speed control for the trucks carrying contaminated soil will be enforced; The use of contaminated soil for landscaping will be prohibited. 	Low	Included in construction cost	Contractor DOIZ Construction Supervision Consultant
Water Resources and Use: Quality Change in Water Bodies	Possibility of leakage of generated municipal wastewater that may cause to degradation in surface water and groundwater qualities, Increased possibility of surface runoff occurrence, Deterioration of quality in nearby water bodies due to wastes carried by surface runoff, erosion, waste dispersion or improper waste storage, handling and transfer.	Low	<ul style="list-style-type: none"> DOIZ will ensure that the contractor will prepare and implement a Water Resources Management Plan that is in line with the WB ESSs and WBG EHS Guidelines (both general and sector specific). The Water Resources Management Plan will be prepared by the Contractor 30 days prior to commencement of the works and employees will be trained in the Water Resource Management Plan; DOIZ will ensure that the contractor will prepare and implement a Pollution Prevention Plan that is in line with the WB ESSs and WBG EHS Guidelines (both general and sector specific). The Pollution Prevention Plan will be prepared by the Contractor 30 days prior to commencement of the works and employees will be trained in the Pollution Prevention Plan; Surface runoff resulted from rain/storm water or wastewater generation due to dust suppression activities will be prevented; The water to be used for dust suppression will be monitored and recorded in m³; Stripping of topsoil will not be conducted earlier than required to prevent the erosion of soil (wind and water); Discharge of wastewater, residues or other waste into groundwater or into surface water will be avoided. Portable toilets will be supplied for the workers at the construction sites. The 	Low	Included in construction cost	Contractor DOIZ Construction Supervision Consultant

			<p>limited amount of domestic wastewater generated at the construction site will be collected into the impervious septic tanks and then discharged into the nearest WWTP (DOIZ existing WWTP) by licensed sewer trucks;</p> <ul style="list-style-type: none"> Pre-construction activities may pose the potential for accidental release/leakages of petroleum-based products, such as lubricants, hydraulic fluids, or fuels during their storage, transfer, or use in equipment. All chemical storage containers, including diesel fuel and hazardous liquid waste drums/containers will be placed in secondary containment in temporary storage area so as to minimize the risk of soil, surface water and groundwater contamination during the pre-construction; For a case of possible breakdown and natural disaster situation, DOIZ will ensure that that contractor will prepare, implement and monitor an Emergency Preparedness and Response Plan and the employees will be trained on the plan. 			
Noise and Vibration: Noise Management	<p>Possible health hazards due to extended exposure to high noise in/around the Project Area.</p> <p>Over exposure to increased noise levels may disturb routine life of human and animal populations nearby.</p>	Low	<ul style="list-style-type: none"> DOIZ will ensure that the contractor will prepare and implement a Noise and Vibration Management Plan that is in line with the WB ESSs and WBG EHS Guidelines (both general and sector specific) prior to the pre-construction works and the employees will be trained on the Plan. The machinery and equipment to be used during the pre-construction phase will not be operated at the same point/location but homogeneously distributed in the site if possible; During vehicle and equipment procuring/leasing process for the Project, item with lower noise levels than equivalent ones will be preferred, if feasible; The maintenance of the construction machinery and equipment will be carried out regularly and periodically. Daily maintenance will be carried out in each shift; and the working time of each vehicle will be registered by the operator in order to follow the total working hours for periodic maintenance. Periodic maintenance will be conducted at every 50, 250, 500, 1000, 2000 working hours. Maintenance forms will be filled out regularly; All vehicles to be used in transportation activities will obey the speed limits set out in the Regulation on Highway Traffic; Noise measurements will be conducted by an authorized environmental laboratory in case of any grievance and mitigation measures will be enhanced in this respect such as use of noise barriers; Pre-construction works will be performed between 07:00 – 19:00 hours. Unless absolutely necessary, no construction activities will be done at night. In case night operations are deemed necessary and the noise levels would be high, the public will be informed 1 week in advance about the time of construction activities; All pre-construction activities will be carried out in compliance with the noise limits set out in the Regulation on Environmental Noise Control (RENC) and WBG EHS Guidelines and the contractor will take additional mitigation measures in case of a requirement revealed by the monitoring; The existing grievance mechanism will also be used to effectively manage noise related complaints 	Low	Included in construction cost	Contractor DOIZ Construction Supervision Consultant
Resources and Waste Resource Management	Resources used/consumed during works	Low	<ul style="list-style-type: none"> DOIZ will supervise the construction contractor via supervision consultant to select the most appropriate raw materials and resources by evaluating clean production options. 	Negligible	Included in construction cost	Contractor DOIZ Construction Supervision Consultant
Resources and Waste Waste Generation	<p>Inefficient management of resources and increased amount of waste due to not separating waste and/or storing, handling or transferring wastes improperly.</p> <p>Possibility of increased public health hazard risks, deterioration of surface water, underground water and air quality, and/or soil contamination due to improper storage, handling and transfer of hazardous wastes,</p> <p>Possibility of air and/or soil pollution risk due to unauthorized burial and burning of waste on the site.</p>	Low	<ul style="list-style-type: none"> DOIZ will ensure that the contractor will prepare and implement a Waste Management Plan that is in line with the WB ESSs and WBG EHS Guidelines (both general and sector specific). The Waste Management Plan will be prepared by the Contractor 30 days prior to the commencement of the works and the employees will be trained on the plan; Waste to be generated within the scope of the Project will be managed in accordance with the waste management hierarchy; Waste will be separated (i.e., hazardous / non-hazardous, recyclable / non-recyclable) and stored in designated temporary storage areas; All kinds of implementations that may threaten personnel or public health will be avoided in all activities involving collection, temporary storage, transport and disposal of waste throughout the Project; Waste recycling, transport and disposal will be carried out by means of licensed companies and/or relevant municipality's vehicles; Incineration or burying of waste by any means at site and/or dumping of waste to nearby roads or water resources will not be allowed; Waste to be temporarily stored on site will be delivered to licensed transport vehicles appropriate to the type of waste for disposal. Information related to the operations in this context will be recorded and the records will be kept in the administrative building; Waste oils originating from machinery and vehicles will be stored in impervious tanks and containers that would be situated on impervious foundation in accordance with the "Regulation on Control of Waste Oils". Tanks and containers will be equipped with apparatus that would prevent over filling and will be filled till the designated level mark. Tanks and containers will have a red color and will be labeled as "waste oil". Disposal of waste oils will be controlled by the DOIZ; Waste batteries from construction site and accumulators from vehicles will be disposed of in compliance with the consumer responsibilities specified in Article 13 of the "Regulation on Control of Waste Batteries and Accumulators". Accordingly, used batteries will be collected separately (from municipal wastes) and transferred to the TAP battery collection center; 	Low	Included in construction cost	Contractor DOIZ Construction Supervision Consultant

			<ul style="list-style-type: none"> All other hazardous materials will be disposed of in accordance with the Waste Management Regulation; Hazardous waste to be temporarily stored on site will be delivered to licensed transport vehicles appropriate to the type of waste for disposal. Information related to the operations in this context will be recorded and the records will be kept in the administrative building; Hazardous or non-hazardous inscription, waste code, stored waste amount and storage date will be indicated/labelled on waste temporarily stored by classifying according to their properties. The reaction of waste with each other will be prevented by the measures taken in the Temporary Storage Area, which will have impermeable ground, proper drainage for accidental leaks/spills, top cover and designated rooms for different types of waste, etc. The permit for the temporary Waste Storage Area will be taken from the Provincial Directorate of Environment, Urbanization and Climate Change. Spill kits will be available at the Temporary Storage Area and necessary precautions will be taken against possible fires such as provision of appropriate firefighting equipment. 			
Landscape and Visual (Aesthetics) Aesthetic Concerns	Creation of visual pollution.	Low	<ul style="list-style-type: none"> The planned WWTP will be painted to colors suits to the background. 	Low	Included in construction cost	Contractor DOIZ Construction Supervision Consultant
Biological Environment						
Terrestrial Habitats and Flora Species	Damage or loss of habitat and flora species	Low	<ul style="list-style-type: none"> The working area will be clearly defined before vegetation clearance, where construction activities will occur. Access roads and associated facilities working areas will be clearly defined before the onset of construction activities so as not to harm flora elements outside the construction sites. Project construction sites and access roads will be separated from other areas with appropriate signboards, signs, and fences. A protection band in the form of trees will be established within the scope of the Soil Protection Project. Tall plants suitable to local vegetation that will serve as a windscreen will be planted on the protection band. 	Low	Included in construction cost	Contractor DOIZ Construction Supervision Consultant
Terrestrial Fauna Species	Disturbing/harming populations	Low	<ul style="list-style-type: none"> Topsoil stripping works will occur gradually, especially during breeding (April-May-June), so fauna elements can leave construction sites. Before land preparation works, fauna observations will be made in the area, species will be expected to escape, and species that cannot escape will be translocated to similar habitats around the Project Area. 	Negligible	Included in construction cost	Contractor DOIZ Construction Supervision Consultant
Aquatic Biodiversity	Damage or loss of habitat	Low	<ul style="list-style-type: none"> The riparian vegetation outside the project area will not be damaged. 	Negligible	Included in construction cost	Contractor DOIZ/PIU Supervision Consultant
Socio-economic Environment						
Community Health and Safety: Preserving Existing Infrastructure	Possibility of damaging (accidentally or not) infrastructure (e.g. structures, land, crops and other assets) during pre-construction.	Low	<ul style="list-style-type: none"> The construction works and waste disposal during the pre-construction phase of the Project will be performed by contractors. Therefore, any damage to infrastructure will be repaired (with supervision of DOIZ) or compensated by contractors promptly in accordance with the responsible authority, such as KGM. DOIZ will closely monitor such issues with the establishment of Public Grievance Mechanism. 	Negligible	Included in construction cost	Contractor DOIZ Construction Supervision Consultant
Community Health and Safety: Trespassing, Encroachment and General Construction Related Issues	<p>Health hazards that may occur due to accidents caused by unauthorized entry at the construction site, electric shock, falling objects from a height, cuts from sharp objects etc.)</p> <p>Material, commodity and/or equipment theft,</p> <p>Unauthorized using of equipment,</p> <p>Unauthorized waste (recyclable material) collecting/stealing.</p> <p>Health hazards that may arise from possible unauthorized access to hazardous waste.</p>	Low	<ul style="list-style-type: none"> A Community Health, Safety and Security Management Plan that is in line with the WB ESSs and WBG EHS Guidelines (both general and sector specific) will be developed by contractor or security services provider before the pre-construction phase. DOIZ and Contractor will ensure that the plan is actively implemented, and the employees will be trained on the plan; To prevent physical hazards, fencing and striping around construction sites will be implemented, clear demarcation for restricted areas will be established, and unauthorized access will be minimized by employing security services; In an event of unauthorized presence at construction sites, a clear and informative warning will be issued to apprise the individual of potential hazards, security protocols, and construction activity risks. Strategically positioned signage across the construction site will be deployed, prominently displaying safety protocols, emergency contact information, and potential risks. Persons and/or organizations with the necessary permits will be assigned to ensure the security of the Project Area (e.g., private security companies/officials). These people and/or organizations shall regularly monitor the facility and its surroundings. The special security applications and officials' authorities within the scope of the Project shall comply with the provisions of the Regulation on the Implementation of the Law on Private Security Services and the Law on Private Security Services. DOIZ will ensure that the contractor is in line with the WB ESSs Guideline which is related to security forces.; In addition to safety personnel, 	Negligible	Included in construction cost	Contractor DOIZ Construction Supervision Consultant

			<p>monitoring of the Project site for security purposes will be provided by a closed-circuit camera system which will be installed at appropriate distances on the site boundary (e.g. 30-40 meters) to provide daytime and night-time monitoring of the whole area.</p> <ul style="list-style-type: none"> • Entry of staff and third parties into the working site will be carried out in a controlled manner from the doors at which authorized security personnel will work, and • No unauthorized garbage collectors will be let into the construction site. All types of waste shall be transferred to a licensed disposal facility via licensed waste transportation companies following the relevant legislation on waste. • A public grievance mechanism will be established. 			
<p>Community Health and Safety:</p> <p>Gender Based Violence (GBV), Sexual Exploitation Abuse / Sexual Harassment (SEA/SH)</p>	<p>Possibility of gender based violence occurrence,</p> <p>Possibility of sexual exploitation abuse and/or sexual harassment occurrence.</p>	Medium	<ul style="list-style-type: none"> • Contractor Code of Conduct developed, incorporated into workers' contracts, and training and socialization on it provided to all contractor, supervision consultant and DOIZ workers/personnel, and GM, GBV, SEA/SH trainings will be given to all mentioned personnel before commencement of pre-construction works. • To properly address SEA/SH risks, the GM will be in place prior to contractors mobilizing. To enable complainants of GBV, SH/SEA violations to safely access the GM, multiple channels through which complaints will be registered in a safe and confidential manner will be enabled. The GM operators and CLO will be trained on how to collect SEA/SH cases confidentially and empathetically (with no judgement). • The content and procedures of the Project's GM for public and workers will have a reporting line on such cases in regard to SEA/SH issues and will be handled under full confidentiality. The GRM focal point receiving the SEA/SH related grievance should direct this to national referral systems immediately and record that this has been directed. All details of the complainant of the sensitive case will be kept strictly confidential. • Mandatory and regular training for workers on required lawful conduct in local community and legal consequences for failure to comply with laws. • Commitment / policy to cooperate with law enforcement agencies investigating perpetrators of gender-based violence. • Creation of partnership with local civil society organization to report workers' misconduct and complaints/reports on gender-based violence or harassment through the GM. • Provision of opportunities for workers to regularly return to their families. • Provision of opportunities for workers to take advantage of entertainment opportunities away from rural local communities. 	Low	Included in construction cost	<p>Contractor</p> <p>DOIZ</p> <p>Construction Supervision Consultant</p>
<p>Working Conditions and Labor Management:</p> <p>Monitoring Working Conditions and Protecting the Workforce</p>	<p>Possibility of unfair and/or illegal treatment of workers,</p> <p>Possibility of preventing workers from accessing job training, grievance mechanisms and/or union organizations.</p> <p>Possibility of labor influx.</p>	Low	<ul style="list-style-type: none"> • Construction contractors of the Project will give induction training to employees immediately after their recruitment covering the subjects; fair treatment; non-discrimination and equal opportunities of workers; establishing, maintaining and improving a sound worker-management relationship; compliance with national labour and employment laws and LMP; code of conduct; protecting and promoting the safety and health of workers, especially by promoting safe and healthy working conditions; preventing the use of forced labour and child labour (as defined by the WB and Turkish legislation); HSE and WB requirements etc. and Grievance Mechanism (GM) for workers. • Contractors will prepare own Labour Management Plan (LM Plan) based on the Labour Management Procedures of the Project. • A Human Resources Policy that complies with the European Convention on Human Rights and the Turkish Constitution and will ensure workers' access to the right to collective bargaining, as stipulated by Law No. 6356 on Trade Unions and 4857 Labor Law on Collective Bargaining will be established by the Contractor under supervision of DOIZ. Discrimination in labor relations, based on language, race, sex, political opinion, philosophical belief, and religion, will be systematically eliminated, • Locally recruiting of personnel will be prioritized whenever possible and feasible to prevent labor influx and to create job opportunities for the local people; • Workers will be provided with documented information that is clear and understandable, regarding their rights under national labor law; including collective agreements, their rights related to hours of work, wages, overtime, compensation and benefits as of startup of working relationship and when any material changes occur; • Workers will be issued written contracts detailing job description, working hours, wages, rights and duties, code of conduct etc.; • Workers will not be discouraged from electing worker representatives, forming or joining workers' organizations of their choosing, or from bargaining collectively and will not discriminate or retaliate against workers who participate, or seek to participate, in such organizations and collective bargaining; • Particular attention will be paid to principles of non-discrimination and equal opportunity. In this respect, employment decisions (i.e., recruitment and hiring, compensation, wages and benefits, working conditions and terms of employment, access to training, job assignment, promotion, termination of employment or retirement and disciplinary practices) will not be made on the basis of personal characteristics unrelated to job requirements. Wages, work hours and other benefits will be per the Turkish Labor Law; • A grievance mechanism as defined in Section 8.2 and the Project specific LMP will be implemented to raise workplace concerns. The workers will be informed about the worker grievance mechanism at the time of recruitment and make it easily accessible to them. • If an employee faces Sexual Exploitation and Abuse/Sexual Harassment (SEA/SH) issue s/he can either apply to a higher level superior or directly go to police station, as stipulated in the national referral system of the country for dealing such cases. The content and procedures of the Project's GRM will also have a reporting line on such cases in regard to SEA/SH issues and will be handled under full confidentiality. The GRM focal point receiving 	Low	Included in construction cost	<p>Contractor</p> <p>DOIZ</p> <p>Construction Supervision Consultant</p>

			<p>the SEA/SH related grievance should direct this to national referral systems immediately and record that this has been directed. All details of the complainant of the sensitive case will be kept strictly confidential.</p> <ul style="list-style-type: none"> Contractors will be required to have age verification system, ensuring no one below 18 years is involved in project activities. 			
<p>Working Conditions and Labor Management: Workers Engaged by Third Parties and the Supply Chain</p>	<p>Possibility of unfair and/or illegal treatment of third party workers.</p>	<p>Low</p>	<ul style="list-style-type: none"> DOIZ will prepare a Contractor Management Plan before involvement of contractors and ensure its implementation; Subcontractors will be reputable and legitimate enterprises and have an appropriate ESMS that will allow them to operate in a manner consistent with the labor conditions requirements; DOIZ will monitor its primary supply chain for safety issues related to supply chain workers and where necessary, DOIZ will introduce procedures and mitigation measures to ensure that suppliers are taking steps to prevent or to correct life-threatening situations; The performance of subcontractors will be monitored such that human rights policy and labor rights of all workers are exercised properly and non-compliance measures will be included in their contracts; The workers of subcontractors will have access to the overall grievance mechanism to be established for the Project. 	<p>Low</p>	<p>Included in construction cost</p>	<p>Contractor DOIZ Construction Supervision Consultant</p>
<p>Occupational Health and Safety</p>	<p>Possibility of workers being denied of their OHS rights, and/or access to OHS training, Possibility of not providing necessary PPE to workers or asking fees for (initial or replaced or renewed) PPEs, Possibility of neglecting the workplace health and safety issues of the workers.</p>	<p>High</p>	<ul style="list-style-type: none"> Project and site-specific OHS Management Plan based on construction site OHS risk assessment, national legislation that will also cover measures to address any pandemic/communicable disease risk, which will be in line with the WBG EHS Guidelines (both general and sector specific), will be prepared 30 days prior to the pre-construction by the Contractor and the employees will be trained on the Plan; DOIZ will ensure that the contractor will prepare and implement an Emergency Preparedness and Response Plan based on construction site OHS risk assessment and covering also the issues about the contagious diseases. Before the pre-construction works start, a Risk Assessment study will be implemented for all works to be carried out. Relevant procedures and plans (including "Emergency Plans") will be put in place. Both the Risk assessment and Emergency Response Plans will take into consideration any communicable disease risks, as relevant; Guidance, directives and recommendations of Ministry of Health, Ministry of Family, Labor and Social Services, WHO and the WB shall be followed and all relevant necessary measures shall be taken, both for OHS of employees and for workplaces, in case of an outbreak of any other pandemic/communicable disease, OHS training and toolbox talks will be provided to the employees including the code of conduct indicating the possible risks regarding the work site and works to be carried out. Both trainings and incidents (fatalities, lost time incidents, any significant events including spills, fire, outbreak of pandemic or communicable diseases, social unrest, etc.) will be recorded and evaluation activities will be carried out after the trainings; Appropriate signposting of the sites will be provided and then workers will be informed of key rules and regulations to follow The Contractor will either assign full-time personnel or DOIZ will assign one if possible with relevant certification and experience in charge of OHS and s/he shall monitor the site implementations; In order to minimize the risks and hazards that may arise (e.g., natural disasters, accidents, equipment malfunctions etc.) on human health and safety, safe working environments in the working sites will be established and physical hazards and risks will be prevented; The relevant plans and procedures required by Turkish legislation will be prepared and the Contractor will comply with these OHS measures and practices; Employees will be informed about the hazards that may be caused by their work and thus a safer work environment will be created; The Contractor will ensure a safe working environment for the workers and supply appropriate personal protective equipment (PPE) in line with international best practice and Turkish Legislation including the health and safety measures provided by the Ministry of Health and Ministry of Family, Labor and Social Services (always hardhats, as needed masks and safety glasses, harnesses and safety boots, etc.); The Contractor formally agrees that all work will be carried out in a safe and disciplined manner and is designed to minimize risks on neighboring residents and environment; Work areas will be equipped with warning signs in accordance with the quality and potential risks of the work to be performed in that area; Smoking in areas where there is a risk of fire will be prohibited. All employees will have knowledge of what to do in the event of a fire; Project staff will include first aid trained personnel. In case of emergency where an intervention is required, personnel will be sent to the nearest health center by appropriate means; The Contractor will apply the sufficiency of the technical requirement of the machinery, equipment and tools to be used in the activities; Moving parts of machinery and equipment will be equipped with appropriate protective systems (e.g., metal shields etc.), minimizing the risk of injury or damage to the person using the machine or equipment; Personal factors that may create and control risks during activities (e.g. long hair, jewelry and accessory use, clothing etc.) will be removed from the site by the rules brought by the construction site management. Project staff will be informed about the relevant regulations within the scope of the training program; 	<p>Low</p>	<p>Included in construction cost</p>	<p>Contractor DOIZ Construction Supervision Consultant</p>

			<ul style="list-style-type: none"> • Drivers and operators will be trained to comply with traffic rules and to control the vehicles and equipment they use against risks and hazards originating from vehicle traffic. Required traffic signs will be placed at the Project site and its surroundings. Machine operators and other employees will be informed and alerted about the relevant signs; • Guardrails and protective barriers will be implemented to provide safety at unprotected edges and openings, along with ensuring proper scaffolding and ladder safety measures, • Regular maintenance will be enforced to address uneven or slippery surfaces, accompanied by effective housekeeping practices and the use of warning signs where needed to prevent slips, trips, and falls, • Proper equipment for lifting heavy objects will be provided, and workers will be trained on ergonomic practices to prevent musculoskeletal disorders resulting from repetitive tasks and incorrect postures in manual handling and ergonomics, • Appropriate machine guarding will be installed, and regular inspections will be conducted to ensure the safe operation of machinery and equipment. Adequate training will be provided to equipment operators, • Insulation and guarding measures will be implemented for exposed wiring, and regular maintenance will be conducted to address faulty electrical equipment. Adequate grounding and waterproofing will be ensured in susceptible areas to mitigate electrical hazards, • Protective systems will be implemented to prevent cave-ins and collapses during excavation and trenching activities. Thorough utility checks will be conducted before these activities, • Personal protective equipment (PPE) will be provided for workers exposed to harmful substances, and proper ventilation measures will be in place. Adherence to safety protocols will be enforced to mitigate chemical and hazardous substance hazards, • Hearing protection will be enforced in areas with excessive noise levels, and measures will be implemented to reduce vibration exposure in order to address noise and vibration hazards, • Improved ventilation will be established in confined spaces, along with proper entry and exit procedures. Regular testing will be conducted to identify and address hazardous atmospheres in confined spaces, • Comprehensive fire prevention measures will be implemented, including the proper storage of flammable materials, provision of fire extinguishers, and clear marking of emergency exits to address fire hazards, • Effective traffic control measures will be implemented to prevent collisions between vehicles and workers. Proper signage and safety protocols will be enforced to address traffic and vehicle hazards, • Structural assessments will be conducted to ensure stability, and adequate bracing or shoring measures will be implemented. Overloading of structures will be prevented to mitigate the risk of structural collapse, • Measures will be implemented to address extreme temperatures, high winds, and storms, including timely removal of snow and ice to prevent slippery surfaces in various weather conditions, • Protective measures will be implemented to address exposure to mold or bacteria, including proper ventilation and the provision of protective equipment. Water sources will be regularly tested to ensure freedom from contamination in biological hazard mitigation, • Construction area will not be accessible other than the authorized personnel. The loading and unloading activities shall be carried out together with the persons to oversee the personnel to carry out the activity; • Access of the visitors, local people and animals to the area will be controlled; • Since the works will be performed at areas close to the public, public access to these areas shall be restricted by any means. If a trench needs to be left open during night time, sufficient illumination of the area shall be ensured by the Contractor and necessary signs shall be placed and the area shall be enclosed with barriers; • An adequate OHS organizational structure will be defined, as defined by the local legislation and for 100 workers, the necessary number of OHS officers should be assigned to be at the site during working hours. WWTPs are classified as "highly hazardous" workplaces according to Communiqué on Occupational Health and Safety Hazard Classes List and therefore, at least 67 hour/month supervision is mandatory for 100 workers. The contractor will assign at least one A-Class OHS Expert to the Project and the expert(s) will be supervised by DOIZ's OHS Experts; • OHS Personnel will daily inspect the site and if any additional risk is observed relevant plans and training will be renewed; • In case of any significant environmental or social incident (e.g., lost time incidents, fatalities, environmental spills, etc.), the Contractor will notify DOIZ about the occurrence of the incident in 3 business days and DOIZ will immediately inform MoT and the WB. A detailed incident investigation report, including the root-cause analysis, precautions and compensation measures taken will be submitted to DOIZ, MoT and the WB in 30 business days after the incident. • Equipment that meets international standards in terms of performance and safety will be used; • Relevant procedures such as Confined Space Entry Procedure, Working at Height Procedure, etc. will be prepared in accordance with applicable national requirements and internationally accepted standards; 			
Traffic and Transportation:	Increase in vehicle traffic during the	Low	<ul style="list-style-type: none"> • DOIZ will ensure that the contractor will prepare and implement a Traffic Management Plan that is in line with the WB ESSs and WBG EHS Guidelines (both general and sector 	Low	Included in	Contractor

Traffic Management	pre-construction phase.		<p>specific). The Traffic Management Plan will be prepared by the Constructor 30 days prior to the commencement of the works and the employees will be trained on the plan;</p> <ul style="list-style-type: none"> • The Traffic Management Plan should include details about the following; <ul style="list-style-type: none"> ○ construction plan by phases, ○ beginning and duration of work, ○ overview of the existing conditions near the construction sites, ○ identification of affected areas, ○ mitigation measures, ○ traffic diversion plans, including zones of entry and exit, routes for towing of material, turnaround points, parking areas, zones of interlocking with other traffic roads etc., ○ routes/temporary passages for pedestrians and vehicles, ○ traffic controls for each expected intervention, including illustrations of barriers, paths, signalization plan, warning signs etc., ○ requirements for special vehicles, for example, those of large dimensions, ○ construction works paths (access, ramps, loading, unloading), ○ connection roads for supply vehicles and storage of material, ○ expected interaction of pedestrians and vehicles, ○ roles and responsibilities of persons on construction site regarding traffic management and ○ instructions on the procedures regarding traffic control, including urgent situations. • The appropriate signage will be determined based on the Regulations on Traffic Signs. Prior to pre-construction activities, the Contractor will install all signs, barriers and control devices needed to ensure the safe use of the roads by traffic and pedestrians; • Traffic has to be regulated in a way that will guarantee traffic safety and minimum traffic flow disruptions. When road closures and traffic diversions are necessary, official permits will be obtained from the Denizli Provincial Police Department Traffic Control Branch Office and the route & duration of disruption will be determined. Advance notification will be provided at least three days in advance to local people to be affected by blockages and diversions; • Alternative routes will be determined and transportation will be programmed according to the intensity of traffic; • All vehicles to be used in transportation activities will obey the speed limits set out in the Regulation on Highway Traffic; • Safe driving by Project personnel will be ensured through training; • Buses will be organized for worker transportation where possible to avoid additional traffic pressure; • Storage of construction materials, equipment and machinery on traffic lanes will be prevented; • Traffic activities will be scheduled to avoid peak hours on local roads if feasible. 		construction cost	DOIZ Construction Consultant Supervision
Stakeholder Engagement, Disclosure	Possibility of damage / health hazards to community members at Aol. Insufficient management of stakeholder engagement	High	<ul style="list-style-type: none"> • Conducting SCMs and receiving feedbacks of stakeholders • Managing disclosure process of the E&S documents smoothly • Establishing an effective public GM 	Low	Included in construction cost	DOIZ

Table 7.2 Mitigations for the Construction Phase

Issue	Potential Impact	Impact Significance Before Mitigation	Mitigation Measure	Impact Significance After Mitigation	Cost of Mitigation (if substantial)	Responsible Party/Parties
Physical Environment						
Air Quality and Odor: Dust Emissions	Reducing air quality surrounding the Project Area, Temporarily reduced line of sight on nearby roads and highways, Possible health hazards due to extended exposure to high dust emissions in the Project Area. Possibility of erosion with strong winds.	Low	<ul style="list-style-type: none"> • DOIZ will ensure that the Contractor will continue to comply with the Air Quality and Emissions Management Plan in construction phase of Project. The Contractor will ensure all the employees are trained on the Air Quality and Emissions Management Plan and renew the training if necessary; • Dust will be minimized from open area sources, including storage piles, by using control measures such as installing enclosures and covers and increasing the moisture content; • Speed limitations will be defined and obeyed for construction vehicles; • The drop height of potentially dust generating materials will be kept as low as possible; • Dust suppression methods will be applied at construction sites to mitigate Project-related dust emissions. In this respect, the upper layers of the work sites/materials will be kept at a humidity level of about 10%. Watering will be applied at any time necessary including night time, weekends or off-days by using pressurized distribution or spraying systems that would ensure even distribution of water; • If there is traffic flow on the existing roads near the work sites, dust suppression measures will be continuously applied to ensure traffic safety. If there is no traffic existing in the local roads, dust suppression measures will be applied only at local residential areas; • All vehicles to be used in transportation activities will obey the speed limits set out in the Regulation on Highway Traffic. Vehicle speeds are proposed to be limited to 30 km/h on unpaved surfaces; • Loading and unloading operations will be performed without throwing/scattering; • During transportation, excavated materials will be covered with nylon canvas or materials with grain size larger than 10 mm; • Wind shields/barriers will be placed at work sites such as material storage areas to prevent dust dispersion where necessary; • Solid screens or barriers that are at least as high as any stockpiles on site will be erected at the boundaries of the construction site adjacent to the crops and/or field; • Special attention will be paid to the grievances of adjacent field and/or garden owners and relevant measures will be taken immediately; • Any damage caused by insufficient or lack of dust suppression (transportation of dust to a residential area, wind borne dust deposits etc.) measures will be compensated by the contractor. • The asphalt roads will be used as much as possible, • Compliance with the air emission limit values stipulated in national legislation and WBG General EHS Guidelines will be ensured. • Dust measurements will be conducted if any grievance regarding dust generation is received and mitigation measures will be enhanced in this respect such as increasing wet suppression/watering activities, further reducing speed/traffic if deemed necessary, considering both national and WBG EHS Guidelines limit values. 	Low	Included in construction cost	Contractor DOIZ Construction Consultant Supervision
Air Quality and Odor: Exhaust Emissions	Reducing air quality surrounding the Project Area, Possible health hazards due to extended exposure to high emissions in the Project Area. Increase in CO, SOx, PM, TOC and NOx emissions. Increase in GHG emissions	Low	<ul style="list-style-type: none"> • Well and adequately maintained vehicles will be used. Regular maintenance of machinery and equipment will be ensured; • All vehicles to be used in transportation activities will be issued an emission control stamp; • Construction vehicles will not be permitted to keep engines running while waiting to enter the site or waiting on-site; • Relevant provisions of the Regulation on Air Pollution Control Sourced from Industry, the Regulation on Exhaust Gas Emission Control and Regulation on the Assessment and Management of Air Quality will be complied with to minimize air emissions sourced from construction machinery and trucks; • Optimal utilization of the available construction equipment and materials in such a way that reduces greenhouse gas emissions; • Speed restrictions will be adopted by construction vehicles and optimal use of equipment to optimize fuel efficiency; • Regular maintenance of construction vehicles and equipment will be applied; • Energy uses associated with construction vehicles and equipment will be monitored; • Training will be performed for project personnel regarding energy efficiency. 	Low	Included in construction cost	Contractor DOIZ Construction Supervision Consultant
Soil and Contaminated Land Erosion Potential	Possibility of increased risk of erosion, Possibility of increased dust emissions caused by wind erosion.	Low	<ul style="list-style-type: none"> • By establishing a suitable drainage system in the field, the potential impact of surface runoff will be minimized. In this context, drainage channels will be constructed in accordance with the topographical conditions of the site; • Construction activities (especially excavation works) will be undertaken in the dry weather condition as much as possible to avoid surface runoff effects on excavated soil; • Circulation of heavy machinery to In the Project Area will be limited; • The disturbed areas and soil stock piles will be kept moist to avoid wind erosion of soil and the pile height will not be higher than 2 m; • Topography will be restored to provide stabilization immediately after the completion of construction at each location. 	Low	Included in construction cost	Contractor DOIZ Construction Consultant Supervision

			<ul style="list-style-type: none"> In accordance with the "Soil Protection Project" prepared specifically for the Project, measures should be taken to create a protection layer of tall plants and trees to enable germination on the garden areas of the Project and to act as a windscreen, protecting the soil from wind and surface runoff erosions, This protective layer of plants are defined as "Protection Band" in the Soil Protection Project and defined precisely. A 5-meter wide area on the outer borders of the land where the facility will be built. This Protection Band will be surrounded by a wall on the outside, and germination and ornamental plants will be planted 1.5 m inside the wall, to protect the soil in the garden of the Project area. In addition, tall plants such as cypress, pine, and firethorn will be planted within the Protection Band at 3m x 4m intervals to act as a wind screen/curtain/protection. No other facility will be built inside the protection band to be created. No materials will be left in the Protection Band, no storage, permanent or temporary construction will be carried out. The Protection Band is to be maintained during operation phase. 			
Soil and Contaminated Land: Soil Contamination	<p>Contamination of soil,</p> <p>Possibility of contamination of underground waters close to the surface,</p> <p>Scatter/dispersion of contaminated soil due to improper handling, transferring and disposal of the contaminated soil,</p> <p>Improper reuse of contaminated soil as landscaping,</p>	Medium	<ul style="list-style-type: none"> In order to minimize the impacts on soil environment, the amount of soil that could be subject to compaction and contamination/pollution will be minimized by ensuring the use of only the designated work sites and routes for the construction machinery and equipment and field personnel; No materials will be left or stored in the surrounding areas of the project area as stated in the Soil Protection Project. The fuel required for the construction equipment and vehicles to be used within the site during construction phase will be supplied primarily from the nearest station; if deemed necessary, fuels that may possibly be stored at site will be stored in the areas where necessary impermeability precautions (including secondary containment) are taken; In case of accidental oil or fuel leakage/spill from machinery and equipment, the spread of leakage and spillage will be prevented with absorbent materials and spill kits. Machinery and equipment will be checked regularly for leaking oil and fuel; The provisions of the Regulation on the Control of Excavation Soil, Construction and Demolition Wastes shall be complied with during construction phase of the Project; Provisions of the Regulation on the Control of Soil Pollution and Sites Contaminated by Point Sources shall be complied with within the scope of the Project; Wastes and wastewater to be generated during the construction phase of the Project will be stored and disposed in a controlled manner in accordance with the Waste Management Regulation and Regulation on the Control of Excavation, Construction and Demolition Wastes, WB ESSs, WBG General EHS Guidelines and in line with the management practices described in this report; According to requirements specified in the Regulation on the Control Soil Pollution and Sites Contaminated by the Point Source, in terms of a possible soil contamination in the area, DOIZ is obliged to notify the MoEUCC on possible soil pollution in the Project Area according to the procedure defined in the regulation. Based on the inspections that will be carried out by the MoEUCC, if the site will be defined as a contaminated site that needs to be cleaned up, the site will be cleaned up by firms authorized by the MoEUCC and DOIZ will be the responsible entity to ensure clean up. Within the scope of cleanup activities, the following measures will be taken for the contaminated areas during the construction phase: <ul style="list-style-type: none"> Vehicles containing any excavated soil will be suitably covered to limit potential dust emissions and truck bodies and tailgates will be sealed to prevent any discharge during transport; Only licensed waste haulers will be used to collect and transport contaminated soil to an appropriate treatment/disposal site and illegal disposal of the soil will be prohibited; Speed control for the trucks carrying contaminated soil will be enforced; The use of contaminated soil for landscaping will be prohibited. 	Low	Included in construction cost	Contractor DOIZ Construction Consultant Supervision
Water Resources and Use: Quality Change in Water Bodies and Sedimentation Control	<p>Possibility of leakage of generated municipal wastewater that may cause to degradation in surface water and groundwater qualities,</p> <p>Increased possibility of surface runoff occurrence,</p> <p>Deterioration of quality in nearby water bodies due to wastes carried by surface runoff, erosion, waste dispersion or improper waste storage, handling and transfer.</p> <p>Possibility of adversely affecting water quality due to sediment transport by runoff.</p>	Low	<ul style="list-style-type: none"> DOIZ will ensure that the Contractor will continue to comply with the Water Resources Management Plan in construction phase of Project The Contractor will ensure all the employees are trained on the Water Resources Management Plan and renew the training if necessary; DOIZ will ensure that the contractor is complying with the Pollution Prevention Plan that is prepared in line with WB ESSs and WBG EHS Guidelines (both general and sectorial) before the commencement of the works. The Contractor will ensure all the employees are trained on the Pollution Prevention Plan and renew the training if necessary. Surface runoff resulted from rain/storm water or wastewater generation due to dust suppression activities will be prevented; The water to be used for dust suppression will be monitored and recorded in m³; Discharge of wastewater, residues or other waste into groundwater or into surface water will be avoided. Portable toilets will be supplied for the workers at the construction sites. The limited amount of domestic wastewater generated at the construction site will be collected into the impervious septic tanks and then discharged into the nearest WWTP (DOIZ existing WWTP) by licensed sewer trucks; The units of the Project that are in touch with water, wastewater and chemicals will be constructed using concrete with appropriate cement ratio and durability in order to provide basement impermeability. Thus, no leakages to soil and groundwater will occur during the operation phase of the Project; Construction activities may pose the potential for accidental release/leakages of petroleum-based products, such as lubricants, hydraulic fluids, or fuels during their storage, transfer, or use in equipment. All chemical storage containers, including diesel 	Low	Included in construction cost	Contractor DOIZ Construction Consultant Supervision

			<p>fuel and hazardous liquid waste drums/containers will be placed in secondary containment in temporary storage area so as to minimize the risk of soil, surface water and groundwater contamination during the construction;</p> <ul style="list-style-type: none"> For a case of possible breakdown and natural disaster situation, DOIZ will ensure that that contractor will prepare, implement and monitor an Emergency Preparedness Plan and the employees will be trained on the plan. It will be ensured that the facility is designed and constructed to be resistant to natural disasters. To prevent and alleviate the vehicle-generated sediment transport, measures such as entrance/outlet tire wash, stabilization of roads, etc. should be implemented. Construction activities should be planned to minimize soil disturbance during periods of high rainfall or when soil conditions are most susceptible to erosion. Scheduling should cover development of a written plan that includes sequencing of construction activities and the implementation of sediment control while taking local climate (rainfall, wind, etc.) into consideration. Silt fences or sediment barriers should be installed along vulnerable areas to trap sediment and prevent its transport by runoff. Sediment traps should be designed and installed to capture, and settle out suspended sediments before water runoff reaches surface water resources. Vegetative cover, including grass and erosion-resistant plants, should be established and maintained to stabilize soil and reduce surface runoff. Activities should be carefully planned to minimize disturbed areas and to preserve existing vegetation 			
<p>Noise and Vibration: Noise Management</p>	<p>Possible health hazards due to extended exposure to high noise in/around the Project Area.</p> <p>Over exposure to increased noise levels may disturb routine life of human and animal populations nearby.</p>	Low	<ul style="list-style-type: none"> DOIZ will ensure that the contractor will continue to comply with Noise and Vibration Management Plan in construction phase of Project and the employees will be trained on the Plan. The machinery and equipment to be used during the construction phase will not be operated at the same point/location but homogeneously distributed in the site if possible; During vehicle and equipment procuring/leasing process for the Project, item with lower noise levels than equivalent ones will be preferred, if feasible; The maintenance of the construction machinery and equipment will be carried out regularly and periodically. Daily maintenance will be carried out in each shift; and the working time of each vehicle will be registered by the operator in order to follow the total working hours for periodic maintenance. Periodic maintenance will be conducted at every 50, 250, 500, 1000, 2000 working hours. Maintenance forms will be filled out regularly; All vehicles to be used in transportation activities will obey the speed limits set out in the Regulation on Highway Traffic; Noise measurements will be conducted by an authorized environmental laboratory in case of any grievance and mitigation measures will be enhanced in this respect such as use of noise barriers; Construction works will be performed between 07:00 - 19:00 hours. Unless absolutely necessary, no construction activities will be done at night. In case night operations are deemed necessary and the noise levels would be high, the public will be informed 1 week in advance about the time of construction activities; All construction activities will be carried out in compliance with the noise limits set out in the Regulation on Environmental Noise Control (RENC) and WBG EHS Guidelines and the contractor will take additional mitigation measures in case of a requirement revealed by the monitoring; The existing grievance mechanism will also be used to effectively manage noise related complaints. 	Low	Included in construction cost	<p>Contractor DOIZ Construction Consultant Supervision</p>
<p>Resources and Waste: Resource Management</p>	<p>Resources used/consumed during works</p>	Low	<ul style="list-style-type: none"> DOIZ will supervise the construction contractor via supervision consultant to select the most appropriate raw materials and resources by evaluating clean production options. 	Negligible	Included in construction cost	<p>Contractor DOIZ Construction Consultant Supervision</p>
<p>Resources and Waste: Waste Generation</p>	<p>Inefficient management of resources and increased amount of waste due to not separating waste and/or storing, handling or transferring wastes improperly.</p> <p>Possibility of increased public health hazard risks, deterioration of surface water, underground water and air quality, and/or soil contamination due to improper storage, handling and transfer of hazardous wastes,</p> <p>Possibility of air and/or soil pollution risk due to unauthorized burial and burning of waste on the site.</p>	Low	<ul style="list-style-type: none"> DOIZ will ensure that the Contractor will continue to comply with the Waste Management Plan in construction phase of Project. The Contractor will ensure all the employees are trained on the Waste Management Plan and renew the training if necessary; Waste to be generated within the scope of the Project will be managed in accordance with the waste management hierarchy; Waste will be separated (i.e., hazardous / non-hazardous, recyclable / non-recyclable) and stored in designated temporary storage areas; All kinds of implementations that may threaten personnel or public health will be avoided in all activities involving collection, temporary storage, transport and disposal of waste throughout the Project; Waste recycling, transport and disposal will be carried out by means of licensed companies and/or relevant municipality's vehicles; Incineration or burying of waste by any means at site and/or dumping of waste to nearby roads or water resources will not be allowed; Waste to be temporarily stored on site will be delivered to licensed transport vehicles appropriate to the type of waste for disposal. Information related to the operations in this context will be recorded and the records will be kept in the administrative building; Removal of the excavated material, which will not be used for backfilling, from the site will 	Low	Included in construction cost	<p>Contractor DOIZ Construction Consultant Supervision</p>

			<p>be performed at regular intervals without waiting. These materials will be transferred to the nearest licensed landfill facility by licensed transportation companies;</p> <ul style="list-style-type: none"> Waste oils originating from machinery and vehicles will be stored in impervious tanks and containers that would be situated on impervious foundation in accordance with the "Regulation on Control of Waste Oils". Tanks and containers will be equipped with apparatus that would prevent over filling and will be filled till the designated level mark. Tanks and containers will have a red color and will be labeled as "waste oil". Disposal of waste oils will be controlled by the DOIZ; Waste batteries from construction site and accumulators from vehicles will be disposed of in compliance with the consumer responsibilities specified in Article 13 of the "Regulation on Control of Waste Batteries and Accumulators". Accordingly, used batteries will be collected separately (from municipal wastes) and transferred to the TAP battery collection center; All other hazardous materials will be disposed of in accordance with the Waste Management Regulation; Hazardous waste to be temporarily stored on site will be delivered to licensed transport vehicles appropriate to the type of waste for disposal. Information related to the operations in this context will be recorded and the records will be kept in the administrative building; Hazardous or non-hazardous inscription, waste code, stored waste amount and storage date will be indicated/labelled on waste temporarily stored by classifying according to their properties. The reaction of waste with each other will be prevented by the measures taken in the Temporary Storage Area, which will have impermeable ground, proper drainage for accidental leaks/spills, top cover and designated rooms for different types of waste, etc. The permit for the temporary Waste Storage Area will be taken from the Provincial Directorate of Environment, Urbanization and Climate Change. Removal of the excavated material, which will not be used for backfilling, from the site will be performed at regular intervals without waiting. These materials will be transferred to the land under the responsibility of Honaz Municipality, which is approximately 5 km away from the Project Area. Spill kits will be available at the Temporary Storage Area and necessary precautions will be taken against possible fires such as provision of appropriate firefighting equipment. 			
Landscape and Visual (Aesthetics): Aesthetic Concerns	Creation of visual pollution.	Low	<ul style="list-style-type: none"> Construction works will be performed between 07:00 - 19:00 hours. Unless absolutely necessary, no construction activities will be done at night. In case night operations are deemed necessary, the public will be informed 1 week in advance about the time of construction activities; The construction schedule will be disclosed to the public via website of DOIZ. 	Low	Included in construction cost	Contractor DOIZ Construction Consultant Supervision
Biological Environment						
Terrestrial Habitats and Flora Species	Damage or loss of habitat and flora species	Low	<ul style="list-style-type: none"> The construction area will be clearly defined where construction activities will occur. Access roads and associated facilities working areas will be clearly defined before the onset of construction activities so as not to harm flora elements outside the construction sites. 	Negligible	Included in construction cost	Contractor DOIZ Construction Consultant Supervision
Terrestrial Fauna Species	Disturbing/harming populations	Low	<ul style="list-style-type: none"> Construction works will occur gradually, especially during breeding (April-May-June), so fauna elements can leave construction sites. Before construction works, fauna observations will be made in the area, species will be expected to escape, and species that cannot escape will be translocated to similar habitats around the Project Area. The speed of the vehicles on site will be limited, and the use of construction vehicles at night will be avoided to minimize the risk of traffic collisions with fauna. The construction sites will be fenced to prevent the entry of fauna species. 	Negligible	Included in construction cost	Contractor DOIZ Construction Consultant Supervision
Aquatic Biodiversity	Damage or loss of habitat	Low	<ul style="list-style-type: none"> Excavation materials and any kind of waste will not be dumped onto a riverbed. The riparian vegetation will be preserved. 	Negligible	Included in construction cost	Contractor DOIZ Construction Consultant Supervision
Socio-economic Environment						
Community Health and Safety Preserving Existing Infrastructure	Possibility of damaging (accidentally or not) infrastructure (e.g. structures, land, crops and other assets) during construction.	Low	<ul style="list-style-type: none"> The construction works and waste disposal during the construction phase of the Project will be performed by contractors. Therefore, any damage to infrastructure will be repaired (with supervision of DOIZ) or compensated by contractors promptly in accordance with the responsible authority, such as KGM. DOIZ will closely monitor such issues with the establishment of Public Grievance Mechanism. 	Negligible	Included in construction cost	Contractor DOIZ Construction Consultant Supervision
Community Health and Safety Trespassing,	Health hazards that may occur due to accidents caused by unauthorized entry at the construction site (falling into an	Low	<ul style="list-style-type: none"> DOIZ will ensure that the Contractor will continue to comply with the Community Health, Safety and Security Management Plan in construction phase of Project. The Contractor will ensure all the employees are trained on the Community Health, Safety and Security Management Plan and renew the training if necessary; 	Negligible	Included in construction cost	Contractor DOIZ

<p>Encroachment and General Construction Related Issues</p>	<p>excavation pit, electric shock, falling objects from a height, cuts from sharp objects etc.)</p> <p>Material, commodity and/or equipment theft,</p> <p>Unauthorized using of equipment,</p> <p>Unauthorized waste (recyclable material) collecting/stealing.</p> <p>Health hazards that may arise from possible unauthorized access to hazardous waste.</p>		<ul style="list-style-type: none"> To prevent physical hazards, fencing and striping around construction sites will be implemented, clear demarcation for restricted areas will be established, and unauthorized access will be minimized by employing security services: In an event of unauthorized presence at construction sites, a clear and informative warning will be issued to apprise the individual of potential hazards, security protocols, and construction activity risks. Strategically positioned signage across the construction site will be deployed, prominently displaying safety protocols, emergency contact information, and potential risks. Persons and/or organizations with the necessary permits will be assigned to ensure the security of the Project Area (e.g., private security companies/officials). These people and/or organizations shall regularly monitor the facility and its surroundings. The special security applications and officials' authorities within the scope of the Project shall comply with the provisions of the Regulation on the Implementation of the Law on Private Security Services and the Law on Private Security Services. DOIZ will ensure that the contractor is in line with the WB ESS4 Guideline which is related to security forces. In addition to safety personnel, monitoring of the Project site for security purposes will be provided by a closed-circuit camera system which will be installed at appropriate distances on the site boundary (e.g. 30-40 meters) to provide daytime and night-time monitoring of the whole area. Entry of staff and third parties into the working site will be carried out in a controlled manner from the doors at which authorized security personnel will work, and No unauthorized garbage collectors will be let into the construction site. All types of waste shall be transferred to a licensed disposal facility via licensed waste transportation companies following the relevant legislation on waste. A public grievance mechanism will be established. 			<p>Construction Consultant</p> <p>Supervision</p>
<p>Community Health and Safety</p> <p>Gender Based Violence (GBV), Sexual Exploitation Abuse / Sexual Harassment (SEA/SH)</p>	<p>Possibility of gender based violence occurrence,</p> <p>Possibility of sexual exploitation abuse and/or sexual harassment occurrence.</p>	<p>Medium</p>	<ul style="list-style-type: none"> Contractor Code of Conduct developed, incorporated into workers' contracts, and training and socialization on it provided to all contractor, supervision consultant and DOIZ workers/personnel, and GM, GBV, SEA/SH trainings will be given to all mentioned personnel before commencement of construction works. To properly address SEA/SH risks, the GM will be in place prior to contractors mobilizing. To enable complaints of GBV, SH/SEA violations to safely access the GM, multiple channels through which complaints will be registered in a safe and confidential manner will be enabled. The GM operators and CLO will be trained on how to collect SEA/SH cases confidentially and empathetically (with no judgement). The content and procedures of the Project's GM for public and workers will have a reporting line on such cases in regard to SEA/SH issues and will be handled under full confidentiality. The GM focal point receiving the SEA/SH related grievance should direct this to national referral systems immediately and record that this has been directed. All details of the complainant of the sensitive case will be kept strictly confidential. Mandatory and regular training for workers on required lawful conduct in local community and legal consequences for failure to comply with laws. Commitment / policy to cooperate with law enforcement agencies investigating perpetrators of gender-based violence. Creation of partnership with local civil society organization to report workers' misconduct and complaints/reports on gender-based violence or harassment through the GM. Provision of opportunities for workers to regularly return to their families. Provision of opportunities for workers to take advantage of entertainment opportunities away from rural local communities 	<p>Low</p>	<p>Included in construction cost</p>	<p>Contractor</p> <p>DOIZ</p> <p>Construction Consultant</p> <p>Supervision</p>
<p>Working Conditions and Labor Management:</p> <p>Monitoring Working Conditions and Protecting the Workforce</p>	<p>Possibility of unfair and/or illegal treatment of workers,</p> <p>Possibility of preventing workers from accessing job training, grievance mechanisms and/or union organizations.</p> <p>Possibility of labor influx.</p>	<p>Low</p>	<ul style="list-style-type: none"> Construction contractors of the Project will give induction training to employees immediately after their recruitment covering the subjects; fair treatment; non-discrimination and equal opportunities of workers; establishing, maintaining and improving a sound worker-management relationship; compliance with national labour and employment laws and LMP; code of conduct; protecting and promoting the safety and health of workers, especially by promoting safe and healthy working conditions; preventing the use of forced labour and child labour (as defined by the WB and Turkish legislation); HSE and WB requirements etc. and Grievance Mechanism (GM) for workers; Contractors will prepare own Labour Management Plan (LM Plan) based on the Labour Management Procedures (LMP) of the Project. Already established Human Resources Policy that complies with the European Convention on Human Rights and the Turkish Constitution and will ensure workers' access to the right to collective bargaining, as stipulated by Law No. 6356 on Trade Unions and 4857 Labor Law on Collective Bargaining will continued to be applied. Discrimination in labor relations, based on language, race, sex, political opinion, philosophical belief, and religion, will be systematically eliminated, Locally recruiting of personnel will be prioritized whenever possible and feasible to prevent labor influx and to create job opportunities for the local people; Workers will be provided with documented information that is clear and understandable, regarding their rights under national labor law; including collective agreements, their rights related to hours of work, wages, overtime, compensation and benefits as of startup of working relationship and when any material changes occur; Workers will be issued written contracts detailing job description, working hours, wages, rights and duties, code of conduct etc.; Workers will not be discouraged from electing worker representatives, forming or joining workers' organizations of their choosing, or from bargaining collectively and will not 	<p>Low</p>	<p>Included in construction cost</p>	<p>Contractor</p> <p>DOIZ</p> <p>Construction Consultant</p> <p>Supervision</p>

			<p>discriminate or retaliate against workers who participate, or seek to participate, in such organizations and collective bargaining;</p> <ul style="list-style-type: none"> Particular attention will be paid to principles of non-discrimination and equal opportunity. In this respect, employment decisions (i.e., recruitment and hiring, compensation, wages and benefits, working conditions and terms of employment, access to training, job assignment, promotion, termination of employment or retirement and disciplinary practices) will not be made on the basis of personal characteristics unrelated to job requirements. Wages, work hours and other benefits will be per the Turkish Labor Law; A grievance mechanism as defined in Section 8.2 and the Project specific LMP will be implemented to raise workplace concerns. The workers will be informed about the worker grievance mechanism at the time of recruitment and make it easily accessible to them. If an employee faces Sexual Exploitation and Abuse/Sexual Harassment (SEA/SH) issue s/he can either apply to a higher level superior or directly go to police station, as stipulated in the national referral system of the country for dealing such cases. The content and procedures of the Project's GRM will also have a reporting line on such cases in regard to SEA/SH issues and will be handled under full confidentiality. The GRM focal point receiving the SEA/SH related grievance should direct this to national referral systems immediately and record that this has been directed. All details of the complainant of the sensitive case will be kept strictly confidential. Contractors will be required to have age verification system, ensuring no one below 18 years is involved in project activities. 			
<p>Working Conditions and Labor Management: Workers Engaged by Third Parties and the Supply Chain</p>	<p>Possibility of unfair and/or illegal treatment of third party workers.</p>	<p>Low</p>	<ul style="list-style-type: none"> DOIZ will continue to comply with the Contractor Management Plan before involvement with contractors; Subcontractors will be reputable and legitimate enterprises and have an appropriate ESMS that will allow them to operate in a manner consistent with the labor conditions requirements; DOIZ will monitor its primary supply chain for safety issues related to supply chain workers and where necessary, DOIZ will introduce procedures and mitigation measures to ensure that suppliers are taking steps to prevent or to correct life-threatening situations; The performance of subcontractors will be monitored such that human rights policy and labor rights of all workers are exercised properly and non-compliance measures will be included in their contracts; The workers of subcontractors will have access to the overall grievance mechanism to be established for the Project. 	<p>Low</p>	<p>Included in construction cost</p>	<p>Contractor DOIZ Construction Consultant Supervision</p>
<p>Occupational Health and Safety</p>	<p>Possibility of workers being denied of their OHS rights, and/or access to OHS training, Possibility of not providing necessary PPE to workers or asking fees for (initial or replaced or renewed) PPEs, Possibility of neglecting the workplace health and safety issues of the workers.</p>	<p>High</p>	<ul style="list-style-type: none"> Project and site-specific OHS Management Plan based on construction site OHS risk assessment, national legislation that also covers measures to address any pandemic/communicable disease risk, which was prepared in line with the WBG EHS Guidelines (both general and sector specific), will be complied by the Contractor. The Contractor will ensure all the employees are trained on the security management and renew the training if necessary; DOIZ will ensure that the contractor will continue to comply with the Emergency Preparedness and Response Plan based on construction site OHS risk assessment and covering also the issues about the contagious diseases, Guidance, directives and recommendations of Ministry of Health, Ministry of Family, Labor and Social Services, WHO and the WB shall be followed and all relevant necessary measures shall be taken, both for OHS of employees and for workplaces, in case of an outbreak of any other pandemic/communicable disease, OHS training and toolbox talks will be provided to the employees including the code of conduct indicating the possible risks regarding the work site and works to be carried out, Both trainings and incidents (fatalities, lost time incidents, any significant events including spills, fire, outbreak of pandemic or communicable diseases, social unrest, etc.) will be recorded and evaluation activities will be carried out after the trainings; Appropriate signposting of the sites will be provided and then workers will be informed of key rules and regulations to follow The Contractor will either assign full-time personnel or DOIZ will assign one if possible with relevant certification and experience in charge of OHS and s/he shall monitor the site implementations; In order to minimize the risks and hazards that may arise (e.g., natural disasters, accidents, equipment malfunctions etc.) on human health and safety, safe working environments in the working sites will be established and physical hazards and risks will be prevented; The relevant plans and procedures required by Turkish legislation will be prepared and the Contractor will comply with these OHS measures and practices; Employees will be informed about the hazards that may be caused by their work and thus a safer work environment will be created; The Contractor will ensure a safe working environment for the workers and supply appropriate personal protective equipment (PPE) in line with international best practice and Turkish Legislation including the health and safety measures provided by the Ministry of Health and Ministry of Family, Labor and Social Services (always hardhats, as needed masks and safety glasses, harnesses and safety boots, etc.); The Contractor formally agrees that all work will be carried out in a safe and disciplined manner and is designed to minimize risks on neighboring residents and environment; Work areas will be equipped with warning signs in accordance with the quality and potential risks of the work to be performed in that area; 	<p>Low</p>	<p>Included in construction cost</p>	<p>Contractor DOIZ Construction Consultant Supervision</p>

			<ul style="list-style-type: none"> • Smoking in areas where there is a risk of fire will be prohibited. All employees will have knowledge of what to do in the event of a fire; • Project staff will include first aid trained personnel. In case of emergency where an intervention is required, personnel will be sent to the nearest health center by appropriate means; • The Contractor will apply the sufficiency of the technical requirement of the machinery, equipment and tools to be used in the activities; • Moving parts of machinery and equipment will be equipped with appropriate protective systems (e.g., metal shields etc.), minimizing the risk of injury or damage to the person using the machine or equipment; • Personal factors that may create and control risks during activities (e.g. long hair, jewelry and accessory use, clothing etc.) will be removed from the site by the rules brought by the construction site management. Project staff will be informed about the relevant regulations within the scope of the training program; • Drivers and operators will be trained to comply with traffic rules and to control the vehicles and equipment they use against risks and hazards originating from vehicle traffic. Required traffic signs will be placed at the Project site and its surroundings. Machine operators and other employees will be informed and alerted about the relevant signs; • Guardrails and protective barriers will be implemented to provide safety at unprotected edges and openings, along with ensuring proper scaffolding and ladder safety measures, • Regular maintenance will be enforced to address uneven or slippery surfaces, accompanied by effective housekeeping practices and the use of warning signs where needed to prevent slips, trips, and falls, • Proper equipment for lifting heavy objects will be provided, and workers will be trained on ergonomic practices to prevent musculoskeletal disorders resulting from repetitive tasks and incorrect postures in manual handling and ergonomics, • Appropriate machine guarding will be installed, and regular inspections will be conducted to ensure the safe operation of machinery and equipment. Adequate training will be provided to equipment operators, • Insulation and guarding measures will be implemented for exposed wiring, and regular maintenance will be conducted to address faulty electrical equipment. Adequate grounding and waterproofing will be ensured in susceptible areas to mitigate electrical hazards, • Protective systems will be implemented to prevent cave-ins and collapses during excavation and trenching activities. Thorough utility checks will be conducted before these activities, • Personal protective equipment (PPE) will be provided for workers exposed to harmful substances, and proper ventilation measures will be in place. Adherence to safety protocols will be enforced to mitigate chemical and hazardous substance hazards, • Hearing protection will be enforced in areas with excessive noise levels, and measures will be implemented to reduce vibration exposure in order to address noise and vibration hazards, • Improved ventilation will be established in confined spaces, along with proper entry and exit procedures. Regular testing will be conducted to identify and address hazardous atmospheres in confined spaces, • Comprehensive fire prevention measures will be implemented, including the proper storage of flammable materials, provision of fire extinguishers, and clear marking of emergency exits to address fire hazards, • Effective traffic control measures will be implemented to prevent collisions between vehicles and workers. Proper signage and safety protocols will be enforced to address traffic and vehicle hazards, • Structural assessments will be conducted to ensure stability, and adequate bracing or shoring measures will be implemented. Overloading of structures will be prevented to mitigate the risk of structural collapse, • Measures will be implemented to address extreme temperatures, high winds, and storms, including timely removal of snow and ice to prevent slippery surfaces in various weather conditions, • Protective measures will be implemented to address exposure to mold or bacteria, including proper ventilation and the provision of protective equipment. Water sources will be regularly tested to ensure freedom from contamination in biological hazard mitigation, • Areas where excavation work is to be carried out will not be accessible other than the authorized personnel. The loading and unloading activities shall be carried out together with the persons to oversee the personnel to carry out the activity; • Access of the visitors, local people and animals to the area will be controlled; • Since the works will be performed at areas close to the public, public access to these areas shall be restricted by any means. If a trench needs to be left open during night time, sufficient illumination of the area shall be ensured by the Contractor and necessary signs shall be placed and the area shall be enclosed with barriers; • An adequate OHS organizational structure will be defined, as defined by the local legislation and for 100 workers, the necessary number of OHS officers should be assigned to be at the site during working hours. WWTPs are classified as "highly hazardous" workplaces according to Communiqué on Occupational Health and Safety Hazard Classes List and therefore, at least 67 hour/month supervision is mandatory for 100 workers. The contractor will assign at least one A-Class OHS Expert to the Project and the expert(s) will be supervised by DOI's OHS Experts; 			
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			<ul style="list-style-type: none"> OHS Personnel will daily inspect the site and if any additional risk is observed relevant plans and training will be renewed; In case of any significant environmental or social incident (e.g., lost time incidents, fatalities, environmental spills, etc.), the Contractor will notify DOIZ about the occurrence of the incident in 3 business days and DOIZ will immediately inform MoIT and the WB. A detailed incident investigation report, including the root-cause analysis, precautions and compensation measures taken will be submitted to DOIZ, MoIT and the WB in 30 business days after the incident. Equipment that meets international standards in terms of performance and safety will be used; Relevant procedures such as Confined Space Entry Procedure, Working at Height Procedure, etc. will be prepared in accordance with applicable national requirements and internationally accepted standards; 			
Traffic and Transportation: Traffic Management	Increase in vehicle traffic during the construction phase.	Low	<ul style="list-style-type: none"> DOIZ will ensure that the Contractor will continue to comply with the Traffic Management Plan that was prepared in construction phase of the Project in line with the WB ESSs and WBG EHS Guidelines (both general and sector specific) before the commencement of the works. The Contractor will ensure all the employees are trained on the Traffic Management Plan and renew the training if necessary; The Traffic Management Plan should include details about the following: <ul style="list-style-type: none"> construction plan by phases, beginning and duration of work, overview of the existing conditions near the construction sites, identification of affected areas, mitigation measures, traffic diversion plans, including zones of entry and exit, routes for towing of material, turnaround points, parking areas, zones of interlocking with other traffic roads etc., routes/temporary passages for pedestrians and vehicles, traffic controls for each expected intervention, including illustrations of barriers, paths, signalization plan, warning signs etc., requirements for special vehicles, for example, those of large dimensions, construction works paths (access, ramps, loading, unloading), connection roads for supply vehicles and storage of material, expected interaction of pedestrians and vehicles, roles and responsibilities of persons on construction site regarding traffic management and instructions on the procedures regarding traffic control, including urgent situations. The appropriate signage will be determined based on the Regulations on Traffic Signs. Prior to construction activities, the Contractor will install all signs, barriers and control devices needed to ensure the safe use of the roads by traffic and pedestrians; Traffic has to be regulated in a way that will guarantee traffic safety and minimum traffic flow disruptions. When road closures and traffic diversions are necessary, official permits will be obtained from the Denizli Provincial Police Department Traffic Control Branch Office and the route & duration of disruption will be determined. Advance notification will be provided at least three days in advance to local people to be affected by blockages and diversions; Alternative routes will be determined and transportation will be programmed according to the intensity of traffic; All vehicles to be used in transportation activities will obey the speed limits set out in the Regulation on Highway Traffic; Safe driving by Project personnel will be ensured through training; Buses will be organized for worker transportation where possible to avoid additional traffic pressure; Storage of construction materials, equipment and machinery on traffic lanes will be prevented; Traffic activities will be scheduled to avoid peak hours on local roads if feasible. 	Low	Included in construction cost	Contractor DOIZ Construction Consultant Supervision
Stakeholder Engagement, Disclosure	Possibility of damage / health hazards to community members at Aol.	High	<ul style="list-style-type: none"> Conducting SCMs and receiving feedbacks of stakeholders Managing disclosure process of the E&S documents smoothly Managing an effective GM 	Low	Included in construction cost	Contractor

Table 7.3 Mitigations for the Operation Phase

Issue	Potential Impact	Impact Significance Before Mitigation	Mitigation Measure	Impact Significance After Mitigation	Cost of Mitigation (if substantial)	Responsible Party/Parties
Physical Environment						
Air Quality and Odor: Odorous Gas Emissions	Odor problems around WWTP.	Low	<ul style="list-style-type: none"> Air Quality and Emissions Management Plan prepared before pre-construction phase will be updated by DOIZ to reflect the operation phase conditions before commencement of the operation phase and the employees will be trained on the plan. The first level measures for odor problem are as follows: <ul style="list-style-type: none"> Prevention of wastewater influents which exceed treatment plant capacity; Reduction of solid waste and activated sludge amounts; Increasing disposal frequency of screenings; Proper and timely disposal of sludge in order to prevent flies and odor; Increasing aeration rate in biological treatment process; Addition of lime to activated sludge; Keeping water level under control in order to prevent turbulence as a result of instant decrease of water. If odor nuisance prevails after the proper implementation of first level measures, the second level measures shall be taken. These are: <ul style="list-style-type: none"> Addition of oxidizing material (such as hydrogen peroxide, sodium hypochlorite) (oxidizing materials, prevent the generation of especially hydrogen sulfide). Addition of sodium hydroxide can also be considered. Sodium hydroxide will dissolve hydrogen sulphur gas in water. Preventing anaerobic bacteria with control of pH levels or disinfection. Oxidizing odorous compounds by the help of chemicals. Planting trees in the project area and the buffer zone around the treatment plant for the prevention of odor distribution. If nuisance still prevails after implementation of first and second measures, the final measure shall be determined as: <ul style="list-style-type: none"> Enclosing the Preliminary Treatment Units As a general measure: an operating grievance mechanism will be established to manage odor related grievances. Excessive accumulation of active sludge and/or sludge cake during operation phase will cause problems such as odor, accumulation of insects, flies or rodents, and decreased efficiency of the units due to turbulence. For this reason, as stated in the Soil Protection Project that has been prepared specifically for this Project, the sludge and sludge cake that will be transported by licensed companies and will be sent for disposal without too much sludge/sludge cake accumulation, or if it the wait is necessary, precautions will be taken such as adding lime to the activated sludge to prevent formation of odor and accumulation of insects, flies and rodents. For the units in closed environments within the facility, adequate ventilation will be provided with activated carbon filters or biofilters to avoid odor problems. 	Low	Included in operation cost	DOIZ
Air Quality and Odor: Exhaust Emissions	<p>Reducing air quality surrounding the Project Area,</p> <p>Possible health hazards due to extended exposure to high emissions in the Project Area.</p> <p>Increase in CO, SOx, PM, TOC and NOx emissions</p> <p>Increase in GHG emissions</p>	Low	<ul style="list-style-type: none"> Well and adequately maintained vehicles will be used. Regular maintenance of machinery and equipment will be ensured; Exhaust systems of the vehicles will be controlled regularly (daily and periodically); All vehicles to be used in transportation activities will be issued an emission control stamp; Operation phase vehicles will not be permitted to keep engines running while waiting or standing by for duty. Relevant provisions of the Regulation on Air Pollution Control Sourced from Industry, the Regulation on Exhaust Gas Emission Control and Regulation on the Assessment and Management of Air Quality will be complied with to minimize air emissions sourced from machinery, equipment, and vehicles that are used in operation phase; Speed restrictions will be adopted by operation phase vehicles and optimal use of operation phase equipment to optimize fuel efficiency; Regular maintenance of operation phase vehicles and equipment will be applied; Energy uses associated with operation phase vehicles and equipment will be monitored; Regular maintenance of WWTP machinery, and equipment will be applied; Energy uses associated with WWTP units and utility facilities will be monitored; Training will be performed for project personnel regarding energy efficiency. 	Low	Included in operation cost	DOIZ
Soil and Contaminated Land: Soil Contamination	<p>Contamination of soil,</p> <p>Possibility of contamination of underground waters close to the surface,</p> <p>Scatter/dispersion of contaminated soil due to improper handling, transferring and disposal of the contaminated soil,</p> <p>Improper reuse of contaminated soil</p>	Low	<ul style="list-style-type: none"> The staff will be trained in proper management of liquid waste to avoid soil contamination during maintenance and repair works; The amount of soil that could be subject to contamination will be minimized by ensuring the use of only the designated worksites and routes for the machinery and equipment and field personnel during maintenance and repair works; A 1.5 m high wire fence will be installed on the concrete in order to avoid any damage to the surrounding agricultural lands and to clarify the boundaries of the parcel where the facility will be established as stated in Soil Protection Project. All measures that are implemented on construction phase related to Protection Band will continue to be implemented during operation phase. Machinery and equipment will be checked regularly for leaking oil and fuel; 	Negligible	Included in operation cost	DOIZ

	as landscaping, Repair and maintenance works, such as spillage/leakage of wastewater, oil and chemicals to soil.		<ul style="list-style-type: none"> In the event of an accident, leak or spill, necessary repair works and/or replacement of parts will be performed promptly in accordance with the standards; In case of accidental oil or fuel leakage/spill from machinery and equipment, the spread of leakage and spillage will be prevented with absorbent materials and spill kits according to Emergency Preparedness and Response Plan.. Provisions of the Regulation on the Control of Soil Pollution and Sites Contaminated by Point Sources will be complied with; and After dewatering, the sludge cake will be transferred to a covered and appropriate container. After that, the excess sludge will be sent to licensed facility (after determining its waste class status by an accredited laboratory). As long as the operation process continues, the operator must comply with the provisions of the "Soil Protection Project" specially prepared for this project. In case the facility is transferred during the operation phase, the new operator must comply with the provisions of the "Soil Protection Project" specially prepared for this project. 			
Soil and Contaminated Land: Erosion Potential	Possibility of increased risk of erosion, Possibility of increased dust emissions caused by wind erosion.	Low	<ul style="list-style-type: none"> In accordance with the "Soil Protection Project" specially prepared for the Project, the protective layer consisting of tall plants and trees, which was started to be formed during the construction phase of the Project, will be maintained to ensure the continuity of the positive effects in combating erosion and protecting the soil. 	Low	Included in operation cost	DOIZ
Water Resources and Use: Quality Change in Water Bodies	Improving water quality of Çürüksu Creek with adequate treatment of previously untreated discharge.	Positive	<ul style="list-style-type: none"> The effluent water quality of the WWTP will be consistent with the limit values stipulated in the Table 19 of the Water Pollution Control Regulation, at minimum; If the water lines will be periodically flushed to remove accumulated sediments or other impurities that have accumulated in the pipe, the water will be flushed into the municipal sewerage system. 	Positive	Included in operation cost	DOIZ
Noise and Vibration: Noise Management	Increase in background noise.	Low	<ul style="list-style-type: none"> During the procurement of equipment and machinery, sound levels given in the technical specifications/data sheet will be taken into consideration; Relevant provisions and limit values of Regulation on the Environmental Noise Emissions Caused by Equipment Used Outdoors and Regulation on Environmental Noise Control (RENC) and WBG General EHS Guidelines and Sectorial Guidelines will be complied with during the operation phase; Equipment generating noise during the operation of the plant will be located in isolated closed buildings and some of them will be submerged in wastewater, if necessary. The existing grievance mechanism will also be used to effectively manage noise related complaints. 	Low	Included in operation cost	DOIZ
Resources and Waste: Resource Management	Resources used/consumed during works	Low	<ul style="list-style-type: none"> Starting from the operation phase, DOIZ will seek assistance from technical consultants to reduce energy consumption and related costs through optimization of the following: <ul style="list-style-type: none"> Energy conservation, Process efficiency, Aeration devices and oxygen transfer, Process flow configuration, Biogas quantities, Biogas utilization, Time of day consumption of energy. 	Negligible	Included in operation cost	DOIZ
Resources and Waste: Waste and Wastewater Management: Waste Generation	Inefficient management of resources and increased amount of waste due to not separating waste and/or storing, handling or transferring wastes improperly. Possibility of increased public health hazard risks, deterioration of surface water, underground water and air quality, and/or soil contamination due to improper storage, handling and transfer of hazardous wastes, Possibility of air and/or soil pollution risk due to unauthorized burial and burning of waste on the site.	Low	<ul style="list-style-type: none"> Waste Management Plan prepared before pre-construction phase will be updated by DOIZ to reflect the operation phase conditions before commencement of the operation phase. Relevant measures defined for the construction phase also apply also to the operation phase. The updated plan will provide procedures for the management of waste other than sludge; Waste to be generated within the scope of the Project will be managed in accordance with the waste management hierarchy; Waste recycling, transport and disposal will be carried out by means of licensed companies and/or Denizli Municipality; Incineration or burying of waste by any means on site and/or dumping of waste to nearby roads or water resources will absolutely not be in question; All kinds of implementations that may threaten personnel or public health will be avoided in all activities involving collection, temporary storage, transport and disposal of waste throughout the Project; Waste to be temporarily stored on site will be delivered to licensed transport vehicles appropriate to the type of waste for disposal. Information related to the operations in this context will be recorded and the records will be kept in the administrative building; Waste will be separated (i.e., hazardous / non-hazardous, recyclable / non-recyclable) and stored in designated temporary storage areas; In addition, the vegetable oils to be used in the cafeteria during the operation phase will be stored, transported and sent for disposal in temporary containers to be provided by licensed waste vegetable oil collection companies. Temporary storage of waste will be labelled with an indication of hazardous or non-hazardous inscription, waste code, stored waste amount and storage date and classification according to their properties. The reaction of wastes with each other will be prevented by the measures taken in the Temporary Storage Area; and Hazardous wastes will be stored in designated impermeable waste storage areas. Impermeability will be provided on the floors of the Temporary Storage Area and a suitable drainage system will be installed. Spill kits will be available at the Temporary Storage Area and necessary precautions will be taken against possible fires such as provision of 	Low	Included in operation cost	DOIZ

			appropriate firefighting equipment.			
Resources and Waste: Waste and Wastewater Management: Wastewater Generation	Wastewater generation in the WWTP, Deterioration of quality in nearby water bodies due to wastes carried by waste dispersion or improper solid waste storage, handling and transfer.	Low	<ul style="list-style-type: none"> DOIZ will prepare and implement monitor a Water Resources and Effluent Management Plan that is in line with WB ESSs and WBG EHS Guidelines (both general and sector specific) should be prepared and the employees will be trained on the plan, prior to the operation phase to ensure that: The effluent water quality of the WWTP will be consistent with Water Pollution Control Regulation and Urban Wastewater Treatment Regulation requirements or internationally accepted standards; System overflows will be prevented as much as possible by using level-meters; Since the water system leaks and loss of pressure is rather significant for the operation phase of WWTP, <ul style="list-style-type: none"> It should be ensured that the construction meets applicable standards and industry practices; Regular inspection and maintenance should be conducted; A leak detection and repair program should be implemented (including records of past leaks and unaccounted-for water to identify potential problem areas); Mains having a greater potential for leaks because of their location, pressure stresses, and other risk factors should be replaced. Machinery and equipment will be checked regularly for leaking oil and fuel; to prevent contamination of near surface water and groundwater resources during operation and maintenance activities. Establish safe delivery/storage/handling procedures in accordance with material safety data sheets (MSDSs), Immediately contain and cleanup any spilled material. 	Low	Included in operation cost	DOIZ
Resources and Waste: Waste Management: Sludge Generation	Generation of sludge at the end of the water treatment process.	Medium	<ul style="list-style-type: none"> DOIZ will prepare and implement a Sludge Management Plan in line with WB ESSs and WBG General EHS Guidelines (both general and sector specific) and the employees will be trained on the plan; The Sludge Management Plan will determine more sustainable alternatives than landfilling. If there is no option other than final disposal, the procedure to be followed for disposal should be defined within the scope of the management plan; Final sludge will be stored in special containers designated for this purpose only; Dried sludge will be sent to nearest appropriate licensed company (after determining its waste class status by an accredited laboratory) with licensed trucks. 	Low	Included in operation cost	DOIZ
Landscape and Visual (Aesthetics): Aesthetic Concerns	Creation of visual pollution.	Low	<ul style="list-style-type: none"> Trees will be planted at the borders of the WWTP; DOIZ should paint the visible buildings to colors suitable to the background. 	Low	Included in operation cost	DOIZ
Biological Environment						
Terrestrial Habitats and Flora-Fauna Species	Damage or loss of habitat and species	Negligible	<ul style="list-style-type: none"> Rehabilitation of cleared areas will be ensured with suitable species to local vegetation Garden areas of the Project will be germinated. 	Negligible	Included in operation cost	DOIZ/PIU
Aquatic Biodiversity	Damage or loss of habitat	Low	<ul style="list-style-type: none"> Mitigation measures regarding the "water resources issue" will be complied with. 	Negligible	Included in operation cost	DOIZ/PIU
Socio-economic Environment						
Community Health and Safety: Preserving Existing Infrastructure	Possibility of damaging (accidentally or not) infrastructure (e.g. structures, land, crops and other assets) during operation phase.	Low	<ul style="list-style-type: none"> Sludge and waste disposal during the operation phase of the Project will be performed by contractors. Therefore, any damage to infrastructure will be repaired or compensated by contractors promptly in accordance with the responsible authority, such as KGM. DOIZ will closely monitor such issues with the establishment of Public Grievance Mechanism. 	Negligible	Included in operation cost	DOIZ
Community Health and Safety: Trespassing, Encroachment and General Construction Related Issues	Health hazards that may occur due to accidents caused by unauthorized entry at the construction site (falling into an wastewater tank, electric shock, falling objects from a height, cuts from sharp objects etc.) Material, commodity and/or equipment theft, Unauthorized using of equipment, Unauthorized waste (recyclable material) collecting/stealing. Health hazards that may arise from possible unauthorized access to hazardous waste.	Low	<ul style="list-style-type: none"> Community Health, Safety and Security Management Plan that was prepared before pre-construction phase is in line with WB ESSs and WBG EHS Guidelines (both general and sector specific) will continue to be actively implemented in operation phase. Persons and/or organizations with the necessary permits will be assigned to ensure the security of the Project Area (e.g., private security companies/officials). These people and/or organizations shall regularly monitor the facility and its surroundings. The special security applications and officials' authorities within the scope of the Project shall comply with the provisions of the Regulation on the Implementation of the Law on Private Security Services and the Law on Private Security Services. DOIZ will ensure that the contractor is in line with the WB ESSs Guideline which is related to security forces. Restrict access to waste management facilities by implementing security procedures, such as perimeter fencing of adequate height and suitable material, with lockable site access gate; security cameras at key access points, and security alarms fitted to buildings and storage areas; and use of a site visitor register. Sufficient lighting of the WWTP will be ensured. Entry of staff and third parties into the working site will be carried out in a controlled manner from the doors at which authorized security personnel will work, and No unauthorized garbage collectors will be let into the construction site. All types of waste 	Negligible	Included in operation cost	DOIZ

			<p>shall be transferred to a licensed disposal facility via licensed waste transportation companies following the relevant legislation on waste.</p> <ul style="list-style-type: none"> • A public grievance mechanism will be established. 			
Community Health and Safety: Operational Management	<p>Failure of operations due to malfunctions/shutdowns, Operation pause caused by maintenance/repair and/or overloads.</p>	Medium	<ul style="list-style-type: none"> • In major shutdowns of the plant or biological treatment units that require longer times, nutrition levels will be maintained at the biological treatment units, aeration will be stopped after one day for aerobic processes. Recirculation will be turned down for anaerobic processes and pH regulation and nutrient dosing will be conducted only when the gas production is less than 10% of the original gas production. • During the longer shutdowns or failures, DOIZ will inform Provincial Directorate of Environment, Urbanization and Climate Change regarding the situation. 	Low	Included in operation cost	DOIZ
Working Conditions and Labor Management: Monitoring Working Conditions and Protecting the Workforce	<p>Possibility of unfair and/or illegal treatment of workers, Possibility of preventing workers from accessing to job training, grievance mechanisms and/or union organizations.</p>	Low	<ul style="list-style-type: none"> • DOIZ will give induction training to employees immediately after their recruitment covering the subjects; fair treatment; non-discrimination and equal opportunities of workers; establishing, maintaining and improving a sound worker-management relationship; compliance with national labor and employment laws and LMP; code of conduct; protecting and promoting the safety and health of workers, especially by promoting safe and healthy working conditions; preventing the use of forced labor and child labor (as defined by the WB and Turkish legislation); HSE and WB requirements etc. and Grievance Mechanism (GM) for workers. • Contractors will prepare own Labour and Management Plan (LM Plan) based on the Labour Management Procedures (LMP) of the Project. • Already established Human Resources Policy that complies with the European Convention on Human Rights and the Turkish Constitution and will ensure workers' access to the right to collective bargaining, as stipulated by Law No. 6356 on Trade Unions and 4857 Labor Law on Collective Bargaining will continue to be applied. Discrimination in labor relations, based on language, race, sex, political opinion, philosophical belief, and religion, will be systematically eliminated. • Locally recruiting of personnel will be prioritized whenever possible and feasible to prevent labor influx and to create job opportunities for the local people; • Workers will be provided with documented information that is clear and understandable, regarding their rights under national labor law; including collective agreements, their rights related to hours of work, wages, overtime, compensation and benefits as of startup of working relationship and when any material changes occur. • Workers will be issued written contracts detailing job description, working hours, wages, rights and duties, code of conduct etc.. • Workers will not be discouraged from electing worker representatives, forming or joining workers' organizations of their choosing, or from bargaining collectively and will not discriminate or retaliate against workers who participate, or seek to participate, in such organizations and collective bargaining. • Particular attention will be paid to principles of non-discrimination and equal opportunity. In this respect, employment decisions (i.e., recruitment and hiring, compensation, wages and benefits, working conditions and terms of employment, access to training, job assignment, promotion, termination of employment or retirement and disciplinary practices) will not be made on the basis of personal characteristics unrelated to job requirements. Wages, work hours and other benefits will be per the Turkish Labor Law; • A Grievance Mechanism (GM) as defined in Section 8.2 will be implemented to raise workplace concerns. The workers will be informed about the worker grievance mechanism at the time of recruitment and make it easily accessible to them. • Contractors will be required to have age verification system, ensuring no one below 18 years is involved in project activities. 	Low	Included in operation cost	DOIZ
Working Conditions and Labor Management: Gender Based Violence (GBV), Sexual Exploitation Abuse / Sexual Harassment (SEA/SH)	<p>Possibility of gender based violence occurrence, Possibility of sexual exploitation abuse and/or sexual harassment occurrence.</p>	Medium	<ul style="list-style-type: none"> • Developed Code of Conduct will be incorporated into workers' contracts, and training and socialization on it provided to workers • To properly address SEA/SH risks, the GM will be in place prior to contractors mobilizing. To enable complaints of GBV, SH/SEA violations to safely access the GM, multiple channels through which complaints will be registered in a safe and confidential manner will be enabled. The GM operators and CLO will be trained on how to collect SEA/SH cases confidentially and empathetically (with no judgement). • Mandatory and regular training for workers on required lawful conduct in local community and legal consequences for failure to comply with laws; • Commitment / policy to cooperate with law enforcement agencies investigating perpetrators of gender-based violence; • Creation of partnership with local civil society organization to report workers' misconduct and complaints/reports on gender-based violence or harassment through the GM; 	Low	Included in operation cost	DOIZ
Working Conditions and Labor Management: Workers Engaged by Third Parties and the Supply Chain	<p>Possibility of unfair and/or illegal treatment of third party workers.</p>	Low	<ul style="list-style-type: none"> • If any, subcontractors (food, security, maintenance, etc.) will be reputable and legitimate enterprises and have an appropriate ESMS that will allow them to operate in a manner consistent with the labor conditions requirements; • The performance of subcontractors will be monitored such that human rights policy and labor rights of all workers are exercised properly and non-compliance measures will be included in their contracts; • The workers of subcontractors will have access to the overall grievance mechanism to be established for the Project. 	Low	Included in operation cost	DOIZ
Occupational Health and Safety	<p>Possibility of workers being denied of their OHS rights, and/or access to OHS training,</p>	High	<ul style="list-style-type: none"> • DOIZ will continue to comply with the Occupational Health and Safety Management Plan (including relevant procedures) based on OHS risk assessment and adherence to all requirements of the Plan will be ensured. • Private security officers will be hired to provide the security of the working area. The private 	Low	Included in operation cost	DOIZ

	<p>Possibility of not providing necessary PPE to workers or asking fees for (initial or replaced or renewed) PPEs,</p> <p>Possibility of neglecting the workplace health and safety issues of the workers.</p>		<p>security applications within the scope of the Project and the competent authorities shall be in compliance with the provisions of the Law on Private Security Services and the Implementation of the Law on Private Security Services. The employment of security personnel will be guided by the principle of proportionality and GIIP and applicable laws, in relation to hiring, equipping and monitoring of security personnel. No sanction of use of force by direct or contracted workers in providing security except for preventative and defensive purposes;</p> <ul style="list-style-type: none"> • Personal Protective Equipment will be provided for the workers according to the nature of the work to be performed. The necessary training will be carried out for their use; • Smoking will be prohibited where the risk of fire is high. All the workers will be informed about the action plan in case of fire; • All equipment will be operated in proper working order; • Procedures approved by the DOIZ in the maintenance and repair activities and the requirements of the technical specifications of the supplier companies will be complied with; • The necessary health and safety signs and traffic signs will be placed around the Project site. Employees will be informed and alerted about the subject matter markings; • Trainings will be given to employees and operational and maintenance personnel within the scope of the Regulation on Procedures and Principles of OHS Trainings and measurement and evaluation activities will be carried out after the trainings; • Equipment that meets international standards in terms of performance and safety will be used at the plant; • After the plant is completed, necessary electrical tests will be carried out to check that the electrical connections and other related equipment are made properly before the plant is taken into operation; • Upon completion of the WWTP, DOIZ will prepare a new Emergency Preparedness and Response (EPR) Plan for a possible accident and emergency and emergency teams will be established, and drills and trainings will be carried out in line with the emergency scenarios.; • Automatic cleaning screens will be used instead of manually cleaning screens to prevent entrance of cleaning workers into the channels; • Appropriate ventilation systems will be installed to avoid accumulation of excess gas in enclosed processing areas for protecting employee health and preventing explosion risk; • Air quality in work areas will be monitored continuously and also periodically for hazardous conditions; • Railings will be installed around all tanks and pits; • Personal flotation device will be used when working near waterways; • Fall protection equipment will be used when working at height; • Work areas will be maintained to minimize slipping and tripping hazards; • Fire and explosion prevention measures will be implemented; • When installing or repairing mains adjacent to roadways, implement procedures and traffic controls, such as • Establishment of work zones so as to separate workers from traffic and from equipment as much as possible • Reduction of allowed vehicle speeds in work zones; • Use of high-visibility safety apparel for workers in the vicinity of traffic • For night work, provision of proper illumination for the work space, while controlling glare so as not to blind workers and passing motorists • Escape plans from areas where there might be a chlorine or ammonia emission will be prepared; • DOIZ will prepare a Confined Space Entry Procedure that is consistent with applicable national requirements and internationally accepted standards; • DOIZ will conduct training for operators who work with chemicals regarding safe handling practices and emergency response procedures; • DOIZ will distribute sufficient number of appropriate personal protective equipment (including, for example, self-contained breathing apparatus, personal gas detection equipment regarding chemical exposure and hazardous atmospheres, rubber gloves and waterproof shoes for field workers) and training on proper use and maintenance; • DOIZ will Install safety showers and eye wash stations near the chlorine and ammonia equipment and other areas where hazardous chemicals are stored or used; and also provide areas for all workers to shower and change clothes before leaving works • DOIZ will advise individuals with asthma, diabetes, or suppressed immune systems not to work at the treatment plant due to greater risk of infection; • DOIZ will ensure the compliance of all the activities within the treatment plant with national standards indicated in Water Pollution Control Regulation, Urban Wastewater Treatment Regulation and WBG General EHS Guidelines; • Both training and incidents (fatalities, lost time incidents, any significant events including spills, fire, outbreak of pandemic or communicable diseases, social unrest, etc.) will be recorded; and • In case of any significant environmental or social incident (e.g. lost time incidents, fatalities, environmental spills etc.) DOIZ will immediately inform MoIT and the WB. A detailed incident investigation report, including the root-cause analysis, precautions and compensation measures taken will be submitted to MoIT and the WB within 30 business days after the incident. 			
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Traffic and Transportation: Traffic Management	Increase in vehicle traffic during the operation phase.	Medium	<ul style="list-style-type: none"> • DOIZ will update the Traffic Management Plan developed by the Contractor before the pre-construction phase, before the commencement of operation phase to describe mitigation strategies for the management of operation phase impacts and DOIZ will comply with this Plan. • All vehicles to be used in transportation activities will obey the speed limits set out in the Regulation on Highway Traffic, • All types of waste shall be transferred via licensed waste transportation companies following the relevant legislations on waste and traffic. 	Low	Included in operation cost	DOIZ
Stakeholder Engagement, Disclosure	Possibility of health hazards to community members at Aol.	Medium	<ul style="list-style-type: none"> • Managing GM in a timely, fair and responsive manner 	Low	Included in operation cost	DOIZ

7.2 Monitoring Plans

In order to ensure the continuity and effectiveness of the implementation of mitigation management strategies defined, monitoring plays a key role. The main objective of the Monitoring Plan is to assess the implementation of the prescribed mitigation measures and requirements of this ESIA.

Information collected with the monitoring can be used to improve management plans during all phases of the Project. While impact assessment attempts to encompass all relevant potential impacts to identify their significance and include appropriate responses for these impacts, unanticipated impacts may still arise, which can be managed or mitigated before they become a problem using the information obtained through monitoring. Therefore, monitoring will ensure the successful implementation of the mitigation/management plans and optimize environmental protection through good practice at each and every stage of the Project.

Consequently, monitoring studies will provide implementation of impact mitigation measures and optimization of environmental protection by using best practices at all stages of the Project.

Some of the monitoring parameters are determined in the scope of engineering design studies. Monitoring studies will ensure the accordance with the project standards, contract necessities and implementation of impact mitigation measures.

Monitoring activities are submitted in tabular form in Table 7.4, Table 7.5, and Table 7.6 for pre-construction and construction, and operation phases, respectively.

Table 7.4 Monitoring Plan for the Pre-construction Phase

Issue	Parameters to be monitored (What parameter is to be monitored?)	Target/Threshold Value*	Monitoring location (Where the parameter is to be monitored?)	Monitoring Method (How is the parameter to be monitored/ type of monitoring equipment?)	Timing/Frequency of Monitoring (When is the parameter to be monitored- frequency of measurement or continuous?)	Cost of Monitoring (What is the cost of equipment or contractor charges to perform monitoring?)	Responsible Party/Parties	Supervision observation and comments to be filled out during supervision with reference to adequate measuring reports
Air quality	Settled dust, PM ₁₀ and PM _{2.5}	Below the Project Standards No air quality related grievance received	Air quality measurement point (35S 696406/ 4187720)	Sampling/analysis via an authorized environmental laboratory Visually, on the basis of irritation of the respiratory system	Upon grievance Monthly starting from the initialization of pre-construction phase	Included in pre-construction cost	Contractor, DOIZ, Construction Supervision consultant	
	Maintenance and exhaust decal records of all machinery and equipment	Below the Project Standards CO: 50 kg/h Dust: 1 kg/h NOx: (as NO ₂) 4 kg/h SOx: 6 kg/h TOC: 3 kg/h	Administration office of Contractor for the follow-up of records	Maintenance records	Monthly during the pre-construction phase	Included in pre-construction cost	Contractor, DOIZ, Construction Supervision consultant	
Storage and usage of topsoil	Amount of stripped and reused topsoil by indicating reuse locations Storage conditions of topsoil (humidity and pile height)	No loss of topsoil	Construction site and storage areas	Visual observation Records	Once in a week starting from the initialization of pre-construction phase	Included in pre-construction cost	Contractor, DOIZ, Construction Supervision consultant	
Storage and usage of chemicals including fuels	Conditions of the storage area Number of leaks, spills, etc.	No chemical spill incident	Entire Project Area and chemical storage locations	Visual observation Site inspections Environmental incident registry	Once in a week starting from the initialization of pre-construction phase	Included in pre-construction cost	Contractor, DOIZ, Construction Supervision consultant	
Water resources	Surface water / groundwater quality analysis and measurements that include spill-related pollutants including the parameters of pH, BOD, COD, TSS, TDS, TP, TKN, nitrate, nitrite, TN, salinity, etc.	Prevention of water quality deterioration compared to current surface water and groundwater quality Satisfying the Project Standards (see Section 2.3) Maintaining the current water quality class (Class-III)	At the upstream and downstream of Çürüksu Creek At related water resources (wells, fountains, etc.)	Sampling and in situ / laboratory measurements via an authorized environmental laboratory Spill notices/correspondences to authorities in case of major spills	In case of a major spill In case of a leak/spill reaches water bodies	Included in pre-construction cost	Contractor, DOIZ, Construction Supervision consultant	
Noise	Noise levels	Not exceeding the limit values defined in Project Standards (see Section 2.3)	Noise level measurement point (35S 696406/ 4187720)	At least 24-hr noise measurements via an authorized environmental laboratory	Upon grievance	Included in pre-construction cost	Contractor, DOIZ, Construction Supervision consultant	
	Number of complaints	No noise related grievance received	Administration office of Contractor for the follow-up of records	Grievance Registration	Monthly during the pre-construction phase	Included in pre-construction cost	Contractor, DOIZ, Construction Supervision consultant	

Waste	Type and amount of waste generated	Adhering to the TurkStat estimation of 1.13 kg/person/day waste generation Minimizing the amount of waste to be sent for disposal and implementing waste management hierarchy	Treatment plant site, storage areas	Visual inspection regarding proper collection and temporary storage of waste and records kept regarding their coordinated recycle / disposal via licensed firms Waste Records Site inspections Disposal truck register	Once in a month starting from the initialization of the pre-construction phase	Included in pre-construction cost	Contractor, DOIZ, Construction Supervision consultant	
Resources	Types and amounts of materials/resources used	Use of recycled materials whenever possible Reducing energy consumption	Administration office	Material/resource procurement/consumption records	Monthly during the pre-construction phase	Included in pre-construction cost	Contractor, DOIZ, Construction Supervision consultant	
Infrastructure Damage	Number and nature of cases and amount of compensation paid	No infrastructure cases	Administration office	Incident records Receipts of compensation payments	Monthly during the pre-construction phase	Included in pre-construction cost	Contractor, DOIZ, Construction Supervision consultant	
Trespassing	Trespassing cases	No trespassing	Administration office	Security reports Visitor logs	Weekly during the pre-construction phase	Included in pre-construction cost	Contractor, DOIZ, Construction Supervision consultant	
	Condition of CCTV system			System checks	Daily during the pre-construction phase			
Community Health and Safety	Health and safety signs and traffic signs placed in appropriate locations	All cases that cause health and safety problems to be prevented	Project Area	Visual observation Site inspection	Daily basis Upon grievance	Included in pre-construction cost	Contractor, DOIZ, Construction Supervision consultant	
Working Conditions	Workers' grievances	Proper management of provisions given in LMP All complaints will be closed satisfactorily within the targeted time frame	Administration office	Grievance records	Weekly during the pre-construction phase	Included in pre-construction cost	Contractor, DOIZ, Construction Supervision consultant	
Occupational Health and Safety	Number of incidents	No OHS incidents occurred	Construction site	Incident records	Daily basis starting from the initialization of the pre-construction phases	Included in pre-construction cost	Contractor, DOIZ, Construction Supervision consultant	
	Incident investigation	No OHS incidents occurred		Incident investigation records	Daily basis starting from the initialization of the pre-construction phases			
	Period of disease occurrence	No infectious disease is recorded		Disease follow-up register	Daily basis starting from the initialization of the pre-construction phases			
	Number of personnel who are infected with an infectious disease	No infectious disease occurred		Training records	Monthly during the pre-construction phase			
	Training requirements	Every training defined in the Annual ESHS is completed		Annual Environmental, Social Health, and Safety (ESHS) training plan	Annually during the pre-construction phase			
	Adequate OHS organizational structure.	1 fulltime OHS staff		Site implementation Site inspection	Monthly during the pre-construction phase			
Protecting the Workforce	Age of candidate employee	No case of child labor	Administration office	Age verification with National ID	Before each recruitment	Included in pre-construction cost	Contractor, DOIZ, Construction Supervision consultant	

Workers Engaged by Third Parties and the Supply Chain	Contractor and sub-contractor agreements	No nonconformity is observed with the ESIA	Administration office	Contract reviews by ESHS expert(s)	Before each agreement made	Included in pre-construction cost	Contractor, DOIZ, Construction Supervision consultant	
Gender Based Violence (GBV), Sexual Exploitation Abuse / Sexual Harassment (SEA/SH)	GBV and SEA/SH related incidents	No GBV and SEA/SH related issues Acting according to the guidelines in case of complaint	Administration office	Document review Review of grievance logs	Monthly Upon relevant grievances	Included in pre-construction cost	Contractor, DOIZ, Construction Supervision consultant	

**In cases where the Turkish requirements differ from the levels and measures presented in the WBG's EHS Guidelines, the more stringent one (such as the most stringent discharge and emission standards) will be applied in the project specifications.*

Table 7.5 Monitoring Plan for the Construction Phase

Issue	Parameters to be monitored (What parameter is to be monitored?)	Target/Threshold Value*	Monitoring location (Where the parameter is to be monitored?)	Monitoring Method (How is the parameter to be monitored/ type of monitoring equipment?)	Timing/Frequency of Monitoring (When is the parameter to be monitored- frequency of measurement or continuous?)	Cost of Monitoring (What is the cost of equipment or contractor charges to perform monitoring?)	Responsible Party/Parties	Supervision observation and comments (to be filled out during supervision with reference to adequate measuring reports)
Air quality	Settled dust, PM ₁₀ and PM _{2.5}	Below the Project Standards No air quality related grievance received	Air quality measurement point (35S 696406/ 4187720)	Sampling/analysis via an authorized environmental laboratory Visually, on the basis of irritation of the respiratory system	Upon grievance Monthly starting from the initialization of construction phase	Included in construction cost	Contractor, DOIZ, Construction Supervision consultant	
	Maintenance and exhaust decal records of all machinery and equipment	Below Project Standards CO: 50 kg/h Dust: 1 kg/h NOx: (as NO ₂) 4 kg/h SOx: 6 kg/h TOC: 3 kg/h	Administration office of Contractor for the follow-up of records	Maintenance records	Quarterly during the construction phase	Included in construction cost	Contractor, DOIZ, Construction Supervision consultant	
Soil contamination	Amount of contaminated soil	No soil contamination resulting from project activities	Project Area	Visual observation	After each incident	Included in construction cost	Contractor, DOIZ, Construction Supervision consultant	
Storage and usage of chemicals including fuels	Conditions of the storage area Number of leaks, spills, etc.	No chemical spill incident	Entire Project Area and chemical storage locations	Visual observation Site inspections Environmental incident registry	Once in a week starting from the initialization of construction phase	Included in construction cost	Contractor, DOIZ, Construction Supervision consultant	
Storage and use of excavation waste	Amount of refilled, stored and disposed excavation materials	Proper management of excavation wastes	Construction site and storage areas	Visual observation Records	Once in a week starting from the initialization of construction phase	Included in construction cost	Contractor, DOIZ, Construction Supervision consultant	
Storage and usage of topsoil	Storage conditions of topsoil (humidity and pile height)	No loss of topsoil	Construction site and storage areas	Visual observation Records	Once in a week starting from the initialization of construction phase	Included in construction cost	Contractor, DOIZ, Construction Supervision consultant	
Water resources	Surface water / groundwater quality analysis and measurements that include spill-related pollutants including the parameters of pH, BOD, COD, TSS, TDS, TP, TKN, nitrate, nitrite, TN, salinity, etc.	Prevention of water quality deterioration compared to current surface water and groundwater quality Maintaining the current water quality class (Class-III) Satisfying the Project Standards (see Section 2.3)	At the upstream and downstream of Çürüksu Creek At related water resources (wells, fountains, etc.)	Sampling and in situ / laboratory measurements via an authorized environmental laboratory Spill notices/correspondences to authorities in case of major spills	In case of a major spill In case of a leak/spill reaches water bodies	Included in construction cost	Contractor, DOIZ, Construction Supervision consultant	
Noise	Noise levels	Not exceeding the limit values defined in Project Standards (see Section 2.3)	Noise level measurement point (35S 696406/ 4187720)	At least 24-hr noise measurements via an authorized environmental laboratory	Upon grievance	Included in construction cost	Contractor, DOIZ, Construction Supervision consultant	
	Number of complaints	No noise related grievance received	Administration office of Contractor for the follow-up of records	Grievance Registration	Quarterly during the construction phase	Included in construction cost	Contractor, DOIZ, Construction Supervision	

Issue	Parameters to be monitored (What parameter is to be monitored?)	Target/Threshold Value*	Monitoring location (Where the parameter is to be monitored?)	Monitoring Method (How is the parameter to be monitored/ type of monitoring equipment?)	Timing/Frequency of Monitoring (When is the parameter to be monitored- frequency of measurement or continuous?)	Cost of Monitoring (What is the cost of equipment or contractor charges to perform monitoring?)	Responsible Party/Parties	Supervision observation and comments to be filled out during supervision with reference to adequate measuring reports
							consultant	
Waste	Type and amount of waste generated	Adhering to the TurkStat estimation of 1.13 kg/person/day waste generation Minimizing the amount of waste to be sent for disposal and implementing waste management hierarchy	Treatment plant site, storage areas	Visual inspection regarding proper collection and temporary storage of waste and records kept regarding their coordinated recycle / disposal via licensed firms Waste Records Site inspections Disposal truck register	Once in a month starting from the initialization of the construction phase	Included in construction cost	Contractor, DOIZ, Construction Supervision consultant	
Resources	Types and amounts of materials/resources used	Use of recycled materials whenever possible Reducing energy consumption	Administration office	Material/resource procurement/consumption records	Quarterly during the construction phase	Included in construction cost	Contractor, DOIZ, Construction Supervision consultant	
Infrastructure Damage	Number and nature of cases and amount of compensation paid	No infrastructure cases	Administration office	Incident records Receipts of compensation payments	Monthly during the construction phase	Included in construction cost	Contractor, DOIZ, Construction Supervision consultant	
Trespassing	Trespassing cases	No trespassing	Administration office	Security reports Visitor logs	Weekly during the construction phase	Included in construction cost	Contractor, DOIZ, Construction Supervision consultant	
	Condition of CCTV system			System checks	Daily during the construction phase			
Community Health and Safety	Grievances, incidents, accidents. Near miss cases Health and safety signs and traffic signs placed in appropriate locations	No significant increase in communicable and non-communicable diseases No increase in incident and accident numbers	Project Area	Visual observation Site inspection	Daily basis Upon grievance	Included in construction cost	Contractor, DOIZ, Construction Supervision consultant	
Working Conditions	Workers' grievances Number/ hours of training records	All employees will be trained on OHS, GM, GBV, SEA/SH and other E&S issues. All complaints will be closed satisfactorily within the targeted time frame	Administration office	Grievance records Accident/incident records, on-site inspections,	Weekly during the construction phase	Included in construction cost	Contractor, DOIZ, Construction Supervision consultant	
Occupational Health and Safety	Number of incidents	No OHS incidents occurred	Construction site	Incident records	Daily basis starting from the initialization of the construction phases	Included in construction cost	Contractor, DOIZ, Construction Supervision consultant	
	Incident investigation	No OHS incidents occurred		Incident investigation records	Daily basis starting from the initialization of the construction phases			
	Period of disease occurrence	No infectious disease is recorded		Disease follow-up register	Daily basis starting from the initialization of the construction phases			
	Number of personnel who are infected with an infectious disease	No infectious disease occurred		Training records	Monthly during the construction phase			
	Training requirements	Every training defined in the		Annual Environmental, Social Health, and Safety	Annually during the construction phase			

Issue	Parameters to be monitored (What parameter is to be monitored?)	Target/Threshold Value*	Monitoring location (Where the parameter is to be monitored?)	Monitoring Method (How is the parameter to be monitored/ type of monitoring equipment?)	Timing/Frequency of Monitoring (When is the parameter to be monitored- frequency of measurement or continuous?)	Cost of Monitoring (What is the cost of equipment or contractor charges to perform monitoring?)	Responsible Party/Parties	Supervision observation and comments to be filled out during supervision with reference to adequate measuring reports
		Annual ESHS is completed		(ESHS) training plan				
	Adequate OHS organizational structure.	1 fulltime OHS staff		Site implementation Site inspection	Quarterly during the construction phase			
Protecting the Workforce	Age of candidate employee	No case of child labor	Administration office	Age verification with National ID	Before each recruitment	Included in construction cost	Contractor, DOIZ, Construction Supervision consultant	
Workers Engaged by Third Parties and the Supply Chain	Contractor and sub-contractor agreements	No nonconformity is observed with the ESIA	Administration office	Contract reviews by ESHS expert(s)	Before each agreement made	Included in construction cost	Contractor, DOIZ, Construction Supervision consultant	
Gender Based Violence (GBV), Sexual Exploitation Abuse / Sexual Harassment (SEA/SH)	GBV and SEA/SH related incidents	No GBV and SEA/SH related issues Acting according to the guidelines in case of complaint	Administration office	Document review Grievance records	Quarterly Upon relevant grievances	Included in construction cost	Contractor, DOIZ, Construction Supervision consultant	

*In cases where the Turkish requirements differ from the levels and measures presented in the WBG's EHS Guidelines, the more stringent one (such as the most stringent discharge and emission standards) will be applied in the project specifications.

Table 7.6 Monitoring Plan for the Operation Phase

Issue	Parameters to be monitored (What parameter is to be monitored?)	Target/Threshold Value*	Monitoring location (Where the parameter is to be monitored?)	Monitoring Method (How is the parameter to be monitored/ type of monitoring equipment?)	Timing/Frequency of Monitoring (When is the parameter to be monitored- frequency of measurement or continuous?)	Cost of Monitoring (What is the cost of equipment or contractor charges to perform monitoring?)	Responsible Party/Parties
Soil and Contaminated Land	Number of spills/leaks	No soil contamination resulting from project activities	Entire Project Area	Environmental incident reports	Monthly during the operation phase	Included in operation cost	DOIZ
	Amount of contaminated soil				After each incident		
	Soil quality, including heavy metals, petroleum hydrocarbons, organic halogens				Upon grievance		
Water quality of the receiving environment	Water quality analysis parameters including Ammonium, Oil and Grease, Biological Oxygen Demanded BOD, Dissolved Oxygen DO, Conductivity, Chemical Oxygen Demanded COD, Nitrate, pH, Total Phosphorus, TP, Orthophosphate, Total Kjeldahl Nitrogen, TKN, Total Nitrogen, TN, Fluoride, Manganese, Selenium, Sulphur	Prevention of water quality deterioration compared to current surface water Maintaining the current water quality class (Class-III) Satisfying the Project Standards (see Section 2.3)	Downstream and upstream of Çürüksu Creek	In-situ measurements and laboratory measurements and analysis via an authorized environmental laboratory Spill notices/correspondences to authorities in case of major spills	Quarterly during the operation phase	Included in operation cost	DOIZ
Odor	Odor Level	Limited number of grievances received, resolved adequately, fast and to the satisfaction of the complainants.	Location of Grievance	Grievance records Measurement via an authorized environmental laboratory	Upon grievance	Included in operation cost	DOIZ
Effluent water quality	COD, TSS, Oil and grease, TP, Total Chromium, Chromium (Cr+6), Lead (Pb), Total Cyanide (CN-), Cadmium (Cd), Iron (Fe), Fluoride (F-), Copper (Cu), Zinc (Zn), Mercury (Hg), Sulphate (SO4-2), Total Kjeldahl Nitrogen (TKN), Fish Bioassay (TDF), Colour, pH	Effluent discharge compliant with the discharge standards COD: 250 mg/L TSS: 200 mg/L Oil and grease: 20 mg/L Total Phosphorus (P): 2 mg/L Total Chrome: 2 mg/L Chrome (Cr ⁺⁶): 0.5 mg/L Lead (Pb): 2 mg/L Total Cyanide (CN-): 1 mg/L Cadmium (Cd): 0.1 mg/L Ferrous (Fe): 10 mg/L Fluoride (F-): 15 mg/L Copper (Cu): 3 mg/L Zinc (Zn): 5 mg/L Mercury (Hg): 0.05 mg/L Sulphate (SO ₄ ⁻²): 1500 mg/L Total Kjeldahl Nitrogen (TKN): 20 mg/L Fish Bioassay (TDF): 10 Color: 280 Pt-Co pH:6-9	Discharge location	Automatic measurement for relevant parameters and laboratory analysis for others via an authorized environmental laboratory	Continuous monitoring for the detectable by automatic measurement devices Twice a month for the others (at minimum 24 samplings in a year)	Included in operation cost	DOIZ
Noise	Noise level	Not exceeding the limit values defined in Project Standards (see Section 2.3) No noise related grievance received	Noise level measurement point (35S 696406/ 4187720)	At least 24-hr noise measurements via an authorized environmental laboratory	Upon grievance	Included in operation cost	DOIZ
Waste	Type and amount of waste generated including sludge	Adhering to the TurkStat estimation of 1.13 kg/person/day waste generation Minimizing the amount of waste to be sent for disposal and implement waste management hierarchy	Treatment plant site and storage areas	Visual observation Waste Records Site inspections Disposal truck register	Weekly basis starting from the initialization of the operation phase of the Project	Included in operation cost	DOIZ
Resources	Types and amounts of materials/resources used	Use of recycled materials whenever possible	Administration office	Material/resource procurement/consumption	Annually starting from the initialization of operation phase	Included in operation cost	DOIZ

Issue	Parameters to be monitored (What parameter is to be monitored?)	Target/Threshold Value*	Monitoring location (Where the parameter is to be monitored?)	Monitoring Method (How is the parameter to be monitored/ type of monitoring equipment?)	Timing/Frequency of Monitoring (When is the parameter to be monitored- frequency of measurement or continuous?)	Cost of Monitoring (What is the cost of equipment or contractor charges to perform monitoring?)	Responsible Party/Parties
		Reducing energy consumption		records			
Terrestrial Habitats and Flora-Fauna Species	Species used in rehabilitation	Healthy development of species selected and planted in accordance with the local vegetation.	Rehabilitated Areas	Observing	Annually (First three years of the operation)	Included in operation cost	DOIZ
Infrastructure Damage	Number and nature of cases and amount of compensation paid	No infrastructure cases	Administration office	Incident records Receipts of compensation payments	Monthly during the operation phase	Included in operation cost	DOIZ
Trespassing	Trespassing cases	No trespassing	Administration office	Security reports Visitor logs	Weekly during the operation phase	Included in operation cost	DOIZ
	Condition of CCTV system			System checks	Daily during the operation phase		
Community Health and Safety	Health and safety signs and traffic signs placed in appropriate locations	All cases that cause health and safety problems to be prevented	Project Area	Visual observation Site inspection	Daily basis Upon grievance	Included in operation cost	DOIZ
Working Conditions	Workers' grievances	Proper management of provisions given in LMP All complaints will be closed satisfactorily within the targeted time frame	Administration office	Grievance records	Weekly during the operation phase	Included in operation cost	DOIZ
Occupational Health and Safety	Number of incidents	No OHS incidents occurred	Administration office	Incident records	Daily basis starting from the initialization of operation phase	Included in operation cost	DOIZ
	Incident investigation	No OHS incidents occurred		Incident investigation records	Daily basis starting from the initialization of operation phase		
	Period of disease occurrence	No infectious disease is recorded		Disease follow-up register	Daily basis starting from the initialization of operation phase		
	Number of personnel who are infected with an infectious disease	No infectious disease is occurred		Training records	Monthly during the operation phase		
	Training requirements	Every training defined in the Annual ESHS is completed		Annual ESHS training plan	Annually during the operation phase		
Protecting the Workforce	Age of candidate employee	No case of child labor	Administration office	Age verification with National ID	Before each recruitment	Included in operation cost	DOIZ
Gender Based Violence (GBV), Sexual Exploitation Abuse / Sexual Harassment (SEA/SH)	GBV and SEA/SH related incidents	No GBV and SEA/SH related issues Acting according to the guidelines in case of complaint Minimum 1 annual refresher training	Administration office	Document review Review of grievance logs Training records	Quarterly Upon relevant grievances Annually	Included in operation cost	DOIZ

*In cases where the Turkish requirements differ from the levels and measures presented in the WBG's EHS Guidelines, the more stringent one (such as the most stringent discharge and emission standards) will be applied in the project specifications.

8 INSTITUTIONAL ARRANGEMENTS AND CAPACITY BUILDINGS

The main responsible organization for the implementation of this ESIA is DOIZ. DOIZ has the adequate ability and capacity to manage the implementation of the project and in particular the E&S.. A PMU will be established to carry out operational and administrative tasks. The PMU staff will be the DOIZ's own staff who have previous OP Project experience. Besides, on different phases of the Project, various parties (contractors, Construction Supervision Team, Ministry of Industry and Technology (MoIT), etc.) will take responsibility for various parts. All mentioned works will be coordinated by the DOIZ. Mitigation and monitoring tables, which are given in this ESIA, summarize the relevant responsibilities.

In that scope, it is suggested to add below mentioned liabilities to tender documents of any possible contractor(s):

- Technical characteristics of the ESMP,
- Environmental, social and health and safety liabilities,
- Other environmental and social issues that may show-up.

8.1 Environmental and Social Management Structure

An Environmental and Social Management Structure (ESMS) is a framework or system implemented to address and manage environmental and social risks and impacts associated with projects or activities. It is designed to ensure that environmental and social considerations are integrated into decision-making processes and that appropriate measures are taken to minimize negative impacts and enhance positive outcomes.

As the potential impacts and impact levels of the Project vary according to different phases of the Project (land preparation, construction and operation) environmental and social management of the Project are assessed separately. ESMP consists of three main components in that scope, which are as follows:

- Mitigation Plan,
- Monitoring Plan,
- Monitoring Report.

ESMS ensures compliance with applicable environmental and social laws, regulations and standards in all regions of operation. This includes obtaining necessary permits and approvals, conducting environmental and social impact assessments where necessary, and adhering to industry best practices and international guidelines.

The graphical representation of the environmental and social management structure is given in Figure 8.1.



Figure 8.1 Environmental and Social Management Structure

8.2 Roles and Responsibilities

. MoIT Project Management Unit (PMU) will include an environmental specialist, social expert and one HSE expert to supervise the implementation of the ESIA. The specialist will supervise the implementation of the ESIA by DOIZ and document performance, recommendations and any further actions required. He/she will provide guidance to DOIZ officials on WB procedures, consultation and disclosure requirements. In addition, DOIZ will inform MoIT and WB on any project changes or unforeseen circumstances in the approved project documents.

DOIZ will be responsible for providing technical and data support during the supervision of contractors and the preparation of technical and financial feasibility reports regarding projects. Moreover, DOIZ holds ultimate responsibility for the environmental and social performance of the overall Project, including the performance of its contractors and any other contractors. A PMU will be established to carry out operational and administrative tasks. The PMU staff will be the DOIZ's own staff.

The parties responsible for the monitoring progress are contractor, construction supervision consultant and DOIZ/PMU during the construction phase, while only DOIZ/PMU is responsible for monitoring progress during the operation phase of the Project. Depending on the monitoring plan, the Contractor will prepare monthly Environmental and Social Monitoring Reports (ESMRs) to be submitted to DOIZ; whereas DOIZ will review and submit EMSRs to MoIT monthly. Environmental engineer/expert will appoint a representative on site to lead the development of this ESIA and its onsite implementation.

Regarding implementation of the ESIA, PMU to be established by the DOIZ management will be specified to include team members indicated in Figure 8.2 and detailed in Table 8.1.



Figure 8.2 Organizational Chart of DOIZ/PMU

Table 8.1 Roles and Responsibilities of DOIZ/PMU

Role	Responsibility
Project Coordinator	<ul style="list-style-type: none"> Overall responsibility for the ESIA implementation
Project Manager	<ul style="list-style-type: none"> Ensure that ESIA provisions are implemented to mitigate environmental and social impacts, Ensure that all workers, participate in training sessions on ESMP. Maintain a record of training and conduct of awareness sessions for staff to ensure compliance with environmental and safety commitments stated in ESMP, Prepare monthly environmental and social monitoring reports for submission to MoIT PIU.
Environmental Expert	<ul style="list-style-type: none"> Ensure that the environmental management systems of the project comply with the ESMP, Monitor the environmental impacts and risks of the construction activities on site.
Social Expert	<ul style="list-style-type: none"> Adopt and implement Stakeholder Engagement Plan (SEP), Establish an easily accessible public and workers' grievance mechanism, Manage and ensure effective operationalization of the GM, Record grievances, Disclosure to complainant, Monitor the social impacts and risks of the construction activities on site.
OHS Expert	<ul style="list-style-type: none"> Ensure that implementation and supervision of Occupational Health and Safety Management Plan, Preparedness and response to emergency situation according to Emergency Response Plan Notify MoIT PIU immediately if any contingencies such as labor issues, accidents and incidents. The incident report including root cause analysis, precautions and compensation measures taken, will be shared with MoIT PIU in 30 business days.
Technical Expert	<ul style="list-style-type: none"> Responsible for the project design, Coordinating the actions and evaluations in case of a change due to engineering/design changes.

A table defining the responsibilities for the MoIT PIU, DOIZ PMU, E&S consultant, construction supervision Consultant and contractor is given below. The roles and responsibilities of the relevant

institutions which are involved in the management, monitoring, implementation and finalization of the Project in line with both national and WB ESF requirements are summarized in Table 8.2.

Table 8.2 Parties Responsible for the Management of the Project in Accordance with World Bank ESF Requirements

Institution	Responsibilities
<p>MolT Project Implementation Unit (PIU)</p>	<ul style="list-style-type: none"> • Providing guidance to OIZ and the consultant that is responsible for preparation of this ESIA and SEP considering WB's requirements (standards, guidelines and procedures), • Reviewing the documents related to the environmental and social assessment of the project, provide comments/revisions to the consultant in order to develop (performing overall quality assurance) the E&S documents, • Guiding OIZ and the consultant on stakeholder consultation and announcement requirements within the scope of the SEP, • Following of monitoring activities such as the implementation of this ESMP, other environmental and social mitigation measures, grievance process and Main Project's Labor Management Procedures (LMP), • Auditing the OIZ's ESIA practices and giving feedback on its performance, and further actions to be taken within the overall project audit, • Being open and responsive to concerns raised by affected groups and local environmental authorities regarding environmental aspects of sub-project implementation. Meet with these groups during site visits, as necessary, • In case of necessity, providing coordination and communication regarding the field visits, • GM, GBV, Code of Conduct, SEA/SH training will be given to OIZ PMU, Supervision Consultant and Contractor's Environmental and Social Specialists and training records will be kept.
<p>OIZ Project Management Unit (PMU)</p>	<ul style="list-style-type: none"> • Assigning/hiring one environmental expert, one social expert and one OHS expert with sufficient qualifications and skills • Implementation of the ESMP and related management plans and achieving of all commitments under these plans. Checking both the technical and administrative progress of contract packages and • Providing support to implementation of the mitigation measures and commitments given in the ESMP and SEP on site • Sharing the ESMP with the Contractor and Construction Supervision Consultant, • GM, GBV, Code of Conduct, SEA/SH training will be given to OIZ PMU (in case of change of personnel in the PMU team), Supervision Consultant and Contractor's personnel and training records will be kept, • Guiding the Contractor in preparing and approving the sub-management plans, • Coordinating the actions and evaluations in case of a change due to engineering/design changes, route/location changes, legislative changes related to environmental and social issues, authorization provision changes, new environmental/social data, construction/operation strategy changes. • Updating the ESMP when necessary and sharing additional commitments with the Contractor, • Informing MolT PIU via monthly ES Monitoring Reports, which will be prepared in line with ESMP and submitted by the consultant and contractor, • Auditing contractor activities in line with ESMP requirements, • Ensuring compliance with project standards, taking urgent action in case of non-compliance within the knowledge and approval of MolT PIU, • Suspending work in any situation that threatens environment and community and occupational health and safety and informing MolT PIU, • Analyzing and following-up the environmental (including OHS) and social accidents/incidents. <i>Specifically, for any significant environmental or social incidents (e.g. fatalities, lost time incidents, environmental spills etc.), the OIZs will inform MolT PIU in 3 business days,</i> • Notifying MolT PIU immediately about any contingencies such as environmental, social and labor issues or accidents, incidents or loss of time that has or is likely to have a significant adverse impact on the environment, affected communities, the public or workers. The incident report including root cause analysis, precautions and compensation measures taken, will be submitted to MolT in 30 business days,
<p>Consultant</p>	<ul style="list-style-type: none"> • Preparation and finalizing this ESIA (including the ESMP) MP and the SEP as per the concerns/opinions of the stakeholders of the Project for the approval of MolT PIU and WB, • Supporting the PIU to organize and carry out the stakeholder consultation meeting for the draft version of this ESIA /ESMP and SEP, • Organizing and delivering a training to the respective OIZ on ESMP implementations, and commitments, which covers project related environmental and social impacts and risks, and

Institution	Responsibilities
	<p>corresponding measures applied to avoid, reduce, and mitigate the risks and potential adverse impacts, roles and responsibilities assigned to the relevant party, monitoring plan and reporting process prior to the construction activities are commenced.</p>
<p>Construction Supervision Consultant</p>	<ul style="list-style-type: none"> • Supervision of construction and/or rehabilitation works and installation of equipment, • Identification and management of risks and impacts related to environmental, social and OHS issues, • Ensuring initiation of corrective actions where necessary, ensuring implementation of mitigation measures by the contractor, and sufficient capacity in the team (at least one Social Expert, one Environmental Expert and one full-time OHS Expert) to perform E&S supervision effectively within the scope of this ESMP and SEP in accordance with the WB requirements, • The E&S Team will be responsible for taking actions required to eliminate/minimize environmental and social impacts and risks in line with this ESMP and for putting monitoring plans into practice, • Preparing the bidding documents during the implementation, conducting bidding processes. <i>The requirements of the WB and the Construction Contract including this ESMP, SEP and LMP will be followed and cooperating with the MoIT PIU for the supervision of construction activities,</i> • Follow up and audit the contractor's activities on a daily basis in line with the measures and commitments given in this ESMP, • Ensuring and monthly reporting the E&S performance of the contractor to the OIZ PMU, • Using the contractual authority and notifying MoIT PIU and the OIZ on time if any non-compliances are encountered, • Monitoring and evaluating the performance of the services provided by the Contractor, • Providing guidance to the OIZ and contractor on the WB's requirements (documents and procedures), • Any non-conformities found during the inspections will be managed by a process adapted to the severity of the case, • Follow up the penalties arising from the contract, checking the suitability of the work done by the Contractor, giving warnings and directions, and notifying the OIZ in a timely manner if necessary.
<p>Contractor</p>	<ul style="list-style-type: none"> • Fulfillment of all requirements of ESMP and the relevant management plans, • Implementation of additional commitments to be included in the Construction Contract, • Preparation of its site-specific sub-management plans in line with this ESMP, including OHS plans before construction, as part of their method statement and submit to the OIZ and MoIT PIU for reviewing and approval, • Ensuring compliance with project standards, obtaining all relevant permits and licenses, • Implementing of the mitigation measures provided in this ESMP and monitoring of construction activities (including subcontractor activities) in compliance with the national legislation and WB standards, • Development of monitoring plans/procedures in accordance with the ESMP structure, implementation after the approval of OIZ and MoIT PIU, • Employment of competent Environmental, Social and OHS Experts (at least one Social Expert, one Environmental Expert and one full-time OHS Expert) within the scope of the project, • Training its own and subcontractor's staff on environmental, social and OHS issues, • Carrying out the environmental and social audits to monitor the ESMP practices on site and report on this to the supervision Consultant, • Submission of Environmental and Social Progress Reports (ESPRs) for environmental and social issues, mitigation, results and findings throughout the construction period to the Consultant and OIZ PMU, • Notifying immediately of the contingencies such as environmental, social and labor issues or accidents, incidents or loss of time to Consultant and OIZ and keeping an event log on site throughout the life of the Project. The incident report including root cause analysis and the corrective actions to be taken will be submitted to Consultant and OIZ within 30 days, • In addition to the project's Labor Management Procedures, the Labor Management Plan which will be prepared by the contractor will also comply with the Labor Legislation (4857 Labor Law), Occupational Health and Safety Plan and Procedures (6331 Occupational Health and Safety Law) and 5510 Social Insurance Law. • Developing and implementing Labour Management Plan (based on Project's LMP) including working conditions, fair treatment, non-discrimination, equal opportunity, vulnerable/disadvantaged workers, GBV, SEA/SH, prevention of child labor and forced labor issues under the project's Labor and Employment Policy for construction phase.

8.2.1 Reporting

Reporting process that should be put into action during the implementation phase of the project is an important tool to record and chase project activities in compliance with the national and WB standards. Therefore, the requirements of such processes are presented in Table 8.3.

Table 8.3 Requirements of Such Processes

Responsible Party	Roles & Responsibility
MoIT Project Implementation Unit (PIU)	<ul style="list-style-type: none"> • Quarterly inform the WB with Environmental and Social Reports (ESRs) to include summary of Environmental and Social Monitoring Reports (ESMRs) on the progress and updates. Quarterly ESRs will highlight any issues arising from non-compliance with ES requirements in the ESMP and how it has been/is being addressed from the ESF requirements point of view. • Submitting the quarterly Grievance Mechanism Report (GMR) to WB. • Site visits will be carried out quarterly and environmental and social issues will be examined on site. Findings after site visit will be included in the quarterly ESRs.
OIZ Project Management Unit (PMU)	<ul style="list-style-type: none"> • Review and submit monthly ESMRs to MoIT PIU. • Submitting the monthly GMR to cover both Consultant's GMR and Contractor GMR to MoIT PIU
Construction Supervision Consultant	<ul style="list-style-type: none"> • Prepare and submit monthly ESMR to PMU including monthly Environmental and Social Progress Report (ESPR) from the contractor. Monthly ESMRs will highlight any issues arising from non-compliance with ESMP requirements and how it has been/is being addressed from the ESF point of view. • Submit the monthly Grievance Mechanism Report to OIZ prepared in line with the complaint received and combine it with monthly the Grievance Mechanism Report prepared by the Contractor
Contractor	<ul style="list-style-type: none"> • Prepare and submit monthly ESPRs covering the progress of the construction activities and environmental and social issues to the Construction Supervision Consultant. • Submit the monthly GMR to Construction Supervision Consultant

Regarding the reporting process, workflow is summarized in Figure 8.3.

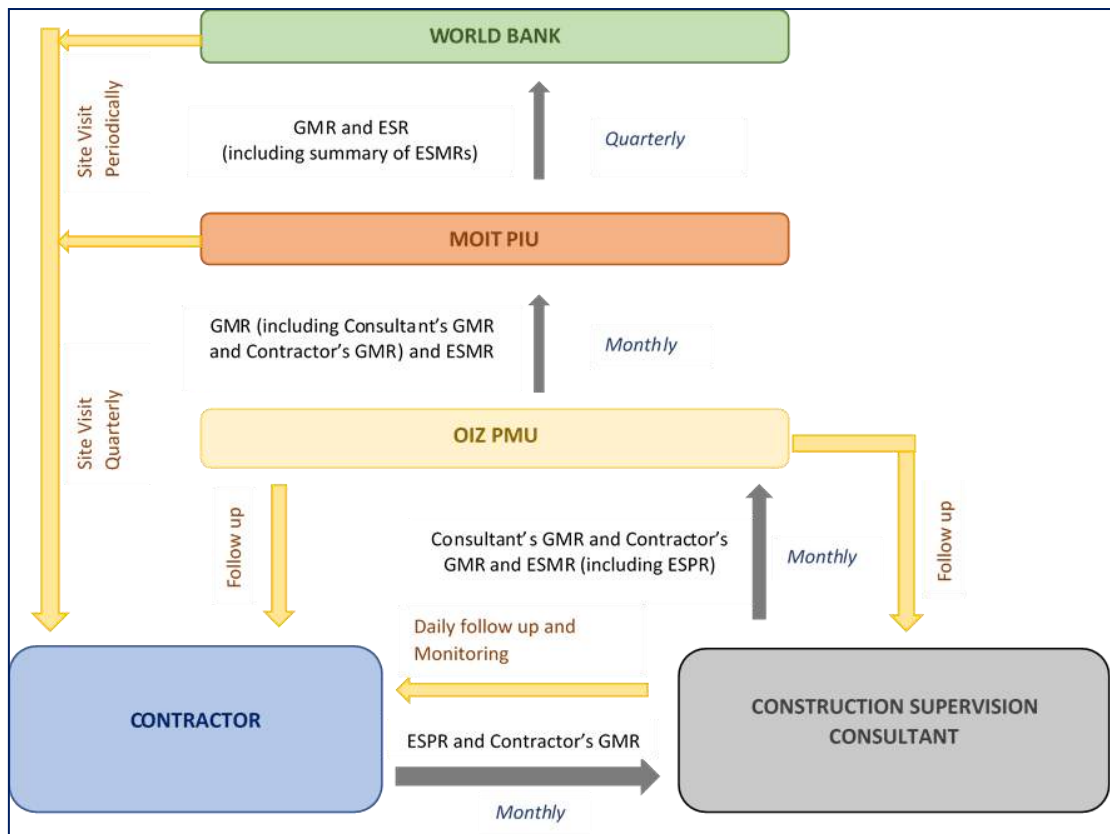


Figure 8.3 Reporting Process on ESMP Implementation

8.3 Capacity Building and Training

One of the main necessities of the ESMP is training for the Project Owner's and contractor's top-level management and employees.

Necessary training will be given to the personnel immediately after the recruitment process which will be also refreshed during the work period and will be performed at a number of levels. Some short-term training is required for the Environment Manager, other staff members of the PIU and the contractor staff to raise their levels of environmental awareness. The training can be conducted by either some external experts or through the help of in-house expertise of the PIU and the consultants and help of MoIT and WB. In the long-term training, special environmental and social issues will be examined, and likely solutions provided to the PIU.

The mentioned training will take place in a maximum two (2) days. This period will be determined by taking into account the responsible trainer's opinion on how many days it takes to explain the relevant subject the evaluation of the trainees' prior knowledge and capacities on the relevant subjects and the detailed scope of the syllabus that has been prepared. The PIU is also responsible for the monitoring of the Contractor's actions on training. The training will be given after signing the works contracts and refresher trainings will be held as needed depending on work progress and construction activities. Measurement and evaluation will be performed at the end of the training given to the personnel. This is to measure the effectiveness of the training and to measure the trainees' level of knowledge and competence. According to the review results, the training program can be modified, or trainers can be replaced, or training can be repeated, if needed, upon determining whether the training is effective.

The basic training that are planned to be given are as follows, but not limited to:

- Waste Management,
- Energy Efficiency,
- Safe Driving,
- Occupational Health and Safety,
- Chance Find Procedure,
- Induction training incl- Code of Conduct, GBV & SEA/SH, GRM, EHS and ESMP and
- First-Aid and Emergency Preparedness Measures

Environmental and Social Trainings

Environmental and Social Trainings will cover the waste management, energy efficiency, waste that causes environmental pollution, hazardous waste management, traffic management, infectious diseases and grievance redress mechanism. Environmental and social trainings will be given to the appointed staff and workers of the Contractor by Environmental and Social Consultant before the construction starts. The planned training is expected to take four (4) hours. The training will be refreshed as the work site changes and/or workers change.

Chance Find Procedure Training

Chance Find Procedure (see Annex 11) training will cover the actions required if previously unknown heritage resources, particularly archaeological resources, during the project construction. The training will be given to the appointed staff and workers of the Contractor by Environmental and Social Consultant before the construction starts. The planned training is expected to take two (2) hours. The training will be refreshed as the work site changes and/or workers change.

Occupational Health and Safety Training

OHS Training will cover the work-site accidents and their causes in construction works, special working subjects according to the teams, technical subjects such as the correct use of hand tools and equipment. Also, the training will focus on information on LMP, labor legislation, legal rights and responsibilities of employees, workplace order, legal consequences arising from work accident and occupational disease. The training will be given to the workers of the Contractor by MoIT before the construction starts. The planned training is expected to take two (2) hours. The training will be refreshed as the work site changes and/or workers change.

Induction Training

Induction Training will cover the current risks and potentially dangerous areas, emergency action and safety practices related to the site. The training will be given to the workers of the Contractor by MoIT two months before the construction starts. The planned training is expected to take two (2) hours. The training will be refreshed as the work site changes and/or workers change.

First Aid and Emergency Preparedness Training

The subjects of the First Aid and Emergency Preparedness Training will be defined by the relevant educational institutions. The training will be given to the appointed staff and workers of the Contractor before the construction starts. The planned training is expected to take 16 hours. The training will be refreshed as the work site changes and/or workers change.

Table 8.4 provide examples of the basic training for the ESIA implementation. The training programs will be developed annually and delivered by the PMU.

Table 8.4 Training Program

Training Topics	Responsible Party (Trainer Party)	Target Group	Duration	Time	Cost
<ul style="list-style-type: none"> • Overview of potential impacts and mitigation measures • Requirements of environmental monitoring • Occupational Health and Safety Training • Role and responsibilities of the contractor • Content and methods of implementation of environmental mitigation measures • Response and risk control • Preparation and submission of report • Risk response and control • Other areas to be determined 	<p>PMU with support of MoIT PIU</p>	<p>Contractor, related authorities: On-site construction management staffs, environmental staffs of contractor, related authorities</p>	<p>Two (2) days of training twice a year to be repeated on a yearly basis depending on needs.</p>	<p>After signing the works contract</p>	<p>Related to the construction personnel trainings will be Included in construction cost. On the other hand for the operation personnel training budget will be estimated as 20,000 dollars for the training purpose.-</p>
<ul style="list-style-type: none"> • General environmental and social management relating to the Project • Requirements on environmental and social monitoring • Monitoring and implementation of mitigation measures • Guide and supervise contractor in implementation of the ESIA • Documentation and reporting • • • Risk response and control • Other areas to be determined 	<p>Environmental and Social Consultant</p>	<p>Environmental staff, technical staff and administrative staff of the PMU</p>	<p>Two (2) days of training twice a year to be repeated on a yearly basis until the end of the DLP.</p>	<p>Soon after the Project effectiveness but at least one (1) month before the construction of the contract. The follow-up training will be scheduled as needed.</p>	<p>-</p>

In addition, the training program/modules shall address a range of issues, including but not limited to:

- Purpose of ESMP regarding the Project activities,
- Requirements in management plans and monitoring activities to be performed within the scope of this plan,
- Understanding of the sensitive environmental and social receptors within the project area and its vicinity, and
- Awareness-raising about the potential risk and impacts from the project activities,
- Grievance redress mechanism developed within the scope of the project, grievance redress mechanism officer and employee rights,
- Community health and safety risks and measures,
- OHS, first aid, emergency preparedness,
- Code of conduct and clothing,
- Communication with the local community,
- Code of conduct training, including gender-based violence, sexual harassment, sexual exploitation and abuse,
- Traffic and road safety principles, and
- Training aiming at the sorting, storage and environmental planning of waste.

9 STAKEHOLDER ENGAGEMENT

9.1 Stakeholder Management Under ESIA

Per Environmental and Social Standard ESS10 on Stakeholder Engagement and Information Disclosure, the implementing agencies should provide stakeholders with timely, relevant, understandable, and accessible information, and consult with them in a culturally appropriate manner, which is free of manipulation, interference, coercion, discrimination, or intimidation.

9.1.1 Affected Parties and Other Interested Parties

The stakeholder identification and mapping are a process and visual tool to clarify and categorize the various stakeholders. It is a collaborative process of analysis, debate and discussion that draws from multiple perspectives to determine appropriate partners. The process of stakeholder mapping is as important as the result, and the quality of the process depends heavily on the knowledge of the people participating.

Affected parties include local communities, community members, and other parties that may be subject to direct impacts from the Project. Specifically, the following individuals and groups fall within this category:

Internal Stakeholders:

- Denizli OIZ Personnel
- Supervision Consultant: Supervision Consultant and Employees
- Construction Contract: Construction Contract Firm and Employees

Communities (residents and businesses):

- Pınarkent Neighborhood (with a population of 6.778)

Business and Employees:

- Firms in Denizli OIZ (215 firms)
- Employees of OIZ firms: About 3.000 Employees
- Factories adjacent to Denizli OIZ and near WWTP
- Employees of Factories adjacent to Denizli OIZ and near WWTP:

The projects' stakeholders also include parties other than the directly affected communities, including project development and finance partners, government/ authorities, municipalities, and non-governmental organizations. Specifically, the following individuals and groups fall within interested parties:

Project Development and Finance Partners:

- World Bank
- Ministry of Industry and Technology

Central and Local Authorities:

- Denizli Provincial Governorate
- District Governorate of Pamukkale
- Denizli Provincial Directorate of Environmental Urbanism and Climate Change
- Denizli Industry and Technology Provincial Directorate
- Denizli Provincial Directorate of Health
- Provincial Directorate of Agriculture and Forestry

- Pamukkale District Directorate of Health
- Denizli Metropolitan Municipality
- Pamukkale Municipality
- State Hydraulic Works 21st Regional Directorate
- KGM 2nd Regional Directorate 27th Branch Chief
- TCDD 3rd Regional Directorate

Non-Governmental Organizations:

- Organized Industrial Zones Association
- Organized Industrial Zones Supreme Organization
- Denizli Chamber of Industry
- Irrigation unions

Print Media/ Electronic Media

- Deha 20
- Horoz Medya
- Denizli Yeni Olay

Stakeholder groups directly affected by the Denizli OIZ WWTP Project are landowners and users around the project area, firms and employees of the companies/ factories outside the OIZ but near to project area and DOIZ companies that will benefit from the WWTP

9.1.2 Previous Stakeholder Engagement Activities

As mentioned in the screening report, the OIZ conducted consultation meetings and questionnaires with the existing 215 industrial firms to collect data on their current water consumption and generated wastewater amount from their operations to determine the capacity of 2nd Stage WWTP facility. At the meetings, the firms were informed about the project scope. It is noted that no grievances have been conveyed about the existing operating WWTP at OIZ. OIZ informed the former landowner in October 2022 to end his cultivation activity after harvesting existing crops and leave the project land.

The engagement process began with the reconnaissance survey conducted on 12 and 13 September 2023. Findings of the field visits and observations were used to identify stakeholders. After the reconnaissance survey, meeting and knowledge-sharing platforms were established with various institutions, including governmental bodies and community members. The main platforms were public consultation meetings, round table meetings and key informant interviews. Minutes of meetings, questions, concerns, and grievances raised by stakeholders were collected during the engagement meetings held and contributed to social impact analysis.

9.1.3 Roles and Responsibilities

The entities responsible for carrying out stakeholder engagement activities are mainly the contractor and DOIZ project team. Monitoring and evaluation of the SEP will be conducted by the MoIT. The stakeholder engagement activities will be documented through progress reports. Roles and responsibilities in the Project are given in Table 9.1.

Table 9.1 Roles and Responsibilities

Responsible Entity	Roles / Responsibilities	Activities
World Bank	• To fulfill the project implementation support role to ensure that the project	• Monitoring SEP implementation through progress reports

	is carried out in line with WB ESF	
MolT PIU	<ul style="list-style-type: none"> • Ensuring that the stakeholder engagement is understood by PMUs and other stakeholders. • Coordinating interface and reporting to/from the World Bank in relation to the implementation of SEP • Updating the SEP periodically and upon major Project changes • Reviewing grievance records to illustrate significant non-compliance issues or recurring problems regarding stakeholder engagement and other Project activities and coming up with actions. • Coordinating and monitoring GM focal points in OIZ and contractor level • Implementing social and environmental monitoring Implementation of SEP including grievance mechanism 	<ul style="list-style-type: none"> • Monitoring SEP implementation through progress reports • Conducting site visits to audit the performance of the DOIZ regarding compliance with the provisions set out in the SEP Monitoring and evaluation
DOIZ Project Management Unit (PMU) / Social Expert OIZ Project Management Unit (PMU) / Public Relations Expert	<ul style="list-style-type: none"> • Implementation of SEP • Planning and implementation of SEP activities in close collaboration with the MolT PIU • Informing DOIZ's SEP-related activities to the management board of the DOIZ • Reporting on the implementation of SEP activities to MolT PIU • Executing the defined grievance mechanism in the SEP properly and informing MolT PIU about the overall implementation status of the Grievance mechanism 	<ul style="list-style-type: none"> • Implementing SEP • Reporting on the implementation of SEP activities to MolT PIU • Informing MolT PIU about the overall implementation status
Supervision Consultant	<ul style="list-style-type: none"> • Monitoring the contractors' recording and resolution of grievances, and reporting these to OIZ and PIU in their monthly progress reports • Contacting with PIU GM Focal Point for the follow-up of the grievances 	<ul style="list-style-type: none"> • Monitoring the contractors' recording and resolution of grievances, and reporting Implementation
Contractor	<ul style="list-style-type: none"> • Informing MolT PIU and DOIZ of any issues related to their engagement with stakeholders. • Informing PMU for environmental and social issues (e.g., noise, vibration, water quality monitoring, community health and safety, etc.) • Developing and implementing a grievance mechanism both for the E&S performance of the project and for their workforce including sub-contractors, before the start of work in compliance with PIU's GM requirements 	<ul style="list-style-type: none"> • Informing MolT PIU and DOIZ • Informing PMU • Developing and implementing a grievance mechanism

9.1.4 Disclosure and Consultation of the ESIA

Public disclosure of the ESIA/ESMP and SEP throughout the project life cycle ensures the transparency of projects' environmental and social risks and impacts, as well as proposed mitigation measures and monitoring activities. The documents will be disclosed on the DOIZ website, project webpage at MolT. Hardcopies will also be available at DOIZ management building, head of neighbourhood office and project site. DOIZ will assist key stakeholders, especially vulnerable and disadvantaged groups and individuals, in accessing the ESIA, ESMP and SEP.

9.2 Grievance Mechanism

Denizli OIZ will establish a project-based grievance mechanism before the construction. The main objective of a grievance mechanism is to assist to resolve complaints and grievances in a timely, effective, and efficient manner that satisfies all parties involved. Specific objectives are to strengthen accountability to all stakeholders and provide channels for them to provide feedback and raise concerns and to allow anonymous grievances to be processed per requirements of the ESS10. See the SEP for further details.

Fundamental principles of GM are guaranteeing that individuals with concerns receive timely resolution and providing the option for anonymous complaints and feedback, particularly in cases related to Gender Based Violence (GBV), Sexual Exploitation and Abuse (SEA) and Sexual Harassment (SH).

9.2.1 Grievance Mechanism at the National Level

The Presidential Communication Center (CIMER) receives and processes requests and grievances regarding public institutions and their activities. In case of DOIZ-related issues, the DOIZ Public Relations Specialist will receive the complaint from CIMER and assign it to the relevant parties within DOIZ, monitor the progress and supervise the relevant staff in closing the complaint. If the MoIT PIU will receive complaint from CIMER regarding the DOIZ activities, the specialist will work in coordination with MoIT PIU grievance mechanism focal point and they take necessary actions to close out the complaint.

In addition to CIMER, there is the Foreigners Communication Center (YIMER) which provides a centralized grievance system for foreigners.

CIMER

Website: <https://www.cimer.gov.tr/>
Hotline: 150
Postal Address: TC Cumhurbaşkanlığı Külliyesi Beştepe/ANKARA
Phone: +90 312 590 20 00
Fax: + 90 312 473 64 94

YIMER

Website: www.yimer.gov.tr
Hotline: 157
Postal Address: TC Cumhurbaşkanlığı Külliyesi Beştepe ANKARA
Phone: +90 312 5157 11 22

On the other hand, all stakeholders can also submit individual applications directly to the MoIT grievance mechanism established specifically for the Project.

MoIT

E-mail: info@sanayi.gov.tr
dboneri@sanayi.gov.tr
Website: www.sanayi.gov.tr

9.2.2 Project Level Grievance Mechanism

Currently, the employees/employers of the firms in the OIZ and the citizens can send any request, suggestion or grievances through telephone (+90 258 269 10 02), e-mail (dosb@dosb.org.tr) and via 'Send Message' and 'Communication' sections of its institutional website. DOIZ has ISO 9000 quality management certificate, and the complaint mechanism will be integrated into this system.

9.3 Consultation Documentation

The DOIZ will implement the monitoring activities throughout the lifetime of the Project. In addition, SEP will be updated in case of major changes that may arise in the scope of the Project.

Monthly monitoring activities will be carried out by the public relations expert of DOIZ and E&S compliance will be reported regularly to MoIT. MoIT will carry out its supervision monitoring as required and report to the World Bank quarterly on the progress and updates. Monitoring reports will aim to identify environmental, social, OHS related risks and impacts. Grievances will also be included in the monitoring reports.

The quarterly reports will also include account of any stakeholder engagement activities (as a separate log carried out during the specified reporting period) carried out along with a summary table of all grievances received and resolved during that reporting period. Key performance indicators are below:

- Number and nature of grievances including gender, category of grievance, status of grievance.
- Number and nature of grievances responded to in the target timeframe of one month.
- Providing feedback to stakeholders on the implementation of the Grievance mechanism.
- Internal audit of the Grievance mechanism to ensure that the Grievance mechanism is implemented and that grievances are adequately handled.

The SEP will be periodically revised and updated as necessary in the course of project implementation. Six-month summaries and internal reports on public grievances, enquiries, and related incidents, together with the status of implementation of associated corrective/preventive actions, will be collated by responsible staff and referred to the senior management of the project. The summaries will provide a mechanism for assessing both the number and nature of complaints and requests for information, along with the Project's ability to address those in a timely and effective manner. Information on public engagement activities undertaken by the Project during the year may be conveyed to the stakeholders in various ways such as round table meetings and information notes disseminated by social media and DOIZ's website.

10 CONCLUSION

TOIZP will be financed by the World Bank/ International Bank for Reconstruction and Development (IBRD) through a loan for which Ministry of Industry and Technology (MoIT) has been designated as responsible for project implementation by the Ministry of Treasury and Finance. The project aims to increase the efficiency, environmental sustainability, and competitiveness of OIZs in Türkiye. With a total budget of EUR 250.3 million, the project will be implemented by the Ministry of Industry and Technology (MoIT) through the General Directorate of Industrial Zones.

As a subproject under the TOIZP, the primary objective of this Project is to establish a second-stage WWTP with a daily capacity of 30,000 m³ in Denizli Organized Industrial Zone (DOIZ). The Project will occupy an area of 26,840 m². The planned WWTP will specialize in the removal of floatable materials, grit, grease, organic pollutants, and hazardous substances from the wastewater. The treated wastewater will be discharged into Çürüksu Creek. The planned WWTP will encompass physical treatment components (screening, grit and grease removal), chemical treatment processes (coagulation, flocculation, sedimentation), and biological treatment methods (bio-P and primarily aeration tanks) to effectively eliminate various industrial pollutants from the wastewater. Furthermore, the WWTP will have a sludge stabilization system, encompassing a return sludge pumping station, sludge thickening, and sludge dewatering, to manage excess sludge. The dewatered sludge, stored temporarily within the WWTP premises, will be transported to a licensed disposal facility, mirroring the process implemented for the existing WWTP. All necessary design and construction activities will be carried out. The project has two main components of which are WWTP and discharge line. In addition, the collector line and the energy transmission line are the associated facilities of the project. The construction of the WWTP does not require expropriation of any private land. The land of WWTP currently belongs to DOIZ and transfer of land was completed on 15.12.2020. For the Project Area, there is no pending title transfer, compensation payment, ownership disputes. In addition, collector and discharge lines will not require any land acquisition process since their construction will be under the existing roads. According to Turkish EIA regulation, "EIA is not required" decision is provided for this Project.

This ESIA has been prepared to identify potential adverse environmental and social (E&S) impacts/risks using the WB ESSs and ESMF, establish E&S baseline conditions and set out site specific mitigation, monitoring and institutional measures to be taken during pre-construction (land preparation), construction and operation phases of the Project to eliminate adverse environmental and social impacts/risks, offset or reduce them to acceptable levels.

The Project's anticipated environmental and social impacts/risks will be in terms of air quality, geology, soil, water resources, noise level, biological environment, landscape, resources and waste, climate change, socioeconomic environment and occupational health and safety, cultural heritage, and community health, safety and security. As the potential impacts and impact levels of the Project vary according to different phases of the Project (pre-construction, construction and operation) environmental and social management of the Project are assessed separately. ESMP consists of three main components in that scope, which are as follows:

- Mitigation Plan
- Monitoring Plan
- Monitoring Report

According to the impact assessment study done in the scope of ESIA, impact significance before mitigations and after mitigations for Construction Phase are as summarised below:

- Prior to mitigations, environmental aspects have been assessed as Low significance level except Soil and Contaminated Land of which is Medium, and after mitigations, the significance level of the impacts are expected to be Low or Negligible levels.

- Prior to mitigations, social aspects have been assessed as Low significance level except Community Health and Safety of which is Medium, and after mitigations, the significance level of the impacts are expected to be Low or Negligible levels.

According to the impact assessment study done in the scope of ESIA, impact significance before mitigations and after mitigations for Operation Phase are as summarised below:

- The Project has Positive impact on Water Resources and Use.
- For the rest of environmental aspects, prior to mitigations, Project has Low significance level except Waste Management of which is Medium, and Terrestrial Habitats and Flora-Fauna Species of which is Negligible and after mitigations, the significance levels of the impacts are expected to be Low or Negligible levels.
- Prior to mitigations, social aspects have been assessed as Low significance level except Community Health and Safety (Operational Management), Working Conditions and Labor Management: Gender Based Violence (GBV), Sexual Exploitation Abuse / Sexual Harassment (SEA/SH) and Traffic & Transportation of which are Medium. As for Occupational Health and Safety aspect, foreseen significance level of the impact prior to mitigations is High. After mitigations, the significance levels of these impacts are expected to be Low or Negligible levels.

Relevant mitigation measures were developed to avoid, minimize, mitigate and off-set significant adverse impacts and enhance beneficial impacts. Furthermore, the significance of project-induced residual adverse effects on the environment and community after implementation of the mitigation measures are assessed. As a part of the mitigation measures, it is recommended that site-specific Environmental and Social Management System (ESMS) covering all phases of the Project and consisting of management plans on different subjects will be developed by Project Management Unit (PMU) of OIZ for operational activities, and by the selected Contractor for construction activities. The recommended management plans and procedures for all phases of the Project are given in this report and all employees will be trained on all relevant management plans to be prepared.

Finally, planned monitoring activities for checking the effectiveness of the proposed mitigation measures are identified. To ensure the continuity and effectiveness of the implementation of mitigation management strategies defined, monitoring plays a key role. The main objective of the Monitoring Plan is to provide a basis for monitoring the implementation of the prescribed measures and requirements of this ESMP. Consequently, monitoring studies will provide implementation of impact mitigation measures and optimization of environmental protection by using best practices at all stages of the Project. According to the implementation of these plans, a monthly ESMR (Environmental and Social Monitoring Report) will be prepared. The findings of the ESMRs will keep the ESMP as a living document; thus, the ESMP should be reviewed and revised by the environmental and social unit of the DOIZ according to these findings, if necessary.

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ANNEXES

Annex 1 Contributors

Name-Surname	Profession
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Hüseyin TEKİN	Environmental Engineer, M.Sc.
Hatice ÇİNAR	Environmental Engineer, M.Sc.
Ebru Güler	Environmental Engineer
Reyyan KARAHAN	Environmental Engineer, M.Sc.
Mehmet Emre ÇALIŞIR	Environmental Engineer
Zafer AYAŞ	Biologist
Sümeyra ÇAKIR	Biologist
Nazan Duygu YİĞİTER	Urban Planner, Msc
Barış USLU	Hydrogeology Engineer
Senem Elçin BERBER	Sociologist, Ph.D.

Annex 2 The Title Deed for Parcel no 54



TÜRKİYE CUMHURİYETİ TAPU SENEDİ

TAŞINMAZ BİLGİLERİ	İl:	DENİZLİ		
	İlçe:	PAMUKKALE		
	Mahalle/Köy:	KOYUNALILAR		
	Mevki:	KARALAR		
	Ada:	Parsel:	54	
	Yüz Ölçümü:	26.209,54 m2	Cilt/Sayfa No:	1 - 54
	Niteliği:	ARSA		

MALİK BİLGİLERİ	Adı Soyadı/Baba Adı:	Hissesi:	Hisseye düşen m ² :
	DENİZLİ ORGANİZE SANAYİ BÖLGESİ	Tam	26.209,54

TESCİLE İLİŞKİN BİLGİLER	Taşınmaz No:	Edinme Nedeni:	İşlem Bedeli:
	20789428	Bedelsiz Kansıya Terk İşlemi	
Konum Bilgisi:	Tescil Tarihi/Yevmiye No:	Sicilne Uygundur	
	26/12/2022 - 47087	Veriliş Tarihi : 26/12/2022 İsmail ÖZKAYA Yetkili Müdür / Temsilcisi	

Mülkiyetin dışındaki aynı ve şahsi haklar ile çerh ve belirtmeler için tapu siciline müracaat edilmesi gerekmektedir.

Annex 3 Certificates and Official Letters

Environmental Management System Certificate




ÇEVRE YÖNETİM SİSTEMİ BELGESİ

ENVIRONMENTAL MANAGEMENT SYSTEM CERTIFICATE



TÜRK STANDARLARI ENSTİTÜSÜ
Bu belge ile

DENEZLİ ORGANİZE SANAYİ BÖLGESİ
OSB YAŞAR ÖNCAN CAD. NO:1 28130
DÜZELİ -
DENEZLİ / TÜRKİYE

Sertifika TS EN ISO 14001:2015 gereğince ÇEVRE YÖNETİM SİSTEMİNE sahip olduğuna tanıklık eder.

Belge kapsamı ekte verilmiştir



TURKISH STANDARDS INSTITUTION
hereby certifies that the organization

DENEZLİ ORGANİZE SANAYİ BÖLGESİ
OSB YAŞAR ÖNCAN CAD. NO:1 28130
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has an ENVIRONMENTAL MANAGEMENT SYSTEM which fulfills the requirements of the TS EN ISO 14001:2015

Scope of the certificate is given in annex

TÜRK STANDARLARI ENSTİTÜSÜ
TURKISH STANDARDS INSTITUTION

İzmir Belgelendirme Müdürü
Izmir Certification Manager



Alihan Nettekci

Türk Standartları Enstitüsü Türk Akademi Kurumu tarafından kurulmuştur.
Turkish Standards Institution has been accredited by the Turkish Accreditation Agency TÜRKAK.



Belge ile ilgili detaylı bilgi için
www.tse.org.tr adresine bakınız.

Belge No / Certificate No	CY-186708
Belge Tarihi / Date of Certificate	18.10.2023
Geçerlilik Tarihi / Valid Until	18.10.2025
Revizyon Tarihi / Date of Revision	18.10.2023
Bu Belge Tarihi / Initial Certification Date	20.10.2023

This certificate is valid provided the organization
will be maintained as approved in accordance

35101202000341861

Energy Management System Certificate



TSE
TÜRK STANDARDLARI ENSTİTÜSÜ

ENERJİ YÖNETİM SİSTEMİ BELGESİ

ENERGY MANAGEMENT SYSTEM CERTIFICATE

Partner of



TÜRK STANDARDLARI ENSTİTÜSÜ
bu belge ile

DÜZLÜ ORGANİZE SANAYİ BÖLGESİ
OSB YAŞAR ÖNCAN CAD. NO:1 26330 HONAZ -
DÜZLÜ / TÜRKİYE

Metabazım TS EN ISO 50001:2018 performansı uygun bir
ENERJİ YÖNETİM SİSTEMİ'ne sahip olduğunu beyler.

Belge kapsamı Ek'le verilmiştir



Bu belge Türkiye'de geçerlidir.
This certificate is valid in Turkey only.



TÜRK STANDARDLARI ENSTİTÜSÜ
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İnceleme Sorumlusu Müdürü
İnceleme Certification Manager



Abdül Nasih

Türk Standardları Enstitüsü, Türk Standardları Kurumu (TSEK) tarafından akredite edilmiştir.
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has a **ENERGY MANAGEMENT SYSTEM CERTIFICATE**
which fulfills the requirements of the TS EN ISO 50001:2018

Scope of the certificate is given in annex

Belge No / Certificate No	_____
EYS-17001	_____
Belge Tarihi / Date of Certificate	_____
17.11.2023	_____
Gezginlik Tarihi / Valid Until	_____
17.11.2026	_____
Denetçi Tarihi / Date of Reviewer	_____
17.05.2023	_____
Bu Belge Tarihi / Initial Certification Date	_____
17.05.2023	_____

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38011202112041881

Quality Management System Certificate

 	<h2 style="margin: 0;">KALİTE YÖNETİM SİSTEMİ BELGESİ</h2> <h3 style="margin: 0;">QUALITY MANAGEMENT SYSTEM CERTIFICATE</h3>											
<p>TÜRK STANDARLARI ENSTİTÜSÜ bu belge ile</p> <p>DENİZLİ ORGANİZE SANAYİ BÖLGESİ ÖRS YASAĞI ÖNCAN CAD. NO:1 30330 İZMİR - DENİZLİ / TÜRKİYE</p> <p>kuruluşunun TS EN ISO 9001:2015 gerektiren uygun bir KALİTE YÖNETİM SİSTEMİNE sahip olduğunu onaylar.</p> <p>Belge kapsamı Ek'le verilmiştir</p>	 <p>TÜRK STANDARLARI ENSTİTÜSÜ TURKISH STANDARDS INSTITUTION</p> <p style="text-align: center;">İzmir Belgelendirme Müdürü İzmir Certification Manager</p>  <p style="text-align: center;">Aksoy Nuri</p>	<p>TURKISH STANDARDS INSTITUTION herby certifies that the organization</p> <p>DENİZLİ ORGANİZE SANAYİ BÖLGESİ ÖRS YASAĞI ÖNCAN CAD. NO:1 30330 İZMİR - DENİZLİ / TÜRKİYE</p> <p>has a QUALITY MANAGEMENT SYSTEM which meets the requirements of the TS EN ISO 9001:2015</p> <p>Scope of the certificate is given in annex</p>										
	<p><small>Türk Standardları Enstitüsü Türk Akademi Kurumu TÜRKAK tarafından akredite edilmiştir. Turkish Standards Institution, has been accredited by the Turkish Accreditation Agency TÜRKAK.</small></p>	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="font-size: 8px;">Belge No / Certificate No</td> <td style="border-bottom: 1px solid black;">KY-4491-000-010</td> </tr> <tr> <td style="font-size: 8px;">Belge Tarihi / Date of Certificate</td> <td style="border-bottom: 1px solid black;">11.01.2021</td> </tr> <tr> <td style="font-size: 8px;">Geçerlilik Tarihi / Valid Until</td> <td style="border-bottom: 1px solid black;">11.10.2024</td> </tr> <tr> <td style="font-size: 8px;">Revizyon Tarihi / Date of Revision</td> <td style="border-bottom: 1px solid black;">11.11.2021</td> </tr> <tr> <td style="font-size: 8px;">Başlangıç Tarihi / Initial Certification Date</td> <td style="border-bottom: 1px solid black;">23.06.2008</td> </tr> </table> <p style="font-size: 8px; margin-top: 5px;">This certificate is valid provided the certificatee with the certification requirement is maintained.</p>	Belge No / Certificate No	KY-4491-000-010	Belge Tarihi / Date of Certificate	11.01.2021	Geçerlilik Tarihi / Valid Until	11.10.2024	Revizyon Tarihi / Date of Revision	11.11.2021	Başlangıç Tarihi / Initial Certification Date	23.06.2008
Belge No / Certificate No	KY-4491-000-010											
Belge Tarihi / Date of Certificate	11.01.2021											
Geçerlilik Tarihi / Valid Until	11.10.2024											
Revizyon Tarihi / Date of Revision	11.11.2021											
Başlangıç Tarihi / Initial Certification Date	23.06.2008											
353011202103511881												

	T.C. DENİZLİ VALİLİĞİ Çevre ve Şehircilik İl Müdürlüğü	
Belge No: TS/20/B2/8/1	SIFIR ATIK BELGESİ (Temel Seviye)	Tarih: 24/12/2020
Adı : DENİZLİ ORGANİZE SANAYİ BÖLGESİ MÜDÜRLÜĞÜ		
Adresi : DENİZLİ, DENİZLİ OSB Mahallesi, YAŞAR ÖNCAN CADDE, No: 1-, HONAZ, Türkiye		
Vergi No : 2920016010		
12/07/2019 tarihli ve 30829 sayılı Resmî Gazete’de yayımlanarak yürürlüğe giren Sıfır Atık Yönetmeliğince Sıfır Atık Yönetim Sistemini kurarak Sıfır Atık Belgesi ’ni almaya hak kazanmıştır.		
Belge Son Geçerlilik Tarihi: 24/12/2025		 Ahmet Fuik GÜLSEVER Çevre ve Şehircilik İl Müdürlüğü Vekili
<small>Bu belge, güncel elektronik form ile tutulmaktadır. Belge Değişikliği Adresi: http://www.muhim.gov.tr/icerik/valilik/belge-degisiklik E-Posta Adresi: GCTBAG@denizli.gov.tr</small>		

Environmental Permit Certificate for Wastewater Discharge

	<p>T.C. ÇEVRE, ŞEHİRCİLİK VE İKLİM DEĞİŞİKLİĞİ BAKANLIĞI ÇED İzin ve Denetim Genel Müdürlüğü</p> <p>ÇEVRE İZİN BELGESİ</p>
Belge No	: 223184886.0.1
Başlangıç Tarihi	: 23.08.2023
Bitiş Tarihi	: 23.06.2028
Tesis Adı	: DENİZLİ ORGANİZE SANAYİ BÖLGESİ MÜDÜRLÜĞÜ
Tesis Adresi	: DENİZLİ, DENİZLİ OSB Mahallesi, YAŞAR ÖNCAN CADDE, No: 1-, HONAZ, Türkiye
İşletme Vergi No	: 2920016010
Çevre İzin ve Lisans Konusu	: Atık su Deşarjı

Yukarıda adı ve açık adresi belirtilen tesise Çevre İzin ve Lisans Yönetmeliği kapsamında ÇEVRE İZİN BELGESİ verilmiş olup 20.06.2023 tarihli ve 92549487-150/E.8661 sayılı yazı ile birlikte geçerlidir. Aynı kullanılmaz.


Mehmet ECER
Bakan a.
Genel Müdür

5070 sayılı Elektronik İmza Kanunu gereği bu belge elektronik imza ile oluşturulmuştur.



T.C.
ÇEVRE VE ŞEHİRCİLİK BAKANLIĞI
Çevresel Etki Değerlendirmesi, İzin ve Denetim Genel Müdürlüğü

Sayı : 41234558-110.03.01-E.95823
Konu : SAİS Onayı (Denizli OSB)

04.06.2018

DENİZLİ ORGANİZE SANAYİ BÖLGESİ MÜDÜRLÜĞÜ NE

İlgi : Denizli Çevre ve Şehircilik İl Müdürlüğü'nün 13.03.2018 tarih ve 1652 sayılı yazısı.

İlgi yazı da Denizli OSB Müdürlüğü Merkezi Atıksu Arıtma Tesisine, Atıksu İzleme Sistemleri (SAİS) Tebliği kapsamında kurulmuş olan istasyon ile ilgili olarak Bakanlığımız ve Denizli Çevre ve Şehircilik İl Müdürlüğü teknik personellerince yerinde inceleme yapıldığı ifade edilerek, düzenlenen kontrol formu tarafımıza gönderilmiştir.

Bu kapsamda söz konusu sistemlerin 22/03/2015 tarihli ve 29303 sayılı Resmî Gazete'de yayımlanarak yürürlüğe giren SAİS Tebliği'ne uygun olarak kurulduğu ve ölçüm verilerinin Bakanlığımıza düzenli bir şekilde iletildiği görülmüştür.

SAİS Tebliği 27. Maddede kapsamında SAİS onayını müteakip tesisin için işleme uygulaması kaldırılıp, Tebliğ 19. Maddesinde yer alan Bütünsel Karşılaştırma Testi (BKT) uygulamasına geçilecektir. Çevre izni belgenizde sorumlu olduğunuz tablo ve parametreleri esas alarak SAİS BKT uygulamaları Tebliğde belirtilen periyotta sürdürülecektir. BKT ye ilişkin hususlar ilgili Tebliğ Madde 19 da detaylı olarak yer almaktadır. Bütünsel Karşılaştırma Testi (BKT) uygulamasında amaç; SAİS'de ölçülen on-line ölçüm sonuçları ile tesisin atıksu da sorumlu olduğu SKKY sektör tablosundaki değerlerin karşılaştırılmasıdır.

Bundan sonraki süreçte; Bakanlığımıza iletilen ölçüm verilerinin eksiksiz ve doğru olarak iletilmesi noktasında gerekli hassasiyet ve titizliğin gösterilmesi, tesiste oluşması muhtemel bakım, onarım, arıza gibi durumların Bakanlığımız ile Çevre ve Şehircilik İl Müdürlüğümüze resmî yazı ile iletilmesi, SAİS BKT uygulamasının Tebliğ 19. Maddesine göre 3 ayda bir yapılması gerekmektedir.

Bilgilerinizi ve gereğini rica ederim.

DENİZLİ ORGANİZE SANAYİ BÖLGESİ MÜDÜRLÜĞÜ
GELEN EVRAK
Sayı No : 2018/675
Tarih : 04.06.2018
Ek :

Arıtma Tesisi İşletme
Müdürlüğü

Ahmet TAS
Bölge Müdürü

e-İmza ile

Alınca TANAS

Bakan a.

Genel Müdür Yardımcısı

Dağıtım:

Gereği:

Denizli Organize Sanayi Bölgesi Müdürlüğü ne

Bilgi:

DENİZLİ VALİLİĞİNE

(Çevre ve Şehircilik İl Müdürlüğü)

BELGENİN ASLI
ELEKTRONİK İMZALIDIR
04/06/2018
Sahne SOZBAĞI

No: 5070 sayılı Elektronik İmza Kanunu gereği bu belge elektronik imza ile imzalanmıştır.
Elektronik İmza Kodu: NKRKDDYFLJKRZACF84 E-İmza Tarih: 04/06/2018
Müstahf Kuralı Mahallinde Bekletilerek Davasız Yoluyla (Devlet Gazetesi Balıkesir) 3. 221 No 278
Çankaya/ANKARA Telefon No: (312) 410 14 00 Faks (312) 419 21 92

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Bölge log

Hazardous Waste Temporary Storage Permit



T.C.
DENİZLİ VALİLİĞİ
Çevre ve Şehircilik İl Müdürlüğü



Sayı : 20575802-145.14-E.10071
Konu : Tehlikeli/Tehlikesiz Atık Geçici
Depolama İzni Hk.

09.07.2020

DENİZLİ ORGANİZE SAN BÖLG MÜDÜRLÜĞÜNE

İlgi : Denizli Organize San Bölge Müdürlüğü'nün 17.03.2020 tarihli ve sayılı yazısı.

İlgi yazıda, Denizli Organize Sanayi Bölgesi Müdürlüğü bünyesinde faaliyet göstermekte olan Atıksu Arıtma tesisinden kaynaklanan tehlikeli ve tehlikesiz atıklar için "Tehlikeli/Tehlikesiz Atık Geçici Depolama İzni" verilmesi talep edilmektedir. Müdürlüğümüz personelince yerinde yapılan incelemede; tesise ait tehlikeli atık geçici depolama alanının bulunduğu ve Atık Yönetimi Yönetmeliği'nin 13 üncü maddesinde belirtilen şartları sağladığı tespit edilmiştir.

02.04.2015 tarihli ve 29314 sayılı Resmî Gazete'de yayımlanarak yürürlüğe giren Atık Yönetimi Yönetmeliği'nin atık üreticisinin ve atık sahibinin yükümlülükleri başlıklı bölümünün 9. maddesinin (f) bendinde; "Atık üreticisi Bu Yönetmelik hükümlerine uygun olarak izin alınması zorunda olan geçici depolama alanları için il müdürlüğünden izin almakla yükümlüdür" hükmü yer almaktadır.

Bu doğrultuda, ilgili Yönetmeliğin 7. maddesine istinaden işletmeniz bünyesinde bulunan atık geçici depolama alanına "Tehlikeli Atık Geçici Depolama İzni" verilmiş olup yönetmelik hükümlerine uygun depolama yapılması hususunda;

Bilgilerinizi ve gereğini rica ederim.

e-İmza ile

Murat VARDAR
İl Müdürü a.

Çevre ve Şehircilik İl Müdür Yrd. V.

Not: 5070 sayılı Elektronik İmza Kanunu gereği bu belge elektronik imza ile imzalanmıştır.

İmza Depolama Kodu : MHC/BE/300/Çevre Talep Adresi : <https://www.tskty.gov.tr/mcsm/ev-sahibizlik-bakim.asp>
Sevindik Mh, Ankara Bv. No:295-29175 Meriçce/Endri/DENİZLİ
Tel:0.258.2680054 (pbx 3 hat) Faks: 0.258.2682782
E-Posta: dsm@tcce.gov.tr

Bilgi için Çevre
ŞAMİLOĞLU
Kötrüger





T.C.
DENİZLİ VALİLİĞİ
İl Tarım ve Orman Müdürlüğü



Sayı : E-43613556-230.04.02-4996081
Konu : OSB Atık Su Arıtma Tesisi Amaçlı İmar
Planı Talebi (Pamukkale İlçesi 0/54 Parsel)

DAĞITIM YERLERİNE

İlgi : a) Denizli Büyükşehir Belediye Başkanlığının 02.07.2021 tarihli ve 97467462-28900 sayılı yazısı.
b) Denizli Çevre Şehircilik ve İklim Değişikliği İl Müdürlüğü'nün 03.02.2022 tarihli ve E-20195388-220.02-2856645 sayılı yazısı.

İlgi yazılar ile İlimiz Pamukkale İlçesi Koyusaliler Mahallesi sınırları içerisinde bulunan, tapuda 54 parsel numarası ile kayıtlı ve toplam alanı 2,684 hektar olan taşınmaz üzerinde Denizli Organize Sanayi Bölgesi Müdürlüğü tarafından yapılmış planlanan "Arıtma Tesisi Amaçlı İmar Planı" ile ilgili tarım dışı kullanım talep edilerek kurum görüşümüzün bildirilmesi istenmiştir.

Söz konusu arazinin yerinde incelenmesi ile hazırlanan Etüt Raporunun Müdürlüğümüzce değerlendirilmesi sonucu; taşınmazın Sarayköy Büyük Ova Koruma Alanı içerisinde kaldığı ve Sulu Mutlak Tarım Arazisi özelliğinde olduğu tespit edilmiştir.

Bu doğrultuda talep 14.07.2021 tarihinde toplanan İl Toprak Koruma Kurulunun gündemine alınmış ve Kurul 2021/117-17 sayılı karar ile söz konusu yatırımın yapılmasını uygun görmüştür. İl Toprak Koruma Kurulunun söz konusu alan hakkında verdiği tarım dışı kullanım izni ile beraber dosya nihai karar vermek üzere Bakanlığımıza gönderilmiş olup, Bakanlığımız tarafından dosyanın incelenmesi ve Bakanlık Makamının 22.03.2023 tarih ve E.4559369 sayılı oluru ile taşınmazın 5403 sayılı Toprak Koruma ve Arazi Kullanım Kanununun 14. maddesinin (b) bendi gereğince, **Müdürlüğümüze sunulan ve Valilik Makamınca onaylanarak ekte gönderilen Toprak Koruma Projesine uyulması şartı ile istenilen amaç doğrultusunda kullanılması uygun görülmüştür.**

9 Aralık 2017 tarihinde Resmî Gazetede yayımlanarak yürürlüğe giren Tarım Arazilerinin Korunması, Kullanılması ve Planlanmasına Dair Yönetmeliğin 12. Maddesinin 8. fıkrası ve Uygulama Talimatının 9. Maddesinin 10. Fıkrasına göre Arazi kullanımına ilişkin verilen bu izin, izin tarihinden itibaren iki yıl içerisinde planların onaylanmaması durumunda geçersiz kabul edilir. Verilen izin amacı dışında kullanılamaz. Amacı dışında kullanımın tespit edilmesi halinde 5403 sayılı kanunun 20 ve 21. maddesine göre işlem yapılır.

Bilgilerinizi ve gereğini arz/rica ederim.

Yılmaz ERKAYA
İl Müdürü

Ek: Toprak Koruma Projesi (1 Takım)

Bu belge, görevi elektronik ınsa ile anlaşılmıştır.

Doğrulama Kodu: SBEA7A71-FE90-MB2-B6AB-970D50E1FCC2

Doğrulama Adresi: <https://www.turkiye.gov.tr/tarim-ebys>

İncilipazar Mah. İncilipazar Caddesi No:2 Pamukkale/Denizli

Bilgi için: Beyran TURHAN

Tel: (0258) 212 54 00 Faks: (0258) 212 54 87

Müdürü

E-Posta: denizli@tarim.gov.tr / kep@tarim.gov.tr

Telefon No (258) 212 54 89-

KEP Adresi: tarim@tarim.gov.tr / kep@tarim.gov.tr

284





T.C.
PAMUKKALE BELEDİYE BAŞKANLIĞI
Fen İşleri Müdürlüğü

Sayı : E-11420898-804.01-44741
Konu : İMAR YOLLARI HK

31.05.2022

DENİZLİ ORGANİZE SANAYİ BÖLGE MÜDÜRLÜĞÜNE
YAŞAR ÖZCAN CADDESİ NO:1 20330 OSB HONAZ- DENİZLİ

İlgi : 25.05.2022 tarihli ve 599 sayılı yazınız

Mülkiyeti Denizli Organize Sanayi Bölgesi Müdürlüğüne ait olan İlimiz, Pamukkale İlçesi Kuyunalılar Mahallesi içinde bulunan 54 numaralı parselde Atıksu Arıtma tesisi yapılması amacıyla yönelik olarak Resmi Kurumlara yapılmış başvurular neticesinde ilgili kurumlardan T.C. Sanayi Bakanlığı ve T.C. Tarım Ve Orman Bakanlığında 54 numaralı parselin tarım dışı kullanıma ilişkin Kamu Yararı Kararı alındığı, alınan söz konusu parseldeki yapılacak Atıksu Arıtma Tesisi ile ilgili mevzuat gereği Bakanlığınızda OSB onaylı sınır kapsamına alınması ve sonrasında imar planlarının T.C. Sanayi Ve Teknoloji Bakanlığında onayına sunulması, yapılacak tesisi ile ilgili hazırlanan fizibilite raporlarında Bölge Müdürlüğünüzdeki atık suların Atıksu Arıtma Tesisine iletimi güzergahında Belediyemiz sorumluluğundaki imar yolları kullanıldığı, kullanılan imar yollarının sakınca olup olmadığı sorulmaktadır.

Mülkiyeti Denizli Organize Sanayi Bölgesi Müdürlüğüne ait olan İlimiz, Pamukkale İlçesi Kuyunalılar Mahallesi içinde bulunan 54 numaralı parselde yapılacak, Atıksu Arıtma tesisi yapılması amacıyla yönelik olarak hazırlanan fizibilite raporlarında, Bölge Müdürlüğünüzdeki atık suların Atıksu Arıtma Tesisine iletimi güzergahında, Belediyemiz sorumluluğundaki imar yolları kullanılmamasında sakınca bulunmamaktadır.

Gereğini rica ederim

DENİZLİ ORGANİZE SANAYİ BÖLGE MÜDÜRLÜĞÜ
GELEN EVRAK
Sayı: 2022/564
Tarih: 31.05.22
İmza:
X

İnşaat Kontrol
Müdürlüğü

Arıtma Tesisi İşletme
Müdürlüğü

Ahmet TAŞ
Bölge Müdürü

Hüseyin ÇOLAKOĞLU
Belediye Başkanı
Belediye Başkan Yardımcısı

Bu belge, güvenli elektronik imza ile imzalanmıştır.

Doğrulama Kodu: od0wtz-2009pp-502J2c-59DL/nt-fzcbA8C Doğrulama Linki: <https://www.turkiye.gov.tr/gubaleci-belediye-ahaz>

İnciözü Mh. Fevzi Çakmak Bn. No:214 Pamukkale/Denizli
Telefon No: (258)444 92 20 Faks No: (258)211 73 01
e-Posta: pamukkale@pamukkale.bel.tr İnternet Adresi:
<https://www.pamukkale.bel.tr>
Kop Adresi: pamukkalebelediyesi@tsofl.km.tr

Büyük İmza: Ahmet FİDAN
Mühürsüz
Telefon No:





T.C.
PAMUKKALE BELEDİYE BAŞKANLIĞI
İmar ve Şehircilik Müdürlüğü

Sayı : E-64793364-045.01-61666
Konu : Kurum Görüşü

07.11.2022

DENİZLİ ORGANİZE SANAYİ BÖLGE MÜDÜRLÜĞÜNE
YAŞAR ÖZCAN CADDESİ NO:1 20330 OSB HONAZ- DENİZLİ

İlgi yazımızda; mülkiyeti Denizli Organize Sanayi Bölgesi Müdürlüğüne ait olan, Denizli İli, Pamukkale İlçesi, Koyunaltılar mahallesinde bulunan 54 numaralı parselde Atıksu Arıtma Tesisi yapılması amacıyla yönelik olarak Resmî Kurumlara yapılan başvurular neticesinde ilgili kurumlardan, T.C. Sanayi ve Teknoloji Bakanlığı ve T.C. Tarım ve Orman Bakanlığından 54 numaralı parselin tarım dışı kullanımına ilişkin Kamu Yararı Kararının alındığı ve onaylandığı, söz konusu parselde yapılması planlanan Atıksu Arıtma Tesisi ile ilgili olarak mevzuatı gereği Bakanlığımızca OSB onaylı sınır kapsamına alınması konusunda T.C. Sanayi ve Teknoloji Bakanlığı tarafından onay alındığı, bahsi geçen parselde yapılacak olan tesise ilişkin hazırlanan fizibilite raporlarında Bölge Müdürlüğünüzdeki atık suların Atıksu Arıtma Tesisine İletimi ve Atıksu Arıtma Tesisinden Deşarj noktasına İletimi güzergahında Belediyemiz sorumluluğundaki imar yollarının kullanıldığı bildirilmiş olup yazınız ekinde gönderilen güzergah üzerindeki imar yollarının Atıksu Arıtma Tesisi İletim ve deşarj hattı olarak kullanılması konusunda izin istenmektedir.

Yazınız ekinde gönderilen güzergah üzerindeki 1/1000 Ölçekli Uygulama İmar Planı ile Belediyemiz sorumluluğundaki planlı imar yollarının Atıksu Arıtma Tesisi İletim ve deşarj hattı olarak kullanılmasında Belediyemiz açısından herhangi bir sakınca görülmektedir.

Bilgilerinize rica ederim.

Mehmet KESKİN
Belediye Başkanı a.
Belediye Başkan Yardımcısı



Bu belge; güvenli elektronik imza ile imzalanmıştır.

Doğrulama Kodu: gVTDG1-pwrD1B-R2Jm2A-8/20201-ypw6UJa4 Doğrulama Linki: <https://www.turkiye.gov.tr/izmirli-belediye-ebay>

İnciözü Mah. Fecri Çelebi Cad. No: 234 Pamukkale/Denizli
Telefon No: (258)444 92 20 Faks No: (258)211 73 01
e-Posta: genel@pamukkale.bel.tr İnternet Adresi:
<http://www.pamukkale.bel.tr>
Kod Adresi: pamukkalebelediyesi.izmir1.kcp.tr

Bilgi için: Mehmet Rıza GENÇ
Müdür
Telefon No: (258)296 96 96-(1700)



Annex 4 EIA is not Required Decision





T.C.
ÇEVRE ve ŞEHİRCİLİK BAKANLIĞI
Çevresel Etki Değerlendirmesi, İzin ve Denetim Genel Müdürlüğü



T.C.
DENİZLİ VALİLİĞİ
ÇEVRE, ŞEHİRCİLİK VE İKLİM DEĞİŞİKLİĞİ İL MÜDÜRLÜĞÜ

Karar Tarihi : 05-10-2022
Karar No : 20195388 220-02 E-202267

ÇEVRESEL ETKİ DEĞERLENDİRME BELGESİ

25.11.2014 tarih ve 29186 sayılı Resmî Gazete'de yayımlanarak yürürlüğe giren Çevresel Etki Değerlendirmesi Yönetmeliği'nin Ek-II listesinde yer alan 'DENİZLİ ORGANİZE SANAYİ BÖLGESİ YENİ MERKEZİ ATIKSU ARITMA TESİSİ (26.840 m² yüzölçümlü alanda, 30.000 m³/gün kapasiteli)' projesi ile ilgili olarak inceleme-değerlendirme yapılmış ve Proje Tanıtım Dosyasında çevresel etkilere karşı alınması öngörülen önlemler yeterli görülmüştür. Ayrıca ÇED Raporu hazırlanmasına gerek bulunmadığı tespit edilmiş olup, söz konusu projeye ÇED Yönetmeliğinin 17. Maddesi gereğince Valiliğimizce "Çevresel Etki Değerlendirmesi Gerekli Değildir" kararı verilmiştir.


Melisret Fazıl Namık ÖZTÜRK
Çevre, Şehircilik ve İklim Değişikliği İl Müdürü

Proje Sahibi : DENİZLİ ORGANİZE SANAYİ BÖLGESİ MÜDÜRLÜĞÜ
Proje Yeri : Denizli İl, Pamukkale İlçesi, KOYUNALILAR MAHALLESİ, KARALAR MEVKİİ, 2 PAFTA, 0 ADA, 54 NUMARALI PARSEL
Kapasite : 30.000 m³/gün kapasiteli fiziksel arıtma üniteleri, kimyasal arıtma üniteleri, ileri biyolojik arıtma üniteleri, çamur üniteleri yer alacak AAT

Annex 5 Permission Applications about Collector Line to Institutions

The Application Letter to DSİ 212th Branch Directorate

	DENİZLİ ORGANİZE SANAYİ BÖLGESİ MÜDÜRLÜĞÜ	
Sayı: 2023/1151		26.09.2023
DENİZLİ DEVLET SU İŞLERİ 212. ŞUBE MÜDÜRLÜĞÜ Şemikler Mah. Gümüşler Bulv. No:40 Merkezefendi/DENİZLİ		
<p>Denizli Organize Sanayi Bölgesi Müdürlüğümüzce; "Dünya Bankası Finansmanlı Organize Sanayi Bölgeleri Kredilendirme Projesi" kapsamında, Denizli İli, Pamukkale İlçesi, Koyunalılar Mah. M22A.20C.1D pafta, 54 parselde yapılması planlanan, 30.000 m³/gün kapasiteli "Denizli OSB Yeni İleri Biyolojik ve Kimyasal Merkezi Atık Su Arıtma Tesisi'ne" iletilecek atık su için kanalizasyon kolektör hattı yapılması gerekmektedir.</p> <p>Yapılacak olan kolektör hattı ve güzergâhı ile ilgili bilgi edinilmesini ve görüşlerinizi arz ederiz.</p>		
 Ahmet TAŞ Bölge Müdürü	 M. Abdülkadir USLU Yön. Kur. Başkanı	
Eki: 1 adet güzergâh haritası krokisi (CD)		
YT/KC/FE		
Telefon (0.258): 269 10 02 - 269 17 17 Arıtma Tesisi : 269 17 66 - 269 17 67 Honor. Mal. Müd. 242 001 60 10 Denizli OSB Mah. Yasar Öncan Cad. No:1 20330 - HONAZ /DENİZLİ		Faks : 269 10 01 İletişim : 269 12 02 - Yangın : 110 Doğalgaz - Elektrik - Su Arıza : 187 www.dosb.org.tr / e-posta : dosb@dosb.org.tr denizliosb@hs03.kep.tr

	DENİZLİ ORGANİZE SANAYİ BÖLGESİ MÜDÜRLÜĞÜ	
Sayı: 2023/1250		06.09.2023
AYDEM ELEKTRİK PERAKENDE SATIŞ A.Ş. Adalet Mah. Hasan Gönüllü Bulv. No:15/1 20040 Merkezefendi / DENİZLİ		
<p>Denizli Organize Sanayi Bölgesi Müdürlüğümüzce, "Dünya Bankası Finansmanlı Organize Sanayi Bölgeleri Kredilendirme Projesi" kapsamında, Denizli İli, Pamukkale İlçesi, Koyunçiler Mah. M22A.20C.1D pafta, 54 parselde yapılması planlanan, 30.000 m³/gün kapasiteli "Denizli OSB Yeni İleri Biyolojik ve Kimyasal Merkezi Atık Su Arıtma Tesisi'ne" iletilecek atık su için kanalizasyon kolektör hattı yapılması gerekmektedir.</p> <p>Yapılacak olan kolektör hattı ve güzergâhı ile ilgili bilgi edinilmesini ve görüşlerinizi arz ederiz.</p>		
 Ahmet TAŞ Bölge Müdürü	 M. Abdülkadir USLU Yön. Kur. Başkanı	
Eki: 1 adet güzergâh haritası krokisi.		
YY/KC/PE		
Telefon (0.258) : 269 10 02 - 269 17 17 Arıtma Tesisi : 269 17 66 - 269 17 67 Honaz Mal Müd. 292 001 60 10 Denizli OSB Mah. Yaşar Öncan Cad. No:1 20030 - HONAZ / DENİZLİ	Faks : 269 10 01 İhtiyaç : 269 12 62 - Faksın : 110 Doğalgaz - Elektrik - Su Arıza : 187 www.dosb.org.tr / e-posta : dosb@dosb.org.tr denizli@dosb.org.tr	



**DENİZLİ
ORGANİZE SANAYİ BÖLGESİ
MÜDÜRLÜĞÜ**



Sayı: 2023//249 26.09.2023

**T.C.
ENERJİ VE TABİİ KAYNAKLAR BAKANLIĞI
BORU HATLARI İLE PETROL TAŞIMA A.Ş.
DOĞAL GAZ TOPTAN SATIŞ DAİRE BAŞKANLIĞI
Bilkent Plaza A-2 Blok 06800
Bilkent/ANKARA**

Denizli Organize Sanayi Bölgesi Müdürlüğümüzce, **"Dünya Bankası Finansmanlı Organize Sanayi Bölgeleri Kredilendirme Projesi"** kapsamında, Denizli İli, Pamukkale İlçesi, Koyunalılar Mah. M22A.20C.1D pafta, 54 parselde yapılması planlanan, 30.000 m³/gün kapasiteli "Denizli OSB Yeni İleri Biyolojik ve Kimyasal Merkezi Atık Su Arıtma Tesisine" iletilcek atık su için kanalizasyon kolektör hattı yapılması gerekmektedir.

Yapılacak olan kolektör hattı ve güzergâhı ile ilgili bilgi edinilmesini ve görüşlerinizi arz ederiz.



Ahmet TAŞ M. Abdülkadir USLU
Bölge Müdürü Yön. Kur. Başkanı

Eki: 1 adet güzergâh haritası krokisi

YT/KC/PE

Telefon (0.258) : 269 10 02 - 269 17 17	Faks : 269 10 01
Arıtma Tesisi : 269 17 06 - 269 17 07	İletişim : 269 12 62 - Yangın : 110
Honozat Mal Müd. : 292 001 60 10	Doğalgaz - Elektrik - Su Arıza : 187
Denizli OSB Mah. Yaşar Öncan Cad. No:1	www.dosb.org.tr / e-posta : dosb@dosb.org.tr
20330 - HONAZ / DENİZLİ	denizliosh@s03.tsp.tr



**DENİZLİ
ORGANİZE SANAYİ BÖLGESİ
MÜDÜRLÜĞÜ**



Sayı: 2023/1248

26.09.2023

**DENİZLİ BÜYÜKŞEHİR BELEDİYESİ SU VE
KANALİZASYON İDARESİ MÜDÜRLÜĞÜ**
Topraklık Mah. İzmir Bulv. No:41A 20150
Pamukkale / DENİZLİ

Denizli Organize Sanayi Bölgesi Müdürlüğümüzce, "Dünya Bankası Finansmanlı Organize Sanayi Bölgeleri Kredileendirme Projesi" kapsamında, Denizli İli, Pamukkale İlçesi, Koyunliler Mah. M22A.20C.1D pafta, 54 parselde yapılması planlanan, 30.000 m³/gün kapasiteli "Denizli OSB Yeni İleri Biyolojik ve Kimyasal Merkezi Atık Su Arıtma Tesisi'ne" iletilecek atık su için kanalizasyon kolektör hattı yapılması gerekmektedir.

Yapılacak olan kolektör hattı ve güzergâhı ile ilgili bilgi edinilmesini ve görüşlerinizi arz ederiz.


Ahmet TAŞ
Bölge Müdürü


M. Abdülkadir USLU
Yön. Kur. Başkanı



Eki: 1 adet güzergâh haritası krokisi

YT/KC/FE

Tel:fon (0.258) : 269 10 02 - 269 17 17
Arıtma Tesisi : 269 17 66 - 269 17 67
Honaş Mol Mah. 392 001 60 10
Denizli OSB Mah. Yaşar Örcan Cad. No:1
20330 - HONAZ (DENİZLİ)

Faks : 269 10 01
İtalye : 269 12 62 - Yangın : 110
Doğalgaz - Elektrik - Su Arıza : 187
www.dosb.org.tr / e-posta : dosb@dosb.org.tr
denizlisob@hsg3.kep.tr



**DENİZLİ
ORGANİZE SANAYİ BÖLGESİ
MÜDÜRLÜĞÜ**



Sayı : 2023/1184

11.09.2023

**T.C.
DEVLET DEMİR YOLLARI GENEL MÜDÜRLÜĞÜ
3. BÖLGE MÜDÜRLÜĞÜ'NE
Mimar Sinan, Atatürk Caddesi No:121 B
Konak /İZMİR**

Denizli Organize Sanayi Bölgesi Müdürlüğü tarafından "Dünya Bankası Finansmanlı Organize Sanayi Bölgeleri Kredilendirme Projesi" kapsamında, Denizli İli, Parnukale İlçesi, Koyunaliiler Mahallesi M22A.20C.1D pafta, 54 parselde yapılması planlanan, 30.000 m³ / gün kapasiteli "Denizli OSB Yeni İleri Biyolojik ve Kimyasal Merkezi Atık Su Arıtma Tesisi 'ne" iletilecek atık su için kanalizasyon kolektör hat yapılacaktır.

Ekli krokide gösterilen güzergâhta yapılması planlanan kolektör hat tren yolu hattı ile kesişmektedir.

Kolektör hattın, tren yolu hattının altından geçişinin sağlanabilmesi ve tarafınızca uygun görülen geçiş güzergâhının belirlenmesi için gereğinin yapılmasını saygılarımla arz ederim.



Ekleri:

-Kolektör Hat Güzergâhı ve Tren Yolu Hat Güzergâhını Gösteren Kroki.

ÖG/KC/FE/İE/08.09.2023

Telefon (0.258) : 269 10 02 - 269 17 17
Arıtma Tesisi : 269 17 66 - 269 17 67
Hemş. Mül. Müd. 292 001 00 10
Denizli OSB Müh. Yasar Özcan Cad. No:1
20330 - HONAZ /DENİZLİ

Faks : 269 10 01
İfaiye : 269 12 62 - Yangın : 110
Düşükger - Elektrik - Su Arıza : 187
www.dosh.org.tr / e-posta : dosh@dosh.org.tr
denizli@isbglis03.kep.tr



**DENİZLİ
ORGANİZE SANAYİ BÖLGESİ
MÜDÜRLÜĞÜ**



Sayı: 2023/1305

09.10.2023

TÜRK TELEKOM DENİZLİ İL MÜDÜRLÜĞÜ
Onbeş Mayıs Mah. Gazi Mustafa Kemal Blv. 125
Pamukkale, Denizli

Denizli Organize Sanayi Bölgesi Müdürlüğümüzce, "Dünya Bankası Finansmanlı Organize Sanayi Bölgeleri Kredilendirme Projesi" kapsamında, Denizli İli, Pamukkale İlçesi, Koyunaliiler Mah. M22A.20C.ID pafta, 54 parselde yapılması planlanan, 30.000 m³/gün kapasiteli "Denizli OSB Yeni İleri Biyolojik ve Kimyasal Merkezi Atık Su Arıtma Tesisi"ne" iletilcek atık su için kanalizasyon kolektör hattı yapılması gerekmektedir.

Yapılacak olan kolektör hattı ve güzergâhı ile ilgili bilgi edinilmesini ve görüşlerinizi saygılarımla arz ederim.

Ahmet TAŞ
Bölge Müdürü

Ekl: 1 adet güzergâh haritası krokisi

Elden teslim alınmıştır -
Koray Yılmaz
10.10.2023

TT/SK/FE

Telefon (0.258) : 269 10 02 - 269 17 17
Aritma Tesisi : 269 17 06 - 269 17 67
Hemz Mal Müd. 292 001 60 10
Denizli OSB Mah. Yaşar Öncan Cad. No:1
26330 - HONAZ / DENİZLİ

Faks : 269 10 01
İdariye : 269 10 62 - Yangın : 110
Doğalgaz - Elektrik - Su Arıza : 187
www.dosb.org.tr / e-posta : dosb@dosb.org.tr
denizli@dosb03.kep.tr



**DENİZLİ
ORGANİZE SANAYİ BÖLGESİ
MÜDÜRLÜĞÜ**



Sayı: 2023/1378

03.10.2023

ADM ELEKTRİK DAĞITIM A.Ş.
Adalet Mah. Hasan Gönüllü Bulv.
No:17/A 20040
Merkezefendi / DENİZLİ

Denizli Organize Sanayi Bölgesi Müdürlüğümüzce, "Dünya Bankası Finansmanlı Organize Sanayi Bölgeleri Kredilendirme Projesi" kapsamında, Denizli İli, Pamukkale İlçesi, Koyuneliler Mah. M22A.20C.1D pafta, 54 parselde yapılması planlanan, 30.000 m³/gün kapasiteli "Denizli OSB Yeni İleri Biyolojik ve Kimyasal Merkezi Atık Su Arıtma Tesisi'ne" iletilecek atık su için kanalizasyon kolektör hattı yapılması gerekmektedir.

Yapılacak olan kolektör hattı ve güzergâhı ile ilgili bilgi edinilmesini ve görüşlerinizi arz ederiz.


Ahmet TAŞ
Bölge Müdürü


M. Abdülkadir USLU
Yön. Kur. Başkanı



Eki: 1 adet güzergâh haritası krokisi

Büra PARTA

03.10.2023
tarafınca teslim alınmıştır.


YT/SC/FE

Telefon (0.258) 269 10 02 - 269 17 17
Arıtma Tesisi : 269 17 60 - 269 17 07
Hemz Mah Müd. 292 001 69 10
Denizli OSB Mah. Yağar Öncan Cad. No:1
26530 - HONAZ /DENİZLİ

Faks : 269 10 01
İhtiyaç : 269 12 62 - Yangın : 110
Doğalgaz - Elektrik - Su Arıza : 187
www.dosb.org.tr / e-posta : dosbu@dosb.org.tr
denizli@dosb.org.tr

Annex 6 Answers for Permission Application about Collector Line from Institutions

Answer from DESKİ



T.C.
DENİZLİ BÜYÜKŞEHİR BELEDİYE BAŞKANLIĞI
Denizli Su ve Kanalizasyon İdaresi Genel Müdürlüğü
İçme Suyu ve Kanalizasyon Dairesi Başkanlığı

Sayı : E-19891938-622.03-109105
Konu : Kolektör Hattı

11.10.2023

DENİZLİ ORGANİZE SANAYİ BÖLGE MÜDÜRLÜĞÜNE
YAŞAR ÖZCAN CADDESİ NO:1 20330 OSB HONAZ- DENİZLİ

İlgili : 26.09.2023 tarihli ve 1248 sayılı yazınız

Bahse konu kolektör hattı güzergahı üzerinde bulunan atıksu ve içme suyu hatlarımızın projeleri yazınız ekinde dir.
Bilgilerinizi rica ederim.

Ufuk YARAR
Genel Müdür a.
İçme Suyu ve Kanalizasyon Dairesi Başkanı

Ek:
1- İçme Suyu Proje
2- Atıksu Proje


DENİZLİ BÜYÜKŞEHİR BELEDİYE BAŞKANLIĞI BÖLGESEL MÜDÜRLÜĞÜ
GİLEN EVRAK
Gelen No: 2023/1454
Tarih: 11.10.23
İşlem:
İzlenim:

İzlenim Kontrolü
Mühürü
Ayrıca Denizli Organize Sanayi Bölgesi
Müdürlüğü
Ayrıca T.A.B.
Mühürü

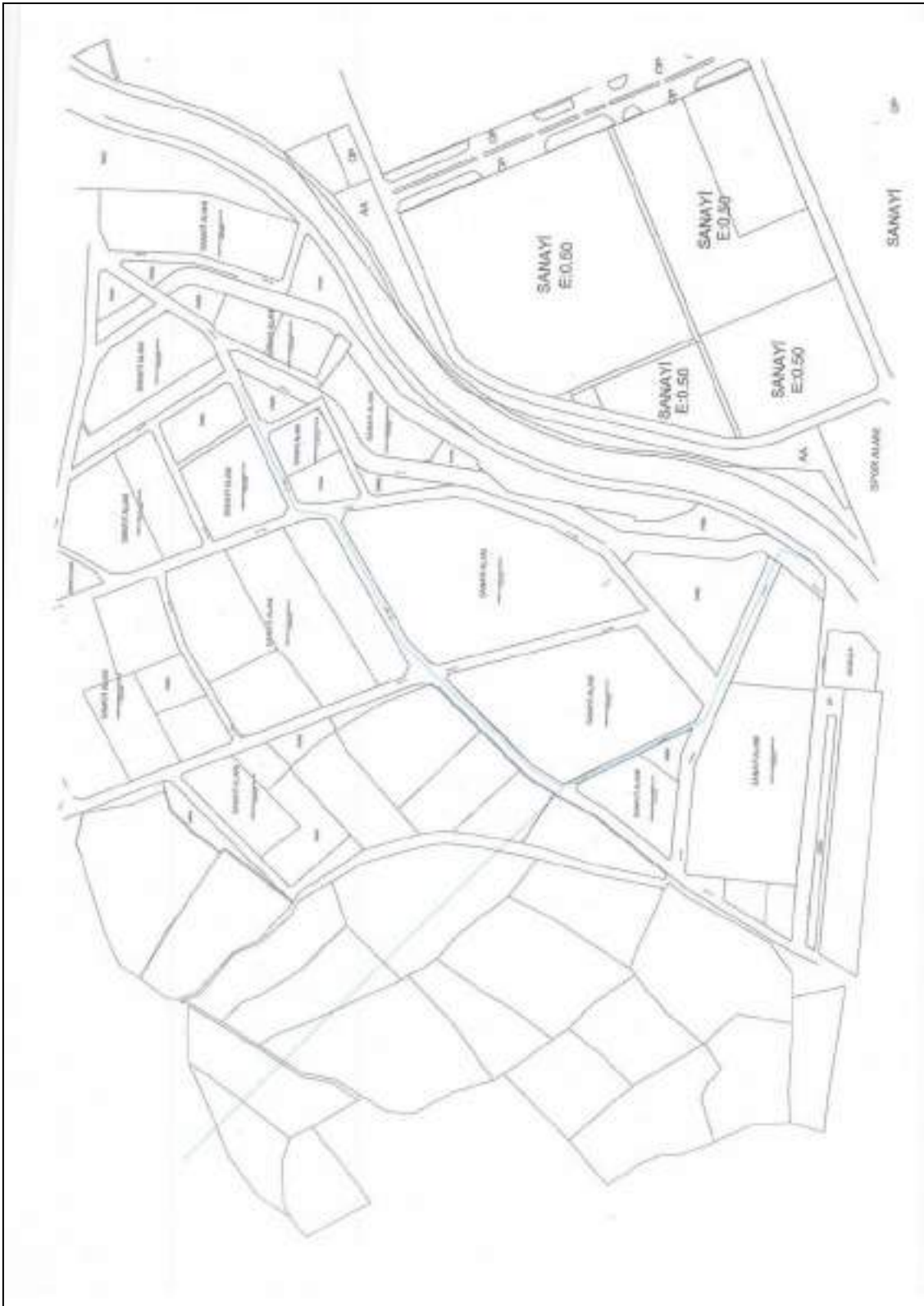
Bu belge, gizli elektronik form ile oluşturulmuştur.
Doğrulama Kodu: 63a+7p-4E17Bq-yto2Rz-0470y0-3be08C1D Doğrulama Linki: <https://www.denizli.gov.tr/cikari-bulgu/ie-eha>

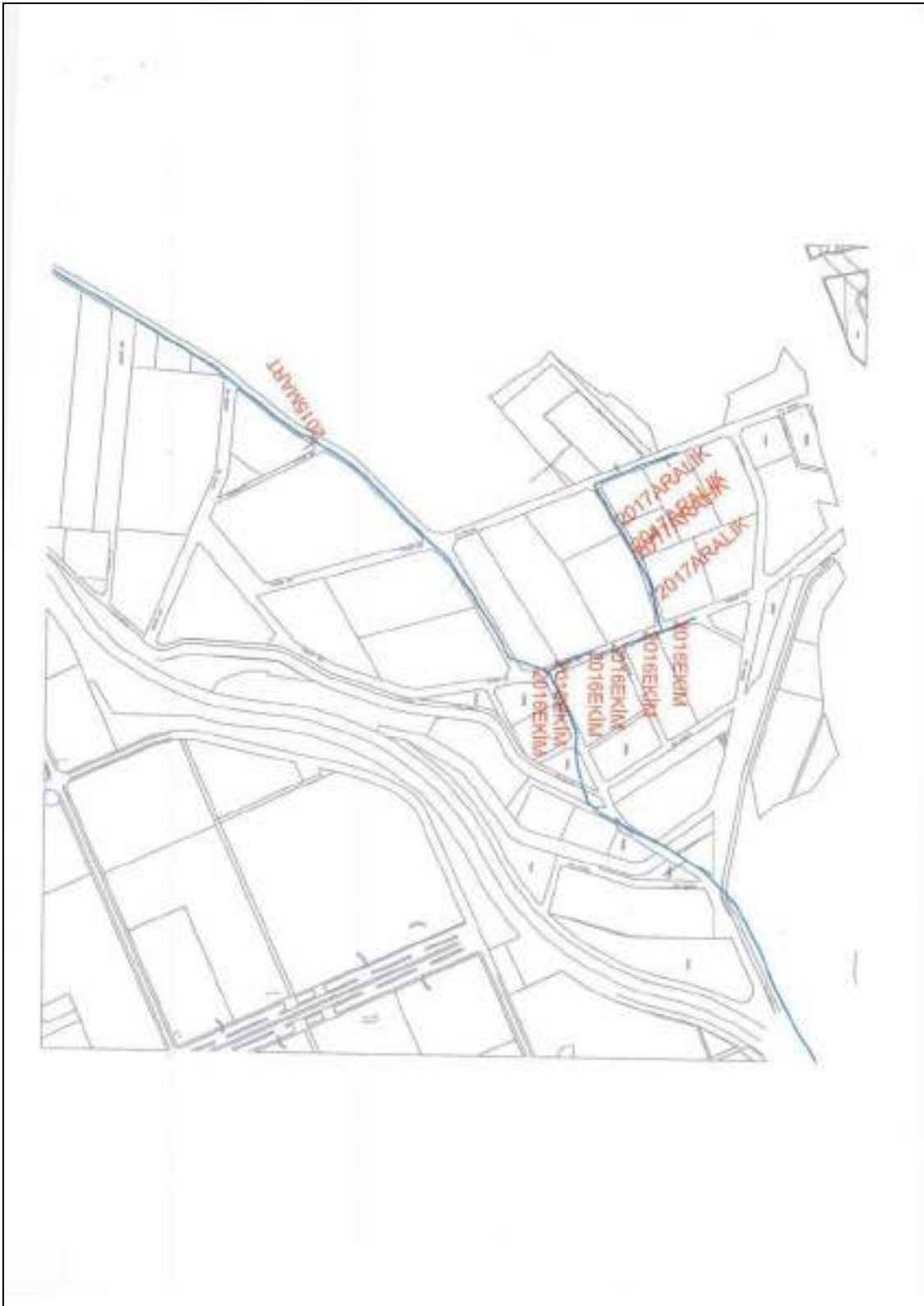
Ticaret Sicil No: 258297 20 20 Faks No: (258)261 22 49
E-Posta: desk@denizli.gov.tr İnternet Adresi: <https://www.denizli.gov.tr>
Kep Adresi: desk@denizli.gov.tr

Bilgi için: Oran ÖZDEMİR
Tekniker
Telefon No:



1







Sayı : YPPM-BGY
Konu : Kurum Görüşü (Denizli Organize Sanayi Bölgesi)

DENİZLİ ORGANİZE SANAYİ BÖLGESİ MÜDÜRLÜĞÜ

Denizli OSB Mahallesi Yazar Öncan Caddesi No:1
Honaz - Denizli / TÜRKİYE
Tel.: 0 258 267 13 00

İlgililer : 10/10/2023 tarihli ve 1307 sayılı yazı.

İlgili yazı ekindeki dilekçede; Denizli İli, Pamukkale İlçesi, Koyunaliiler Mahallesi sınırları içerisinde 0 ada 54 parsel ve devamında belirtilen hat boyutları ile "Denizli OSB Yeni İleri Biyolojik ve Kimyasal Merkezi Atık Su Arıtma Tesisine" iletilen atık su için kanalizasyon kollektör hattı yapılacak belirtilmekte ve bu kapsamda Şirket görüşünüz talep edilmektedir.

Yapılan incelemede; söz konusu tesisin yanından 31,5 kV gerilim seviyeli 3x3/0 iletkenli Prarken Kİ'les enerjilenen Organize 1-2 fiderli Enerji Nakil Hattının (ENH) geçtiği tespit edilmiştir.

Yazının ekinde paylaşılan olan veriler koordinatları olarak sabahı değişiklik ve sapmalar gösterebilmektedir.

Mevcutta planlanan kollektör hattının geçeceği güzergahta kazı yapılacak bölge için kurulumun ait yeraltı hattı olacağı tespit edilmiş olup mevcut hatın korunması için bu kapsamda yapacağımız çalışma öncesinde mutlaka Şirketimiz Denizli Merkez İşletme Yöneticiliğinden yer gösterimi ve çalışmaya eşlik edecek personel istenilmesi gerekmektedir.

Elektrik Kuvvetli Akım Tesisi Yönetmeliğinde (EKATY) belirtilen şartlar dâhilinde, bu ENH ile söz konusu parsel/parseliler üzerinde yapılacak her türlü yapı ve yapı üzerindeki ilavelet (anten direği, kütmes, çatı örtüsü, güneş enerjisi sistemleri vb.) arasında dikey ve yatay emniyet mesafelerinin sağlanması gerekmektedir. EKATY içerisindeki hava hattı iletkenlerinin en büyük sığ ve solumun durumlarında üzerinden geçtikleri yerlere ve yapılara olan en küçük dikey ve yatay uzaklıklar yazının ekinde belirtilmiştir. (EK-1)

Söz konusu parsel/parseliler üzerinde tarafınızca yapılan/yapılacak yapılar ile elektrik tesisleri arasında EKATY'de belirtilen emniyet mesafelerinin ihlal edilmezli halinde; **tüm emniyet ve mal güvenliği sorumluluğu tarafınıza aittir olacaktır.**

Gereğini arz ederiz.

Saygılarımla,

e-İmza
Emre DURUSOY
Yatırım Planlama Müdürü

e-İmza
Mehmet KILIÇOĞLU
Bağlantı Görüş Yöneticisi

DENİZLİ ORGANİZE SANAYİ BÖLGESİ MÜDÜRLÜĞÜ
GELEN EVRAK
Tarih: 2023/10/12
İlgililer: 13.10.23
İMZA

YERLİ KONTROL
Mühürü

Arıtma Tesis İşletme
BİREK-1000

ALINAN TAĞ
İmza

- Ek:
- 1- _Uydu Görüntüsü
 - 2- _EK-1 (EKATY - Yapı Yaklaşım Mesafeleri)
 - 3- _KMZ Datası



Elektrik Kuvvetli Akım Tesisleri Yönetmeliği Çizelge 5 – Çizelge 8

Çizelge-5 Hava hattı hatlarının en büyük sınırlı durumda yapılara olan en küçük yatay uzaklıklar

Hattın izin verilen en yüksek sürekli işletme gerilimi kV	Yatay uzaklık (m)
0-1 (1 dahil)	1
1-36 (36 dahil)	2
36-72,5 (72,5 dahil)	3
72,5-170 (170 dahil)	4
170-420 (420 dahil)	5

Çizelge-8 Hava hattı hatlarının en büyük sınırlı durumda üzerinden geçtikleri yerlere olan en küçük düşey uzaklıklar

Hatların üzerinden geçtiği yer	Hattın izin verilen en yüksek sürekli işletme gerilimi (kV)					
	0-1 (1 dahil)	1-17,5	36	72,5	170	420
En küçük düşey uzaklıklar (m)						
Üzerinde trafik olmayan sular (suların en kabarcık yüzeyine göre)	4,5 *	5	5	5	6	8,5
Araç geçmesine elverişli çayır, tarla, otlak vb.	5 *	6	6	6	7	9,5
Araç geçmesine elverişli köy ve şehir içi yolları	5,5 *	7	7	7	8	12
Şehirlerarası karayolları	7	7	7	7	9	12
Ağaçlar	1,5	2,5	2,5	3	3	5
Üzerine herkes tarafından çıkılabilen düz damlı yapılar	2,5	3,5	3,5	4	5	8,7
Üzerine herkes tarafından çıkılmayan eğik damlı yapılar	2	3	3	3,5	5	8,7
Elektrik hatları	2	2	2	2	2,5	4,5
Petrol ve doğal gaz boru hatları	9	9	9	9	9	9
Üzerinde trafik olan sular ve kanallar (bu uzaklıklar suların en kabarcık düzeyinden geçebilecek taşıtların en yüksek noktasından ölçülecektir.)	4,5	4,5	5	5	6	9
İletişim (haberleşme) hatları	1	2,5	2,5	2,5	3,5	4,5
Elektriksiz demiryolları (ray demirinden ölçülecektir)	7	7	7	7	8	10,5
Obyolar	14	14	14	14	14	14

(*): Yatıtılmıg hava hattı kabloları kullanıldığında bu yükseklik değerleri 0,5 m. azaltılacaktır.




Sayı : OD
Konu : Kolektör Hattı Güzerghu Hk.

**DENİZLİ ORGANİZE SANAYİ BÖLGESİ
MÜDÜRLÜĞÜ**
Denizli OSB Mah. Yaşar Öncan Cad. No:1
Honaz/Denizli

İlgili : 26/09/2023 tarihli ve 2023/1250 sayılı yazı

İlgili yazınıza ile yapılacak olan kolektör hattı ve güzergahı ile ilgili bilgi talep edilmiştir.(Ek-1)

Şirketimiz Aydem Elektrik Perakende Satış A.Ş. Enerji Piyasası Düzenleme Kurumu'ndan (EPDK) aldığı lisans ile görevli tedarik şirketi (GTŞ) sıfatını haizdir. Şirketimiz söz konusu lisansı kapsamında Elektrik Piyasası Lisans Yönetmeliği'nin 34' üncü maddesinde de belirtildiği üzere, başta (i) ilgili dağıtım bölgesinde bulunan serbest olmayan tüketicilere Enerji Piyasası Düzenleme Kurulu (Kurul) tarafından onaylanan perakende satış tarifeleri üzerinden elektrik enerjisi satışı yapma, (ii) ilgili dağıtım bölgesinde, son kaynak tedarikçisi sıfatıyla elektrik enerjisi sağlama, (iii) herhangi bir bölge sınırılması olmaksızın serbest tüketicilerle, elektrik enerjisi ve/veya kapasitesi ticareti yapabilme ve (iv) diğer lisans sahibi tüzel kişilerle elektrik enerjisi ve/veya kapasite ticareti faaliyetinde bulunma hak ve yetkisine sahiptir.

Şirketimizin GTŞ sıfatı ile faaliyet gösterdiği Aydın, Denizli ve Muğla illerinde dağıtım faaliyetinden sorumlu dağıtım şirketi ADM Elektrik Dağıtım A.Ş.'dir (ADM EDAS). Dağıtım şirketi, Elektrik Piyasası Kanunu'nun 9 uncu maddesinde de detaylandırıldığı üzere, lisansında belirlenen bölgede enerjinin sürekli ve verimli dağıtım, kaçak kullanım faturaları, mühürleme, saba tutanakları, esyacı değişikliği, açma-kapama işlemleri, saygıç okuma, bağlama yapma, aydınlatma ve enerji tüketim bilgileri hizmetlerinin yerine getirilmesinden sorumludur. Bu sebeple, şirketimizin ilgili talebinin gerçekleştirilmesi ile taraf sızın bulunmaması nedeniyle, yapılacak olan kolektör hattı ve güzergahına ilişkin bölgeden sorumlu ADM EDAS'tan görüş alınmasının daha uygun olacağı hususunu bilgilerinize sunarız.

Saygılarımızla,

İker AKMALI
Müşteri Operasyonları Müdürü
E-İmzalıdır

Alev BEDİRKURUM
Müşteri İlişkileri Müdürü
E-İmzalıdır

DENİZLİ ORGANİZE SANAYİ BÖLGESİ MÜDÜRLÜĞÜ	
GELEN EVRAK	
Tarih No	2023/1400
Sıra No	29.09.23
İlgili	

İnşaat Kontrol
Müdürlüğü
Aydın Tesis İşletme
Müdürlüğü

ALİMET TAŞ
SAYI: 2023/1400
TARİH: 29.09.23

Aydem Elektrik Perakende Satış A.Ş. - Adilet Mah. Hacı Çiğdem Blv. No:15/1 20040 Merkez/İzmir/DENİZLİ
T:0258 240 08 80 F:0258 240 08 84 Çiğdem Mahallesi 0950 800 0 181
www.aydemperakende.com.tr bilgi.aydemperakende@aydemenerji.com.tr

Evrak Pazar Kodu : 22132
Evrakın Değerlendirme İlgili : <https://dogrudan.aydem.com.tr/Visyon-Değeri/Belge-Değeri.aspx?ID=85FE800R3>

Answer from Enerya Denizli Gas Distribution Inc.



Tarih : 31.10.2023
Sayı : 23200002003874
Konu : Kurum Görüşü Hakkında

DENİZLİ ORGANİZE SANAYİ BÖLGESİ MÜDÜRLÜĞÜ
HONAZ/DENİZLİ

İlgili : 24.10.2023 tarih ve 2023/1361 sayılı yazı.

İlgili yazıda Denizli Organize Sanayi Bölgesi Müdürlüğünce, "Dünya Bankası Finansmanı Organize Sanayi Bölgeleri Kredilendirme Projesi" kapsamında, Denizli İl, Pamukkale İlçesi, Koyunallar Mahallesi, M22A.20C.1D pafta, 54 parselde yapılması planlanan, 30.000 m³/gün kapasiteli "Denizli OSB Yeni İleri Biyolojik ve Kimyasal Merkez Atık Su Arıtma Tesisi"ne" iletilen atık su için kanalizasyon kolektör hattı yapımı gerektiği belirtilmektedir. Bununla birlikte yapılacak olan kolektör hattı ve güzergahı ile ilgili kurum görüşünüzün tarafınıza iletilmesi talep edilmektedir.

Şirketimiz tarafından gerekli incelemeler yapılmış olup, söz konusu alanda tamamlanmış ya da planlanmış herhangi bir yatırımımız bulunmamaktadır. Bu sebeple yapılacak olan çalışmada şirketimiz açısından bir sakınca bulunmamaktadır.

Gereğini bilgilerinizi arz ederiz.

Saygılarımla,

İZMİRLİ ORGANİZE SANAYİ BÖLGESİ MÜDÜRLÜĞÜ
CELAL EVRAK
Tarih: 2023/10/30
Yer: Honaz
İmza:
...

İzmirli Organize Sanayi Bölgesi Müdürlüğü

Atık Su Arıtma Tesisi Müdürlüğü

Ahmet TAS
İzmir Müdürlüğü

ENERYA DENİZLİ GAZ DAĞITIM A.Ş.
Turgutreis Mah. Ankara Bulvarı No: 134 20170 Denizli
T: +90 258 205 90 70 F: +90 258 260 56 00
Mersis No: 05440530000000000000000000
www.enerya.com.tr

AHLAÇCI

Türk Telekomünikasyonları A.Ş.

İLETİŞİM: CAKIR UMAL
+90 (258) 555 41 03

Enjün Planlama ve Yatırım Müdürlüğü

Denizli Telekomünikasyonları
İzmir Bölge Müdürlüğü



SAYI : TT.50170929 - 305.04 - 272441
KONU : Proje İşlemleri

01.11.2023

DENİZLİ ORGANİZE SANAYİ BÖLGE MÜDÜRLÜĞÜ
DENİZLİ ORGANİZE SANAYİ BÖLGE MÜDÜRLÜĞÜ
OSB MH. YAŞAR ÖNCAN CAD. NO:1 HONAZ / DENİZLİ

İlgi: 09/10/2023 Tarih ve 1305 Sayılı Yazınız.

İlgi yazı ve eki incelenmiştir. Denizli İli, Honaz İlçesi, Pınarkent Mahallesi, Ek'te gösterilen alan üzerine "Dünya Bankası Finansmanlı Organize Sanayi Bölgeleri Kredilendirme Projesi" sebebiyle belirtilen cadde/ler üzerinde haberleşme trafiğini sağlayan lokal fiber optik kablolarımız, bakır kablolarımız, yer altı ve yer üstü tesislerimiz bulunmaktadır. Çalışma güzergahlarında bulunan altyapımızı gösterir projeler Ek'te gönderilmiştir. Yapılacak çalışmalarda güzergah ve kablomuzun korunması için gerekli hassasiyetin gösterilmesi gerekmekte olup parseller üzerinde çalışma yapılacak ise şirketimize bilgi verilmesi gerekmektedir.

Şirketimizin kamu haberleşmesini üstlenen ana operatör olması münasebetiyle hizmetin sürekliliği ve kalitesini temin etmek üzere BTK ve müşteriler nezdinde sorumlulukları bulunmaktadır. Bu kapsamda 5809 sayılı Elektronik Haberleşme Kanunu'nun 22 ve devamı maddelerinde geçiş hakkı düzenlenmesi bulunmaktadır. Yine aynı kanunun 24. Maddesi uyarınca; "Geçiş hakkı; elektronik haberleşme hizmeti vermek amacıyla, her türlü elektronik haberleşme altyapısını ve bunların destekleyici ekipmanlarını, kamu ve/veya özel mülkiyete konu taşınmazların altından, üstünden, üzerinden, geçirme ve bu altyapıyı kurmak, değiştirmek, sökmek, kontrol, bakım ve onarımlarını sağlamak ve benzeri amcılarla söz konusu mülkiyet alanlarını bu Kanun hükümleri çerçevesinde kullanma hakkını kapsar." hükmü yer almaktadır. Ayrıca anılan kanun öncesinde yapılan yerler de 406 Sayılı Telefon ve Telgraf Kanunu hükümlerine dayanılarak imal edilmiştir. Bu doğrultuda, kurumunuza teslim edilen projelerde yer alan yerlerde geçiş hakkımız bulunmaktadır.

Ayrıca 27343 sayılı Erişim ve Ara bağlantı Yönetmeliği, 28510 sayılı Sabit ve Mobil Haberleşme Altyapısı veya Şebekelerinde Kullanılan Her Türlü Kablo ve Benzeri Gerecin Taşınmazlardan Geçirilmesine Dair Yönetmelik, 27773 sayılı Ortak yerleşim ve Tesis Paylaşımına İlişkin Usul ve Esaslar Hakkında Tebliğ hükümleri gereğince de söz konusu yerden geçen ana güzergah hatları ile verdiğimiz hizmetin niteliği ve geçiş önceliği bulunduğu anlaşılmaktadır.

Bu kapsamda yapılacak çalışmalarda çalışma güzergahlarında bulunan altyapımızın öncelikle korunması gerekmekte olup; tesislerimizin zarar görmemesi için gerekli hassasiyetin gösterilmesi, altyapımızın yerinde gösterimi ve ilave çalışmalar için görevlendirilen personelimizle koordineli bir şekilde çalışılması, çalışma yapılan alanda Şirketimizin de

"Bu belge, 6470 sayılı Elektronik İmza Kanununun 5. maddesi gereğince güvenli elektronik imza ile imzalanmıştır."
Belge bilgisi: <http://www.turktelekom.com.tr/editt-belge-dogrulama> sayfasında "İmza5E5CC594" Belge Doğrulama No ve belge tarihi ile erişilebilir.

www.turktelekom.com.tr
E-posta Adresi: turktelekom@halk.kap.tr

İletişim Merkezi
Ornek Mahallesi Turgut Özal Bulvarı 2 No:6, Aydırlıevleri/Ankara

İçli No/Mersis No:
3236033030700052205000394

1/2

Türk Telekomünikasyon A.Ş.

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+90 (258) 555 41 03

Enjün Planlama ve Yatırım Müdürlüğü

Devlet Telekom Müdürlüğü
İzmir Bölge Müdürlüğü



çalışmalarını tamamlamasını müteakip asfaltlama ve parke döşeme işlemlerine başlanılması gerekmektedir.

Yapılacak çalışmalarda, çalışma güzergahlarındaki alt yapımızda oluşacak hasarlara ait bedeller (tüm hukuki haklarımız saklı kalmak kaydı ile) tarafınıza rücu edilecektir. Anılan çalışmalar sonrasında olası güzergahlarınızın başka hiçbir yerden geçemeyecek olması halinde; öncelikle bu durum tespit ettirilmek kaydıyla, ivedilikle şirketimize tespit ile birlikte bildirim yapılması ile tarafımızdan deplase ödilmesinin istenmesi gerekmektedir. Deplasenin yapılacak incelemeler neticesinde zorunlu olduğunun şirketimizce de anlaşılması halinde; hesaplanacak 1. Keşif bedelinin yatırılmasına müteakiben deplase işlemi gerçekleştirilecektir. Aksi takdirde güzergahınızda meydana gelecek zararlarla ilgili karurumuz hukuken sorumlu kalacaktır.

Bilgilerinize arz/rica ederiz.

EK:1 Adet CD

Saha Operasyon Ekip Lideri: Mehmet ÇALLI
0258 555 11 30
Saha Operasyon Ekip Lideri: Mehmet Yavuz Toy
0258 55 41 09
Fiber Optik Ekip Lideri: Hakan Ethem Demirhan
0258 555 11 55
Planlama Ekip Lideri: CANAN ÜNAL
0258 555 41 03

UĞUR TURAN
YÖNETİCİ



RECEP KARAKOÇ
TELEKOM MÜDÜRÜ



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www.turktelekom.com.tr

İletişim Merkezi

Sicil no/Mersis no:

E-posta Adresi: turktelekom@h03.kap.tr

Orman Mahallesi Turgut Özal Bulvarı 2 No-8, Ankara/Ankara

0312031017005220500094

2/2





T.C.
DEVLET DEMİRYOLLARI İŞLETMESİ GENEL MÜDÜRLÜĞÜ
TCDD 3. Bölge Müdürlüğü (İzmir)
Demiryolu Bakım Servis Müdürlüğü



Sayı : E-28735920-102-734858
Konu : Demiryolu Hattının Alt Ve Üstünden
Geçiş İzni

DENİZLİ ORGANİZE SANAYİ BÖLGESİ MÜDÜRLÜĞÜNE
OSB YAŞAR ÖNCAN CAD. NO:1 20330 DENİZLİ / TÜRKİYE

İlgi : Denizli Organize Sanayi Bölgesi Müdürlüğü'nün 11.09.2023 tarihli ve 1184 sayılı yazısı.

Basmane-Denizli Hattı, Gencalı-Kahkık İstasyonları arası Km:264+700'den itibaren su kolektör hattı ile demiryolu altından geçişin yapılabilmesi için (KDV) dahil 25.772,49-TL tutarındaki bedelin TCDD veznesine ödemesi veya Bölge Müdürlüğümüzün Vakıflar Bankası İzmir Şubesi TR360001500158007295253088 IBAN nolu hesabına veya Ziraat Bankası İzmir Şubesi TR780001000137070385575114 IBAN nolu hesabına havale edilerek ödemesi, makbuz suretinin imzalanması ve Müdürlüğümüze ibrazı gerekmektedir.

Geçiş bedelinin yatırılması, ekli Sözleşmenin tüm sayfalarının paraf edilerek iki nüsha olarak imzalanması ve dekont fotokopisiyle birlikte Bölge Müdürlüğümüze gönderilmesi hususunda gereğini rica ederiz.

Cüneyt CAN
Bölge Müdür Yardımcısı V.

Cemal Yaşar TANGÜL
Bölge Müdürü

Ek:

- 1 - Denizli Organize Sanayi Bölgesi Km.267+700'de geçiş için Keşif-Kroki (2 Sayfa)
- 2 - Altın Geçiş Sözleşmesi (2 Sayfa)

DENİZLİ ORGANİZE SANAYİ BÖLGESİ MÜDÜRLÜĞÜ	
GELEN EVRAK	
Tarih:	2023/1932
Yıl:	11/2.23
Sr:	
f	

Denizli Organize Sanayi Bölgesi Müdürlüğü
Mühür

Denizli Organize Sanayi Bölgesi Müdürlüğü
Mühür

Ali Kemal TAN
Bölge Müdürü

ca 19/09/23

Doğrulama Kodu: SES16C59-855A-0143-A785-5847DCC16A8E
DEMİRYOLU BAKIM SERVİS MÜDÜRLÜĞÜ
KEP Adresi : t348.3@tcdd.kep.tr

Bu belge, güvenli elektronik imza ile imzalanmıştır.

Doğrulama Adresi: <http://www.turkiye.gov.tr/tcdd-sbys>

Bilgi için Pank SEN
Teknoloji



Denizli Organize Sanayi Bölgesi Müdürlüğü tarafından Goccol-Kaklık ist. arası Km:264+700'de hat altından atık su kolektör hattı geçişine ait 1 Keşif Özeti

NO:	İŞİN CİNSİ	POZ NO	BİRİMİ	MİKTARI	FİYATI(TL)	TUTARI(TL)
1	Balast kaldırma, Eleme Buraj	TCDD	m	0,00		0,00
2	Nizaretçi teknik eleman ücreti	TCDD	sa	72,00	100,28	7220,16
3	Yer tespiti ve kroki tanzimi	TCDD	sa	56,00	118,47	6634,32
4	Kontrolük ücreti	TCDD	sa	56,00	126,97	7110,32
5	Bir defalık geçiş ücreti	TCDD	m	39,65	12,62	512,28
					TOPLAM (A)	21.477,08
					KDV (%20 x (A)	4.295,42
					GENEL TOPLAM	25.772,49

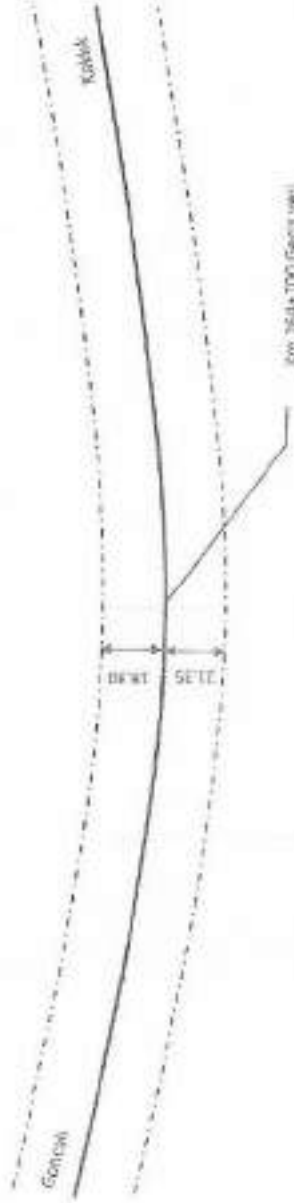
TANZİMEDEN
28/11/2011
F.Ö.Ö. SEVİN
Müh. Teknisyeni

KONTROL



MÜDÜR

GONCALI-SALUK ARASI KİM:264+700'DE DENİZLİ OLGUNLIZE SARAYI BÖLGESİ MÜDÜR-LÜĞÜ TARAFINDAN HAT ALTI ATIK SU ARIYMA HATTI GEÇİŞ TALEBİNİ GÖSTERİR BASIR İRİKLİDİR.



Km 264+300 Geçit Yeri

1) Km.264+700'DE sayı üst köşunun 5,00 m. altından 1450 mm çaplı çelik boru geçişi yapılacaktır.

2) Geçimlik sahalarında 30,00 m hesaplanmıştır.

3) Yeray sondaj ile geçimlik yerü ile geçit yerü arasında akarsu yoktur

DÜZENLEKEN

KONTROL

Çiğdem ÇEKİCİ
Yol Bülteni Şefi

ŞEHİRCİLİK VE İZMİR İLİ
MÜHÜRÜ

SÖZLEŞME İZMİRİ BÜRO

MAKAM SERVİS MÜDÜRÜ

İzmir Büyükşehir Belediyesi

İzmir Büyükşehir Belediyesi

İzmir Büyükşehir Belediyesi

TCDD ARAZİSİNDEN SU, ELEKTRİK, HAVAGAZI, AKARYAKIT BORULARI, KANAL VE KANALİZASYON GİBİ TESİSLERİN HAT ALTINDAN GEÇİRİLMESİNE DAİR SÖZLEŞME

TCDD Genel Müdürlüğü adına 3.Bölge Müdürlüğü ile diğer taraftan Denizli Organize Sanayi Bölgesi Müdürlüğü arasında aşağıda yazılı şartlar dairesinde sözleşme akdedilmiştir.

Bu sözleşmede TCDD Genel Müdürlüğü sadece (TCDD) Denizli Organize Sanayi Bölgesi Müdürlüğü'ne (KURUM) diye anılmaktadır.

- Maddde 1 -** (KURUM) tarafından bu sözleşmede tayin ve tespit edilen hükümlere ve şartlara tamamen uymak üzere Batmane-Denizli Hsm, Goccalı-Kaçık İstasyonları arası Km:264+700'den atık su kolektör hattı ile demiryolu altından TCDD Arazisinden geçişin ilişkin işi yapılmasına (TCDD)'ce izin verilmiştir.
- Maddde 2 -** Birinci maddede belirtilen iş ve hizmetlere hangi tarihte başlanacağı en az bir hafta evvel (KURUM) tarafından yazılı ile (TCDD)'ye bildirilecektir. (TCDD), tayin edeceği elemanı belirtilen günde iş mahallinde hazır bulunduracaktır. İş bir ay içinde bitirilecek olup, bitirilemediği takdirde çalışmalar (TCDD)'ce durdurularak tekrar başvuru işlemi beklenmektedir. (TCDD)'nin görevlendirdiği elemanın kontrolü altında işe başlanacak, iş süresince görevlendirilen eleman kontrol hakkını muhafaza edecek ve kontrol elemanının bu altyapı için bütün hakodışları (KURUM) tarafından (TCDD)'ye 10.maddde hükümlerine göre ödenecektir. (TCDD)'nin (KURUM)'a vereceği talimat ve emirlere ve keza (TCDD)'nin İşletme ve Zabıta Nizamnamesi hükümlerine veya bunların yerine geçerli olacak mevzuat hükümlerine uyularak ve bütün masrafları kendilerine ait olmak üzere, lazım gelen işi yapacaklardır. İşin teknik özellik arz eden ve (TCDD) elemanları tarafından yapılması gereken kısım mevcut olursa, bu kısım (TCDD) tarafından yapılarak işin maliyet bedeli (TCDD)'nin kendi muhasebe usullerine göre tespit edilerek (KURUM)'a fatura edilecektir. Fatura edileni, 7.maddde kapsamında ödemeyi (KURUM) şimdiden kabul ve taahhüt eder. Yapılacak tesis dolayısıyla işin kontrol ve koordinasyonu için Aydın-32 Demiryolu Bakım Müdürlüğü görevlendirilmiş olup Demiryolu Bakım Müdürlüğü tarafından temin edilecek kontrol elemanı gözetimi altında işin yapılması önemlidir. (TCDD) elemanlarının vereceği direktiflere uymayı (KURUM) şimdiden kabul eder. Demiryolu sahası içindeki çalışmalarda 551 sayılı Genel Müdürlük emrine uygun olarak çalışma yapılmasının sağlanması Aydın-32 Demiryolu Bakım Müdürlüğü'nün sorumluluğundadır. Geçiş yapan (KURUM) bu emrin gereğini yerine getirmekle yükümlüdür.
- Maddde 3 -** Yapılacak tesis dolayısıyla her ne sebeple olursa olsun, özel veya tüzel herhangi bir şahsa gelecek zarar ve ziyan ile maddi ve manevi sorumluluklar (KURUM)'a ait olacak ve bütün hasar ve arızalar (KURUM) tarafından tamamen kusursuz ve noksanız olarak en kısa zamanda giderilecektir. Gerek ilk tesisat ve gerekse bülhane yapılması lazım gelen tamirat esasında geçiş yerinin tazimini, eski haline getirilmesi, devamlı surette tamir ve bakımı (KURUM)'a ait olacaktır.
- Maddde 4 -** Tesisin bulunduğu yerde (TCDD) tarafından bir inşaat veya herhangi bir iş yapılmasına lüzum görüldüğü, sözleşme hükümlerinden birine (KURUM) tarafından uyulmadığı veya trafiğin emniyetini tehlikeye düşürecek diğer hallerde, (KURUM) mevcut tesis ve teçhizatı kaldırılmasına, (TCDD)'ce uygun görülecek şekilde ve tayin edilecek süre içerisinde yerinin değiştirilmesini ve ilk yapıldığı yeriz tamamen eski haline getirilmesini, bütün masraf kendisine ait olmak üzere itirazsız kabul ve taahhüt eder.
- Maddde 5 -** 4.Maddde de belirtilen durumlarda tesisin kaldırılması TCDD'ce yapılmadığı takdirde TCDD'nin (KURUM) a yazılı tebliğinden sonra (KURUM) tesisini 10 gün içinde deplase veya kaldırma işlemini yapacaktır.(KURUM) tarafından 10 gün içinde deplase veya kaldırma işlemi yapılmadığı takdirde; geçiken her takvim günü için (TCDD) yüklenicisine yaptırması olduğu sözleşme bedelinin 6183 sayılı Kanun uyarınca hesaplanacak gecikme zammını (TCDD) muhasebe usullerine göre (KURUM) a fatura edilir.
- Maddde 6 -** Tesisin 4.maddde gereğince kaldırılmasından veya yerinin değiştirilmesinden dolayı (KURUM) herhangi bir hak, tazminat veya zarar ve ziyan talep ve iddiasında bulunamaz.
- Maddde 7 -** (TCDD) arazisinde böyle bir tesis yapılmasından dolayı ortaya çıkabilecek zarar, ziyan ve tazminatından (KURUM) sorumlu olacaktır.
- Maddde 8 -** (KURUM)'ta işbu sözleşmede tayin ve tespit edilen hüküm ve şartlara uyulmadığı takdirde, (TCDD) protesto keşidesine ve hüküm istihsaline hacet kalmaksızın tesis ve teferuatını (KURUM) nam ve hesabına yaptırmak, tahribat ve arızaları tamir ve ıslah etmek yetkisine sahiptir. Bu hususta (TCDD)'ce yapılacak masraflar, (TCDD)'nin kendi muhasebe usullerine göre (KURUM)'a fatura edilecek ve tebliğ tarihinden itibaren en geç 48 saat içinde fatura tutarı (TCDD) vizesine yatırılacaktır. Aksi takdirde, bu tarihten sonra kamui fazlı ile birlikte ödemeyi (KURUM) şimdiden kabul eder.
- Maddde 9 -** Tesis ve teferuatının tamir ve ıslahı hususunda yapılacak işlerle ilgili olarak (KURUM)'ın (TCDD)'yi 48 saat önce yazılı haberler etmesi ve bilhassa işe nezaret edecek yetkilinin görevlendirilmesi için de (TCDD)'nin 3.Bölge Müdürlüğü'ne haber vermesi şarttır. Bu iş için görevlendirilecek elemanın bütün hakodışları yine (KURUM) tarafından ödenecektir.

- Madde 10** - (TCDD)'nin kusuru dışında demiryolunun bozulması, çökmesi, tamiri gibi sair sebepler dolayısıyla tesistatta meydana gelecek sakatlık, zarar ve arızalardan veya hat üzerinde çıkabilecek olan (KURUM) ya da müteahhit personelinin maruz kalabileceği kazalardan dolayı (TCDD) hiçbir mesuliyet kabul etmeyecektir.
- Madde 11** - (KURUM) , (TCDD) arazisini ve demiryolunu kat edecek olan tesisi dolayısıyla işi kontrol ve nezaret edecek (TCDD) personelinin masrafları ile bir defaya mahsus olmak üzere, beher geçiş yeri için (TCDD)'ce belirlenecek olan geçiş ücretini ödeyecektir. Ayrıca bu tesislerin yapıldığı (TCDD) taşınmazlarında ileride (TCDD) tarafından tamirat, tadilat veya herhangi bir bakım yapılması gerektiğinde, tesislerin mevcudiyeti nedeniyle bazı tedbirlerin alınması ve dolayısıyla (TCDD)'nin bir masrafa girmesi zorunlu olduğunda (TCDD) (KURUM)'a hiçbir bedel ödmeden gerekli tevsiat veya inşaatı yapacak, hatta tesisin korunması için alınacak ek önlemler nedeniyle (TCDD)'nin yaptığı masraflar, (TCDD)'nin kendi muhasebe usulüne göre düzenleyeceği fatura bedeline göre (KURUM) tarafından ödenecektir.
- Madde 12** - Seyrüsefer emniyetini tehlikeye düşürecek hallerde, tesis için yapılacak çalışmaların her an kesilebilmesi için gerekli tertibatı (KURUM) kabul eder.
- Madde 13** - Bu sözleşme beş sene süreyle geçerlidir. Bu sürenin sona ermesinden bir ay önce taraflar sözleşmenin feshini veya günlük şartlarına göre düzenlenerek yenilenmesini talep etmedikçe bu sözleşme aynı esaslar dahilinde kendiliğinden beş sene daha uzatılmış sayılır.
- Madde 14** - Dükün masrafları (KURUM)'a ait olmak üzere tesisin (TCDD) arazisine girdiği, çıktığı noktaları, istikamet değiştiren kırık noktalarını birer röper konulacaktır.
- Madde 15** - (TCDD)'nin onay ve izni alınmadan mevcut tesistatta hiçbir tadilat yapılmayacağı gibi, lazım görülen tadilat için de sözleşmenin 9. maddesi gereğince her defasında (TCDD) yazılı olarak haberdar edilecektir.
- Madde 16** - (TCDD) her zaman tesis ve teferruatını muayene etmek yetkisine sahip olup, gerekli göreceği tamiri (KURUM) tarafından itirazsız yapılacaktır. Gerek muayene neticesinde gerekse sair zamanda trafik tehlikeye ve aksamaya maruz kaldığı takdirde (KURUM), (TCDD)'nin belirleyeceği tarih ve saat zarfında derhal arzıyı giderecektir. Bu yüzden 3.KURUMLarda ve demiryollarında meydana gelecek her türlü hasar, zarar ve ziyarlardan (KURUM) sorumlu olacaktır.
- Madde 17** - İnşaat çalışmaları sırasında çıkarılacak topraklar (KURUM) tarafından masrafları kendisine ait olmak üzere (TCDD) mülkiyet sınırları dışına nakledilecektir.
- Madde 18** - Sözleşmeye yapıstırılacak pullar ve noter tasdikine ait masraflar (KURUM)'a aittir.
- Madde 19** - Bu sözleşmeden doğan ihtilaf ve davalar Bölge merkezimiz bulunduğu İZMİR mahkemelerinde çözümlenecektir.
- Madde 20** - Denizli ÖSD Mah. Yaşar Öncarı Cad. No:1 Honaz/DENİZLİ ikametgâh olarak belirtilmiş olduğundan, (TCDD)'ce yapılacak tebligat (KURUM)'a yapılmış sayılacaktır.
- Madde 21** - Söz konusu geçişle ilgili olarak, sözleşmenin 11.maddesinde belirtilen (TCDD)'ce yapılabilecek harcamalar için ve Kuruluşumuz arazisinin ilgili dolayısıyla toplam 25.772,49-TL bedelin yatırılması gerekmektedir. Söz konusu bedelin TCDD veznesine ödennesi veya Bölge Müdürlüğümüzün Vakıflar Bankası İzmir Şubesi TR360001500158007295253088 IBAN no.lu hesabına veya Ziraat Bankası İzmir Şubesi TR780001000137070385575114 IBAN no.lu hesabına yatırılmasını müteakip sözleşme yürürlüğe girecektir.
- Madde 22** - Söz konusu geçişin yapıldıktan sonra (KURUM)'ın tesisi başlı Kurum veya Kurumlara devretmesi halinde, bu sözleşme şartları yeni tesis sahibine de aynen uygulanacaktır.
- Madde 23** - Yapılacak olan geçişin Tesekkülümüz planlama ve yatırımlarında dikkate alınması ve çalışmalarımızda herhangi bir aksamaya meydan vermemesi için geçişin 13. Madde kapsamında sözleşme tarihinden itibaren en geç 1 (Bir) yıl içerisinde gerçekleştirilmesi; gerçekleştirilmediği takdirde sözleşme geçersiz sayılacak ve yatırılan ücret de geri ödenmeyecektir.
- Madde 24** - Bu sözleşme iki nüsha olarak Tarihinde akıt ve imza edilmiştir.

Adı Soyadı
Adresi

İmza

TCDD İŞLETMESİ
3.BÖLGE MÜDÜRLÜĞÜ

Ekleri: KURUM ise Yetkili Kişinin İmza Sirküsü
Tic. Sicil Gazetesi Eklenecektir.

TCDD ARAZİSİNDEN SU, ELEKTRİK, HAVAGAZI, AKARYAKIT BORULARI, KANAL VE KANALİZASYON GİBİ TESİSLERİN HAT ALTINDAN GEÇİRİLMESİNE DAİR SÖZLEŞME

TCDD Genel Müdürlüğü adına 3.Bölge Müdürlüğü ile diğer taraftan Denizli Organize Sanayi Bölgesi Müdürlüğü arasında aşağıda yazılı şartlar dairesinde sözleşme akdedilmiştir.

Bu sözleşmede TCDD Genel Müdürlüğü adına (TCDD) Denizli Organize Sanayi Bölgesi Müdürlüğü'nde (KURUM) diye anılmışlardır.

Madde 1 - (KURUM) tarafından bu sözleşmede tayin ve tespit edilen hükümlere ve şartlara tamamen uymak üzere Basmane-Denizli Hattı, Genel-Kalkık İstasyonları arası Km:264+700'den atık su kolektör hattı ile demiryolu altından TCDD Arazisinden geçişinin ilişkin krokiye göre yapılmasına (TCDD)'ye izin verilmiştir.

Madde 2 - Birinci maddede belirtilen iş ve hizmetlere hangi tarihte başlanacağı en az bir hafta evvel (KURUM) tarafından yazılı ile (TCDD)'ye bildirilecektir. (TCDD), tayin edeceği elemanı belirtilen günde iş mahallinde hazır bulunduracaktır. İş bir ay içinde bitirilecek olup, bitirilemediği takdirde çalışmalar (TCDD)'ce durdurup tekrar başvuru işlemi beklenecektir. (TCDD)'nin görevlendirdiği elemanın kontrolü altında işe başlanacak, iş süresince görevlendirilen eleman kontrol hakkını muhafaza edecek ve kontrol elemanının bu stüreye ait bütün hak edimleri (KURUM) tarafından (TCDD)'ye 10.madde hükümlerine göre ödenecektir.

(TCDD)'nin (KURUM)'a vereceği talimat ve emirlere ve keza (TCDD)'nin İşletme ve Zabıta Nizamnamesi hükümlerine veya bunların yerine geçerli olacak mevzuat hükümlerine uyularak ve bütün masrafları kendilerine ait olmak üzere, lazım gelen işi yapacaklardır. İşin teknik özellik arz eden ve (TCDD) elemanları tarafından yapılması gereken kısmı mevcut olursa, bu kısım (TCDD) tarafından yapılarak işin maliyet bedeli (TCDD)'nin kendi muhasebe usullerine göre tespit edilerek (KURUM)'a fatura edilecektir. Fatura edilen, 7.madde kapsamında ödemeyi (KURUM) şimdiden kabul ve taahhüt eder.

Yapılacak tesis dolayısıyla işin kontrol ve koordinasyonu için Aydın-32 Demiryolu Bakım Müdürlüğü görevlendirilmiş olup Demiryolu Bakım Müdürlüğü tarafından temin edilecek kontrol elemanı gözetimi altında işin yapılması önemlidir. (TCDD) elemanlarımız vereceği direktiflere uymayı (KURUM) şimdiden kabul eder.

Demiryolu sahası içindeki çalışmalarda 551 sayılı Genel Müdürlük emrine uygun olarak çalışma yapılmasının sağlanması Aydın-32 Demiryolu Bakım Müdürlüğü'nün sorumluluğundadır. Geçiş yapan (KURUM) bu emrin gereğini yerine getirmekte yükümlüdür.

Madde 3 - Yapılacak tesis dolayısıyla her ne sebeple olursa olsun, özel veya tüzel herhangi bir şahsa gelecek zarar ve ziyan ile maddi ve manevi sorumluluklar (KURUM)'a ait olacak ve bütün hasar ve arızalar (KURUM) tarafından tamamen kusursuz ve noksanız olarak en kısa zamanda giderilecektir. Gerek ilk tesisat ve gerekse ilahare yapılması lazım gelen tamirat esnasında geçiş yerinin tanzimi, eski haline getirilmesi, devamlı surette tamir ve bakımı (KURUM)'a ait olacaktır.

Madde 4 - Tesisin bulunduğu yerde (TCDD) tarafından bir inşaat veya herhangi bir iş yapılmasına lüzum görüldüğü, sözleşme hükümlerinden birine (KURUM) tarafından uyulmadığı veya trafik emniyetini tehlikeye düşürecek diğer hallerde, (KURUM) mevcut tesis ve teçhizatın kaldırılması, (TCDD)'ce uygun görülecek şekilde ve tayin edilecek süre içerisinde yerinin değiştirilmesini ve ilk yapıldığı yerin tamamen eski haline getirilmesini, bütün masraf kendisine ait olmak üzere itirazsız kabul ve taahhüt eder.

Madde 5 - 4.Madde de belirtilen durumlarda tesisin kaldırılması TCDD'ce yapılmadığı takdirde TCDD'nin (KURUM) a yazılı tebliğinden sonra (KURUM) tesisini 10 gün içinde deplase veya kaldırma işlemi yapacaktır.(KURUM) tarafından 10 gün içinde deplase veya kaldırma işlemi yapılmadığı takdirde; geçiken her takvim günü için (TCDD) yüklenicisine yaptırmış olduğu sözleşme bedelinin 6183 sayılı Kanun uyarınca hesaplanacak gecikme zammını (TCDD) muhasebe usullerine göre (KURUM) a fatura edilir.

Madde 6 - Tesisin 4.madde gereğince kaldırılmasından veya yerinin değiştirilmesinden dolayı (KURUM) herhangi bir hak, tazminat veya zarar ve ziyan talep ve iddiasında bulunamaz.

Madde 7 - (TCDD) arazisinde böyle bir tesis yapılmasından dolayı ortaya çıkabilecek zarar, ziyan ve tazminatlardan (KURUM) sorumlu olacaktır.

Madde 8 - (KURUM)'ca işbu sözleşmede tayin ve tespit edilen hüküm ve şartlara uyulmadığı takdirde, (TCDD) protesto keşidesine ve hüküm istihsaline hacet kalmaksızın tesis ve teçhizatını (KURUM) nam ve hesabına yaptırmak, tahribat ve arızaları tamir ve onarım etmek yetkisine sahiptir. Bu hususta (TCDD)'ce yapılacak masraflar, (TCDD)'nin kendi muhasebe usullerine göre (KURUM)'a fatura edilecek ve tebliğ tarihinden itibaren en geç 48 saat içinde fatura tutarı (TCDD) veznesine yatırılacaktır. Aksi takdirde, bu tarihten sonra kanuni faiz ile birlikte ödemeyi (KURUM) şimdiden kabul eder.

Madde 9 - Tesis ve teçhizatının tamir ve onarım hususunda yapılacak işlerle ilgili olarak (KURUM)'ın (TCDD)'yi 48 saat önce yazılı haberdar etmesi ve bilhassa işi nezaret edecek yetkilinin görevlendirilmesi için de (TCDD)'nin 3.Bölge Müdürlüğü'ne haber vermesi şarttır. Bu iş için görevlendirilecek elemanın bütün hak edimleri yine (KURUM) tarafından ödenecektir.



Sayfa 1

- Madde 10** - (TCDD)'nin kusuru dışında demiryolunun bozulması, çökmesi, tasiri gibi sair sebepler dolayısıyla tesistatta meydana gelecek sakatlık, zarar ve arızalardan veya hat üzerinde çalışacak olan (KURUM) ya da müteahhit personelinin maruz kalabileceği kazılardan dolayı (TCDD) hiçbir mesuliyet kabul etmediği gibi (KURUM) da bu hususta bir zarar ve ziyan talep etmeyecektir.
- Madde 11** - (KURUM), (TCDD) arazisini ve demiryolunu kat edecek olan tesisi dolayısıyla işi kontrol ve nezaret edecek (TCDD) personelinin masrafı ile bir defaya mahsus olmak üzere, beher geçiş yeri için (TCDD)'ce belirlenecek olan geçiş ücretini ödeyecektir. Ayrıca bu tesislerin yapıldığı (TCDD) taşınmazlarında ileride (TCDD) tarafından tasarrat, tadilat veya herhangi bir bakım yapılması gerektiğinde, tesislerin mevcudiyeti nedeniyle bazı tedbirlerin alınması ve dolayısıyla (TCDD)'nin bir masrafa girmesi zorunlu olduğunda (TCDD) (KURUM)'a hiçbir bedel ödemesi olmadan gerekli tevsiat veya irşaat yapacak, hatta tesisin korunması için alınacak ek önlemler nedeniyle (TCDD)'nin yaptığı masraflar, (TCDD)'nin kendi muhasebe usullerine göre düzenleneceği fatura bedeline göre (KURUM) tarafından ödenecektir.
- Madde 12** - Seyrüsefer emniyetini tehlikeye düşürecek hallerde, tesis için yapılacak çalışmaların her an kesilebilmesi için gerekli tertibatı almaya (KURUM) kabul eder.
- Madde 13** - Bu sözleşme beş sene süreyle geçerlidir. Bu sürenin sona ermesinden bir ay önce taraflar sözleşmenin feshini veya günün şartlarına göre düzenlenerek yenilenmesini talep etmedikçe bu sözleşme aynı esaslar dahilinde kendiliğinden beş sene daha uzatılmış sayılır.
- Madde 14** - Bütün masraflar (KURUM)'a ait olmak üzere tesisin (TCDD) arazisine girdiği, çıktığı noktalara, istikamet değiştiren kırık noktalara birer röper konulacaktır.
- Madde 15** - (TCDD)'nin onay ve izni alınmadan mevcut tesistatta hiçbir tadilat yapılmayacağı gibi, lazım görülen tadilat için de sözleşmenin 9. maddesi gereğince her defasında (TCDD) yazılı olarak haberdar edilecektir.
- Madde 16** - (TCDD) her zaman tesis ve teferruatını muayene etmek yetkisine sahip olup, gerekli göreceği tamirat (KURUM) tarafından ücretsiz yapılacaktır. Gerek muayene neticesinde gerekse sair zamanda trafik tehlikeye ve aksamaya maruz kaldığı takdirde (KURUM), (TCDD)'nin belirleyeceği tarih ve süre zarfında derhal arızayı giderecektir. Bu yüzden 3.KURUMlerde ve demiryollarında meydana gelecek her türlü hasar, zarar ve ziyanlardan (KURUM) sorumlu olacaktır.
- Madde 17** - İnşaat çalışmaları sırasında çıkarılacak topraklar (KURUM) tarafından masrafları kendisine ait olmak üzere (TCDD) mülkiyet sınırları dışına nakledilecektir.
- Madde 18** - Sözleşmeye yapılandırılacak pullar ve noter tasdikine ait masraflar (KURUM)'a aittir.
- Madde 19** - Bu sözleşmeden doğan ihtilaf ve davalar Bölge merkezinin bulunduğu İZMİR mahkemelerinde çözümlenecektir.
- Madde 20** - Denizli OSB Mah. Yaşar Öncan Cad. No:1 Honaz/DENİZLİ ikametgâh olarak belirtilmiş olduğundan, (TCDD)'ce yapılacak tebligat (KURUM)'a yapılması sayılacaktır.
- Madde 21** - Söz konusu geçişle ilgili olarak, sözleşmenin 11.maddesinde belirtilen (TCDD)'ce yapılabilecek harcamalar için ve Kuruluşumuz arazisinin ilgili dolayısıyla toplam **25.772,49-TL** bedelin yatırılması gerekmektedir. Söz konusu bedelin TCDD veznesine ödenmesi veya Bölge Müdürlüğümüzün Vakıflar Bankası İzmir Şubesi TR360001500158007295253088 IBAN no.lu hesabına veya Ziraat Bankası İzmir Şubesi TR780001000137070385575114 IBAN no.lu hesabına yatırılmasını müteakip sözleşme yürürlüğe girecektir.
- Madde 22** - Söz konusu geçişin yapıldıktan sonra (KURUM)'ın tesisi başka Kurum veya Kurumlara devretmesi halinde, bu sözleşme şartları yeni tesis sahibine de aynen uygulanacaktır.
- Madde 23** - Yapılacak olan geçişin Teşekkülümüz planlama ve yarımlarında dikkate alınması ve çalışmalarımızda herhangi bir aksarıya meydan vermemesi için geçişin 13. Madde kapsamında sözleşme tarihinden itibaren en geç 1 (Bir) yıl içerisinde gerçekleştirilmesi; gerçekleştirilmediği takdirde sözleşme geçersiz sayılacak ve yatırılan ücret de geri ödenmeyecektir.
- Madde 24** - Bu sözleşme iki nüsha olarak 12/02/2023 tarihinde akit ve imza edilmiştir.

Adı Soyadı **Ahmet Taz** **TCDD İŞLETMESİ**
 Adresi **Bölge Müdürlüğü** **3.BÖLGE MÜDÜRLÜĞÜ**
 İmza **BALTAI**
DENİZLİ
1982
1982
1982

Eklere: KURUM ise Yetkili Kişinin İmza Sirküleri
 Tic. Sicil Gazetesi Eklenmiştir.



T.C.
ENERJİ VE TABİİ KAYNAKLAR BAKANLIĞI
Boru Hatları ile Petrol Taahhüt A.Ş.
Ege İşletme Müdürlüğü (DŞZ)



Sayı : 43940819-405.02.99-E.2833166/39471
Konu : Kanun Görüşü

16/11/2023

DENİZLİ ORGANİZE SANAYİ BÖLGESİ MÜDÜRLÜĞÜ
ANKARA Asfaltı 17.Km.Yağır ÖZCAN Cad.No:1(20330) Honaz /DENİZLİ

İlgi : a) 26/09/2023 Tarih ve 1249 Sayılı Yazısı
b) 19/10/2023 Tarih ve 35500 Sayılı Yazı

İlgi (n) yazınızda Denizli İli, Pamukkale İlçesi, Koyunliler Mahallesi, M22A.20C.1D pafta 54 parsel nolu taşınmazda Dünya Bankası Finansmanı Organize Sanayi Bölgeleri Kredi Hattı Projesi kapsamında "Denizli OSB Yeni İleri Biyolojik ve Kimyasal Merkezi Atık Su Arıtma Tesisi'ne İletilecek Atık Su İçin Kanalizasyon Kolektör Hattı" yapımı talebine esas olmak üzere tarafımızdan görüşülerek talep edilmiş, ilgi (b) yazınızda, bahsi geçen güzergah ve alanında mevcut Kurumumuz ait Doğal Gaz alt ve üst yapı tesislerinin bulunduğu bildirilmiştir. Fakat harita üzerinde tekrar yapılan incelemede bahsi geçen atık kanalı kanalizasyon kolektör hattı güzergahının Kurumumuzca "S R" Denizli OSB Yüksek Basıncılı Doğal Gaz İletim Hattının yüksek Kp:0+325 km.sinde dikey geçmekte olduğu tespit edilmiştir. Adı geçen Doğal Gaz Boru Hatlarımızın kamulaştırma güzergahı genişliği 4+7=11 (onbir) m. dir. (Ek-1 Harita)

13/08/2021 tarih ve 31567 sayılı Resmî Gazete'de yayımlanan "BOTAS Ham Petrol ve Doğal Gaz Boru Hattı Tesislerinin Yapımı ve İşletilmesine Dair Teknik Emniyet ve Çevre Yönetmeliği"ne göre kamulaştırma alanı içerisinde herhangi bir geçişe izin verilmemekte, zorunlu durumlarda boru hattı üzerinden veya altından detay resiminde verilen (Ek-2 Detay resim) ölçülere sınırlı olmak üzere düzenlenecek tahhütlüme ile dikey geçişe izin verilmektedir. (Ek-3 Tahhütlüme)

Tarafınızca istenilen ektteki tahhütlümenin İdarimize alınması takiben iş başlayacak olup, çalışmalar başlandıktan 3 (üç) gün önce İdaremizden görüşülüp talep edilerek ve çalışmalar gelecekteki sezamında yapılacaktır.

Konu ile ilgili olarak, 13/08/2021 tarih ve 31567 sayılı Resmî Gazete'de yayımlanan "BOTAS Ham Petrol ve Doğal Gaz Boru Hattı Tesislerinin Yapımı ve İşletilmesine Dair Teknik Emniyet ve Çevre Yönetmeliği"nin 7. ve 8. maddeleri doğrultusunda, doğal gaz iletim boru hatlarımız ve tesislerimize 200 metreden daha yakında yapılacak her türlü yapılaşmalar, inşaat planları ve altyapı geçişlerinden (yol geçişi, trafo, kafriyat alanı, enerji nakil hattı, su/kanalizasyon hattı, telekomünikasyon hattı, sonlu) çalışmaları vb.) önce Kamulaştırma görüşü alınarak çalışmaların Yönetmeliğimizde belirtilen teknik emniyet ve yapı yaklaşım mesafelerine uygun olarak yürütülmesi gerekmektedir. Kamulaştırma görüşü ve izin alınmadan yapılan çalışmalar sırasında, doğal gaz iletim boru hattı ve tesislerimizin oluşum alanı zararları (havaya atılan gazın bedeli, tüm bakım-onarım giderleri, gaz alışı

Bu konuda ilginç görüşleriniz için teşekkür ederiz. İlginç görüşlerinizi bizimle paylaşarak görüşlerinizi bildirebilirsiniz.
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E-posta: iletisim@botas.gov.tr

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16/11/2023
16/11/2023
16/11/2023



T.C.
ENERJİ VE TABİİ KAYNAKLAR BAKANLIĞI
Boru Hatları ile Petrol Taahhüt A.Ş.
Ege İşletme Müdürlüğü (DŞ2)



durumundan dolayı oluşabilecek giderler v.b.) ile çevreye verilecek maddi kayıpların tüm sorumluluğu, Kurumunuza/Kuruluşunuza/Şirketine ait olacaktır.

Boru hatlarımızın derinliği, zaman içerisinde zemlin batırda oluşan değişimler ve güzergahını özelliklerine göre önemli düzeyde değişiklik göstermektedir. Bu nedenle, ilgiliay duyulan bölgelerdeki projelendirilmemiş olan boru hatlarımızın derinliği ve katedimlerinin, BOTAS Ege İşletme Müdürlüğünüz ile (Tel: 0232 887 17 20) irtibata geçilerek, teknik personeliniz tarafından özel derinlikler ile sahada yapılacak çalışmalar esliğinde tespit edilmesi gerekmektedir. Ayrıca boru hatlarımızın 10 metreden daha yakınları kazılmamalı, 30 metreden daha yakında yapılacak kazılarını ise BOTAS Ege İşletme Müdürlüğünüz ile irtibata geçilerek gerçekleştirilecek teknik personeliniz nezaretinde yapılması gerekmektedir.

Gengşini rica ederiz.

[E-İmza]
Melihat Esin GÜNER
Başmühendis

[E-İmza]
Almet DAYRAM
İşletme Müdürü

EİG:

- 1- Hazin (1 Sayfa)
- 2- Tipik Düşey Kesim (1 Sayfa)
- 3- Tarihli Çizim (1 Sayfa)

TEKİRGÖZ KAZI VE KAZI İZİNLERİ BÜROSU
ÖLÇÜM MÜDÜRÜ
MELİH EYRAN
NO: 2023/1671
TAH: 17.11.23
E

MELİH EYRAN
MÜDÜR

Almet DAYRAM
İşletme Müdürü

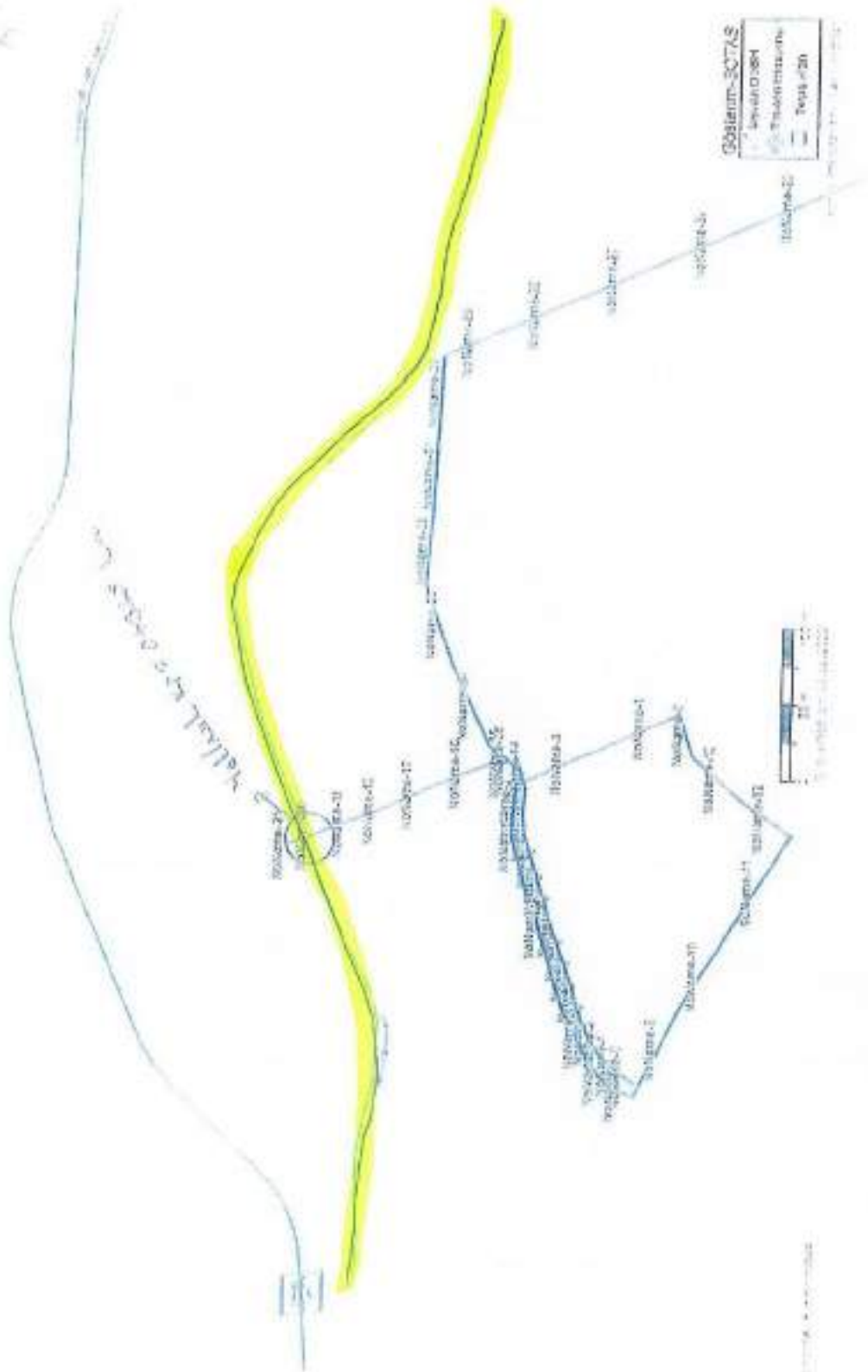
[E-İmza]

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Sayfa 2 / 2

BOZTAŞ Boru Hattının İle Petrol Taşıma Alanının Ş. 78/2





BOTAŞ DOĞAL GAZ İLETİM BÖLGEİŞLETME MÜDÜRLÜĞÜ

Tarih: .../.../...

TAAHHÜTNAME

Kurumumuz tarafından, "Denizli OSB Yeni İleri Biyolojik ve Kimyasal Merkezi Atık Su Arıtma Tesisine İletilecek Atık Su İçin Kanalizasyon Kolektör Hatlı" işinde yapılacak çalışmalar sırasında, BOTAŞ'a ait 8" Denizli OSB DĞİBH'nın yaklaşık Kç:0+325 km.sinden geçiş yapılması gerekmektedir.

BOTAŞ'a ait 8" Denizli OSB DĞİBH'nın yaklaşık Kç:0+325 km.sinden geçiş yapılması sırasında, Doğal Gaz İletim Boru Hatlarında/tesislerinizde ve çevreye verilebilecek can/mal kaybı ile olası havaya gidecek gazın tüm sorumluluğu, bunun yanında, söz konusu çalışma sırasında tüm iş güvenliği önlemlerinin alınacağını ve çalışma süresince önlemlerin sürekliliğinin sağlanacağını, gerek imal gerekse tedbirsizlik, yahut ehliyetsiz çalışan ve ekipman çalıştırmaktan doğacak hukuki ve cezai sorumluluğun Kurumumuza ait olacağını kabul ve taahhüt ederiz.

Geçiş yapıldıktan sonra, Kurumumuz tarafından bakım-onarım-kontrol vb. nedenlerden dolayı, daha sonra yapılacak çalışmalarda, BOTAŞ'ın izni ve haberi olmadan, Doğal Gaz İletim Boru Hatlarında/tesislerinizde, ilgili BOTAŞ Bölge/İşletme Müdürlüğü'nün görüş ve onayı alınmadan çalışma yapmayacağımızı kabul ve taahhüt ederiz. BOTAŞ'ın izni ve haberi olmadan yapılacak çalışmadan dolayı, Doğal Gaz İletim Boru Hatlarında/tesislerinizde ve çevreye verilebilecek zararlar ile olası can/mal kaybı ile havaya atılacak gazın tüm sorumluluğunun, Kurumumuza ait olduğunu kabul ve taahhüt ederiz.

İşi Yapan Kurum



BOTAŞ DOĞAL GAZ İLETİM BÖLGE İŞLETME MÜDÜRLÜĞÜ

Tarih: 12/12/2023

TAAHHÜTNAME

Kurumunuz tarafından, "Denizli OSB Yeni İleri Biyolojik ve Kimyasal Merkezi Atık Su Arıtma Tesisi'ne İhtilaf Atık Su İçin Kanalizasyon Kolektör Hatı" işinde yapılacak çalışmalar sırasında, BOTAŞ'a ait 8" Denizli OSB DİGBİH'nin yaklaşık Kp:0+325 km.sinden geçiş yapılması gerekmektedir.

BOTAŞ'a ait 8" Denizli OSB DİGBİH'nin yaklaşık Kp:0+325 km.sinden geçiş yapılması sırasında, Doğal Gaz İletim Boru Hatınıza/tesislerinize ve çevreye verilebilecek can/mal kaybı ile olası havaya gidecek gazın tüm sorumluluğu, bunun yanında, söz konusu çalışma sırasında tüm iş güvenliği önlemlerinin alınacağını ve çalışma süresince önlemlerin sürekliliğinin sağlanacağını, gerek ihmal gerekse terbihsizlik, yahut ehliyetsiz çalışan ve ekipman çalıştırmaktan doğacak hukuki ve cezai sorumluluğun Kurumunuza ait olacağını kabul ve taahhüt ederiz.

Geçiş yapıldıktan sonra, Kurumunuz tarafından bakım-onarım-kontrol vb. nedenlerden dolayı, daha sonra yapılacak çalışmalarda, BOTAŞ'ın izni ve haberi olmadan, Doğal Gaz İletim Boru Hatınızda/tesislerinizde, ilgili BOTAŞ Bölge/İşletme Müdürlüğünün görüş ve onayı alınmadan çalışma yapmayacağımızı kabul ve taahhüt ederiz. BOTAŞ'ın izni ve haberi olmadan yapılacak çalışmadan dolayı, Doğal Gaz İletim Boru Hatınıza/tesislerinize ve çevreye verilebilecek zararlar ile olası can/mal kaybı ile havaya atılacak gazın tüm sorumluluğunun, Kurumunuza ait olduğunu kabul ve taahhüt ederiz.

İşi Yapan Kurum


Ahmet TAŞ
Bölge Müdürü




Derya BALTALI
Bn. Kur. Bşk. V.

Annex 7 Sampling Analysis results from Accredited Laboratory

1- Soil Sampling Analysis Results

			
ENCON LABORATUVARI A.Ş. Mutlukent Mahallesi Ulurmak Sokak No:23 Çankaya/ANKARA Tel: 0 312 447 71 22 Faks: 0 312 447 69 88 mail: encon@enconlab.com.tr web: www.enconlaboratory.com		Tel: +90 312 447 71 22 40 0166 T AD-0166-T LR.23.3806 10-23	
DENEY RAPORU / TEST REPORT			
Müşteri Adı / Adresi Client Name / Address	Denizli Organize Sanayi Bölgesi / Yaşar Öncan Caddesi No:1,20330, Honaz DENİZLİ		
Teklif Numarası Proposal Number	LT23_0215		
Rapor Tarihi / Sayfa Sayısı Report Date / Number of Pages	31.10.2023 / 2		
Numune Kayıt No Sample Record Number	NUM.23.3806		
Numuneyi Alan Kurum / Kuruluş Sampling Institution / Company	ENCON Laboratuvarı A.Ş.		
Numune Alınan Yer Sampling Location	DENİZLİ OSB – Proje Alanı İç T-1 (Kordinat:35S 69E267/4187841)		
Numune Türü / Numune İşareti Sample Type / Sample Sign	Toprak / Mühürsüz		
Numunenin Alınış Şekli ve Amacı Way and Aim the Sampling	Anlık / İzleme		
Numuneyi Alan Person Conducted Sampling	Enes Akçor.		
Numune Alma Standardı Sampling Standard	TS 9923		
Numune Alma / Kabul Tarihi Sampling Date / Date of Samples Received	10.10.2023/11.10.2023		
Numunenin Teslim Koşulları Delivery Conditions of the Sample	Soğuk ortam, Cam şişe , Plastik Şişe		
Numune Alınırken Çevre Şartları Environmental Conditions During Sampling	Açık		
Açıklamalar Remarks	Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılmaz.		
Deneyin Yapıldığı Tarih Date of Test	11.10.2023/ 16.10.2023		
<small>Deney laboratuvarı olarak faaliyet gösteren ENCON Laboratuvarı A.Ş. TÜRKAK'ın AD-0166-T ile TS EN ISO/IEC 17025 standardına göre akredite edilmiştir. ENCON Laboratuvarı A.Ş. is accredited by TÜRKAK under registration number AD-0166-T for TS EN ISO/IEC 17025 as a test laboratory.</small>			
<small>Türk Akreditasyon Kurumu (TÜRKAK) deney raporlarını tamamını kapsayarak Avrupa Akreditasyon Birliği (EA) ile Çok Taraflı Anlaşma ve Ulaştırılması Laboratuvar Akreditasyon Birliği (ILAC) ile karşılıklı tanıma anlaşmaları aracılığıyla, Turkish Accreditation Agency (TÜRKAK) is a signatory to the European co-operation for Accreditation (EA) Multilateral Agreement (MLA) and to the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement (MRA) for the recognition of test reports.</small>			
<small>Deney ve hesaplama sonuçları, güvenilirliği ölçülen belirsizlikleri (ölçümü mümkün) ve deney metodları ile kullanılan temel ölçüm birimleri olan takip eden sayfalarda verilmiştir. The test and/or measurement results, the uncertainty (if applicable) with confidence probability and test methods are given on the following pages which are part of this report.</small>			
Yayımlandığı Tarih Date	Raporu Hazırlayan Person in charge of report İrem ÖZKAN Kalite Yöneticisi	Onaylayan/ Approval Tarih/ Date Hüseyin TEKİN Laboratuvar Müdürü	
31.10.2023	e-İmza ile imzalanmıştır	e-İmza ile imzalanmıştır 31.10.2023	
Açıklamalar/Remarks: TOXİC parametresine ait analiz sonucu İST.TP.23.1028074 numaralı ek raporda takdir edilmiştir.			
<small>-İmzasız Deney Raporları geçerli değildir. / Reports without signature are not valid. -Raporlarıki analiz sonuçları laboratuvara teslim edilen, deney yapılan numuneye aittir. / Results given in this report represents the results of the analysis of the samples received. -Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayımlanamaz. / This report and results given in this report cannot be reproduced for commercial or advertising purposes without prior consent of ENCON Laboratory Inc. - (*) İşaretili parametreler akredite olmayan parametrelerdir. (**) Parametreler with "" are those not accredited. -(*) İşaretili parametreler ISO 17025 Akreditasyonuna sahip Anlık Çevre Laboratuvarı tarafından yapılmıştır. (**) Parametreler with "" are conducted at Anlık Çevre Laboratuvarı which is holding ISO-17025 accreditation. -Bu belge 3970 sayılı Elektronik İmza Kanunu kapsamında E-İMZA ile imzalanmıştır. / This document has been signed with E-SIGNATURE with the scope of Electronic Signature Law No. 5070</small>			
<small>http://www.enconlab.com.tr bağlantı adresinden raporlarınızı doğrulayabilirsiniz. / http://www.enconlab.com.tr You can verify your reports via the link.</small>			
Belge No / Document No ENC.P.14F.67.A	İlk Yayın Tarihi / First Release Date 04.05.2007	Revizyon No / Tarihi Revision No / Date 25 / 12.07.2023	Sayfa No Page No 1/3

DENEY RAPORU / TEST REPORT

Parametre Parameter	Birim Unit	Toprak Kirliliğinin Kontrolü ve Noktasal Kaynaklı Kirlenmiş Sahalar Yönetmeliği Ek-1'de yer alan Genel Kirlenici Sınır Değerleri	Analiz Sonucu Test Result	Analiz Metodu Method of Analysis
Azotun	mg/kg	31	<1.0	EPA 3051 A, EPA 6010 D
Arsenik	mg/kg	0.4	6.60	EPA 3051 A, EPA 6010 D
Bor	mg/kg	-	79.5	EPA 3051 A, EPA 6010 D
Kadmiyum	mg/kg	70	<0.5	EPA 3051 A, EPA 6010 D
Krom(VI)	mg/kg	235	<20.0	EPA 3060 A, EPA 7156 A
Bakır	mg/kg	3125	11.7	EPA 3051 A, EPA 6010 D
Kurşun	mg/kg	400	4.97	EPA 3051 A, EPA 6010 D
Çinko	mg/kg	23	<0.1	EPA 3051 A, EPA 6010 D
Mnül	mg/kg	1564	197	EPA 3051 A, EPA 6010 D
Selenyum	mg/kg	391	<0.5	EPA 3051 A, EPA 6010 D
Gamaş	mg/kg	391	<0.5	EPA 3051 A, EPA 6010 D
Çinko	mg/kg	23464	53.3	EPA 3051 A, EPA 6010 D
Kalye	mg/kg	46929	<1.0	EPA 3051 A, EPA 6010 D
Titanyum	mg/kg	312857	799	EPA 3051 A, EPA 6010 D
Toplam Petrol Hidrokarbonları (TPH)	mg/kg	-	<25.0	TS 50 14507, TS EN 14039
Toplam Organik Halkonlar (TOX)	mg/kg	-	54.6	TS EN ISO 16766

ENCON Laboratuvarı A.Ş. tarafından alınmayan numuneler için belirtilen ölçüm belirsizliği değerlerine numune almadan kayıtlı olan belirsizlik değerleri dahil edilmemektedir.
 Laboratuvar yetkili personeli tarafından alınmayan ve/veya uygun koşullarda teslim alınmayan numunelerden teknik ve hukuki olarak sorumluluk kabul etmemektedir. Müşteri tarafından sağlanan bilgilerin hukuki sorumluluğu müşteriye aittir. Şirketimiz bu bilgilerden kaynaklanacak sonuçlardan sorumlu değildir.
 For the samples not taken by the ENCON laboratory Inc., uncertainty values indicated do not cover the uncertainties arising from the sampling.
 The Laboratory does not accept technical and legal responsibility for samples that are not sampled by authorized personnel and/or received under inappropriate conditions. The legal responsibility of the information provided by the customer belongs to the customer, our company waives the consequences arising from this information.

Açıklamalar/Remarks: TOX parametresine ait analiz sonucu İST.TP.21.1029074 numaralı raporla teklif edilmiştir.

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Rapordeki analiz sonuçları laboratuvarına teslim edilen, deneyi yapılan numuneye aittir. / Results given in this report represents the results of the analyses of the samples received.

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(†) İşareti parametreler ISO 17025 Akreditasyonuna sahip Artek Çevre Laboratuvarı tarafından yapılmıştır. / (†) Parameters with (†) are conducted at Artek Çevre Laboratuvarı which is holding ISO-17025 accreditation.

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Doküman No / Document No ENC P 14 F 67 A	İlk Yayın Tarihi / First Release Date 04.05.2007	Revizyon No / Tarihi Revision No / Date 25 / 12.07.2023	Sayfa No Page No 20
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Teknik TS EN ISO/IEC 17025 AB-0158-T
AB-0158-T
LR.23.3806
10-23

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DENEY RAPORU / TEST REPORT

Müşteri Adı / Adresi Client Name / Address	Denizli Organize Sanayi Bölgesi / Yağar Öncan Caddesi No:1,20330, Honaz DENİZLİ
Teklif Numarası Proposal Number	LT23_0215
Rapor Tarihi / Sayfa Sayısı Report Date / Number of Pages	31.10.2023 / 2
Numune Kayıt No Sample Record Number	NUM.23.3806
Numuneyi Alan Kurum / Kuruluş Sampler Institution / Company	ENCON Laboratuvarı A.Ş.
Numune Alınan Yer Sampling Location	DENİZLİ OSB - Proje Alanı Dışı T-2 Referans (Koordinat: 35S 69E2204 187908)
Numune Türü / Numune İşareti Sample Type / Sample Sign	Toprak / Mühürsüz
Numunenin Alınış Şekli ve Amacı Way and Aim the Sampling	Anlık / İzleme
Numuneyi Alan Person Conducted Sampling	Enes Akçer.
Numune Alma Standardı Sampling Standard	TS 9923
Numune Alma / Kabul Tarihi Sampling Date / Date of Samples Received	10.10.2023/11.10.2023
Numunenin Teslim Koşulları Delivery Conditions of the Sample	Soguk ortam, Cam şişe , Plastik Şişe
Numune Alınırken Çevre Şartları Environmental Conditions During Sampling	Açık
Açıklamalar Remarks	Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılmaz.
Deneyin Yapıldığı Tarih Date of Test	11.10.2023/ 16.10.2023

Deney laboratuvarı olarak faaliyet gösteren ENCON Laboratuvarı A.Ş. TÜRKAK sayı AB.1558.1 ile TS EN ISO/IEC 17025 standardına göre akredite edilmiştir. ENCON Laboratuvarı A.Ş. is accredited by TÜRKAK under registration number AB-0158-T for TS EN ISO/IEC 17025 as a test laboratory.

Türk Akreditasyon Kurumu (TÜRKAK) deney raporlarını interneti üzerinden Avrupa Akreditasyon Birliği (EA) ile Çok Tarehli Analizine ve Uzmanlaşmış laboratuvar Akreditasyon Birliği (EAC) ile benzerlik temin etmişlerdir. Turkish Accreditation Agency (TÜRKAK) is a signatory to the European co-operation for Accreditation (EA) Multilateral Agreement (MLA) and to the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement (MRA) for the recognition of test reports.

Deney ve ölçüm sonuçları, güvenilirliği açıklanmış ölçümler (ölçüm belirsizliği) ve deney metodları ile sertifikasyon teminleyici kurum olan talep eden kuruluşlar tarafından sunulmuştur. The test and/or measurement results, the uncertainties (if applicable) with confidence probability and test methods are given on the following pages which are part of the report.

Yayımlandığı Tarih
Date

Raporu Hazırlayan
Person in charge of report
İrem ÖZKAN
Kalite Yöneticisi

Onaylayan/ Approval
Tarih/ Date
Hüseyin TEKİN
Laboratuvar Müdürü

31.10.2023

e-İmza ile imzalanmıştır

e-İmza ile imzalanmıştır
31.10.2023

Açıklamalar/Remarks: TOX parametresine ait analiz sonucu IST-TP.23.105975 numaralı ek raporda takdir edilmiştir.

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-Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayımlanamaz. / This report and results given in this report cannot be reproduced for commercial or advertising purposes without prior consent of ENCON Laboratory Inc..

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DENEY RAPORU / TEST REPORT

Parametre Parameter	Birim Unit	Toprak Kirliliğinin Kontrolü ve Noktasal Kaynaklı Kirlenmiş Sahalar Yönetmeliği Ek-1'de yer alan Genel Kirlenici Sınır Değerleri	Analiz Sonucu Test Result	Analiz Metodu Method of Analysis
Arsenik	mg/kg	31	<1.0	EPA 3051 A, EPA 6010 D
Bor	mg/kg	0.4	0.9	EPA 3051 A, EPA 6010 D
Kadmium	mg/kg	-	78.4	EPA 3051 A, EPA 6010 D
Krom(VI)	mg/kg	70	<0.5	EPA 3051 A, EPA 6010 D
Bakır	mg/kg	235	<20.0	EPA 3060 A, EPA 7156 A
Bakır	mg/kg	3125	12.9	EPA 3051 A, EPA 6010 D
Bazın	mg/kg	400	4.78	EPA 3051 A, EPA 6010 D
Çinko	mg/kg	23	<0.1	EPA 3051 A, EPA 6010 D
İskel	mg/kg	1564	136	EPA 3051 A, EPA 6010 D
Selenyum	mg/kg	391	<0.5	EPA 3051 A, EPA 6010 D
Gamaş	mg/kg	391	<0.5	EPA 3051 A, EPA 6010 D
Çinko	mg/kg	23464	41.1	EPA 3051 A, EPA 6010 D
Kalye	mg/kg	46929	<1.0	EPA 3051 A, EPA 6010 D
Titanyum	mg/kg	312857	200	EPA 3051 A, EPA 6010 D
Toplam Petrol Hidrokarbonları (TPH)	mg/kg	-	<25.0	TS 50 14507, TS EN 14039
Toplam Organik Halkonlar (TOX)	mg/kg	-	39.8	TS EN ISO 16166

ENCON Laboratuvarı A.Ş. tarafından alınmayan numuneler için belirtilen ölçüm belirsizliği değerlerine numune alınmadan kaynaklanan belirsizlik değerleri dahil edilmemektedir.

Laboratuvar yetkili personeli tarafından alınmayan ve/veya uygun koşullarda teslim alınmayan numunelerden teknik ve hukuki olarak sorumluluk kabul etmemektedir. Müşteri tarafından sağlanan bilgilerin hukuki sorumluluğu müşteriye aittir. Firmamız bu bilgilerden kaynaklanacak sonuçlarımları soruşturmaz.

For the samples not taken by the ENCON laboratory Inc., uncertainty values indicated do not cover the uncertainties arising from the sampling.

The Laboratory does not accept technical and legal responsibility for samples that are not sampled by authorized personnel and/or received under inappropriate conditions. The legal responsibility of the information provided by the customer belongs to the customer, our company waives the consequences arising from this information.

Açıklamalar/Remarks: TOX parametresine ait analiz sonucu IST.TP.23.105975 numaralı ek raporda takdir edilmiştir.

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2- Surface Water Sampling Analysis Results



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AB-0188-T
AB-0188-T
LR.23.3802_Rev1
52-23

DENEY RAPORU / TEST REPORT

<p>Müşteri Adı / Adresi Client Name / Address</p> <p>Teklif Numarası Proposal Number</p> <p>Rapor Tarihi / Sayfa Sayısı Report Date / Number of Pages</p> <p>Nümuneye Kayıt No Sample Record Number</p> <p>Nümuneyi Alan Kurum / Kuruluş Sampler Institution / Company</p> <p>Nümuneye Alınan Yer Sampling Location</p> <p>Nümuneye Türü / Nümuneye İşareti Sample Type / Sample Sign</p> <p>Nümunenin Alınış Şekli ve Amacı Way and Aim the Sampling</p> <p>Nümuneyi Alan Person Conducted Sampling</p> <p>Nümuneye Alma Standardı Sampling Standard</p> <p>Nümuneye Alma / Kabul Tarihi Sampling Date / Date of Samples Received</p> <p>Nümunenin Teslim Koşulları Delivery Conditions of the Sample</p> <p>Nümuneye Alınırken Çevre Şartları Environmental Conditions During Sampling</p> <p>Açıklamalar Remarks</p> <p>Deneyin Yapıldığı Tarih Date of Test</p>	<p>Denizli Organize Sanayi Bölgesi / Yaşar Öncan Caddesi No:1,20330, Honaz DENİZLİ</p> <p>LT23_0215</p> <p>28.12.2023 / 2</p> <p>NUM.23.3802</p> <p>ENCON Laboratuvarı A.Ş.</p> <p>DENİZLİ OSB – Çırtıku Deresi Mensab (Koordinat:36S 69S059/4187958)</p> <p>Su (Yüzey suyu) / MÜHÜRÖZ</p> <p>Artık</p> <p>Enes Akçer</p> <p>TS EN ISO 5687-6</p> <p>10.10.2023/11.10.2023</p> <p>Soğuk ortam, Cam şişe, Plastik Şişe</p> <p>Açık</p> <p>Müşteri talebi üzerine özel işlemler numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.</p> <p>11.10.2023/ 16.10.2023</p>
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Deney laboratuvarı olarak faaliyet gösteren ENCON Laboratuvarı A.Ş. TÜRKAK'ın AB-0188-T ve TS EN ISO/IEC 17025 standartlarına göre akredite edilmiştir. ENCON Laboratuvarı A.Ş.'nin akredite olduğu faaliyet gösteren ENCON Laboratuvarı A.Ş. TÜRKAK'ın AB-0188-T ve TS EN ISO/IEC 17025 akreditasyonuna sahiptir.

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Deney ve veya diğer sonuçlar, gerektikçe ölçüm belirsizlikleri jansız halinde ve deney metodu bu sertifikasyon belgesinde belirtilen ölçüm yöntemiyle yapılır. Deney ve veya diğer sonuçlar, gerektikçe ölçüm belirsizlikleri jansız halinde ve deney metodu bu sertifikasyon belgesinde belirtilen ölçüm yöntemiyle yapılır. The test and/or measurement results, the uncertainties (if applicable) with confidence probability and test methods are given on the following pages which are part of the report.

<p>Yayımlandığı Tarih Date</p> <p> ENCON LABORATUVARI A.Ş. Mutlukent Mah. Uluunmak Sokak No:22 Çankaya / ANKARA Tel: 0312 447 71 22 Faks: 0312 447 69 88 Mersis No:03040051413008812 - Tic. Sic. No:313887 Gözetim No:06-12-2023 - www.enconlab.com.tr</p>	<p>Raporu Hazırlayan Person in charge of report</p> <p>İsmail ÖZKAN Kalite Yöneticisi</p> <p> e-İmza ile imzalanmıştır</p>	<p>Onaylayan/Approval Tarih/ Date</p> <p>Hüseyin TEKİN Laboratuvar Müdürü</p> <p> e-İmza ile imzalanmıştır 11/12/2023</p>
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Açıklamalar/Remarks: Bu rapor analizi amaçlı olarak "net" parametrelerin değerlendirilmesini içeren rapor olarak hazırlanmıştır. / Reports without signature are not valid. / Results given in this report represents the results of the analysis of the samples received. / This report and results given in this report cannot be reproduced for commercial or advertising purposes without prior consent of ENCON Laboratory Inc. / (*) İşareti parametreler akredite olmayan parametrelerdir. / (*) Parameters with (*) are those not accredited. / (**) İşareti parametreler ISO 17025 Akreditasyonuna sahip legal Analiz Laboratuvarı tarafından yapılmıştır. / (**) Parameters with (**) are conducted at legal Analyt. which is holding ISO-17025 accreditation. / Bu belge MYS sayılı Elektronik İmza Kanunu kapsamında E-İMZA ile imzalanmıştır. / This document has been signed with E-SIGNATURE with the scope of Electronic Signature Law No. 5078.

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Doküman No / Document No ENC-P-14-F.07.A	İlk Yayın Tarihi / First Release Date 04-05-2007	Revizyon No / Tarihi Revision No / Date 25 / 12-07-2023	Sayfa No Page No 1/2
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DENEY RAPORU / TEST REPORT

Parametre Parameter	Birim Unit	YüzeY Suyu Kalitesi Yönetmeliđi Su Kalitesi Sınıfları			Analiz Sonucu Test Result	Analiz Metodu Method of Analysis
		I	II	III		
Amonyum	ng/L	<0.2	1	>1	<0.05	SM 4500-NH ₃ B,F
Biyolojik Oksijen İhtiyacı	ng/L	<4	8	>8	<3.0	SM 5210 B
Fosfor	µg/L	≤1000	1000	>1500	<20.0	SM 4110 B
İletkenlik	µS/cm	<400	1000	>1000	2280.0	SM 2510 B
Kimyasal Oksijen İhtiyacı	ng/L	<25	50	>50	<5.0	SM 5220 B
Mangan	µg/L	≥100	500	>500	25.00	EPA 200.7
Nitrot	ng/L	<3	10	>10	22.0	SM 4110 B
Oksijen Doymunluđu	ng/L	>8	8	<8	9.20	SM 4500 O G
Ornitofosfor	ng/L	<0.05	0.10	>0.15	<0.02	SM 4110 B
pH	—	5.0	6.0	6.0	8.00	SM 4500 H-B
Renk (420nm)	m ¹	≤1.5	3	>4.3	0.001	TS EN ISO 7887 B
Renk (525nm)	m ¹	≤1.2	24	>3.7	0	
Renk (620nm)	m ¹	≤0.8	1.7	2.5	0	
Selenyum	µg/L	≤10	15	>15	50.2	EPA 200.7
Sülfür*	µg/L	≤2	8	>5	<2.0	SM 4500-S ²⁻ D
Toplam Azot	ng/L	<3.5	11.5	>11.5	5.96	SM 4500-Norg B, SM 4110 B, SM 4500-NH ₃ B
Toplam Fosfor	ng/L	<0.08	0.2	>0.2	<0.01	SM 4900-P B,E
Toplam Kjeldahl Azotu	ng/L	<0.5	1.5	>1.5	0.990	SM 4500-Norg B
Yağ ve Grez*	ng/L	<0.2	0.3	>0.3	0.400	SM 5500 B

ENCON Laboratuvarı A.Ş. tarafından alınmayan numuneler için belirtilen ölçüm belirsizliđi deđerlerine numune alınmadan kaynaklanan belirsizlik deđerleri dahil edilmemektedir.

Laboratuvar yetkili personel tarafından alınmayan veya uygun koşullarda teslim alınmayan numunelerden teknik ve hukuki olarak sorumluluk kabul etmemektedir. Müşteri tarafından sağlanan bilgilerin hukuki sorumluluđu müşteriye aittir. Firmamız bu bilgilerden kaynaklanacak sonuçlardan feragat eder.

For the samples not taken by the ENCON laboratory Inc., uncertainty values indicated do not cover the uncertainties arising from the sampling.

The Laboratory does not accept technical and legal responsibility for samples that are not sampled by authorized personnel and/or received under inappropriate conditions. The legal responsibility of the information provided by the customer belongs to the customer, our company waives the consequences arising from this information.

Açıklama/Notlar: Bu rapor analiz sonuçlarına "yeni" parametrelerle değerlendirilmeden dolayı revize edilmiştir.

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(**) İmzalı parametreler ISO 17025 Akreditasyonuna sahip Genel Analiz Laboratuvarı tarafından yapılmıştır. / (**) Parameters with "**" are conducted at "Genel Analiz" which is holding ISO-17025 accreditation.

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AB-0168-T
LR-23.3803_Rev01
12-23

DENEY RAPORU / TEST REPORT

Müşteri Adı / Adresi Client Name / Address	Denizli Organize Sanayi Bölgesi / Yağar Çınan Caddesi No:1,20330, Honaz DENİZLİ
Teklif Numarası Proposal Number	LT23_0215
Rapor Tarihi / Sayfa Sayısı Report Date / Number of Pages	28.12.2023 / 2
Namune Kayıt No Sample Record Number	NUM23.3803
Namuneyi Alan Kurum / Kuruluş Sampler Institution / Company	ENCON Laboratuvarı A.Ş.
Namune Alınan Yer Sampling Location	DENİZLİ OGB – Çürüku Deresi Nembre (Koordinat:35S 89S16S/418803S)
Namune Türü / Numune İşareti Sample Type / Sample Sign	Su (Yüzeysel suyu) / Mühürsüz
Namunenin Alınış Şekli ve Amacı Way and Aim the Sampling	Anlık
Namuneyi Alan Person Conducted Sampling	Enes Akçer
Namune Alma Standardı Sampling Standard	TS EN ISO 5667-6
Namune Alma / Kabul Tarihi Sampling Date / Date of Samples Received	10.10.2023/11.10.2023
Namunenin Teslim Koşulları Delivery Conditions of the Sample	Soğuk ortam, Cam şişe , Plastik şişe
Namune Alınırken Çevre Şartları Environmental Conditions During Sampling	Açık
Açıklamalar Remarks	Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılmaz.
Deneyin Yapıldığı Tarih Date of Test	11.10.2023/ 16.10.2023

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Yayımladığı Tarih
28.12.2023

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Raporu Hazırlayan
Person in charge of report
İmza: ÖZKAN
Kafkas Yöneticisi

e-İmza ile onaylanmıştır

Onaylayan/ Approval
Tarih/ Date
Hüseyin TEKİN
Laboratuvar Müdürü

e-İmza ile onaylanmıştır
28.12.2023

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DENEY RAPORU / TEST REPORT

Parametre Parameter	Birim Unit	Yüzey Suyu Kalitesi Yönetmeliği Su Kalitesi Sınıfları			Analiz Sonucu Test Result	Analiz Metodu Method of Analysis
		I	II	III		
Amonyum	mg/L	<0.2	1	>1	<0.005	SM 4500-NH ₃ B,F
Biyolojik Oksijen İhtiyacı	mg/L	<4	5	>8	<3.5	SM 5210 B
Flor	µg/L	≤1000	1500	>1500	<20.0	SM 4110 B
İletkenlik	µS/cm	<400	1000	>1000	2320.0	SM 2510 B
Kimyasal Oksijen İhtiyacı	mg/L	<25	50	>50	<5.0	SM 5220 B
Mangan	µg/L	≤100	500	>500	37.26	EPA 200.7
Nitrat	mg/L	<3	10	>10	22.2	SM 4110 B
Oksijen Doymunluğu	mg/L	>8	6	<6	8.40	SM 4500 O.G
Otafosfat Fosforu	mg/L	<0.05	0.16	>0.16	<0.02	SM 4110 B
pH	—	5-9	6-9	5-9	8.06	SM 4500 H-B
Renk (420nm)	m ⁻¹	≤1.5	3	>4.3	0	TS EN ISO 7887 B
Renk (525nm)	m ⁻¹	≤1.2	2.4	>3.7	0	
Renk (620nm)	m ⁻¹	≤0.8	1.7	>2.5	0	
Selenyum	µg/L	≤10	15	>15	88.6	EPA 200.7
SİGİR*	µg/L	<2	5	>5	<2.0	SM 4500-S ² -D
Toplam Azot	mg/L	<3.5	11.5	>11.5	0.04	SM 4500-Norg B, SM 4110 B, SM 4500-NO ₃ -B
Toplam Fosfor	mg/L	<0.08	0.2	>0.2	<0.01	SM 4500-P B.E
Toplam Kjeldahl Azotu	mg/L	<0.5	1.5	>1.5	<0.5	SM 4500-Norg B
Yazıl ve Çiril*	mg/L	<0.2	0.3	>0.3	<0.2	SM 5520 B

ENCON Laboratuvarı A.Ş. tarafından alınmayan numuneler için belirtilen ölçüm belirsizliği değerlerine numune alınmadan kaynaklanan belirsizlik değerleri dahil edilmemektedir.
Laboratuvar yetkili personel tarafından alınmayan veya uygun koşullarda teslim alınmayan numunelerden teknik ve hukuki olarak sorumluluk kabul etmemektedir. Müşteri tarafından sağlanan bilgilerin hukuki sorumluluğu müşteriye aittir. Firmamız bu bilgilerden kaynaklanacak sonuçlardan sorumlu değildir.
For the samples not taken by the ENCON laboratory inc., uncertainty values indicated do not cover the uncertainties arising from the sampling.
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3- Groundwater Sampling Analysis Results





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DENEY RAPORU / TEST REPORT

Müşteri Adı / Adresi Client Name / Address	Denizli Organize Sanayi Bölgesi / Yağar Öncan Caddesi No:1,20330, Honaz DENİZLİ
Teklif Numarası Proposal Number	LT23_0215
Rapor Tarihi / Sayfa Sayısı Report Date / Number of Pages	31.10.2023 / 2
Numune Kayıt No Sample Record Number	NUM23.3804
Numuneyi Alan Kurum / Kuruluş Sample Institution / Company	ENCON Laboratuvarı A.Ş.
Numune Alınan Yer Sampling Location	DENİZLİ OSB - GMK Tekstil Suyu (Koordinat:35S 69E59S/418778Z)
Numune Türü / Numune İşareti Sample Type / Sample Sign	Su (Yer altı Suyu) / Mühürsüz
Numunenin Alınış Şekli ve Amacı Way and Aim the Sampling	Anlık / İzleme
Numuneyi Alan Person Conducted Sampling	Enes Akçor.
Numune Alma Standardı Sampling Standard	TS ISO 5667-11
Numune Alma / Kabul Tarihi Sampling Date / Date of Samples Received	10.10.2023/11.10.2023
Numunenin Teslim Koşulları Delivery Conditions of the Sample	Böğük ortam, Cam şişe , Plastik şişe
Numune Alınırken Çevre Şartları Environmental Conditions During Sampling	Açık
Açıklamalar Remarks	Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılmaz.
Deneyin Yapıldığı Tarih Date of Test	11.10.2023/ 16.10.2023
<small>Deney laboratuvarı olarak faaliyet gösteren ENCON Laboratuvarı A.Ş. TÜRKAK no: AB-0168-T ile TS EN ISO/IEC 17025 standardına göre akredite edilmiştir. ENCON Laboratuvarı A.Ş. is accredited by TÜRKAK under registration number AB-0168-T for TS EN ISO/IEC 17025 as a test laboratory.</small>	
<small>Türk Akreditasyon Kurumu (TÜRKAK) deney raporlarını tasarımları konusunda Avrupa Akreditasyon Enstitüsü (EA) ile Çok Taraflı Anlaşma ve Ulaştırma Laboratuvar Akreditasyon Birliği (ILAC) ile kapsamlı bir anlaşma imzalamıştır. Turkish Accreditation Agency (TÜRKAK) is a signatory to the European co-operation for Accreditation (EA) Multilateral Agreement (MLA) and to the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement (MRA) for the recognition of test reports.</small>	
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Yayımlandığı Tarih Date	Raporu Hazırlayan Person in charge of report İrem ÖZKAN Kalite Yöneticisi	Onaylayan/ Approval Tarih/ Date Hüseyin TEKİN Laboratuvar Müdürü
31.10.2023	e-İmza ile imzalanmıştır	e-İmza ile imzalanmıştır 31.10.2023

Açıklamalar/Remarks: Su seviyesi 14 m'dir.

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DENEY RAPORU / TEST REPORT

Parametre Parameter	Birim Unit	Analiz Sonucu Test Result	Analiz Metodu Method of Analysis
Amonyum	mg/L	0.410	SM 4500-NH ₃ B,F
Arsenik	µg/L	<10.0	EPA 200.7
Çiva	µg/L	<1.0	EPA 200.7
İletkenlik	µS/cm	1124	SM 2510 B
Kadmiyum	µg/L	<5.0	EPA 200.7
Klorür	mg/L	8.74	SM 4110 B
Kurşun	µg/L	<10.0	EPA 200.7
Nitrat	mg/L	3.74	SM 4110 B
Nitrit	mg/L	0.016	SM 4500-NO ₂ ⁻ B
Sülfat	mg/L	281	SM 4110 B
Tetrachloroethylene*	µg/L	<0.2	EPA 5030 C, EPA 8260 D
Toplam fosfor	mg/L	0.118	SM 4500-P B E
Toplam pestisit	µg/L	<0.1	İşletme içi metod
Trichloroethylene	µg/L	<0.2	EPA 5030 C, EPA 8260 D
Tuzluluk	%	0.58	SM 2520 B

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DENEY RAPORU / TEST REPORT

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Laboratuvar yetkili personeli tarafından alınmayan veya uygun koşullarda teslim alınmayan numunelerden teknik ve hukuki olarak sorumluluk kabul etmemektedir. Müşteri tarafından sağlanan bilgilerin hukuki sorumluluğu müşteriye aittir. Şirketimiz bu bilgilerden kaynaklanacak sonuçlardan sorumlu değildir.
For the samples not taken by the ENCON laboratory Inc., uncertainty values indicated do not cover the uncertainties arising from the sampling.
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4- Air Quality Measurement Results

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**PARTİKÜL MADDE (PM) ANALİZ RAPORU /
 PARTICULATE MATTER (PM) ANALYSIS REPORT**

Müşteri Adı / Client Name	Denizli Organize Sanayi Bölgesi		
Müşteri Adresi / Client Address	Yağar Öncan Caddesi No:1,20330, Honaz DENİZLİ		
Teklif Numarası / Proposal Number	LT23_0215		
Rapor Tarihi / Numarası / Report Date / No	31.10.2023 / LR.23.3807	Numune Türü / Sample Type	PM 10
Numune Kayıt Numarası / Sample Record No	NUM.23.3807	Ölçüm Yöntemi / Sampling Method	Gravimetrik Yöntem
Proje Adı / Cihaz Kurulum Noktası / Project Name / Sampling Location	Perçin İplik Fabrika Sınır İçi	Ölçüm Yapıldığında Çevre Şartları / Environmental Conditions During Sampling	Açık
Ölçümü Yapan Kişi / Person Conducted Sampling	Enes AKÇER		
Ölçümde Uygulanacak Standart ve Kaynaklar / Standard and Resources Applied in Measurement	TS EN 12341	Dozu Filtrenin Laboratuvara Geldiği Tarih/Saat / Date/Time the Final Filter Arrives at Laboratory	11.10.2023 16:00
Bos Filtrenin Tartıldığı Tarih / Date of Empty Filter Weighing	06.10.2023	Dozu Filtrenin Tartıldığı Tarih / Date of Final Filter Weighing	16.10.2023 18:00

Açıklamalar/Remarks:
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Yayımlandığı Tarih Date	Raporu Hazırlayan Person in charge of report İrem ÖZKAN Kalite Yöneticisi	Onaylayan/ Approval Tarih/ Date Hüseyin TEKİN Laboratuvar Müdürü
31.10.2023	e-İmza ile imzalanmıştır	e-İmza ile imzalanmıştır 31.10.2023

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**PARTİKÜL MADDE (PM) ANALİZ RAPORU /
PARTICULATE MATTER (PM) ANALYSIS REPORT**

Deneyde Kullanılacak Cihaz ve Malzeme Bilgileri / Device and Equipment Name Used in Analysis	Cihaz Adı / Device Name		Marka / Model Brand / Model		Seri No / Serial No	
		GC Model Tarım Cihazı	Sartorius/GC		18806603	
	PM10 Örnekleme Cihazı	MCZ		LVS1-1203-085		
	Sıcaklık ve Nem Veri Toplama Cihazı	CEM (DT-172 Model)		9115542		
Ölçümün Yapıldığı Yerin Koordinatları / Coordinates of Sampling Location	Filtrenin Boş Ağırlığı (g) Empty Weight of Filter	Filtrenin Dolu Ağırlığı (g) Final Weight of Filter	Filtrenin Takılma Tarihi Date of Filter Set	Filtrenin Çıkarılma Tarihi Date of Filter Take Off	Gecen Hava Miktarı (m ³) Amount of Air Passes (m ³)	PM10 Sonuç /Result (µg/m ³)
35S 698406/ 4187720	0,12852	0,13230	09.10.2023	10.10.2023	55,07	72,3

ENCON Laboratuvarı A.Ş. tarafından alınmayan numuneler için belirtilen ölçüm belirsizliği değerlerine numune almadan kaynaklanan belirsizlik değerleri dâhil edilmemektedir.
Laboratuvar yetkili personel tarafından alınmayan ve/veya uygun koşullarda teslim alınmayan numunelerden teknik ve hukuki olarak sorumluluk kabul edilmemektedir. Müşteri tarafından sağlanan bilgilerin hukuki sorumluluğu müşteriye aittir, firmamız bu bilgilerden kaynaklanacak sonuçlardan sorumlu değildir.
For the samples not taken by the ENCON laboratory inc., uncertainty values indicated do not cover the uncertainties arising from the sampling.
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**PARTİKÜL MADDE (PM) ANALİZ RAPORU /
PARTICULATE MATTER (PM) ANALYSIS REPORT**

Müşteri Adı / Client Name	Denizi Organize Sanayi Bölgesi		
Müşteri Adresi / Client Address	Yağar Öncan Caddesi No:1,20330, Honaz DENİZLİ		
Teklif Numarası / Proposal Number	LT23_0215		
Rapor Tarihi / Numarası / Report Date / No	31.10.2023 / LR.23.3808	Numune Türü / Sample Type	PM 2.5
Numune Kayıt Numarası / Sample Record No	NUM.23.3808	Ölçüm Yöntemi / Sampling Method	Gravimetrik Yöntem
Proje Adı / Cihaz Kurulum Noktası / Project Name / Sampling Location	Perçin İplik Fabrika Sınır İçi	Ölçüm Yapıldığında Çevre Şartları / Environmental Conditions During Sampling	Açık
Ölçümü Yapan Kişi / Person Conducted Sampling	Enes AKÇER		
Ölçümde Uygulanacak Standart ve Kaynaklar / Standard and Resources Applied in Measurement	TS EN 12341	Dolu Filtrenin Laboratuvara Geldiği Tarih/Saat / Date/Time the Final Filter Arrives at Laboratory	11.10.2023 16:00
Bos Filtrenin Tartıldığı Tarih / Date of Empty Filter Weighing	06.10.2023	Dolu Filtrenin Tartıldığı Tarih / Date of Final Filter Weighing	16.10.2023 18:00

Açıklamalar/Remarks:

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Yayınlandığı Tarih / Date

Raporu Hazırlayan / Person in charge of report
İrem ÖZKAN
Kalite Yöneticisi

Onaylayan / Approval
Tarih / Date
Hüseyin TEKİN
Laboratuvar Müdürü

31.10.2023

e-İmza ile imzalanmıştır

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31.10.2023

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AS-0168-T
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**PARTİKÜL MADDE (PM) ANALİZ RAPORU /
PARTICULATE MATTER (PM) ANALYSIS REPORT**

Deneyde Kullanılacak Cihaz ve Malzeme Bilgileri / Device and Equipment Name Used in Analysis	Cihaz Adı / Device Name		Marka / Model Brand / Model		Seri No / Serial No	
		GC Model Tarım Cihazı	Sartorius/GC		18806603	
	PM10 Örnekleme Cihazı	Leckel		LV53-2786105		
	Sıcaklık ve Nem Veri Toplama Cihazı		CEM (DT-172 Model)		9115542	
Ölçümün Yapıldığı Yerin Koordinatları / Coordinates of Sampling Location	Filtrenin Boş Ağırlığı (g) Empty Weight of Filter	Filtrenin Dolu Ağırlığı (g) Final Weight of Filter	Filtrenin Takılma Tarihi Date of Filter Set	Filtrenin Çıkarılma Tarihi Date of Filter Take Off	Gecen Hava Miktarı (m ³) Amount of Air Passes (m ³)	PM2.5 Sonuç /Result (µg/m ³)
35S 698406/ 4167720	0,12839	0,13270	09.10.2023	10.10.2023	55,2	59,9

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5- Noise Measurement Results



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GÜRÜLTÜ ÖLÇÜM RAPORU / NOISE REPORT

Müşteri Adı / Client Name	Denizli Organize Sanayi Bölgesi		
Müşteri Adresi / Client Address	Yağar Öncan Caddesi No:1,20330, Honaz DENİZLİ		
Teklif Numarası / Proposal Number	LT23_0215		
Rapor Tarihi / Numarası / Report Date / No	31.10.2023 / LR.23.3809	Numune Türü / Sample Type	GÜRÜLTÜ
Numune Kayıt Numarası / Sample Record No	NUM.23.3809	Ölçümde Uygulanacak Standart ve Kaynaklar / Standard and Resources Applied in Measurement	TS ISO 1898-2
Ölçümün Yapıldığı Yerin Koordinatları / Coordinates of Sampling Location	35G 696406/4187720	Ölçüm Tarihi / Sampling Date	09.10.2023-10.10.2023
Proje Adı / Cihaz Kurulum Noktası / Project Name / Sampling Location	Perçin İplik Fabrika Sınırı İçeri	Ölçüm Yapıldığında Çevre Şartları / Environmental Conditions During Sampling	Açık
Numune Kabul Tarihi / Date of Samples Received	11.10.2023	Örnekleme Yapan Personel Kurum / Kişi / Firm / Conducted Sampling	Enkas AKÇER

Yayımlandığı Tarih / Date

31.10.2023

Raporu Hazırlayan / Person in charge of report
İrem ÖZKAN
Kalite Yöneticisi

e-imza ile imzalanmıştır

Onaylayan / Approval / Tarih / Date
Hüseyin TEKİN
Laboratuvar Müdürü

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31.10.2023

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GÜRÜLTÜ ÖLÇÜM RAPORU / NOISE REPORT

PARAMETRE	BİRİM	ÖLÇÜM/ ANALİZ SONUCU	ÇEVRESEL GÜRÜLTÜ KONTROL YONETMELİĞİ EK 2 TABLO 1
Eşdeğer Gürültü * L_{eq} Gündüz (07:00-19:00)	dB(A)	70.0	65.0
Eşdeğer Gürültü * L_{eq} Akşam (19:00-23:00)	dB(A)	61.5	60.0
Eşdeğer Gürültü * L_{eq} Gece (23:00-07:00)	dB(A)	61.9	55.0

PARAMETRE	BİRİM	ÖLÇÜM/ ANALİZ SONUCU	İFC Tablo 1.7.1
Eşdeğer Gürültü * L_{eq} Gündüz (07:00-22:00)	dB(A)	69.2	55.0
Eşdeğer Gürültü * L_{eq} Gece (22:00-07:00)	dB(A)	61.9	45.0

Sayfa No
3/2

6- Existing WWTP Effluent Analysis Results





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DENEY RAPORU / TEST REPORT

Türkiye Akademi T.C. MİLLÎ EĞİTİM BAKANLIĞI T.C. MİLLÎ EĞİTİM AKADEMİSİ
AB-0168-T
LR.23.3801
10-23

<p>Müşteri Adı / Adresi Client Name / Address</p> <p>Teklif Numarası Proposal Number</p> <p>Rapor Tarihi / Sayfa Sayısı Report Date / Number of Pages</p> <p>Numune Kayıt No Sample Record Number</p> <p>Numuneyi Alan Kurum / Kuruluş Sample Institution / Company</p> <p>Numune Alınan Yer Sampling Location</p> <p>Numune Türü / Numune İşareti Sample Type / Sample Sign</p> <p>Numunenin Alınış Şekli ve Amacı Way and Aim the Sampling</p> <p>Numuneyi Alan Person Conducted Sampling</p> <p>Numune Alma Standardı Sampling Standard</p> <p>Numune Alma / Kabul Tarihi Sampling Date / Date of Samples Received</p> <p>Numunenin Teslim Koşulları Delivery Conditions of the Sample</p> <p>Numune Alınırken Çevre Şartları Environmental Conditions During Sampling</p> <p>Açıklamalar Remarks</p> <p>Deneyin Yapıldığı Tarih Date of Test</p>	<p>Denizli Organize Sanayi Bölgesi / Yağar Öncan Caddesi No:1,20330, Honaz DENİZLİ</p> <p>LT23_0215</p> <p>31.10.2023 / 2</p> <p>NUM23.3801</p> <p>ENCON Laboratuvarı A.Ş.</p> <p>DENİZLİ OSB – AAT Çıkış (Koordinat:35S6965104186488)</p> <p>Abkısı / Mühürsüz</p> <p>Kompozit 2 saatlik</p> <p>Enes Akçor</p> <p>TS EN ISO 5667-10</p> <p>10.10.2023/11.10.2023</p> <p>Böğük ortam, Cam şişe, Plastik Şişe</p> <p>Açık</p> <p>Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılmaz.</p> <p>11.10.2023/ 16.10.2023</p> <p><small>Deney laboratuvarı olarak faaliyet gösteren ENCON Laboratuvarı A.Ş. TÜRKAK no: AB.0168.T ile TS EN ISO/IEC 17025 standardına göre akredite edilmiştir. ENCON Laboratuvarı A.Ş. is accredited by TÜRKAK under registration number AB-0168.T for TS EN ISO/IEC 17025 as a test laboratory.</small></p> <p><small>Türk Akademiye Kurumu (TAKAK) deney raporlarına ilişkin konularında Avrupa Akademiye Birliği (EA) ile Çok Taraflı Anlaşma ve Ulaştırma Laboratuvar Akreditasyon Birliği (ILAC) ile kapsamlı bir anlaşma imzalamıştır. Türk Akademiye Kurumu (TAKAK) is a signatory to the European co-operation for Accreditation (EA) Multilateral Agreement (MLA) and to the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement (MRA) for the recognition of test reports.</small></p> <p><small>Deney ve veya ölçüm sonuçları, güvenilirliği ölçülen belirsizlikleri (gerekli olduğu) ve deney metodları ile kullanılan ölçümleyici kısımların takip eden sayfalarda verilmektedir. The test and/or measurement results, the uncertainties (if applicable) with confidence probability and test methods are given on the following pages which are part of the report.</small></p>
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<p>Yayımlandığı Tarih Date</p> <p>31.10.2023</p>	<p>Raporu Hazırlayan Person in charge of report</p> <p>İrem ÖZKAN Kalite Yöneticisi</p> <p>e-İmza ile imzalanmıştır</p>	<p>Onaylayan/ Approval Tarih/ Date</p> <p>Hüseyin TEKİN Laboratuvar Müdürü</p> <p>e-İmza ile imzalanmıştır 31.10.2023</p>
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DENEY RAPORU / TEST REPORT

Parametre Parameter	Birim Unit	BKYY Tablo 19 2 saatlik Kompozit Sınır Değerler	Analiz Sonucu Test Result	Analiz Metodu Method of Analysis
Azotlu Kar Madde	ng/L	200	31.0	SM 2540-D
Bakır (Cu)	ng/L	3	0.034	EPA 200.7
Baklıryodene ^{***}	-	10	<10.0	Su Numune Alınması ve Analiz Metotları Tablosu
Çinko (Zn)	ng/L	5	0.150	EPA 200.7
Giva (Hg)	ng/L	0.05	<0.001	EPA 200.7
Demir (Fe)	ng/L	10	0.032	EPA 200.7
Florür (F ⁻)	ng/L	15	<0.02	SM 4110 B
Kadmiyum (Cd)	ng/L	0.1	<0.005	EPA 200.7
Kimyasal Oksijen İhtiyacı	ng/L	250	53.8	SM 5220 B
Krom-6 (Cr ⁶⁺)	ng/L	0.5	<0.1	SM 3500-Cr-B
Kurşun (Pb)	ng/L	2	<0.01	EPA 200.7
pH	-	6-9	7.71	SM 4500-H ⁺ B
Renk	Pt-Co	200	201	SM 2120 C
Sulfat (SO ₄ ²⁻)	ng/L	1500	622	SM 4110 B
Toplam İyodür	ng/L	2	0.118	SM 4500-P-B-E
Toplam Kjeldahl Azotu (TKN)	ng/L	20	10.8	SM 4500-N _{org} B
Toplam Krom	ng/L	2	<0.005	EPA 200.7
Toplam Sinyan (CN)	ng/L	1	<0.01	EPA 200.7
Yağ ve gres	ng/L	20	<30.0	SM 5520 B

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Annex 8 Air Quality Impact Calculations

Pre-construction Phase

Table 1. Dust Emission Factors

Sources	Emission Factors		Unit
	Uncontrolled	Controlled	
Dismantling/Excavation	0.025	0.0125	kg/ton
Loading	0.010	0.0050	
Unloading	0.010	0.0050	
Storage	5.800	2.9000	kg/ha-day
Transportation (total distance of round trip)	0.700	0.3500	kg/km- vehicle

Source: Industrial Air Pollution Control Regulation, Appendix 12.

Assuming that the top soil will be stripped 20 cm,

- Volume of topsoil to be stripped: $17100 \text{ m}^2 \times 0.20 \text{ m} = 3420 \text{ m}^3$
- Density of topsoil: 1.6 ton/m^3
- Amount of topsoil to be stripped: $3420 \text{ m}^3 \times 1.6 \text{ ton/m}^3 = 5472 \text{ ton}$
- Duration of pre-construction phase of Project = 1 month = 30 days
- Daily amount of topsoil to be stripped: $5472 \text{ ton}/30 \text{ days} = 182.4 \text{ ton/day}$
- Hourly amount of topsoil to be stripped: $182.4 \text{ ton/day} / 8 \text{ hours/day} = 22.8 \text{ ton/hour}$
- Storage area: $3420 \text{ m}^3 / 2.5 \text{ m} = 0.1368 \text{ ha}$ (assuming the height is 2.5 m)

Uncontrolled emissions:

Dismantling/Excavation emission factor (uncontrolled): 0.025 kg/ton

Amount of PM₁₀ emissions: $22.8 \text{ ton/hour} \times 0.025 \text{ kg/ton} = \mathbf{0.57 \text{ kg/hour}}$

According to the European Environment Agency, it is recommended that PM₁₀ be assumed to have an average PM_{2.5} content of 10%. According to this calculation, PM_{2.5} emission is 0.057 kg/hour.

Storage emission factor (uncontrolled): 5.8 kg/ha-day

Amount of PM₁₀ emissions: $0.1368 \text{ ha} \times 5.8 \text{ kg/ha-day} \times (1 \text{ day}/24 \text{ hours}) = \mathbf{0.03306 \text{ kg/hour}}$

Amount of PM_{2.5} emissions: $0.03306 \text{ kg/hour} \times 0.10 = \mathbf{0.003306 \text{ kg/hour}}$

Controlled emissions:

Dismantling/Excavation emission factor (controlled): 0.0125 kg/ton

Amount of PM₁₀ emissions: $22.8 \text{ ton/hour} \times 0.0125 \text{ kg/ton} = \mathbf{0.285 \text{ kg/hour}}$

Amount of PM_{2.5} emissions: $0.285 \text{ kg/hour} \times 0.10 = \mathbf{0.0285 \text{ kg/hour}}$

Storage emission factor (controlled): 2.9 kg/ha-day

Amount of PM₁₀ emissions: $0.1368 \text{ ha} \times 2.9 \text{ kg/ha-day} \times (1 \text{ day}/24 \text{ hours}) = \mathbf{0.01653 \text{ kg/hour}}$

Amount of PM_{2.5} emissions: $0.01653 \text{ kg/hour} \times 0.10 = \mathbf{0.001653 \text{ kg/hour}}$

In addition to the dust emissions, there will be exhaust emissions of heavy construction machinery. Primary emissions from exhaust gases of vehicles are NO_x, CO, PM, SO_x and TOC. The equipment to be used during pre-construction phase is given in Table 2.

Table 2 Equipment List to be Used During Pre-construction Phase

Construction Machinery/Equipment	Number
Truck	1
Loader	1

Dust and gas emission from vehicles are calculated as below. The emission factors for CO, NO_x and particulate matter are given in Table 3.

Table 3 Emission Factors for 1 L Diesel Consumption (considering density of diesel is 0.85 kg/L)

Pollutant	Emission Factor (kg/ton)	Emission Factor (g/L)
CO	0.017.	0.01445
NO _x	0.081	0.06885
PM	0.006	0.0051
SO _x	0.005	0.00425
TOC	0.006	0.0051

Source: <https://www.epa.gov/sites/default/files/2020-10/documents/c03s03.pdf> (Table 3.3-1) European

The diesel consumption by each pre-construction vehicle is assumed as 25 L/hour.

- Total diesel consumption by 2 pre-construction vehicles given in Table 2 = 50 L/hour

The results of calculation by using emission factors and diesel consumption of pre-construction vehicles are as:

For CO: 50 L/h x 0.01445 g/L = 0.7225 g/h

For NO_x: 50 L/h x 0.06885 g/L = 3.4425 g/h

For PM: 50 L/h x 0.0051 g/L = 0.255 g/h

For SO_x: 50 L/h x 0.00425 g/L = 0.2125 g/h

For TOC: 50 L/h x 0.0051 g/L = 0.255 g/h

According to the European Environment Agency, it is recommended that PM₁₀ be assumed to have an average PM_{2.5} content of 10%. According to this calculation, PM_{2.5} emission is 0.0255 g/h.

Construction Phase

Information regarding the excavation that will occur during the construction phase is as follows:

- Total volume of excavation: 82,240 m³
- Density of Excavation Material: 1.60 ton/m³
- Total amount of excavation material: 131,584 ton
- Duration of excavation works: 120 days
- Working hours per day: 8 hours
- Hourly Excavated Material Amount: 137.07 ton/hour
- Ratio of excavation to be used as filling material: 50%

- Volume of excavation to be disposed of: 41,120 m³
- Total amount of excavation to be disposed of: 65,792 ton
- Distance to transport the materials to be disposed: 5 km
Volume of excavation to be used as filling material: 41,120 m³
- Area for storage of excavation to be used as filling material: 1.3707 ha (assuming storage height is 3 m.)

The uncontrolled and controlled dust emissions are calculated by using the emission factors given in Table 1 and presented as follows.

Uncontrolled emissions:

Excavation emission factor (uncontrolled): 0.025 kg/ton
 Amount of PM₁₀ emissions: 137.07 ton/hour x 0.025 kg/ton = **3.4268 kg/hour**
 Amount of PM_{2.5} emissions: 3.4268 kg/hour x 0.10 = **0.34268 kg/hour**

Loading emission factor (uncontrolled): 0.010 kg/ton
 Amount of PM₁₀ emissions: 137.07 ton/hour x 0.010 kg/ton = **1.3707 kg/hour**
 Amount of PM_{2.5} emissions: 1.3707 kg/hour x 0.10 = **0.13707 kg/hour**

Transportation emission factor (uncontrolled): 0.700 kg/km-vehicle
 Amount of PM₁₀ emissions: 5 km x 0.700 kg/km-vehicle x (1/120 days) x (1/8 hours)
 = **0.0036 kg/hour**
 Amount of PM_{2.5} emissions: 0.0036 kg/hour x 0.10 = **0.00036 kg/hour**

Storage emission factor (uncontrolled): 5.8 kg/ha-day
 Amount of PM₁₀ emissions: 1.3707 ha x 5.8 kg/ha-day x (1 day/24 hours) = **0.3313 kg/hour**
 Amount of PM_{2.5} emissions: 0.3313 kg/hour x 0.10 = **0.03313 kg/hour**

Controlled Dust Emissions:

Excavation emission factor (controlled): 0.0125 kg/ton
 Amount of PM₁₀ emissions: 137.07 ton/hour x 0.0125 kg/ton = **1.7134 kg/hour**
 Amount of PM_{2.5} emissions: 1.7134 kg/hour x 0.10 = **0.17134 kg/hour**

Loading emission factor (controlled): 0.005 kg/ton
 Amount of PM₁₀ emissions: 137.07 ton/hour x 0.005 kg/ton = **0.6854 kg/hour**
 Amount of PM_{2.5} emissions: 0.6854 kg/hour x 0.10 = **0.06854 kg/hour**

Transportation emission factor (controlled): 0.350 kg/km-vehicle
 Amount of PM₁₀ emissions: 5 km x 0.350 kg/km-vehicle x (1/120 days) x (1/8 hours)
 = **0.0018 kg/hour**
 Amount of PM_{2.5} emissions: 0.0018 kg/hour x 0.10 = **0.00018 kg/hour**

Storage emission factor (controlled): 2.9 kg/ha-day
 Amount of PM₁₀ emissions: 1.3707 ha x 2.9 kg/ha-day x (1 day/24 hours) = **0.1656 kg/hour**
 Amount of PM_{2.5} emissions: 0.1656 kg/hour x 0.10 = **0.01656 kg/hour**

As in the construction phase of the Project, there will be exhaust emissions of heavy construction machinery, in addition to the dust emissions. Primary emissions from exhaust gases of vehicles are NO_x, CO, and PM. The construction machinery and equipment list is given in Table 4.

Table 4 Construction Machinery and Equipment List

Construction Machinery/Equipment	Number
Truck	5
Excavator	2
Loader	1
Sprinkler	1
Tower crane	1

Dust and gas emission from vehicles are calculated as below. In calculations, the emission factors for CO, SO₂, NO_x, and particulate matter given in Table 5.5 are used.

The diesel consumption by each construction vehicle is assumed as 25 L/hour.

- Total diesel consumption by 10 construction vehicles given in Table 4 = 250 L/hour

The results of calculation by using emission factors and diesel consumption of construction vehicles are as:

For CO: 250 L/h x 0.01445 g/L = 3.6125 g/h

For NO_x: 250 L/h x 0.06885 g/L = 17.2125 g/h

For PM: 250 L/h x 0.0051 g/L = 1.275 g/h

For SO_x: 250 L/h x 0.00425 g/L = 1.0625 g/h

For TOC: 250 L/h x 0.0051 g/L = 1.275 g/h

According to the European Environment Agency, it is recommended that PM₁₀ be assumed to have an average PM_{2.5} content of 10%. According to this calculation, PM_{2.5} emission is 0.1275 g/h.

Annex 9 Noise Level Calculations

The total equivalent noise level created by noise sources is calculated with the help of the formula given below.

$$L_{wT} = 10 \times \log \sum_{i=1}^n 10^{\frac{L_{wi}}{10}} \quad (1) \text{ (METU, 2023).}$$

Where;

n: Number of noise sources

Lwi: Noise level (dBA) of each source

LwT: Total equivalent noise level

The noise level originating from the machine/equipment and reaching a certain distance is calculated by the formula below.

$$L_p = L_{wT} + 10 \times \log \frac{Q}{4\pi r^2} \quad (2) \text{ (SRL, 1988).}$$

Where;

Q: 1

r: Distance (m)

Lp: Noise level (dBA)

Pre-construction Phase

The equipment to be used in the pre-construction phase and their noise levels are given below.

Table 1. Noise Levels of Machinery/Equipment

Equipment	Number	Lwi
Excavator	1	104
Truck	1	108

Using the information given in Table 1 and the formula numbered 1, total equivalent noise level is calculated as 109.5.

In addition, using formula numbered 2, the noise levels depending on distance for pre-construction phase are calculated and given in Table 2.

Using the measured background noise which is 70 dBA and the the formula numbered 1, total equivalent noise levels are calculated as in Table 2.

Table 2. Noise Levels of Depending on Distance

Distance (m)	Lp (dBA) without Background Noise	Lp (dBA) with Background Noise	Project Standard or Background Noise Level +3 (dBA)
15	74.9	76,2	65 or 70+3
50	64.5	71,1	65 or 70+3
100	58.5	70,3	65 or 70+3
200	52.4	70,1	65 or 70+3
300	48.9	70,0	65 or 70+3
400	46.4	70,0	65 or 70+3
500	44.5	70,0	65 or 70+3
600	42.9	70,0	65 or 70+3
700	41.6	70,0	65 or 70+3
800	40.4	70,0	65 or 70+3
900	39.4	70,0	65 or 70+3
1000	38.5	70,0	65 or 70+3

1500	34.9	70.0	65 or 70+3
2000	32.4	70.0	65 or 70+3
2500	30.5	70.0	65 or 70+3

Construction Phase

The equipment to be used in the construction phase and their noise levels are given below.

Table 3. Noise Levels of Machinery/Equipment

Equipment	Number	Lwi
Excavator	2	104
Loader	1	115
Tower Crane	1	112
Truck	5	108
Sprinkler	1	109

Using the information given in Table 3 and the formula numbered 1, total equivalent noise level is calculated as 119.6.

In addition, using formula numbered 2, the noise levels depending on distance for construction phase are calculated and given in Table 4.

Using the measured background noise which is 70 dBA and the the formula numbered 1, total equivalent noise levels are calculated as in Table 4.

Table 4. Noise Levels of Depending on Distance

Distance (m)	Lp (dBA) without Background Noise	Lp (dBA) with Background Noise	Project Standard or Background Noise Level +3 (dBA)
15	85.1	85,3	65 or 70+3
50	74.7	75,9	65 or 70+3
100	68.6	72,4	65 or 70+3
200	62.6	70,7	65 or 70+3
300	59.1	70,3	65 or 70+3
400	56.6	70,2	65 or 70+3
500	54.7	70,1	65 or 70+3
600	53.1	70,1	65 or 70+3
700	51.7	70,1	65 or 70+3
800	50.6	70,0	65 or 70+3
900	49.6	70,0	65 or 70+3
1000	48.6	70,0	65 or 70+3
1500	45.1	70,0	65 or 70+3
2000	42.6	70,0	65 or 70+3
2500	40.7	70,0	65 or 70+3

Annex 10 Cumulative Impact Assessment Methodology and Data Sources

Cumulative Impact Assessment study to be done in the scope of this ESIA will follow the main principles of the Good Practice Handbook of the International Finance Corporation (*IFC, August 2013*) on the Cumulative Impact Assessment and Management Guidance, which is one of the latest and most comprehensive documents available to CIA practitioners and compiles the fundamental approaches of key reference documents on the assessment of cumulative impacts. Additional key references to be used in the scope of the assessment will include the following:

- World Bank's Sample Guidelines on Cumulative Environmental Impact Assessment for Hydropower Projects in Türkiye published under the Energy Sector Management Assistance Program (*ESMAP, 2012*);
- Cumulative Effects Assessment and Management Guidance published by International Association for Impact Assessment (IAIA) (*Canter L., and William R., 2009; <http://www.iaia.org/>*);
- European Commission's (EC) Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions (*May, 1999*);
- Cumulative Effects Assessment Practitioners Guide prepared by the Cumulative Effects Assessment Working Group and AXYS Environmental Consulting Ltd. for the Canadian Environmental Assessment Agency (*Hegmann, G. C. Cockling, R. Creasey, S. Dupuis, Kennedy, L. Kingsley, W. Rodd, H. Spaling and D. Stalker; February, 1999*).

Cumulative impacts are defined as the "impacts that result from the successive, incremental, and/or combined effects of an action, project, or activity (collectively referred to in this document as "developments") when added to other existing, planned, and/or reasonably anticipated future ones (*IFC, August 2013*). Several standalone activities/projects/developments with insignificant impacts individually may together cause a cumulative impact that may be significant (*EC, May 1999; see Figure 1*).

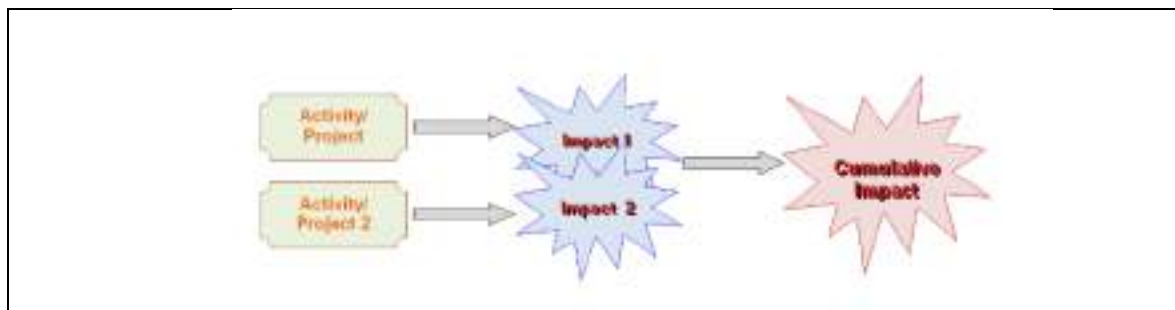


Figure 1 Illustration of Cumulative Impacts (*Adapted from EC, May 1999*)

Cumulative Impact Assessment is defined by IFC as the process of analyzing the potential impacts and risks of proposed developments in the context of the potential effects of other human activities and natural environmental and social external drivers on the chosen Valued Ecosystem Components (VECs), which are the environmental and social attributes that are considered to be important in assessing risks, over time, and proposing concrete measures to avoid, reduce, or mitigate such cumulative impacts and risk to the extent possible (*IFC, August 2013*). In accordance with the methodology specified in IFC's CIA Good Practice Handbook, the main steps of the Cumulative Impact Assessment to be done for the North Marmara Motorway Project will comprise the following:

- Step 1: Scoping Phase I – VECs, Spatial and Temporal Boundaries
- Step 2: Scoping Phase II – Other Activities and Environmental Drivers
- Step 3: Establish Information on Baseline Status of VECs
- Step 4: Assess Cumulative Impacts on VECs
- Step 5: Assess Significance of Predicted Cumulative Impacts

Step 6: Management of Cumulative Impacts – Design and Implementation

In the scope of the Cumulative Impact Assessment, DOIZ WWTP Project will be taken into consideration as the source Project that may cause cumulative impacts together with other projects/activities/developments affecting the same VECs.

Step 1: Scoping Phase I

In line with the good practice, the Cumulative Impact Assessment study will be conducted with a focus on the VECs that would be environmentally or socially important in assessing the risks of the Project. Accordingly, since the Cumulative Impact Assessment should be looked at “from the VECs point of view”, in which the combined (i.e., cumulative) effects of the various actions on each VEC are assessed, as the first step of the assessment, VECs, for which cumulative impacts are to be assessed and managed, will be identified for the Project. A comparative illustration of the Project-centered perspective of the ESIA and the VEC-centered perspective of Cumulative Impact Assessment processes is illustrated in Figure 2.

It should be noted that only the VECs to be affected by the DOIZ WWTP Project will be considered in the assessment. In other words, any VEC (e.g. protected areas, sensitive habitats, water resources, etc.) that would be affected by other developments, but not by DOIZ WWTP Project, will not be taken into account in the assessment in accordance with Cumulative Impact Assessment. This approach is exemplified in Figure 3, where the arrows indicate an action causing an effect on a VEC. As can be seen in the example given in the figure, although the fish is affected by one of the other actions, it should not be considered as VEC in the scope of a cumulative impact assessment to be done for the proposed project, because it is not affected by the proposed action under review.

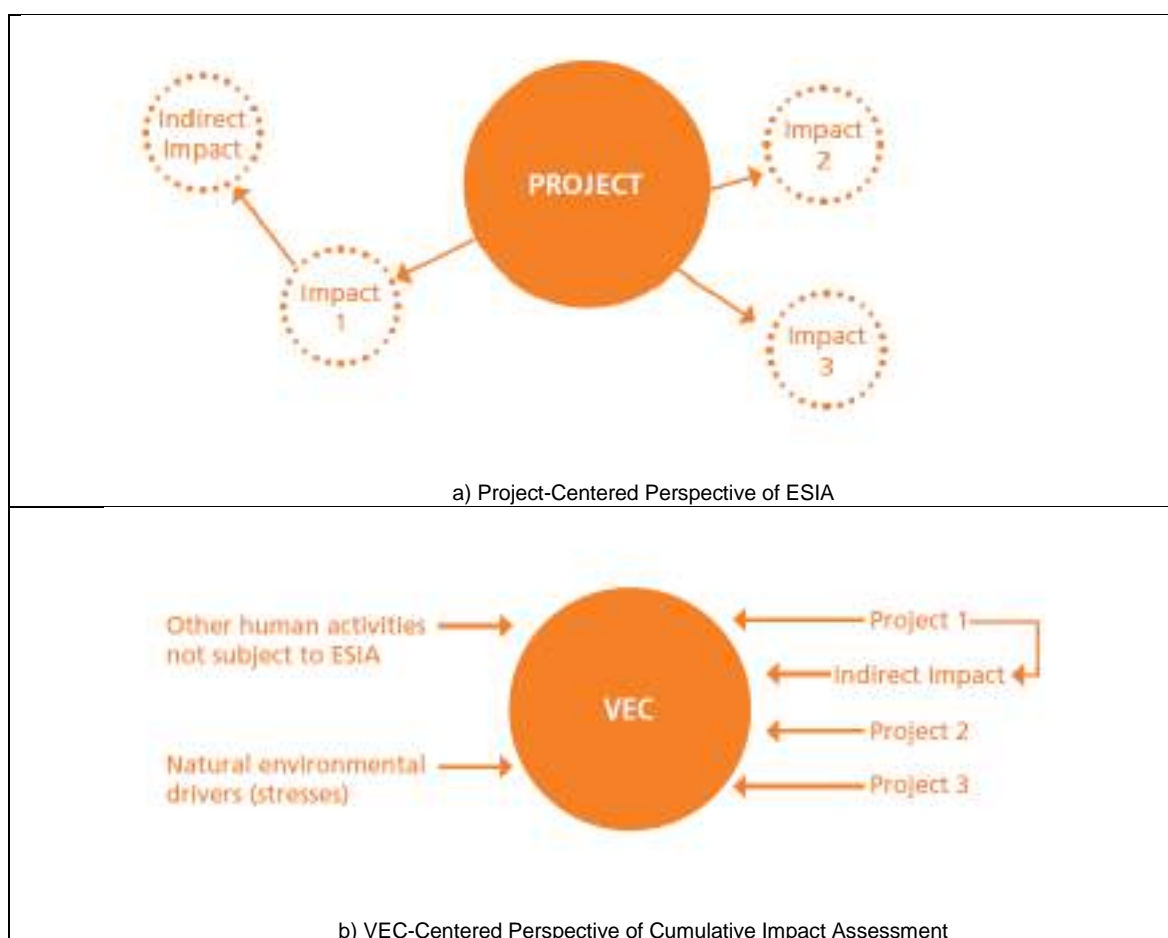


Figure 2 A Comparative Illustration of the ESIA and Cumulative Impact Assessment Perspectives

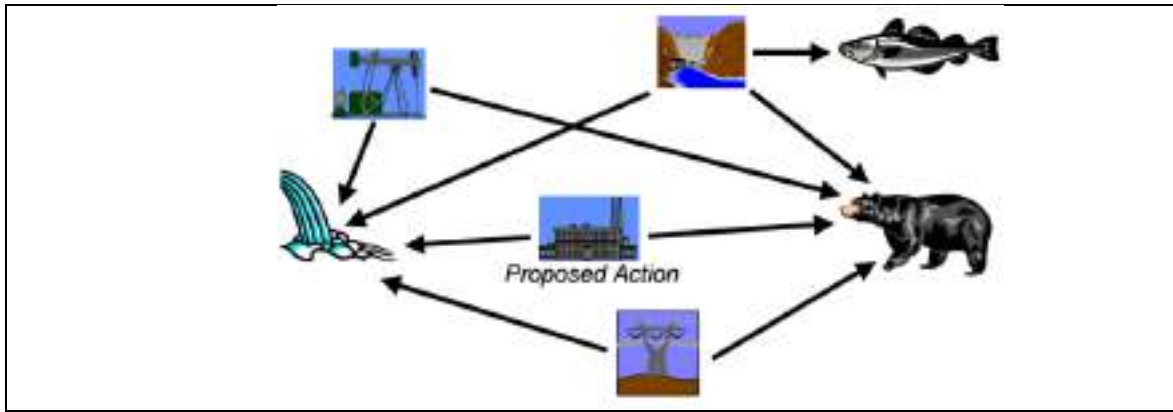


Figure 3 Focusing on Effects on VECs

Source: Effects Assessment Working Group for the Canadian Environmental Assessment Agency; Hegmann, G. C. Cockling, R. Creasey, S. Dupuis, Kennedy, L. Kingsley, W. Rodd, H. Spaling and D. Stalker, February 1999.

Regarding the temporal extent of the impacts, the assessment will cover the impacts of past, present and reasonably foreseeable future developments that would correspond to the economic life of the Project to the maximum extent practical.

Regarding the geographical extent of impacts, a Cumulative Impact Assessment area, which will extend beyond the area of influence (for Project's stand alone impacts) defined in the ESIA Report, will be identified. The boundaries of the Cumulative Impact Assessment area will be expanded to the point at which the VECs will be no longer affected significantly, in consideration of relevant geographical, topographical, hydrological, etc. boundaries, if available.

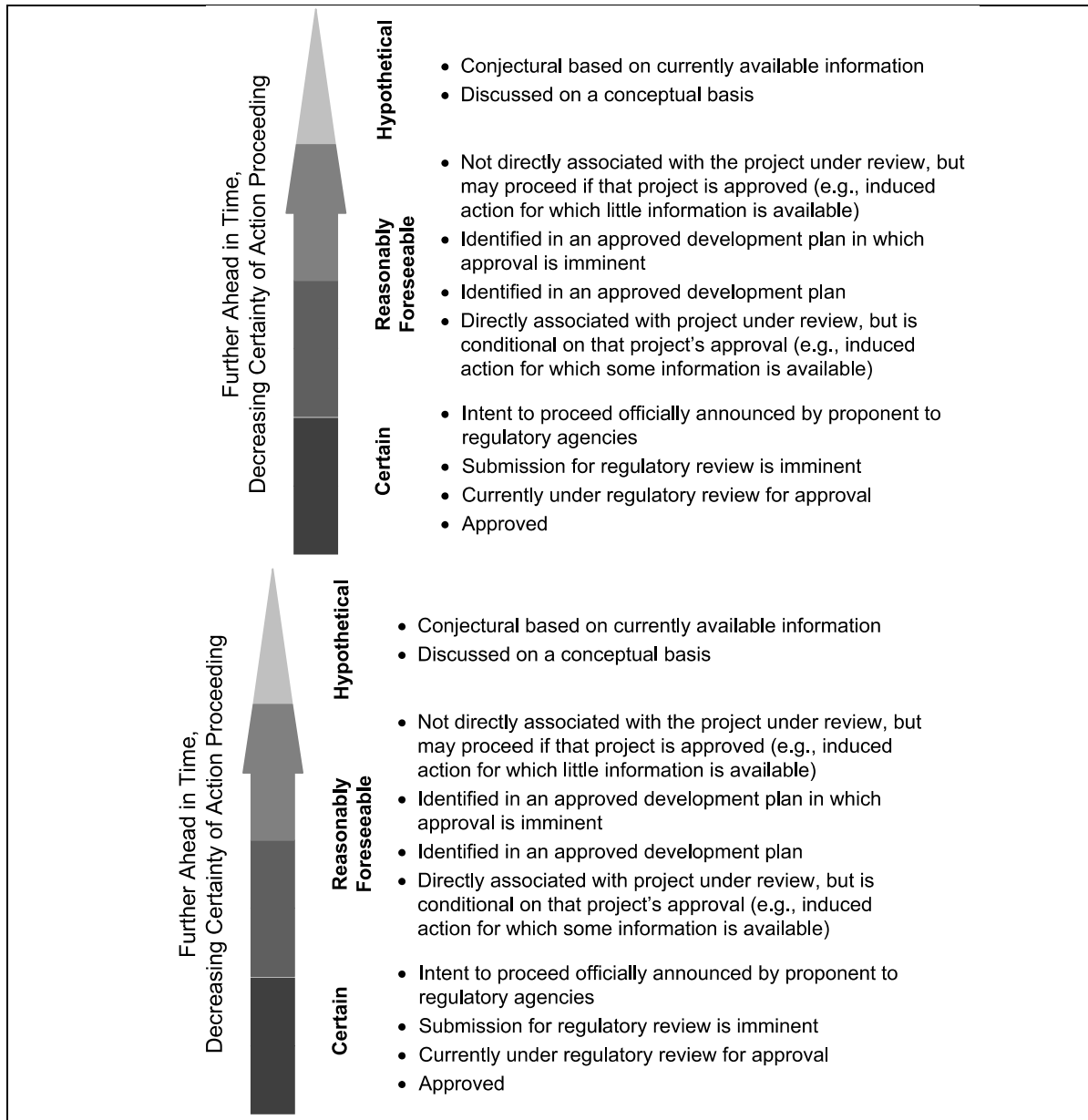
It should be noted that the determination of the Cumulative Impact Assessment area may be an iterative process, which may be initially proposed by educated guess and improved together with assessments to be done.

Step 2: Scoping Phase II

Once the Cumulative Impact Assessment area is determined, other activities and environmental drivers within this geographical boundary that would affect the condition of the VECs selected for the Cumulative Impact Assessment will be determined based on a desk-based review of the readily available sources (e.g. Environmental Master Plans, EIA Positive Decisions issued for Projects, etc.) and the databases of the Turkish Ministry of Transport, Maritime Affairs and Communications that are available to the Project Sponsors. The assessment will primarily focus on the transportation infrastructure projects.

As recommended by World Bank in its Sample Guidelines on Cumulative Environmental Impact Assessment for Hydropower Projects in Türkiye published under the Energy Sector Management Assistance Program (*ESMAP, 2012*), the selection of future actions to be considered in the scope of the Cumulative Impact Assessment should at least reflect the certain scenario and at best the most likely future scenario. Rigid adherence to minimum regulatory requirement however is increasingly becoming unacceptable to many stakeholders if there is reason to believe that at least some reasonably foreseeable projects could have a significant cumulative effect with the project under review (also, precedent setting court and panel decisions on project approvals will continue the evolution of change regarding what is and is not expected and acceptable practice). Experts are therefore encouraged to consider the opportunity to also include reasonably foreseeable actions. Mainly, foreseeable future actions would include those projects that; have some sort of official approval (e.g. EIA positive decision, official site allocation, etc.), are in the regulatory review process for approval, and are included in an approved development plan (e.g. Regional development plan, master plan, etc.).

Selection of future actions must consider the certainty of whether the action will actually proceed. Figure 4 lists criteria that may be used in the selection process. According to this figure, future actions classified as “Certain” will proceed or there is a high probability the action will proceed; classified as “Reasonably Foreseeable” may proceed, but there is some uncertainty about this conclusion; and classified as “Hypothetical” is assumed to have considerable uncertainty whether the action will ever proceed. In the scope of the assessment, all future projects, except the hypothetical ones, will be taken into consideration.



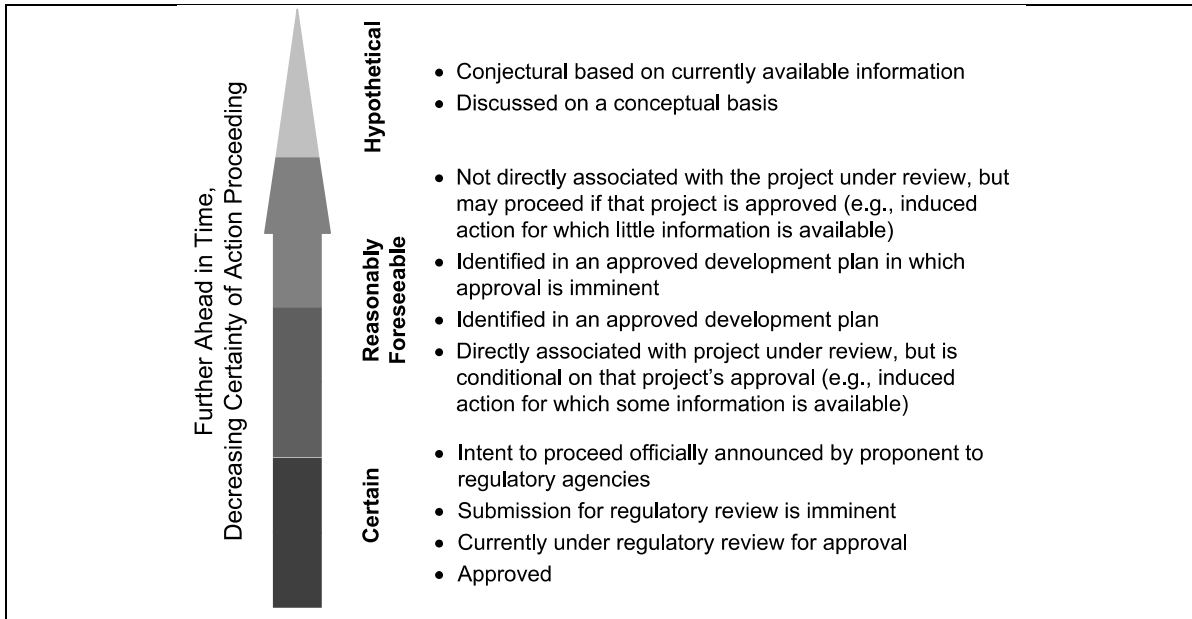


Figure 4 Categorization of Future Actions

Step 3: Establish Information on Baseline Status of VECs

The baseline conditions for the VECs to be assessed in the scope of this study will be based on the information gathered for each environmental and social subject in the scope of the ESIA process. Relevant information on the VECs is provided in the related chapters of this ESIA Report.

Step 4: Assess Cumulative Impacts on VECs

Cumulative impacts on the VECs will be analyzed by estimating the future state of the VECs under the aggregated effect of past, present and future (reasonably foreseeable activities/projects/developments). The assessment will be based on a qualitative approach and will focus on the final status of the corresponding VEC under the impact of all impact factors.

Step 5: Assess Significance of Predicted Cumulative Impacts

When considered in isolation, the environmental effects of any single project upon any single receptor/ resource may not be significant. However, when individual effects are considered in combination, the resulting cumulative effect may be significant. The focus in assigning significance to cumulative effects should be determined by the extent to which the impacts can be accommodated by the receptor/resource. Thresholds (limits beyond which cumulative change becomes a concern) and indicative levels of acceptable performance of a receptor/resource may also aid the assessment process (*UK Highways Agency 2005/08: Design Manual for Roads and Bridges; <http://www.standardsforhighways.co.uk/ha/standards/dmrb/>*). The standardized matrix developed by UK Highway Agency for the assessment of cumulative impacts' significance is presented in Table 1.

Table 1 Criteria for Determining Significance of Cumulative Impacts

Significance	Impact
Severe	Impacts that the decision-maker must take into account as the receptor/Resource is irretrievably compromised.
Major	Impacts that may become key decision-making issue
Moderate	Impacts that are unlikely to become issues on whether the project design should be selected, but where future work may be needed to improve on current performance.
Minor	Impacts that are locally significant.
Not Significant	Impacts that are beyond the current forecasting ability or are within the ability of the

resource to absorb such change.

Source: UK Highways Agency 205/08: Design Manual for Roads and Bridges; <http://www.standardsforhighways.co.uk/ha/standards/dmrb/>

Significance of predicted cumulative impacts will be estimated in terms of the vulnerability and/or risk to the sustainability of the VECs assessed, which will be directly related with the existing sensitivity/vulnerability conditions of the VECs and the applicable thresholds that are the limits beyond which changes resulting from cumulative impacts become of concern. For practical purposes, if the cumulative impacts of all combined developments on a VEC do not exceed a limit or threshold, the development will be considered acceptable.

Step 6: Management of Cumulative Impacts – Design and Implementation

At the final step of the CIA, management measures will be suggested for any cumulative impacts that are anticipated to be significant. However, it should be noted that since cumulative impacts typically result from the actions of multiple stakeholders, the responsibility for their management will be collective, requiring individual actions to eliminate or minimize individual development's contributions, which could not be ensured solely by the efforts of the Project owner. Thus, the assessment will continue to focus on the management of standalone Project impacts that make substantial contribution to cumulative impacts, if there is any, if the specific project mitigation is likely to be effective in preventing unacceptable cumulative impacts.

Annex 11 Chance Find Procedure

1. Introduction

DOIZ is responsible to avoid or mitigate any potential impacts of the Activities on the physical or cultural resources. It is anticipated that the project sites are selected such that there would not be any overlapping with archaeological and heritage sites/assets within the project impact area. However, there is still a possibility of encountering some unknown archaeological sites and cultural heritage assets as a Chance Find during project activities. A chance find means potential cultural heritage objects, features or sites that are identified outside of a formal site reconnaissance, normally as a result of construction monitoring. Thus, this document aims to outline the procedure and respective responsibilities in relation to the management of Chance Finds during construction works.

2. Roles and Responsibilities

DOIZ and all the contractors are responsible to comply with the procedure during the project construction activities. In this regard, DOIZ would be providing training to their and contractors' employees involved in supervision and construction works regarding the procedure. Mainly a chance find could be encountered during the pre-construction and ground disturbance (e.g., excavation and levelling) activities. Thus, the procedure has to be implemented day to day at this stage.

3. Chance Find Process and Procedure

The step by step process and procedure to be followed upon a chance find discovery is provided below. In the case of any chance find, as detailed below, the Contractor will give due consideration and follow the necessary steps.

Step 1 - After the discovery of a chance find:

- All work must cease at the location where discovery is made
- A temporary buffer zone around the chance find will be put in place
- Contractor contacts the DOIZ and the archaeological museum in the province is informed immediately
- Chance find location is secured through flagging, or no-entry signs, etc.
- Chance find should not be moved, removed or further disturbed

Step 2 – Recording

- Chance Find Form Part A is filled in by the contractor and sent to DOIZ and a copy is filed for records

Step 3 – Contact with local authority

- The contractor notifies the relevant Governmental Archaeological Museum in the Province for the chance find

Step 4 – Authority's decision

The relevant Museum decides on the following path of actions for chance find area:

Step 4.A - No significance to site or finding

- The museum declares that the site/finding is considered to be of no significance
- Contractor informs the DOIZ
- Contractor records the decision on Part B of Chance Find form and sends a copy to the DOIZ
- A copy of Chance Find form Part B is kept for records
- No further actions required
- This step closes out the chance find procedure
- Construction activities may resume

Step 4.B – Significance to site

- The museum declares that the site/finding is considered to be of significance
- Museum decides on further actions and informs the contractor and the contractor informs the DOIZ
- Contractor records the decision on Part B of Chance Find form
- Proceed to Step 5

Step 5 – Site investigation

Step 5.A - After field investigation Museum declares the site/finding has minor significance

- Contractor informs the DOIZ
- Contractor records the decision on Part C of Chance Find form and sends a copy to the DOIZ
- A copy of Chance Find form Part B is kept for records
- No further actions required
- This step closes out the chance find procedure
- Construction activities may resume

Step 5.B - After field investigation Museum declares the site/finding has moderate significance

- Further studies such as test pit/salvage excavations or remote sensing investigation are to be completed
- Museum provides instructions, and/or supervision for the studies
- Contractor informs the DOIZ
- DOIZ provides an archaeological work team of qualified archaeologist and workers to work under the supervision of the museum.
- After excavation is completed, team provides a report to the museum directorate
- The museum directorate reports the study outcomes to the relevant Regional Preservation Board of Cultural Assets.

- The relevant Regional Preservation Board of Cultural Assets officially confirms completion of recovery and informs the DOIZ
- Contractor records the decision on Part C of Chance Find form and sends a copy to the DOIZ
- A copy of Chance Find form Part B is kept for records
- No further actions required
- This step closes out the chance find procedure
- Construction activities may resume

Step 5.C - After field investigation Museum declares the site/finding has major significance

- Salvage excavation is to be completed
- Site is to be treated according to Law on the Protection of Cultural and Natural Assets Law (No. 2863 dated 21.07.1983)
- Museum provides instructions, and/or supervision for test pit/salvage archaeological excavation
- Contractor informs the DOIZ
- DOIZ provides an archaeological work team of qualified archaeologist and workers to work under the supervision of the museum
- Once the excavation is completed, salvage excavation team provides a report to museum directorate
- The relevant Regional Preservation Board of Cultural Assets officially confirms completion of recovery and informs DOIZ.
- Site will be officially recorded and protected according to Turkish regulations
- Contractor records the decision on Part C of Chance Find form and sends a copy to the DOIZ
- A copy of Chance Find form Part B is kept for records
- No further actions required
- This step closes out the chance find procedure
- Construction activities may resume or further actions need to be taken

It is important to note that in case human remains are found, all project team and the local authorities will be immediately notified.

4. Monitoring and Reporting

The contractor will monitor all construction or other ground disturbance activities for evidence of presence of cultural heritage items. Chance Finds will be recorded on the Chance Find Report form (see Annex-11.1). All Chance Find Report forms will be kept in hard copy at the site and will also be scanned and saved electronically. Any Chance Find will be recorded in the Chance Find Register (see Annex-11.2).

Annex 11-1 Chance Find Report Form

PART A			
Project Location (Province):	District: Neighborhood:	Date:	Form No:
Name of person reporting chance find:			
Was work stopped in the immediate vicinity of the chance find? <input type="checkbox"/> Yes <input type="checkbox"/> No			
Was a buffer zone created to protect the chance find? <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTIFICATION			
DOIZ contacted <input type="checkbox"/> Yes <input type="checkbox"/> No			
CHANCE FIND DETAILS			
GPS coordinates	Photo record <input type="checkbox"/> Yes <input type="checkbox"/> No If not, explain why: Other records <input type="checkbox"/> Yes <input type="checkbox"/> No Specify (drawings, videos, etc.):		
Description of chance find:			
Description of site/finding and other specifications of site/finding (e.g. surface sediment type, ground surface visibility, etc.):			

PART B		
NOTIFICATION OF MUSEUM DIRECTORATE		
Contractor contacted museum directorate <input type="checkbox"/> Yes <input type="checkbox"/> No		
Date of notification:		
Name of museum directorate and Name of contact:		
Contact number of museum directorate representative:		
DECISION OF MUSEUM DIRECTORATE		
Date of site visit:		
<input type="checkbox"/> Site/Finding of no significance - Construction to proceed with no further action – End of chance find procedure Date of notice to resume work:	<input type="checkbox"/> Site/Finding of significance - Further actions required Please Fill out Part C	
Name of museum directorate representative/archeologist:		
Contact information:		
DOI contacted <input type="checkbox"/> Yes <input type="checkbox"/> No		
PART C		
FURTHER FIELD INVESTIGATION		
<input type="checkbox"/> Site/Finding of minor significance	<input type="checkbox"/> Site/Finding of moderate significance	<input type="checkbox"/> Site/Finding of major significance
Describe additional work to be conducted:		
Date started:	Date completed:	
Date of notice to resume construction works:		
Name of museum directorate representative/archaeologist:		
Contact information:		
DOI contacted <input type="checkbox"/> Yes <input type="checkbox"/> No		

Annex 11-2 Chance Find Register

Date of Find	Summary of Chance Find	Name of Authority Notified	Action Taken	Chance Find Form Completed	Status Open or Closed	Remarks

Annex 12 Code of Conduct

CODE OF CONDUCT FOR THE CONTRACTOR'S PERSONNEL

We, [insert name of Contractor], are acting as a Contractor. We have entered into a contract with [insert name of Employer] for [insert description of the Works]. The Works will be carried out at [insert name of construction site or location(s) where the Works will be carried out]. Our contract requires us to implement measures to address environmental and social risks associated with the Works, including issues of sexual exploitation, abuse and gender-based violence.

This Code of Conduct is part of our measures to address the environmental and social risks associated with the Works. It applies to all of our staff, workers and other employees in the Work Areas and other locations where the Works are carried out. In addition, these rules apply to subcontractor personnel and all other personnel who assist us in carrying out the Works. These people are called "Contractor's Personnel" and are subject to the Code of Conduct.

This Code of Conduct describes the behavior we expect from all Contractor Personnel.

Our workplace is a work environment where dangerous, aggressive, abusive and violent behavior will not be tolerated, and all individuals are free to raise issues and concerns without fear of reprisal.

MANDATORY BEHAVIOR

Contractor's Personnel:

1. Perform its duties competently and diligently;
2. Comply with this Code of Conduct and all other applicable laws, regulations and requirements, including requirements to protect the health, safety and welfare of the Contractor's other Personnel and all other individuals;
3. Provide a safe working environment, including:
 - a) Managing the work areas, machinery, equipment and processes under the control of each person in a safe manner without risk to health;
 - b) Use necessary personal protective equipment;
 - c) Taking appropriate precautions for chemical, physical and biological substances and items;
 - d) Following applicable emergency response procedures.
4. Report working conditions that they consider to be unsafe or unhealthy and leave a workplace that they consider likely to endanger their life or health;
5. Treat other people with respect and not discriminate against certain groups such as women, people with disabilities, migrant workers or children;
6. Not sexually harass Contractor's or Employer's Personnel in any way, including unwelcome gender-based advances, sexual solicitation or other unwelcome verbal or physical sexual harassment;
7. Shall not engage in Sexual Exploitation. Sexual exploitation means the abuse or attempted abuse of position of vulnerability, position of authority or trust for sexual purposes, including, but not limited to, financial, social or political gain from the sexual exploitation of another. Sexual exploitation includes access to goods, work, consulting services or non-consulting services for sexual gain in Bank-financed projects/works.
8. Will not engage in Sexual Abuse. Sexual abuse refers to any attempted non-consensual sexual contact that does not result in intercourse. Except in the case of an existing marriage, the worker shall not engage in any form of sexual contact with children under 18 years of age;
9. Complete relevant training courses on the environmental and social aspects of the Convention, including health and safety issues, Sexual Exploitation and Abuse (SEA);
10. Report violations of the Code of Conduct; and

11. There will be no retaliation against any person who reports violations of the Code of Conduct to us or the Employer or uses the Project's Grievance Redress Mechanism.

REPORTING OF GRIEVANCES

If any person observes behavior that they believe violates this Code of Conduct or otherwise concerns them, they should raise the issue immediately. This can be done in one of the following ways:

1. Contact [insert name of the Contractor's Social Specialist with experience in gender-based violence issues or, if such a person is engaged under the Contract, another person with experience in such areas engaged by the Contractor] at [] or by phone at [] or in person at []; or
2. Call [] and leave a message to be connected to the Contractor's emergency hotline (if available)

The individual's information will be kept confidential, unless the reporting of allegations is required by the law of the country. Complaints or allegations may also be reported anonymously and will be dealt with accordingly. We seriously consider all reports of possible wrongdoing and take appropriate action as a result of our investigations. We will refer the complainant to our service providers for support as appropriate.

We will not retaliate against anyone who, in good faith, raises a complaint about any conduct prohibited by this Code of Conduct. Retaliation will be considered a violation of this Code of Conduct.

CONSEQUENCES OF VIOLATING THE CODE OF CONDUCT

Any breach of this Code of Conduct by the Contractor's Personnel may have serious consequences, including termination of the contract and recourse to legal authorities.

For Contractor's Personnel:

I have received a copy of this Code of Conduct written in a language I understand. I understand that I may contact [Contractor's contact person with experience in gender-based violence issues] to request clarification of any questions I have regarding this Code of Conduct.

Name of Contractor Personnel: [Insert name]

Signature: _____

Date: (DD/MM/YY): _____

Signature of approval of the authorized representative of the Contractor:

Signature: _____

Date: (DD/MM/YY): _____

Annex 13 Turkish EHS Legislation Related to the Project

Legislation	Official Gazette Date	Official Gazette Number	Implications for the Project Phases
National Environmental, Legal and Political Framework			
Waste Management			
Regulation on the Control of Waste Batteries and Accumulators	August 31, 2004	25569	• This regulation applies on battery and accumulator wastes that may occur as a result of office or vehicle use throughout the lifetime of the Project.
Regulation on the Control of Excavation Soil, Construction and Demolition Waste	March 18, 2004	25406	• This regulation applies to activities that will cause to the generation of excavation soil, construction wastes, especially during the construction phase of the Project.
Regulation on the Control of End-of-Life Tires	November 25, 2006	26357	• This regulation applies on waste management of End-of-Life Tires generated during all phases of the project.
Regulation on the Control of End-of-Life Vehicles	December 30, 2009	27448	• This regulation applies on waste management of End-of-Life Vehicles generated during all phases of the project.
Regulation on Waste Management	April 2, 2015	29314	• This regulation is the main regulation applies on regarding the non-hazardous and hazardous wastes that will be generated as a result of all activities to be carried out throughout the lifetime of the Project.
Regulation on the Control of Waste Vegetable Oil	June 6, 2015	29378	• This regulation applies on waste vegetable oils during especially the operation phase of the Project.
Regulation on the Control of Medical Waste	January 25, 2017	29959	• This regulation applies for medical waste to be generated throughout the life of the Project.
Regulation on Zero Waste	July 12, 2019	30829	• This regulation applies on the establishment of zero-waste management system that aims to protect the environment and human health and all resources regarding the wastes that will be generated as a result of all activities to be carried out throughout operation phase.
Regulation on the Management of Waste Oil	December 21, 2019	30985	• This regulation applies on waste oils that may occur as a result of vehicle/equipment maintenance throughout the lifetime of the Project.
Regulation on the Control of Packaging Waste	June 26, 2021	31523	• This regulation applies on packaging waste that will occur as a result of activities that can be carried out throughout the lifetime of the Project.
Regulation on Management of Waste Electrical and Electronic Equipment	December 26, 2022	32055	• This regulation applies on electrical and electronic equipment waste as a result of activities to be carried out throughout the lifetime of the Project.
Water Quality Control and Management			
Regulation on Control of Water Pollution	December 31, 2004	25687	• This regulation applies on discharge of treated effluent during operation phase, wastewater generated by the site staff during pre-construction and construction phases.
Regulation on the Water Intended for Human Consumption	February 17, 2005	25730	• This regulation applies on the monitoring of the suitability for human consumption of water within the scope of the Project during all phases of the project.
Regulation on the Control of Pollution Caused by Hazardous Substances in and around Water Environment	November 26, 2005	26005	• This regulation applies on the hazardous substance impacts on the water and its surroundings that may occur during the Project lifetime.
Regulation on Urban Wastewater Treatment	January 8, 2006	26047	• This regulation applies on effluent quality and treatment efficiencies to be met during the operation phases of planned WWTP.
Regulation on the Protection of Groundwater against Pollution and Deterioration	April 7, 2012	28257	• This regulation applies on protection of groundwater sources against pollution during pre-construction, construction and operation phases.

Legislation	Official Gazette Date	Official Gazette Number	Implications for the Project Phases
Regulation on Surface Water Quality	November 30, 2012	28483	<ul style="list-style-type: none"> • This regulation applies on discharge of treated effluent and monitoring of water quality at receiving body during operation phase.
Regulation on the Monitoring of Surface Waters and Groundwater	February 11, 2014	28910	<ul style="list-style-type: none"> • This regulation applies on procedures and principles for revealing the current status of all surface waters and groundwater throughout the country in terms of quantity, quality and hydromorphological elements, monitoring waters with an approach based on ecosystem integrity, and ensuring standardization in monitoring and coordination between institutions and organizations that carry out monitoring during lifetime of Plan.
Regulation on Determination of Sensitive Water Bodies and the Areas Affecting these Bodies and Improvement of Water Quality	December 23, 2016	29927	<ul style="list-style-type: none"> • This regulation applies on determination of the receiving body sensitivity during pre-construction phase and discharge of treated effluent during operation phase.
Communiqué on Technical Procedures in Wastewater Treatment Plants	March 20, 2010	27527	<ul style="list-style-type: none"> • This Communiqué applies on the technical principles that will form the basis for wastewater treatment facility project design during pre-construction phase.
Communiqué on Technical Personnel Working in Wastewater Treatment Plants	May 23, 2019	30782	<ul style="list-style-type: none"> • This Communiqué applies on the procedures and principles regarding the qualifications, certification, duties, authorities and responsibilities of the technical personnel to be employed in order to ensure that the wastewater treatment plants are operated effectively, efficiently and in accordance with the legislation during operation phase.
<i>Air Quality Control and Management</i>			
Regulation on the Air Quality Assessment and Management	June 6, 2008	26898	<ul style="list-style-type: none"> • This regulation applies on activities that may cause the deterioration of the air quality during the lifetime of the Project, especially the construction phase of the Project.
Regulation on Industrial Air Pollution Control	July 3, 2009	27277	<ul style="list-style-type: none"> • This regulation applies on activities that may cause air pollution during the lifetime of the Project, especially the construction phase of the Project.
Regulation on the Control of Odor Causing Emissions	July 19, 2013	28712	<ul style="list-style-type: none"> • This regulation applies on odor nuisance may occur due to activities arising from the WWTP throughout the life of the project.
Regulation on the Monitoring of Greenhouse Gas Emissions	May 17, 2014	29003	<ul style="list-style-type: none"> • This regulation applies on greenhouse gas emissions during the lifetime of the Project.
Regulation on Exhaust Gas Emission Control	March 11, 2017	30004	<ul style="list-style-type: none"> • This regulation applies on exhaust gas emissions sourced from project vehicles, machinery and equipment during the lifetime of the Project.
<i>Noise Control and Management</i>			
Regulation on the Environmental Noise Emissions Caused by Equipment Used Outdoors	December 30, 2006	26392	<ul style="list-style-type: none"> • This regulation applies on the noise emissions caused by equipment used outdoors within the Project especially throughout the construction phase.
Regulation on Environmental Noise Control	November 30, 2022	32029	<ul style="list-style-type: none"> • This regulation applies on the management of noise emissions during lifetime of the Project.
<i>Soil Quality Control and Management</i>			
Regulation on Soil Pollution Control and Point Source Contaminated Fields	June 8, 2010	27605	<ul style="list-style-type: none"> • This regulation applies on the protection of soil against pollution during lifetime of the Project.
<i>Environmental Management, Permitting and Planning</i>			

Legislation	Official Gazette Date	Official Gazette Number	Implications for the Project Phases
Environmental Law No: 2872	August 11, 1983	18132	• This general law regulates the main environmental rules for all activities to be carried out during the lifetime of the Project.
Organized Industrial Zones Law No: 4562	April 15, 2000	24021	• This law regulates the principles for the establishment and operation of organized industrial zones should be followed at all phases of the project since the Project is Wastewater Treatment Plant Project of DOIZ
Regulation on Environmental Permits and Licensing	September 10, 2014	29115	• This regulation applies on the required environmental permits and licenses at all phases of the Project.
Regulation on Wastewater Collection and Disposal Systems	January 6, 2017	29940	• This Regulation applies on the procedures and principles regarding the planning, design and projecting, construction and operation of wastewater collection and disposal systems during the lifetime of the Project.
Regulation on Environmental Impact Assessment	July 29, 2022	31907	• This regulation applies on administrative and technical procedures and principles to be followed during the Environmental Impact Assessment (EIA) process at the pre-construction phase.
National Social, Legal and Political Framework			
Community Health and Safety			
General Sanitation Law No: 1593	May 6, 1930	1489	• This law applies on take measures on health and sanitation during all phases of the Project.
Highways Traffic Law No: 2918	October 13, 1983	18195	• This law applies on ensuring traffic order on the highways during all phases of the Project.
Regulation on Traffic Signs	June 19, 1985	18789	• This regulation applies on traffic sign for the purpose of ensuring traffic order and safety during all phases of the Project.
Regulation on Highway Traffic	July 18, 1997	23053	• This regulation applies on ensuring traffic order on the highways during all phases of the Project.
Preparation, Completion and Cleaning Works Regulation	April 28, 2004	25446	• This regulation applies on the working conditions in the preparation, completion and cleaning works that must be carried out in order for the main work carried out in a workplace to be carried out in an orderly, healthy and safe manner during lifetime of the Project.
Labor and Working Conditions			
Labor Law No: 4857	June 10, 2003	25134	• This main law applies on the rights and responsibilities of the workers employed based on the labor contract with the employers, regarding the working conditions and working environment during the lifetime of the Project.
Primary Education and Training Law	January 12, 1961	222	• Article 59: Those who do not attend compulsory primary education institutions cannot be employed (for a fee or for free) in any official and private workplaces. Those who document that they attend primary education institutions can be employed in such places except for the lecture hours provided that the provisions of the law regulating the employment of children are applied.
Child Protection Law	July 15, 2005	5395	• The basic principles for the protection of the child rights are explained.
Regulation on the Procedures and Principles of Employment of Children and Young Workers	April 06, 2004	25425	• This regulation applies on determine the basis of the way children and young workers work without endangering their health and safety, physical, mental, moral and social development or education, and to prevent their economic exploitation during lifetime of the Project.
Social Security and General Health Insurance Law No: 5510	June 16, 2006	26200	• This law applies on health and safety measures to be taken during lifetime of the Project.

Legislation	Official Gazette Date	Official Gazette Number	Implications for the Project Phases
Regulation on the Protection of Buildings from Fire	December 19, 2007	26735	• This regulation applies on measures to be taken for fire protection during construction and operation phases.
Occupational Health and Safety Law No. 6331	June 30, 2012	28339	• This law applies on occupational health and safety measures to be taken during lifetime of the Project.
Communiqué on Occupational Health and Safety Hazard Classes List	December 26, 2012	28509	• This Communiqué applies on determination of hazard classes during lifetime of the Project.
Regulation on Risk Assessment for Occupational Health and Safety	December 29, 2012	28512	• This regulation applies on preparation of occupational health and safety risk assessment and all related principles to be followed during lifetime of the Project.
Regulation on Health and Safety Conditions Regarding Use of Work Equipment	April 25, 2013	28628	• This regulation applies on ensuring the health and safety conditions for the use of work equipment to be used during life of the Project.
Manual Handling Operations Regulation	July 24, 2013	28717	• This regulation applies on health and safety measures to be taken during manual handling activities at all phases of the Project.
Regulation on the Use of Personal Protection Equipment at Workplaces	July 2, 2013	28695	• This regulation applies on personal protection equipment to be used at lifetime of the Project.
Regulation on the Protection of Workers Against the Dangers of Explosive Environments	April 30, 2013	28633	• This regulation applies on measures to be taken in case the use of explosive usage during pre-construction and construction phases.
Regulation on Emergency Situations in Workplaces	June 18, 2013	28681	• This regulation applies on measures to be taken during emergency situations in workplaces during lifetime of the Project.
Regulation on Health and Safety Precautions Regarding Working with Chemicals	August 12, 2013	28733	• This regulation applies on chemical handling and necessary precautions in workplaces during lifetime of the Project.
Regulation on the Methods and Essentials of Occupational Health and Safety Trainings for Workers	May 15, 2013	28648	• This regulation applies on health and safety training to be performed during lifetime of the Project.
Regulation on the Protection of Workers from Noise Related Risks	July 28, 2013	28721	• This regulation applies on health and safety measures to be taken against the noise impacts during lifetime of the Project..
Regulation on the Protection of Workers from Vibration Related Risks	August 22, 2013	28743	• This regulation applies on health and safety measures to be taken against the vibration impacts during lifetime of the Project.
Regulation on Management of Dust	November 5, 2013	28812	• This regulation applies on management of to be generated dust during pre-construction and construction phases.
Regulation on Health and Safety Signs	September 11, 2013	28762	• This regulation applies on health and safety signs to be placed during lifetime of the Project.
Regulation on the Occupational Health and Safety for Temporary or Fixed Term Jobs	August 23, 2013	28744	• This regulation applies on health and safety measures to be taken for temporary workers during lifetime of the Project.
Regulation on the Occupational Health and Safety in Construction	October 5, 2013	28786	• This regulation applies on constructional health and safety measures to be taken during construction phase.
First Aid Regulation	July 29, 2015	29429	• This regulation applies on in case of a first aid requirement during construction and operation phases.

Legislation	Official Gazette Date	Official Gazette Number	Implications for the Project Phases
Regulation on Personal Protection Equipment	May 1, 2019	30761	<ul style="list-style-type: none"> This regulation applies on personal protection equipment to be used during construction and operation phases.
Management of Chemicals and Other Dangerous Substances			
Regulation on the Classification, Labelling and Packaging of Materials and Mixtures	December 11, 2013	28848	<ul style="list-style-type: none"> This regulation applies on chemicals and mixtures to be used during lifetime of the Project.
Regulation on Material Safety Data Sheets on Hazardous Materials and Mixtures	December 13, 2014	29204	<ul style="list-style-type: none"> This regulation applies on preparation and distribution of safety data sheets in order to ensure effective control and surveillance against the negative human health and the environment effects of hazardous substances and mixtures that may be used during lifetime of the Project.
Regulation on Registration, Evaluation, Authorization and Restriction of Chemicals	June 23, 2017	30105	<ul style="list-style-type: none"> This regulation applies on to ensure a high level of protection of human health and the environment during the construction and operation phases, to evaluate the damages of the substances used, to have information on the registration, evaluation, permission and restriction of those chemicals.
Regulation on the Road Transportation of Hazardous Goods	June 18, 2022	31870	<ul style="list-style-type: none"> This regulation applies on hazardous goods to be transported during lifetime of the Project.
Land Use			
Expropriation Law No: 2942	November 4, 1983	18215	<ul style="list-style-type: none"> This law applies on management of Expropriation during the planning phase of the Project. The November 5, 2011 amendments of the Expropriation Law shortly stipulates that the party who expropriate is also entitled to apply to the court for determination of price. In this case, the party whose property is expropriated should pursue the lawsuit and claim his/her rights to determine market value of his/her property.
Soil Conservation and Land Use Law No: 5403	July 19, 2005	25880	<ul style="list-style-type: none"> This law applies on management of change in the land use during the planning phase of the Project.
Regulation on the Protection, Usage and Planning of Agricultural Lands	December 9, 2017	30265	<ul style="list-style-type: none"> This regulation applies on management of change in the land use during the planning phase of the Project.
Stakeholder Engagement			
Right of petition, Right to Information and Appeal to the Ombudsperson			<p>(Constitution, Article 74)</p> <ul style="list-style-type: none"> Citizens and foreigners resident in Turkiye, with the condition of observing the principle of reciprocity, have the right to apply in writing to the competent authorities and the Grand National Assembly of Turkiye about the requests and complaints concerning themselves or the public. Regarding with the Project Citizens and foreigners at the Aol have the right to apply in writing to the MoIT and the Grand National Assembly of Turkiye concerning the requests and complaints concerning themselves or the public.
Use of the Right to Petition Law No: 3071	November 10, 1984	18571	<ul style="list-style-type: none"> Citizens and foreigners at the Aol have the right to apply in writing to the MoIT and the Grand National Assembly of Turkiye concerning the requests and complaints concerning themselves or the public.

Legislation	Official Gazette Date	Official Gazette Number	Implications for the Project Phases
Right to Information Law No: 4982	October 24, 2003	25269	<ul style="list-style-type: none"> • Citizens can request information from MoIT and OIZ. • The institutions shall provide the requested information within 15 working days.
Regulation on Environmental Impact Assessment	July 29, 2022	31907	<ul style="list-style-type: none"> • Inform the investing public, to get their opinions and suggestions regarding the project; Public Participation Meeting. Participants raise issues related to the Project. • As the Project has EIA exemption, Public Participation Meeting, has not held.
Others			
Law on Conservation of Cultural and Natural Assets No. 2863	July 21, 1983	18113	<ul style="list-style-type: none"> • The purpose of this Law is to determine the definitions related to movable and immovable cultural and natural assets that need to be protected, to organize the transactions and activities to be carried out, to determine the establishment and duties of the organization that will take the necessary principles and implementation decisions in this regard.
Regulation on the Implementation of the Law Concerning Private Security Services	October 7, 2004	25606	<ul style="list-style-type: none"> • This regulation applies on private security services to be used during construction and operation services.
Regulation on Contractors and Sub-contractors	September 27, 2008	27010	<ul style="list-style-type: none"> • This regulation applies on management of the conditions for the establishment of the principal employer-subcontractor relationship, the notification and registration of the workplace belonging to the subcontractor, the issues that should be included in the subcontractor agreement.
Regulation Concerning the Increase in the Efficiencies of Energy Consumption and Energy Resources	October 27, 2011	28097	<ul style="list-style-type: none"> • This regulation applies on the procedures and principles regarding the effective use of energy, prevention of energy waste, and increasing efficiency in the use of energy resources and energy to protect the environment during lifetime of the Project.
Protection of Personal Data Law No: 6698	April 7, 2016	29677	<ul style="list-style-type: none"> • This law applies on protection of fundamental rights and freedoms of individuals, especially the privacy of private life, in the processing of personal data during lifetime of the Project.
Regulation Concerning the Ozone Depleting Substances	April 7, 2017	30031	<ul style="list-style-type: none"> • This regulation applies on ozone depleting substances to be used during construction and operation phases.
Building Earthquake Regulation	March 18, 2018	30364	<ul style="list-style-type: none"> • This regulation applies on necessary rules and minimum conditions for the design and construction of all or parts of building-type structures under the influence of earthquakes and for the evaluation and strengthening of the performances of existing buildings under the influence of earthquakes during pre-construction and construction phases.
Civil Law	January 1, 2002	24607	<ul style="list-style-type: none"> • The law upholds equality between women and men, puts an end to sexual discrimination, renders women equal to men in both family and the society; and values the women's work. With the new Civil Code, substantial changes were made considering the developments in the law of domestic relations, and the changes and needs of the day.
Penal Law	June 1, 2005	25611	<ul style="list-style-type: none"> • Include modern arrangements with respect to gender equality and violence against women.

Legislation	Official Gazette Date	Official Gazette Number	Implications for the Project Phases
Agricultural Law	April 18, 2006	26149	<ul style="list-style-type: none"> • The aim of this Law determining the necessary policies and making arrangements for the development and support of the agricultural sector and rural area in line with the development plans and strategies. Sets the necessary policies and regulates development and support of the agricultural sector and rural areas in line with the development plans and strategies.

*Relevant amendments of the listed legislation will be applicable.

Annex 14 The Relevance of WB ESSs with the Project

ESS	Scope / Aim of the ESS	Gaps between the Turkish EIA Regulation and World Bank's ESF	Environmental and Social Measures to fill the gap
<p>ESS1 Assessment and Management of Environmental and Social Risks and Impacts</p>	<p>This Standard sets out Borrower's responsibilities for assessing, managing and monitoring Environmental and social risks and impacts related with each phase of the project supported by the World Bank through Investment Project Financing (IPF), so as to accomplish environmental and social results consistent with the Environmental and Social Standards (ESSs). The objectives of ESS1 are as follows:</p> <ul style="list-style-type: none"> • To identify, evaluate, and manage the environment and social risks and impacts of the project in a manner consistent with the ESSs. • To adopt a mitigation hierarchy approach to: (a) Anticipate and avoid risks and impacts; (b) Where avoidance is not possible, minimize or reduce risks and impacts to acceptable levels; (c) Once risks and impacts have been minimized or reduced, mitigate; and (d) Where significant residual impacts remain, compensate for or offset them, where technically and financially feasible. • To adopt differentiated measures so that adverse impacts do not fall disproportionately on the disadvantaged or vulnerable, and they are not disadvantaged in sharing development benefits and opportunities resulting from the project. • To utilize national environmental and social institutions, systems, laws, regulations, and procedures in the assessment, development, and implementation of projects, whenever appropriate. • To promote improved environmental and social performance, in ways which recognize and enhance Borrower capacity. 	<p>Environmental and Social Assessment and Management System (ESMS)</p> <p><u>World Bank's ESF</u> The Borrower will carry out an environmental and social assessment of the project to assess the environmental and social risks and impacts of the project throughout the project life cycle. The assessment will be proportionate to the potential risks and impacts of the project, and will assess, in an integrated way, all relevant direct, indirect, and cumulative environmental and social risks and impacts throughout the project life cycle, including those specifically identified in ESSs 2-10.</p> <p>The Borrower will: (a) Conduct an environmental and social assessment of the proposed project, including stakeholder engagement; (b) Undertake stakeholder engagement and disclose appropriate information in accordance with ESS10; (c) Develop an Environmental and Social Commitment Plan (ESCP), and implement all measures and actions set out in the legal agreement including the ESCP; and (d) Conduct monitoring and reporting on the environmental and social performance of the project against the ESSs.</p> <p><u>Turkish EIA Regulation</u> Environmental risks and impacts of the Project are identified to some extent. However, the range of potential environmental and social impacts has not been identified, for example, there is no social assessment, or assessment of landscape and visual impacts, forestry and in many cases operation of the airport has been omitted in assessing impacts.</p> <p>Organizational Capacity and Competency</p> <p><u>World Bank's ESF</u> Where the project involves specifically identified physical elements, aspects and facilities that are likely to generate impacts, the ESMS will establish and maintain an emergency preparedness and response system so that the client, in collaboration with appropriate and relevant third parties, will be prepared to respond to accidental and</p>	<p>Conduct a complete assessment of potential environment and social impacts associated with both WWTP construction and operation. Complete an assessment of potential cumulative impacts. Establish a Project ESMP that describes mitigation and performance improvement measures and actions that address the identified environmental and social risks and impacts of the Project. Where the identified risks and impacts cannot be avoided, the client should identify mitigation and performance measures and establish corresponding actions to ensure the project will be operated in compliance with applicable laws and regulations, and meet the requirements ESSs.</p> <p>Define project environment and social resources (construction, consortium and operational) in terms of organisation and competency with regard to environment and social issues.</p>

ESS	Scope / Aim of the ESS	Gaps between the Turkish EIA Regulation and World Bank's ESF	Environmental and Social Measures to fill the gap
		<p>emergency situations associated with the project in a manner appropriate to prevent and mitigate any harm to people and/or the environment.</p> <p><u>Turkish EIA Regulation</u> Organisational arrangements and the competency of construction personnel have not been incorporated into the EIA.</p>	
		<p>Emergency Preparedness and Response</p> <p><u>World Bank's ESF</u> Where the project involves specifically identified physical elements, aspects and facilities that are likely to generate impacts, the ESMS will establish and maintain an emergency preparedness and response system so that the client, in collaboration with appropriate and relevant third parties, will be prepared to respond to accidental and emergency situations associated with the project in a manner appropriate to prevent and mitigate any harm to people and/or the environment. This preparation will include the identification of areas where accidents and emergency situations may occur, communities and individuals that may be impacted, response procedures, provision of equipment and resources, designation of responsibilities, communication, including that with potentially Affected Communities and periodic training to ensure effective response. The emergency preparedness and response activities will be periodically reviewed and revised, as necessary, to reflect changing conditions.</p> <p><u>Turkish EIA Regulation</u> No emergency scenarios, including response mechanisms, have been identified within the EIA.</p>	<p>Prepare and implement an emergency response plan for both construction and operational phases.</p>
		<p>Monitoring and Review</p> <p><u>World Bank's ESF</u> The project owner should establish procedures to monitor and measure the effectiveness of the management program, as well as compliance with any related legal and/or contractual obligations and regulatory requirements. Where the government or other third party has responsibility for managing specific risks and impacts and associated mitigation measures, the client will collaborate in establishing and monitoring such mitigation measures. Where appropriate, clients will consider involving</p>	<p>Once adequate baseline data has been captured and potential environmental and social impacts have been assessed for both construction and operational phases, a monitoring plan should be established to capture data to confirm that the project mitigation plans are delivering the desired results and that no unforeseen impacts are occurring.</p>

ESS	Scope / Aim of the ESS	Gaps between the Turkish EIA Regulation and World Bank's ESF	Environmental and Social Measures to fill the gap
		<p>representatives from Affected Communities to participate in monitoring activities. The client's monitoring program should be overseen by the appropriate level in the organization. For projects with significant impacts, the client will retain external experts to verify its monitoring information. The extent of monitoring should be commensurate with the project's environmental and social risks and impacts and with compliance requirements.</p> <p><u>Turkish EIA Regulation</u> Although EIA is more limited in scope, it requires some environmental and social management plans. There is also a monitoring plan that indicates whether the environmental impacts of the project (in terms of air, water quality, noise and vibration) will comply with the Turkish Environmental Law and relevant legislation.</p> <p>External Communications and Grievance Mechanisms</p> <p><u>World Bank's ESF</u> The project owner should implement and maintain a procedure for external communications that includes methods to (i) receive and register external communications from the public; (ii) screen and assess the issues raised and determine how to address them; (iii) provide, track, and document responses, if any; and (iv) adjust the management program, as appropriate. In addition, clients are encouraged to make publicly available periodic reports on their environmental and social sustainability. Where there are Affected Communities, the client will establish a grievance mechanism to receive and facilitate resolution of Affected Communities' concerns and grievances about the client's environmental and social performance. The grievance mechanism should be scaled to the risks and adverse impacts of the project and have Affected Communities as its primary user. It should seek to resolve concerns promptly, using an understandable and transparent consultative process that is culturally appropriate and readily accessible, and at no cost and without retribution to the party that originated the issue or concern. The mechanism should not impede access to judicial or administrative remedies. The client will inform the Affected Communities about the mechanism in the course of the stakeholder engagement process.</p> <p><u>Turkish EIA Regulation</u></p>	<p>A communications plan and procedure (including identification of Affected Communities) should be prepared that describe mechanisms for external communications on environment and social topics. The plan should define how grievances and concerns can be made to the project and how these will be investigated, responded to and rectified, if appropriate.</p>

ESS	Scope / Aim of the ESS	Gaps between the Turkish EIA Regulation and World Bank's ESF	Environmental and Social Measures to fill the gap
		<p>Stakeholder Engagement Plan: It is explained in EIA Regulation as a plan that explains how, what methods and tools will be used to communicate and inform legal/real persons (stakeholders) who may be affected by the project or have an interest in the project, at all stages of the planned project. Regulation does not address the issues of internal, external communication and grievance mechanism.</p> <p>On-going Reporting to Affected Communities</p> <p><u>World Bank's ESF</u> The project owner should provide periodic reports to the Affected Communities that describe progress with implementation of the project Action Plans on issues that involve on-going risk to or impacts on Affected Communities and on issues that the consultation process or grievance mechanism have identified as a concern to those Communities. If the management program results in material changes in or additions to the mitigation measures or actions described in the Action Plans on issues of concern to the Affected Communities, the updated relevant mitigation measures or actions will be communicated to them. The frequency of these reports will be proportionate to the concerns of Affected Communities but not less than annually.</p> <p><u>Turkish EIA Regulation</u> The EIA does not define Affected Communities and therefore there is no definition of communication and reporting.</p>	<p>Reporting to Affected Communities should be included within the Communication Plan and Procedure.</p>
ESS2 Labor and Working Conditions	<p>ESS2 recognizes the importance of employment creation and income generation in the pursuit of poverty reduction and inclusive economic growth. Borrowers can promote sound worker management relationships and enhance the development benefits of a project by treating workers in the project fairly and providing safe and healthy working conditions. The objectives of ESS2 are as follows:</p> <ul style="list-style-type: none"> • To promote safety and health at work. • To promote the fair treatment, non-discrimination, and equal opportunity of project workers. • To protect project workers, including vulnerable workers such as women, persons with disabilities, children (of working age, in accordance with this ESS) and migrant workers, contracted workers, community workers, and 	<p><u>World Bank's ESF</u> ESS2 requirements include the documentation and implementation of workforce management procedures applicable to the project. These procedures will specify how project workers will be managed in accordance with the requirements of internal law and this ESS and explain the following; (i) working conditions and management of worker relationship including terms and conditions of employment, non-discrimination and equal opportunities, worker's organizations, (such as the preparation and implementation of workforce management procedures applicable to the project); (ii) protection of the workforce, including the establishment of a minimum age for workers and the prohibition of child labor and forced labor; (iii) grievance mechanism (for workers); (iv) occupational health and</p>	<p>Prepare a Labor Management Procedure. Prepare a project handbook that covers working conditions and employment arrangements. Prepare an Equality and Diversity Programme that defines protection of employees, contractors and suppliers. Establish a mechanism to protect workers. Provide a Grievance Mechanism.</p>

ESS	Scope / Aim of the ESS	Gaps between the Turkish EIA Regulation and World Bank's ESF	Environmental and Social Measures to fill the gap
	<p>primary supply workers, as appropriate.</p> <ul style="list-style-type: none"> • To prevent the use of all forms of forced labor and child labor. • To support the principles of freedom of association and collective bargaining of project workers in a manner consistent with national law. • To provide project workers with accessible means to raise workplace concerns. 	<p>safety (OHS) ; (v) contracted workers; (vi) community workers and (vii) primary supply workers.</p> <p>The Borrower will develop and implement written labor management procedures applicable to the project. These procedures will set out the way in which project workers will be managed, in accordance with the requirements of national law and this ESS.</p> <p>The project owner should adopt and implement human resources policies and procedures appropriate to its size and workforce that set out its approach to managing workers consistent with the requirements of this Performance Standard and national law</p> <p>The project owner should establish a mechanism to maintain, and improve the worker-management relationship and should also promote compliance with national employment and labour laws.</p> <p>The project owner should establish a mechanism to protect workers, including vulnerable categories of workers such as children, migrant workers, forced labour, workers engaged by third parties, and workers in the client's supply chain while it should also provide a tool to promote safe and healthy working conditions, and the health of workers.</p> <p>In countries where national law recognizes workers' rights to form and to join workers' organizations of their choosing without interference and to bargain collectively, the client will comply with national law. Where national law substantially restricts workers' organizations, the client will not restrict workers from developing alternative mechanisms to express their grievances and protect their rights regarding working conditions and terms of employment. The client should not seek to influence or control these mechanisms.</p> <p>The client will provide a grievance mechanism for workers (and their organizations, where they exist) to raise workplace concerns. The client will inform the workers of the grievance mechanism at the time of recruitment and make it easily accessible to them. The mechanism should involve an appropriate level of management and address concerns promptly, using an understandable and transparent process that provides timely feedback to those concerned, without any retribution. The mechanism should also allow for anonymous complaints to be raised and addressed. The mechanism should not impede access to other judicial or administrative remedies that might be available under the law or through existing arbitration</p>	

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		<p>procedures, or substitute for grievance mechanisms provided through collective agreements.</p> <p><u>Turkish EIA Regulation</u> There is no Human Resources (HR) Policy for the project. There are warnings about how the workers should prevent any harmful effects that may arise during construction and operation phases. However, detailed working conditions or terms of employment are not mentioned in the EIA report. The EIA does not address worker employment and therefore, there is no documented or formal policy of non-discrimination, equal opportunity and fair treatment in the EIA.</p>	
<p>ESS3 Resource Efficiency and Pollution Prevention and Management</p>	<p>ESS3 recognizes that economic activity and urbanization often generate pollution to air, water, and land, and consume finite resources that may threaten people, ecosystem services, and the environment at the local, regional, and global levels. The current and projected atmospheric concentration of greenhouse gases (GHG) threatens the welfare of current and future generations. At the same time, more efficient and effective resource use, pollution prevention, and GHG emission avoidance, and mitigation technologies and practices have become more accessible and achievable. This ESS sets out the requirements to address resource efficiency and pollution prevention and management throughout the project life cycle consistent with Good International Industry Practice (GIIP). The objectives of ESS3 are as follows:</p> <ul style="list-style-type: none"> • To promote the sustainable use of resources, including energy, water, and raw materials. • To avoid or minimize adverse impacts on human health and the environment by avoiding or minimizing pollution from project activities. • To avoid or minimize project-related emissions of short- and long-lived climate pollutants. • To avoid or minimize generation of hazardous and nonhazardous waste. • To minimize and manage the risks and impacts associated with pesticide use. 	<p><u>World Bank's ESF</u> The project owner should implement technically and financially feasible and cost effective measures for improving efficiency in its consumption of energy, water, as well as other resources and material inputs, with a focus on areas that are considered core business activities. Such measures will integrate the principles of cleaner production into product design and production processes with the objective of conserving raw materials, energy, and water. Where benchmarking data are available, the client will make a comparison to establish the relative level of efficiency.</p> <p>The project owner should avoid the release of pollutants or, when avoidance is not feasible, minimize and/or control the intensity and mass flow of their release. This applies to the release of pollutants to air (including GHG emissions), water, and land due to routine, non-routine, and accidental circumstances with the potential for local, regional, and transboundary impacts. Where historical pollution such as land or ground water contamination exists, the project should seek to determine whether it is responsible for mitigation measures. It is also important to address potential adverse project impacts on existing ambient conditions, the client will consider relevant factors, including, for example (i) existing ambient conditions; (ii) the finite assimilative capacity of the environment; (iii) existing and future land use; (iv) the project's proximity to areas of importance to biodiversity; and (v) the potential for cumulative impacts with uncertain and/or irreversible consequences. In addition to applying resource efficiency and pollution control measures as required in this Performance Standard, when the project has the potential</p>	<p>Prepare an evaluation of potential resource efficiency during construction and operation. Define potential impacts and develop approaches for avoidance, minimisation and use of alternative materials in order to reduce the project impact on natural and scarce resources.</p> <p>Baseline information must be captured for topics such as potential contaminated land and environmental impacts associated with the soil movement required by the earthworks. All assessments should address current conditions and potential future impacts of project construction and operation.</p>

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		<p>to constitute a significant source of emissions in an already degraded area, the project should consider additional strategies and adopt measures that avoid or reduce negative effects. These strategies include, but are not limited to, evaluation of project location alternatives and emissions offsets.</p> <p><u>Turkish EIA Regulation</u> The EIA does not address resource consumption and resource efficiency measures. Baseline information is provided in the EIA on air emissions, wastewater, solid wastes, hazardous wastes and noise. The EIA assessments have focussed on construction phases and have not addressed operational phases for each of these elements. The EIA provides no information regarding the potential contamination of land associated with historical use and does not discuss the environmental and social impacts associated with the volumes of soil movements proposed in the earthworks activities.</p>	
ESS4 Community Health and Safety	<p>ESS4 recognizes that project activities, equipment, and infrastructure can increase community exposure to risks and impacts. In addition, communities that are already subjected to impacts from climate change may also experience an acceleration or intensification of impacts due to project activities. ESS4 addresses the health, safety, and security risks and impacts on project-affected communities and the corresponding responsibility of Borrowers to avoid or minimize such risks and impacts, with particular attention to people who, because of their particular circumstances, may be vulnerable. The objectives of ESS4 are as follows:</p> <ul style="list-style-type: none"> • To anticipate and avoid adverse impacts on the health and safety of project-affected communities during the project life cycle from both routine and nonroutine circumstances. • To promote quality and safety, and considerations relating to climate change in the design and construction of infrastructure, including dams. • To avoid or minimize community exposure to project-related traffic and road safety risks, diseases, and hazardous materials. • To have in place effective measures to address emergency events. • To ensure that the safeguarding of personnel and property is carried out in a manner that avoids or minimizes risks to 	<p><u>World Bank's ESF</u> WB's ESF: The project should anticipate and avoid adverse impacts on the health and safety of the Affected Community and ensure that the safeguarding of personnel and property is carried out in accordance with relevant human rights principles and in a manner that avoids or minimizes risks to the Affected Communities. ESS4 requirements are as follows: (i) community health and safety, including infrastructure and equipment design and safety, safety of services, traffic and road safety, ecosystem services, community exposure to health issues, management and safety of hazardous materials, and emergency preparedness and response and security; and (ii) security personnel.</p> <p><u>Turkish EIA Regulation</u> The EIA does not address regarding the environmental and social impacts associated with construction camps and the influx of temporary/migrant labour to support construction activities.</p>	Preparation and implementation of community health and safety plan

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	the project-affected communities.		
ESS6 Biodiversity Conservation and Sustainable Management of Living Natural Resources	<p>ESS6 recognizes that protecting and conserving biodiversity and sustainably managing living natural resources are fundamental to sustainable development. Biodiversity is defined as the variability among living organisms from all sources, including inter alia, terrestrial, marine, and other aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between species, and of ecosystems. The objectives of ESS6 are as follows:</p> <ul style="list-style-type: none"> • To protect and conserve biodiversity and habitats. • To apply the mitigation hierarchy and the precautionary approach in the design and implementation of projects that could have an impact on biodiversity. • To promote the sustainable management of living natural resources. • To support livelihoods of local communities, including Indigenous Peoples, and inclusive economic development, through the adoption of practices that integrate conservation needs and development priorities. 	<p><u>World Bank's ESF</u> The environmental and social assessment as set out in ESS1 will consider direct, indirect, and cumulative project-related impacts on habitats and the biodiversity they support. This assessment will consider threats to biodiversity, for example, habitat loss, degradation and fragmentation, invasive alien species, overexploitation, hydrological changes, nutrient loading, pollution and incidental take, as well as projected climate change impacts. It will determine the significance of biodiversity or habitats based on their vulnerability and irreplaceability at a global, regional, or national level and will also take into account the differing values attached to biodiversity and habitats by project-affected parties and other interested parties. The Borrower will avoid adverse impacts on biodiversity and habitats. When avoidance of adverse impacts is not possible, the Borrower will implement measures to minimize adverse impacts and restore biodiversity in accordance with the mitigation hierarchy provided in ESS1 and with the requirements of this ESS. The Borrower will ensure that competent biodiversity expertise is utilized to conduct the environmental and social assessment and the verification of the effectiveness and feasibility of mitigation measures. Where significant risks and adverse impacts on biodiversity have been identified, the Borrower will develop and implement a Biodiversity Management Plan.</p> <p><u>Turkish EIA Regulation</u> The EIA has provided inadequate baseline data regarding project biodiversity and natural habitats and the potential impacts associated with the project during construction and operation. The EIA reports that ecological species and habitat evaluations were undertaken through habitat evaluation and literature review.</p>	Robust sampling methodologies and plans should be prepared to inform surveys for all identified habitats and species to ensure that robust baseline data is obtained to inform the assessment of potential impacts, mitigation and compensation strategies.
ESS10 Stakeholder Engagement and Information Disclosure	This ESS recognizes the importance of open and transparent engagement between the Borrower and project stakeholders as an essential element of good international practice. Effective stakeholder engagement can improve the environmental and social sustainability of projects,	<p><u>World Bank's ESF</u> Borrowers will engage with stakeholders throughout the project life cycle, commencing such engagement as early as possible in the project development process and in a time frame that enables meaningful consultations with</p>	Preparing stakeholder engagement plan to address project start up, construction and operation, disclosing E&S risks and impacts and all the E&S documents, identifying vulnerable stakeholders and ensuring

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	<p>enhance project acceptance, and make a significant contribution to successful project design and implementation. The objectives of ESS10 are as follows:</p> <ul style="list-style-type: none"> • To establish a systematic approach to stakeholder engagement that will help Borrowers identify stakeholders and build and maintain a constructive relationship with them, in particular project affected parties. • To assess the level of stakeholder interest and support for the project and to enable stakeholders' views to be taken into account in project design and environmental and social performance. • To promote and provide means for effective and inclusive engagement with project-affected parties throughout the project life cycle on issues that could potentially affect them. • To ensure that appropriate project information on environmental and social risks and impacts is disclosed to stakeholders in a timely, understandable, accessible, and appropriate manner and format. • To provide project-affected parties with accessible and inclusive means to raise issues and grievances, and allow Borrowers to respond to and manage such grievances. 	<p>stakeholders on project design. The nature, scope, and frequency of stakeholder engagement will be proportionate to the nature and scale of the project and its potential risks and impacts. The process of stakeholder engagement will involve the following: (i) stakeholder identification and analysis; (ii) planning how the engagement with stakeholders will take place; (iii) disclosure of information; (iv) consultation with stakeholders; (v) addressing and responding to grievances; and (vi) reporting to stakeholders.</p> <p>For all Category A and B subprojects proposed for WB funding, the borrower will consult and consider the views of the project-affected groups and non-governmental organizations regarding the environmental impacts of the subproject during the EA process.</p> <p><u>Turkish EIA Regulation</u> The EIA reports that a single, formal, information disclosure exercise has been carried out regarding the project. This occurred at the start of the EIA process. No further information disclosure activities have been undertaken prior to the EIA report being finalized. The EIA does not describe any stakeholder engagement and therefore it is assumed that none has been undertaken.</p> <p>For the projects included in the list of Annex-I, which therefore require the preparation of an EIA Report, the public information and participation meeting, whose place and date is decided by the Provincial Directorate of Environment, Urbanization and Climate Change, is held not later than 10 days prior to the meeting by disclosing it publicly in local and national newspapers. No public information and participation meeting is held for the projects included in the list of Annex-II.</p> <p><u>Public Information and Participation Meeting:</u> In the Turkish EIA Regulation, public consultation is required for the purpose of "preliminary scope determination" only for projects requiring EIA, and for this purpose, only the environmental assessment must be announced with its justification. However, ESS 10 does not specify how many times and by what method public consultation and public information will be carried out,</p>	<p>outreach for their engagement, stakeholder engagement as ongoing throughout duration of project, and establishment of GM</p>

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		instead it is requested to adopt a continuous stakeholder participation approach throughout the project life cycle, which will be decided in proportion to the nature, scale and impact size of the project.	