TÜRKİYE ORGANIZED INDUSTRIAL ZONES PROJECT

Samsun Organized Industrial Zone

Wastewater Treatment Plant Capacity Increase Project

Environmental and Social Management Plan (ESMP)

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REVISION HISTORY

Ver	Date of Issue	Issue Reason	Client	Project Owner	Consultant
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ABBREVIATIONS

A.Ş.	Joint Stock Company
AoI	Area of Influence
CH4	Methane
CIMER	Presidency's Communication Centre
CLO	Community Liaison Officer
CO2	Carbon Dioxide
DD	Data Deficient
DNP	Defects Notification Period
DSI	State Hydraulic Works
E&S	Environmental and Social
EHS	Environmental, Health, and Safety
EHSG	Environmental, Health, and Safety Guideline
EIA	Environmental Impact Assessment
EN	Endangered
ESMF	Environmental and Social Framework
ESMP	Environmental and Social Management Plan
ESS	Environmental and Social Standards
ESMR	Environmental and Social Monitoring Report
ESPR	Environmental and Social Progress Report
EPRP	Emergency Preparedness and Response Plan
ERP	Emergency Response Plan
GBV	Gender Based Violence
GHG	Greenhouse Gases
GM	Grievance Mechanism
IAPCR	Industrial Air Pollution Control Regulation
IBRD	International Bank for Reconstruction and Development
IUCN	International Union for Conservation of Nature
LC	Least Concern
LMP	Labor Management Plan
LPG	Liquefied Petroleum Gas
MoEUCC	Ministry of Environment, Urbanization and Climate Change

MoIT	Ministry of Industry and Technology
MSDS	Material Safety Data Sheet
N_2O	Nitrous Oxide
NO_x	Nitrogen Oxides
OHS	Occupational Health and Safety
OKA	Central Black Sea Development Agency
OMU	Ondokuz Mayıs University
OIZ	Organized Industrial Zone
PPE	Personal Protective Equipment
PIF	Project Identification File
PIU	Project Implementation Unit
PMU	Project Management Unit
Q&A	Question and Answer
RENC	Regulation on Environmental Noise Control
SASKI	Samsun Water and Sewerage Authority
SCM	Stakeholder Consultation Meeting
SEA/SH	Sexual Exploitation and Abuse/Sexual Harassment
SEP	Stakeholder Engagement Plan
SO_2	Sulfur Dioxide
TCDD	Turkish Railways
TOIZsP	Türkiye Organized Industrial Zones Project
TÜBİTAK	Scientific and Technological Research Council of Türkiye
VOC	Volatile Organic Compounds
VU	Vulnerable
WB	World Bank
WBG	World Bank Group
WPCR	Water Pollution Control Regulation
WWTP	Wastewater Treatment Plant
YİMER	Foreigners Communication Center

EXECUTIVE SUMMARY

Introduction

The **Samsun Organized Industrial Zone (OIZ) Wastewater Treatment Plant (WWTP) Capacity Increase Project** is designed to expand the capacity of the existing wastewater treatment plant within the Samsun OIZ, located in Tekkeköy District, Samsun, Türkiye. The project aims to address the growing wastewater treatment needs due to the expansion of local industries within the OIZ. The Ministry of Industry and Technology (MoIT) is the implementing agency, providing loans to the project through the World Bank Group (WBG) under the framework for Green OIZs in Türkiye.

Purpose of the Environmental and Social Management Plan (ESMP)

The Environmental and Social Management Plan (ESMP) outlines anticipated environmental and social risks and adverse impacts of the projects, and actions to mitigate or prevent negative environmental and social impacts during the project's pre-construction, construction and operation stages. It is based on the feasibility study, site assessments, and the pertinent plans of the OIZ management. The ESMP will be updated as needed and made available to stakeholders throughout the project's life cycle.

Project Description

The project area is within the Samsun OIZ, near the Black Sea coast, and includes the expansion of the existing wastewater treatment plant from 2000 m^3/day to 4000 m^3/day. The expansion involves constructing additional treatment units and upgrading existing infrastructure to meet the increased wastewater demands. The treated wastewater will continue to be discharged into the Hıdrellez Creek, which flows into the Black Sea.

Legal Framework

The project complies with national environmental, health, and safety (EHS) legislation and international standards, including the World Bank Environmental and Social Framework (ESF) and the World Bank Group Environmental, Health, and Safety Guidelines. The environmental risks are considered moderate, with social risks deemed low due to the project's location within an organized industrial zone, which minimizes impacts on surrounding communities.

Environmental Baseline

The project area is located on flat terrain within the Samsun OIZ, which is primarily industrial land with limited natural features. The OIZ provides a controlled industrial area that is isolated from its surroundings. This separation from residential areas and natural habitats minimizes potential negative impacts on communities and the environment. Hence the Project is not expected to impact significant biodiversity or protected areas.

The existing wastewater treatment plant holds an environmental permit that allows discharge of treated effluent. Regular monitoring of outlet water quality is in place as required by the environmental permit.

The quality of treated effluent discharged into Hıdırellez Creek, which flows into the Black Sea, is regularly monitored every 15 days as required by the environmental permit. Since the results consistently meet the standards set by the Water Pollution Control Regulation (WPCR), the amount of treated water discharged is not expected to negatively impact the Black Sea's aquatic life. Additionally, the volume of wastewater from the Wastewater Treatment Plant (WWTP) is relatively small compared to the cumulative impact of discharges from other industrial zones and the nearby municipal wastewater treatment facility, which is located directly on the Black Sea coast.

Social Baseline

The Samsun OIZ has significantly influenced the demographic and economic development of neighboring settlements by means of economic growth that attracts a labor force to the area, leading to increased population, improved infrastructure, and urbanization, Many people from neighboring villages and towns have migrated to the neighborhoods of the OIZ for employment opportunities in industries. This migration has led to an increase in population and economic activity within these settlements. The project is expected to create temporary employment during construction, with no significant impact on local population demographics. Vulnerable groups are not expected to be adversely affected, and there will be no land acquisition or resettlement required.

Environmental and Social Impacts

The ESMP identifies and addresses risks and potentially adverse environmental and social impacts, including land-use changes, soil quality, air quality, noise, water resources, and waste management. The ESMP includes measures to mitigate these impacts, ensuring that the project operates within acceptable environmental and social standards.

The **ESMP Matrix in Chapter 8** is a crucial component of the Environmental and Social Management Plan (ESMP), providing a detailed, systematic framework for identifying and managing potential environmental and social impacts associated with the Samsun OIZ Wastewater Treatment Plant Capacity Increase Project. The matrix outlines specific mitigation measures, monitoring activities, and responsibilities for each identified impact, covering both the pre-constrution, construction and operation stages of the project. It categorizes impacts by environmental components, such as air quality, water resources, and noise, as well as social aspects, including labor conditions and community health. For each impact, the matrix specifies the required actions, the party responsible for implementation, the timeline, and the monitoring indicators to ensure that the

mitigation measures are effectively executed. This structured approach enables clear communication and accountability among project stakeholders, ensuring that environmental and social risks are managed in compliance with national regulations and international standards.

Institutional Arrangements and Training

The institutional framework for the project involves clearly defined roles and responsibilities for managing environmental and social risks. The Ministry of Industry and Technology (MoIT) and Samsun OIZ management will oversee the project's implementation. Regular reporting and monitoring will ensure compliance with the ESMP. A comprehensive training program will be provided to staff involved in the project, covering environmental management, occupational health and safety, and stakeholder engagement.

Stakeholder Management

The ESMP includes a Stakeholder Engagement process that outlines the approach for engaging with stakeholders throughout the project's life cycle. As part of the stakeholder engagement, a Grievance Mechanism is developed to handle any issues or complaints from stakeholders, including vulnerable groups and communities potentially affected by the project.

Conclusion

The Samsun OIZ Wastewater Treatment Plant Capacity Increase Project is essential for supporting sustainable industrial growth in the region while minimizing environmental and social impacts. The ESMP provides a comprehensive framework for managing these impacts and ensuring compliance with national and international standards. Institutional arrangements and stakeholder management strategies are in place to ensure successful project implementation and address any concerns from affected parties.

The Project will be in compliance with the good international practice, including WB Environmental and Social Standards (ESSs), the Environmental and Social Framework (ESMF) of the TOIZsP project, guidelines, standards and best practices documents alongside the national legislation. In addition, 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, 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.

The Project's anticipated environmental and social impacts/risks will be in terms of air quality, soils, water resources, noise, biological environment, landscape, resources and waste, socioeconomic environment and occupational health and safety, cultural heritage and community health, safety and security. Summary of the mitigation measures are provided below inTable 1-1.

Table 1-1: Summary of the Significant Impacts and Mitigation Measures

Potential Environmental and Social (E&S) Impacts/Risks	Mitigation Measures
Air Quality and Odor	• Dust and exhaust emissions management during construction • Odor monitoring and grievance mechanism during operation • Speed limitations during construction
Soils and Contaminated Land	• Topsoil preservation and restoration during construction • Prevention of soil contamination at all stages
Water Resources	• Proper storage of chemicals and wastes • Prevention and control of surface runoff • Treated effluent discharge consistent with the Project Standards

Potential Environmental and Social (E&S) Impacts/Risks	Mitigation Measures
Noise	• Regular maintenance of the construction machinery, equipment and vehicles • Noise monitoring • Establishment of a robust grievance mechanism
Biological Environment	• A pre-construction survey to verify there are no critical habitats or species in the area of influence • Measures to further avoid and minimize the construction footprint
Wastes	• Waste management in accordance with the waste management hierarchy
Employment Opportunities	• Providing transparent, non-discriminatory, equal recruitment opportunities with respect to ethnicity, religion, language, gender and sexuality
Labor Force	• Grievance mechanism • Preparation of disclosure materials • Managing and monitoring the performance of contractors in relation to the requirements regarding prohibition of child labor, unregistered employment and forced labor, and adherence to TOIZsP Labour Management Procedures (LMP) • Proper adaptation of human rights policy and labor rights
Community Health, Safety and Security	• Usage of appropriate traffic signs • Construction Traffic Management • Grievance mechanism
Archaeological and Cultural Heritage	• Chance Finds Procedure

The ESMP includes management plans and procedures for both stages of the Project along with guidelines for preparation of the management plans to be prepared by the contractor. The ESMP will be included in the bidding documents. Table 1-2 lists the Management Plans and Procedures for the Project.

Table 1-2: Required Management Plans and Procedures for the Project

Management Plans/Procedure	Stage to be Prepared	Responsible Party	Monitoring & Reporting Party	Approving Party
Pre-construction and Construction Stage				
Soil Management Plan	Prior to pre- construction	Contractor	Construction Supervision Consultant	MoIT PIU
Air Quality and Emissions Management Plan	Prior to pre- construction	Contractor	Construction Supervision Consultant	MoIT PIU
Water Resources Management Plan	Prior to pre- construction	Contractor	Construction Supervision Consultant	MoIT PIU
Noise n Management Plan	Prior to pre- construction	Contractor	Construction Supervision Consultant	MoIT PIU
Waste Management Plan	Prior to pre- construction	Contractor	Construction Supervision Consultant	MoIT PIU
Oil and Chemical Spill Contingency Management Plan	Prior to pre- construction	Contractor	Construction Supervision Consultant	MoIT PIU MoIT PIU
Community Health, Safety, and Security Management Plan	Prior to pre- construction	Contractor	Construction Supervision Consultant	MoIT PIU
Labor Management Plan	Prior to pre- construction	Contractor	Construction Supervision Consultant	MoIT PIU
Traffic Management Plan	Prior to pre- construction	Contractor	Construction Supervision Consultant	MoIT PIU

Management Plans/Procedure	Stage to be Prepared	Responsible Party	Monitoring & Reporting Party	Approving Party
Occupational Health and Safety Management Plan	Prior to pre- construction	Contractor	Construction Supervision Consultant	MoIT PIU
Contractor Management Plan	Prior to pre-Construction	Samsun OIZ		MoIT PIU
Stakeholder Engagement Plan and Grievance Mechanism	Prior to pre-Construction	Samsun OIZ	Construction Supervision Consultant	MoIT PIU
Chance Finds Procedure	Prior to pre- construction	Contractor	Construction Supervision Consultant	MoIT PIU
Operation Stage				
Odor Management Plan	Prior to Operation	Samsun OIZ	Samsun OIZ	MoIT PIU
Water Resources and Effluent Management Plan	Prior to Operation	Samsun OIZ	Samsun OIZ	MoIT PIU
Waste Management Plan	Prior to Operation	Samsun OIZ	Samsun OIZ	MoIT PIU
Sludge Management Plan	Prior to Operation	Samsun OIZ	Samsun OIZ	MoIT PIU
Occupational Health and Safety Management Plan	Prior to operation	Samsun OIZ	Samsun OIZ	MoIT PIU
Stakeholder Engagement Plan and Grievance Mechanism	Prior to operation	Samsun OIZ	Samsun OIZ	MoIT PIU

In order to clearly determine the management plan execution responsibilities of the Constructor and the Construction Supervision Consultant, which are given as responsible parties in the table above, the definitions of the responsibility areas of both are summarized below:

- Contractor's responsibilities:
  - Implementing the management plans to ensure that all activities on the Project site adhere to the requirements outlined by this ESMP, and the E&S sub-plans required to be prepared (please see Table 1-2), then monitored by OIZ.
  - Allocating any required resources, manpower, and equipment necessary for the successful implementation of the management plans.
  - Managing subcontractors and suppliers to ensure their compliance with the management plans.
  - Documenting activities, inspections, and any deviations from the plans for reporting purposes.

- Construction Supervision Consultant:
  - Reviewing and providing guidance/advice to the Contractor and the Project Owner regarding the implementation of management plans.
  - Conducting audits/inspections/visits and reporting any deviations or issues and recommending corrective actions.
  - Monitoring progress and performance against the plans and providing feedback to the client.

Main impacts presented in Chapter 7 for the pre-construction, construction and operation stages of the project and the mitigation measures taken to manage these impacts are presented in the ESMP in Chapter 8 and the Monitoring Plan is presented in Chapter 9. Institutional Arrangement and Training is presented in Chapter 10 and Stakeholder Management in Chapter 11. Overall conclusions of the ESMP Report can be seen in Chapter 12.

1 INTRODUCTION

The Samsun Organized Industrial Zone (OIZ) Wastewater Treatment Plant Capacity Increase Project (hereinafter “the Project”) is designed for expansion of the capacity of the existing wastewater treatment plant of the OIZ.

The Project is located in Tekkeköy District of Samsun. The Project will be extension of the currently operational WWTP that treat industrial and domestic effluents originating from the Facilities active within the OIZ boundaries. The Project Area is located within the plot allocated for the WWTP and the ownership belongs to the Samsun OIZ.

The Project would build on an existing technical assistance relationship between the MoIT and the World Bank Group (WBG) that helped develop a national framework for Green OIZs in Türkiye and carried out preliminary assessments of the potential impact of OIZ investments. In this context, as an implementing agency for the project is MoIT will provide loans to borrowing OIZs, as a sub-borrower and the Project as a selected Project will use a loan.

1.1 Rationale

World Bank-funded project will help Organized Industrial Zones (OIZs) in Türkiye to become more efficient, environmentally sustainable, and competitive. 250.3 million Euros Organized Industrial Zones Project for Türkiye, to be implemented by the Ministry of Industry and Technology (MoIT)/General Directorate of Industrial Zones, will support investments in basic infrastructure - such as new roads, water and gas pipelines, power lines, and logistics facilities - as well as in 'green' infrastructure - such as improved energy and water efficiency facilities, advanced wastewater treatment plants (WWTP), energy-efficient buildings, LED street lighting, and renewable energy assets, including solar, wind and biomass.

A smaller part of the loan will also be dedicated to enhancing the competitiveness of OIZs through investment in innovation and training centres linking OIZs with science and research organizations, and academia.

Ministry of Industry and Technology (MoIT) of the Republic of Türkiye, through the Ministry of Treasury and Finance (MoTF), has obtained financing from the World Bank (“the Bank”) towards implementation of the Türkiye Organized Industrial Zones (TOIZ) Project. Project is financed by the Bank/International Bank for Reconstruction and Development through a loan for which MoIT has been designated as responsible for project implementation by the Ministry of Treasury and Finance.

The overall objective of the Project is to increase the efficiency, environmental sustainability and competitiveness of selected Organized Industrial Zones (OIZs) in Türkiye.

The specific objectives are as follows:

- Energy savings from OIZ investments in basic and green infrastructure (MWh per year)
- Water savings from OIZ investments in green infrastructure (cubic meters per year)
- Reduction in CO_2 emissions due to supported investments (metric tons per year)
- Share of OIZs that attract new investments

Sub-projects within the framework of the "Türkiye Organized Industrial Zones Project" are subject to an initial screening process based on three primary criteria: the project's nature, size, and location, particularly considering sensitive areas. This screening aims to identify sub- projects that may have noteworthy environmental or social impacts at an early stage, necessitating a comprehensive Environmental and Social Impact Assessment, in accordance with the World Bank's Environmental and Social Framework (ESF) and TOIZ project’s Environmental and Social Management Framework (ESMF) guidelines.

Environmental and social screening processes have been completed for the subject projects of these OIZs in line with the World Bank’s requirements. The screening processes utilized Environmental and Social Screening Forms, along with accompanying annexes, to address pertinent questions aimed at identifying potential environmental and social consequences arising from the execution of the sub-project. Overall environmental and social risks of the sub-projects of these OIZs have been rated as “Moderate”.

The Project is financed by the World Bank (WB). Ministry of Industry and Technology (MoIT) is the implementing agency and will transfer the received loans provided under the Türkiye Organized Industrial Zones Project to Samsun Organized Industrial Zone (OIZ) is the Project owner and responsible for the implementation of the Project at the local level.

Samsun OIZ Wastewater Treatment Plant Capacity Increase Project (“the Project”) is one of the sub-projects within the scope of increasing the capacity of wastewater treatment needed in TOIZ Project within the Ministry of Industry and Technology.

1.2 Purpose of Environmental and Social Management Plan (ESMP)

The project classified as Moderate Risk according to WB's ESF, which states that for moderate risk projects, the potential risks and impacts and issues are likely to have the following characteristics: (i) predictable and expected to be temporary and/or reversible, (ii) low in magnitude, (iii) site-specific, without likelihood of impacts beyond the actual footprint of the project and (iv) low probability of serious adverse effects to human health and/or the environment (e.g., do not involve use or disposal of toxic materials, routine safety precautions are expected to be sufficient to prevent accidents, etc.). The background for the risk characterization of the Project is given below:

- The capacity of the planned WWTP is 2,000 m³/day and the Project is exempt from EIA Regulation.
- There is no nationally protected area or internationally protected and recognized area within and in close vicinity of the project area.
- With the realization of the Project, the wastewater will be treated and discharge of untreated wastewater into environment will be prevented. Therefore, the Project will have a positive impact on both the environment and public health.

1.3 Scope of the ESMP

One of the tasks under the scope of the Project is the preparation of an ESMP in accordance with the both national regulations and WB ESF standards, including its ESSs, the ESMF of the TOIZP, WBG General EHS Guidelines and Industrial Sector Guidelines and the national legislation in force in Türkiye.

Accordingly, this ESMP has been prepared by ALTER with the guidance of the MoIT PIU to assess and identify the potential environmental and social impacts and risks arising from the development of the Project and recommend mitigation measures for significant adverse environmental and social impacts/risks and describes the monitoring and institutional requirements necessary to implement this plan.

The primary purpose of this ESMP is to ensure that the environmental and social requirements and social commitments associated with the Project are duly implemented during the construction and operation stages of the Project and are effectively managed. The specific objectives of this ESMP are as follows:

- To conduct all project activities in accordance with the applicable national legislation and in compliance with the ESMF, WB's ESSs and EHS Guidelines;
- To identify anticipated adverse environmental and social risks and impacts;
- To adopt the mitigation hierarchy and identify mitigation measures, which anticipate and avoid, minimize, and, where residual impacts remain, compensate or offset risks and impacts;
- To prevent or compensate any loss of the affected persons;
- To prevent environmental degradation as a result of either individual sub-projects or their cumulative effects;
- To enhance positive environmental and social outcomes;
- To ensure maximizing efficiency and minimizing costs in complying with environmental and social legislation and standards;
- To act as an Action Plan in order to ensure that the project impact mitigation measures are properly implemented and monitored; and
- To ensure that all stakeholders' concerns are addressed.

The final version of this ESMP approved by the MoIT and the WB will be made available to all stakeholders during the life of the Project. A stakeholder Engagement Plan (SEP) has not been prepared for the Samsun OIZ project by ALTER at the Project level. The SEP was prepared by the Ministry of Industry and Technology in January 2021[1], aiming to fulfil the WBs ESS10 Stakeholder Engagement and Information Disclosure requirements. Stakeholder engagement activities will be based on the plan prepared by the MoIT and stakeholders at sub-project level have been identified and their relevance to the project is stated in Section 11 of this ESMP.

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 ESMP can be briefly explained as the following:

- Chapter 1 Introduction; gives an introduction to the project and ESMP Report, providing project details.

[1] https://yesilosb.sanayi.gov.tr/projedokumanlari

- Chapter 2 Project Description; is a description of the project including its location, components, technical specifications, associated construction and operation activities, and a proposed schedule for implementation.
- Chapter 3 Legal Framework; explains national and international legal requirements, analyzes gaps between national legislation and WB ESF and how these gaps will be bridged within this project, identifies environmental agreements, and other relevant international agreements that are relevant to the project.
- Chapter 4 Methodology; describes the overall methodology in preparation of the ESMP report
- Chapter 5 Environmental Baseline of the Project; describes the baseline conditions in and around the proposed Project Area, including physical and biological conditions.
- Chapter 6 Social Baseline of the Project; describes the baseline conditions in and around the proposed Project Area, including socio-economic conditions.
- Chapter 7 Environmental and Social Risks and Impacts of the Project; assesses the potential negative risks and impacts of the project, identifying mitigation measures.
- Chapter 8 Environmental and Social Aspects and Best Practice Mitigation Measures; describes the necessary management strategies and responsibilities for implementation of the identified mitigation measures.
- Chapter 9 Environmental and Social Monitoring Plan; monitoring activities to be conducted during both construction and operation phases..
- Chapter 10 Institutional Arrangements and Training; gives the information about environmental and social management structure and environmental and social monitoring reports.
- Chapter 11 Stakeholder Management Under ESMP; identifies project stakeholders and outlines the open and transparent stakeholder engagement throughout the project; explains the needs, expectations and concerns of these stakeholders to ensure that the project's impacts and risks on the stakeholder or organization are positive, in other words, the summary of the SEP, including the Grievance Mechanism through which stakeholders can raise their concerns and grievances. Deviations from the Screening Report

The ESMP Report deviates from the Screening Report on the basis of the size of the Project Area and the nearby sensitive neigborhoods. It has been calculated that a maximum size of 2,000 m2 land is available for construction and installation of capacity extension units whereas the Screening Report contradicts with the figure of 4,000 m2 for the size of the project area. Another deviation is the nearby neighborhoods, the Screening Report refers to Çırakman and Kutlukent which are much farther to the OIZ boundaries as compared to Şabanoğlu and Kerimbey neighborhoods evaluated in this report for their close vicinity.

2 PROJECT DESCRIPTION

2.1 Objectives of the Project

Samsun OIZ was established in 1981 in order to serve Samsun and its districts. It has an area of 1,606,522 m². The OIZ currently accommodates 95 industrial parcels in operation and 7 parcels are under construction, primarily engaged in various sectors including chemicals, iron and steel, metals, textiles, machinery, food, cement, plastics and timber industries.

The existing wastewater treatment plant was originally designed with a final capacity of 4,000 m³/day. The first stage, with a capacity of 2,000 m³/day, was built in 2016 to address the needs at that time, and the plant has been in operation since then. However, due to the expansion of local industries and increased production capacities, the current plant capacity is no longer sufficient to meet present demands, necessitating an extension of the WWTP.

The objective of the Project that is comprised of extension of the current industrial wastewater treatment plant (WWTP) is to enhance its capacity to effectively manage the increased volume of wastewater generated by the growing number and production capacities of the industries within the OIZ. This expansion will safeguard the plant can continue to meet regulatory standards, support sustainable industrial growth, and protect local environmental quality. This extension will help prevent potential environmental and operational challenges, ensuring the plant remains efficient and compliant with future demands.

2.2 Project Location

The Project Area is located within the Samsun OIZ that lies on the Black Sea coast, within the boundaries of the Tekkeköy district of Samsun. The geographic location of the Project area can be seen in Figure 2-1 below.

The OIZ is situated 13 km to Çarşamba airport, 13 km to Samsun Port, 2 km to Yeşilyurt Port, and 2 km to Samsun Railway. See Figure 2-4 for transportation hubs in the environs of the Project Area.

The OIZ area is bordered by Toros Fertilizer Factory located 1.8 km to the East and Eti Bakır Copper Plant at 2.5 km to the East, Ondokuz Mayıs and İlkadım Small Industrial Sites at 2 km to the South and Southwest, SASKI Municipal WWTP 500 m to the Northwest and Black Sea at 500 m to the north. See Figure 2-5 for surrounding land-use in the environs of the Samsun OIZ.The WWTP is located at the northern side of OIZ. The WWTP land is owned by the Directorate of OIZ. The total land allocated for the treatment plant is 12,785 m^2 on Block 2155 and Parcel 2 as shown in the Title Deed given in Annex-2 of this ESMP document. The land for the whole OIZ was acquired in 1981, including the WWTP area.

The area where the Project will be implemented readily includes access roads and landscaping around the existing WWTP. The Project Area where the capacity extension units will be installed is covered with grass vegetation, and there are few trees and bushes planted as landscape features around the existing units of the WWTP. See Figure 2-1.

Figure 2-1: Geographic Location of the Project

An overview of the current WWTP of the Samsun OIZ can be seen in Figure 2-2 and a photo of the Project Area for capacity extension can be seen as greenfield land with no historical use in Figure 2-3.

Figure 2-2: Overview of the WWTP

Figure 2-3: View of the Project Area

Figure 2-4: Transportation Hubs in the Region

Figure 2-5: Surounding Land-use

The Black Sea Coastal Road, which is one of the busiest roads connecting Anatolia to Asia via the Central and Eastern Black Sea Region, is located to the south of the Project area while the closest settlements to the Project area are Şabanoğlu and Kerimbey neighborhoods which are located with a distance of approximately 450 m and 500 m, respectively as seen in Figure 2-6 that also shows the borders of the OIZ and the WWTP area.

Figure 2-6: Location of OIZ and WWTP

Area of Influence (AoI) can be seen in Figure 2-7 below. The AoI involves sensitive receptors such as Central Black Sea Development Agency (OKA) and Yeşilyurt Vocational School of Ondokuz Mayıs University (OMU) within a distance of 500 meters to the south, and the AoI extends towards the Black Sea given the discharge through the Hıdırellez Channel. Please see Section 5.1 for details of the AoI.

Figure 2-7: Area of Influence

Treated wastewater at the WWTP is discharged into the Hıdrellez Creek that finally discharges into the Black Sea. The creek carries treated and untreated effluents from other facilities outside the OIZ. Hıdırellez Creek is flows as a closed culvert when passing through the facility of Turkish Railways (TCDD). See Figure 2-8 for the location of the Hıdırellez Creek.

Figure 2-8: Location of the Hıdırellez Creek

2.3 Project Components and Timeline

The Project is comprised of installation of additional units and equipment within the existing WWTP of the Samsun OIZ, in order to increase the treatment capacity from 2,000 m³/day to 4,000 m³/day. The Project also includes the replacement of some of the equipment in the existing units and the renewal of the electrical system and control system to meet the final capacity requirement, as well as the reconstruction of some units to serve the final capacity. There are no associate facilities related with the Project.

The currently operational treatment process is comprised of a series of units for the treatment of industrial wastewater. The wastewater arriving at the treatment plant first passes through the screens, which are part of the physical treatment unit, where large particles are retained. The large particles collected on the screens (such as PET bottles, bags, etc.) are transferred to a waste container located at the lower part of the system via a conveyor belt. The wastewater that passes through the coarse screens then reaches the aerated grit chamber, where it is retained to prevent damage to sand and gravel materials (pumps, valves, etc.). Oils and foams in the wastewater are removed using oil baffles and oil skimmers in the aerated grit chamber. The incoming wastewater with varying flows and pollution loads throughout the day, is transferred to the equalization tank from which it is transferred to the chemical treatment unit. Chemicals used in rapid and slow mixing tanks cause the suspended solids in the wastewater to form flocs, which are then settled in the chemical settling tank. An activated sludge system is used for biological treatment. The organic compounds in the wastewater come into contact with microorganism flocs, and the organic matter is oxidized into end products by the microorganisms. In the final settling tank, the settled microbiological mass is returned to the aeration tank to provide a sufficient concentration of bacteria for the breakdown of organic matter in the wastewater. A portion of the continuously forming microbiological mass is removed.

The sludge treatment units include: the chemical settling tank, sludge lift station, final settling tank, excess sludge lift station, sludge collection and distribution system, sludge thickening unit, sludge equalization tank, and leachate lift station. The sludge taken from the sludge thickening tank is sent to the sludge equalization tank. Excess sludge to be removed is collected in the sludge storage area and, before the area is filled, is regularly stored or sent for disposal depending on the nature of the sludge. See Figure 2-9 for the currently operational flowchart of treatment operations and Figure 2-10 for a layout of existing units.

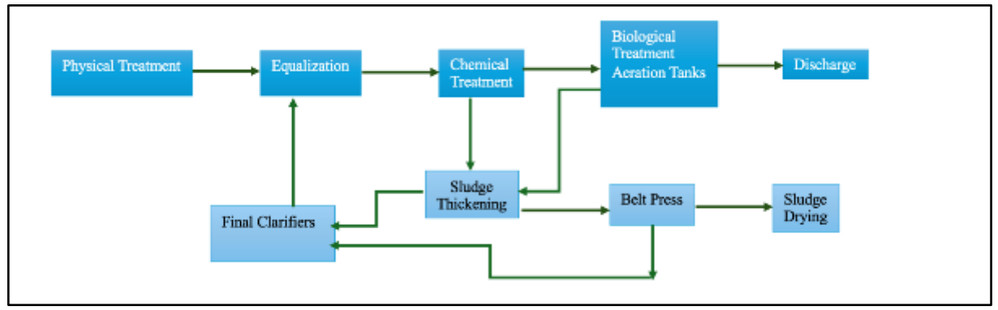

Figure 2-9: Process Flow Chart for the Current WWTP

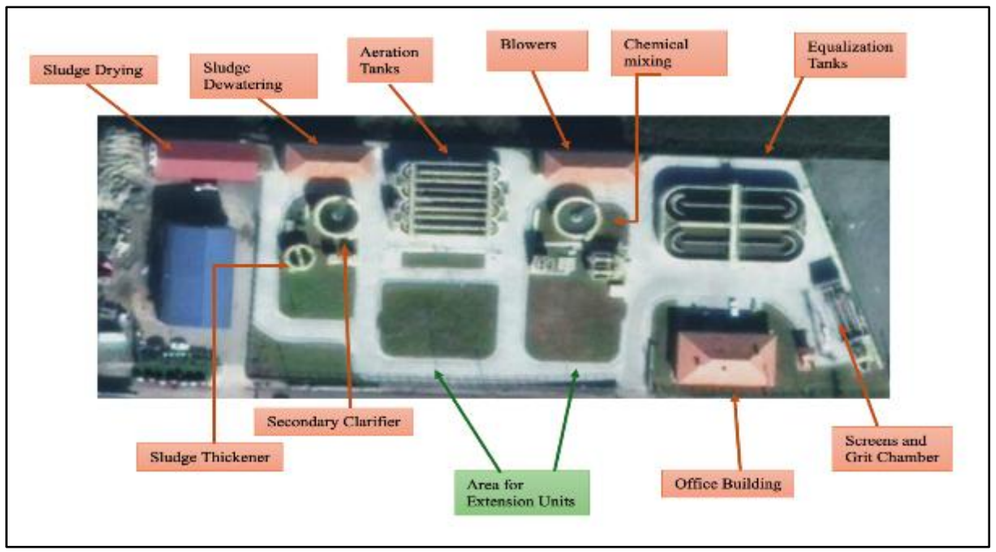

Figure 2-10: Layout of WWTP Units

The Project consists of additional final sedimentation, aeration, and chemical precipitation tanks that will be constructed on the parcel of existing WWTP located on the 12,785 m^2, owned since 1981 by the OIZ Directorate. The expansion of the treatment plant will involve adding new units such as additional final sedimentation, aeration, and chemical precipitation tanks on land that has already been designated for the facility. The initial plant was built on one section of this land, while the extension will be constructed on an adjacent section of the same land. The Project will also comprise installation of additional pumps, electrical control panel and updated SCADA system. The treated effluent is discharged into Hıdırellez Channel that flows into the Black Sea.

During the construction of the Project, topsoil will be removed from the vacant land allocated for extension. Topsoil stripping will be carried to an area of approximately 2,000 m^2 to an area of about 50 m^2. In order to protect the topsoil, the topsoil pile will be arranged at a maximum height of 2.5 m and stored at a slope of no more than 45 degrees.

The treatment sludge that will be generated during the operation stage of the Project is defined with the waste code 19 08 13 in Annex 4 of the Waste Management Regulation. After the treatment sludge is brought to the dryness level specified in the legislation, it is delivered to organizations that hold the Environmental Permit and License and authorized to receive treatment sludge. Contracts have been made upto date with OYAK Cement factories located in Samsun province, which are authorized to receive treatment sludge. Records of delivery of treatment sludge to the cement factories can be seen from the Mobile Tracking System of MoEUCC in Annex-5.

The pre-construction stage is estimated to take place within 1-month period, where top soil stripping and site mobilization will take place mainly. It is estimated that a maximum of 5 people will work for top soil stripping and 20 people will be working during construction stage. There will be no accomodation. Works will be coordinated from the current office building.

It is anticipated that the construction stage will last 12 months. The anticipated schedule of the Project is provided in Table 2-1.

It is envisaged that the pre-construction will be 1 month and construction will take 11 months. It is estimated that two excavators, one loader, one tower crane, five trucks and one sprinkler will be used during construction stage.

Table 2-1: Time Schedule of the Project

Months **Activities**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Consultant Selection for Design Review and Control												
Design Reviews and revisions												
Bid preparation, bidding and bid evaluation												
Contract Signing and Construction												
Inspection and Reporting												

2.4 Permits and Management System of the OIZ

2.4.1 Management Systems of the OIZ

According to the Organized Industrial Zones (OIZs) Implementing Regulation (Official Gazette No. 30674 dated 02.02.2019), OIZ managements are the highest regional authority that are responsible for the construction, maintenance and operation of wastewater infrastructure plants within OIZs. In this regard, OIZ managements are responsible for the compliance with the requirements of the Water Pollution Control Regulation published in the Official Gazette No. 25687 dated 31.12.2004.

Organized Industrial Zones WWTP Project Approval is given by the Ministry of Environment, Urbanization and Climate Change (MoEUCC). It is mandatory to obtain an environmental permit as of April 1, 2010 for the discharge of industrial wastewater into the receiving environment.

It has been declared by the OIZ Management that the OIZ does not hold an Environmental and Social Management Plan and ISO certifications.

2.4.2 Permits

A list of approvals and permits granted for the current WWTP granter by Samsun Provincial Directorate of Environment and Urbanization are listed below. Cover pages of available permits and approvals can be seen in Annex-1.

- EIA Exemption Letter (dated 25.11.2014) in Annex-1A
- Environmental Permit based on wastewater discharge (valid until 27.05.2026) in Annex-1B
- Industrial Waste Management Plan (valid until 15.08.2026) in Annex-1C
- Hazardous Waste Liability Insurance valid util (23.07.2025) in Annex-1D
- Approval for Temporary Storage of Hazardous Wastes in Annex-1E
- Emergency Response Plan (valid until 01.06.2025) in Annex-1F
- Zero Waste Certificate (valid until 15.12.2027) in Annex-1G

Based on the EIA Regulation (published in Official Newsletter dated 25.11.2014 No: 29186), the letter of decision for “EIA Not Required” was issued on 08.03.2016 by the Samsun Provincial Directorate of Environment and Urbanization for the total treatment capacity of 4000 m^3/day (See Annex-2).

A list of approvals and permits granted for the current WWTP granter by Samsun Provincial Directorate of Environment and Urbanization are listed below. The permits and approvals will be renewed for the project extension stage.

3 LEGAL FRAMEWORK

This chapter presents the main aspects of the legal and administrative framework followed in the design of this ESMP. In this project, in addition to determining which standards to follow. In addition, a gap analysis is conducted between national legislation and WB ESF with a view to detailing how such gaps will be bridged in this project. 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.

3.1 National EHS 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.

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.

Occupational Health and Safety Law No. 6331, which is ratified June 2012 (Official Gazette dated 30.06.2012 and numbered 28339), is other principal legislation related to the Project. Occupational Health and Safety Law enforces various by-laws and decrees to regulate and uphold health and safety standards.

National Legislation related to the Project is presented in Annex-5 under relevant subtopics.

Samsun OIZ Wastewater Treatment Plant Project with the total capacity of 4,000 m^3/day, is outside the scope of the EIA regulation due to its capacity. The EIA Exemption Letter was issued by by Samsun Provincial Directorate of Environment and Urbanization on 08.03.2016 (see Annex-1A of this Report). Samsun OIZ will comply with the requirements of the current national legislation and codes of practice and fulfil all other legal requirements. Therefore, during each stage of the planned Project and implementation of related management plans, all activities will be carried in accordance with certain standards and limits set by the laws and regulations and any license and/or permit required for the upcoming stages of the Project will be acquired accordingly.

3.2 International Agreements and Standards

World Bank Environmental and Social Framework (ESF)

The Project will be in compliance with the good international practice, including WB ESF, WBG General EHS guidelines, and best practices documents alongside the national legislation.

The environmental risks associated with the Project are considered to be "**Moderate**" 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 and the typical effects that occur during the operational stage, such as odor, noise, OHS concerns, and the generation of waste, including sludge, can be effectively controlled using established management systems.
- no negative impact on surrounding environmental receptors is expected. On the contrary, positive impact is expected due to the reduced pollution load discharged to the creek (through the canal) and decreased use of natural water resources
- activities will be carried out in the area allocated to the WWTP inside the borders of the OIZ
- wastes will be disposed in line with national regulation and WB Environmental, Health and Safety (EHS) Guidelines.

The social risks associated with the Project are considered to be "**Low**" since,

- land acquisition and/or resettlement will not be needed,
- no land acquisition has been made in the last 5 years,
- labor influx will not be generated,
- livelihoods of the households, vulnerable groups and formal-informal users on land will not be damaged,
- no impact on cultural heritage,
- employment opportunities will increase for local communities including women and vulnerable groups,

- 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 ESSs will be applied on fair employment, equal access and employment opportunities for women.

The overall environmental and social risk of the Project is rated as **"Moderate".**

The Project will be in compliance with the good international industry practice, including WB ESSs, WB Group's Environmental, Health and Safety (EHS) guidelines, ESF standards, including its ESSs and best practices documents alongside the national legislation.

The World Bank (WB) Environmental and Social Framework reflects 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, ESS6 and ESS10. ESS5 is excluded since the Project does not require land use change, land acquisition or involutary resettlement. ESS7 is excluded because no groups of people living in Türkiye fulfill the criteria to be classified as indigenous. ESS8 is excluded because the Project site is an existing industrial zone.

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

The gap analysis between the WB ESSs triggered by the Project and Turkish EIA Regulation is presented in Table 3-2: 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): LAeq, 5 min.< 65 dB(A) Evening time (19:00-23:00): LAeq, 5 min.< 60 dB(A) Night time (23:00-07:00): LAeq, 5 min.< 55 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.	Sensitive Receptors: Residential; institutional, educational: • Day time (07:00-22:00): • One Hour LAeq dB(A) < 55 dB(A) • Night time (22:00-07:00): • One Hour LAeq dB(A) < 45 dB(A) Sensitive Receptors:Industrial, commercial: • Day time (07:00-22:00): • One Hour LAeq dB(A) < 70 dB(A) • Night time (22:00-07:00): • One Hour LAeq dB(A) < 70 dB(A)	Receptor: Residential, institutional, educational Day time (07:00-19:00): LAeq, 5 min.< 65 dB(A) Evening time (19:00-23:00): LAeq, 5 min.< 60 dB(A) Night time (23:00-07:00): LAeq, 5 min.< 55 dB(A)

2	Air Quality	• Regulation on the Assessment and Management of Air Quality (Official Gazette Date/Number: 06.06.2008/26898) Annex-1	PM10 1-Year: 40 µg/m3 24-Hour: 50 µg/m3 (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 Ambien Air Quality Guidelines	PM10 1-Year: 20 µg/m3 24-Hour: 50 µg/m3 (99th percentile (i.e. 3-4 exceedance days per year) PM2.5 1-Year: 10 µg/m3 24-Hour: 25 µg/m3 (99th percentile (i.e.3-4 exceedance days per year)	Turkish Legislation has not described a limit value for PM2.5. 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 limit values are used, which is 25 µg/m3 for both of them. PM10 1-Year: 20 µg/m3 24-Hour: 50 µg/m3 (99th percentile (i.e. 3-4 exceedance days per year) PM2.51-Year: 10 µg/m3 24-Hour: 25 µg/m3 (99th 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: 06.11.2020/31296) Annex- 2.1 “Table-2 Mass Flows”	Non-stack Mass Flow CO: 50 kg/h Dust: 1 kg/h NOx: (as NO2) 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 NO2) 4 kg/h SOx: 6 kg/h TOC: 3 kg/h
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 ($SO4^{-2}$): 1500 mg/L Total Kjeldahl Nitrogen (TKN): 20 mg/L Fish Bioassay (TDF): 10 Color: 280 Pt-	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. Limit values of Surface 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 (SO4-2): 1500 mg/L Total Kjeldahl Nitrogen (TKN): 20 mg/L Fish Bioassay (TDF): 10 Color: 280 Pt-Co pH:6-9

<table>
<tr><td></td><td></td><td></td><td>Co pH:6-9</td><td></td><td></td><td></td></tr>
<tr><td>4</td><td>Surface Water Quality</td><td>Regulation on Surface Water Quality-Water Quality Classes (Official Gazette Date/Number: 30.11.2012/ 28483) Annex — 5)</td><td>
<table>
<tr><th rowspan="2">Parameter</th><th rowspan="2">Unit</th><th colspan="3">Surface Water Quality Regulation Water Quality Classes</th></tr>
<tr><th>I (very good)</th><th>II (good)</th><th>III (moderate)</th></tr>
<tr><td>Ammonium (NH_4^+)</td><td>mg/L</td><td><0.2</td><td>1</td><td>>12</td></tr>
<tr><td>Colour</td><td>m-1</td><td>RES 436 nm: ≤ 1,5
RES 525 nm: ≤ 1,2
RES 620 nm: ≤ 0,8</td><td>RES 436 nm: 3
RES 525 nm: 2,4
RES 620 nm: 1,7</td><td>RES 436 nm: > 4,3
RES 525 nm: > 3,7
RES 620 nm: 2,5</td></tr>
<tr><td>Oil and Grease</td><td>mg/L</td><td><0.2</td><td>0.3</td><td>>0.3</td></tr>
<tr><td>Biological Oxygen Demanded (BOD5)</td><td>mg/L</td><td><4</td><td>8</td><td>>8</td></tr>
<tr><td>Dissolved Oxygen (DO)</td><td>mg/L</td><td>>8</td><td>6</td><td><6</td></tr>
<tr><td>Conductivity</td><td>µS/cm</td><td><400</td><td>1000</td><td>>1000</td></tr>
<tr><td>Chemical Oxygen</td><td>mg/L</td><td><25</td><td>50</td><td>>50</td></tr>
</table>
</td><td>WBG General EHS Guidelines: Environmental Wastewater and Ambient Water Quality</td><td>WBG General EHS Guidelines Environmental-Wastewater and Ambient
Water Quality mention that: " Discharges to surface water should not result in contaminant concentrations in excess of local ambient water quality criteria or, in the absence of local criteria, other sources of ambient water quality."

Since National Standards exist, compliance with National Standards will be ensured.</td><td>
<table>
<tr><th rowspan="2">Parameter</th><th rowspan="2">Unit</th><th colspan="3">Surface Water Quality Regulation Water Quality Classes</th></tr>
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RES 525 nm:2,4
RES 620 nm:1,7</td><td>RES 436 nm:> 4,3
RES 525 nm:> 3,7
RES 620 nm: 2,5</td></tr>
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<tr><td>Biological Oxygen Demand (BOD5)</td><td>mg/L</td><td><4</td><td>8</td><td>>8</td></tr>
<tr><td>Dissolved Oxygen (DO)</td><td>mg/L</td><td>>8</td><td>6</td><td><6</td></tr>
<tr><td>Conductivity</td><td>µS/cm</td><td><400</td><td>1000</td><td>>1000</td></tr>
<tr><td>Chemical Oxygen Demand (COD)</td><td>mg/L</td><td><25</td><td>50</td><td>>50</td></tr>
</table>
</td></tr>
</table>

			Demanded (COD)						
			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
			Ortophosphate ($o\text{-}PO_4^-$)	mg/L	<0.05	0,16	>0.16	Ortophosphate	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
			Floride	µg/L	≤1000	1500	>1500	Floride	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 Arsenic Mercury Conductivty Cadmium Chloride Lead Sulfate Tetrachloroethylene Trichloroethylene Salinity	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 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.	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.				

6	Soil Quality	The 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).	**Parameters**[2] 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: 1.8 Contaminated Land	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):-

2 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:1089, NACE Code: 1330, NACE Code:2511 (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**
1	Labor and working conditions	Labor Law (No. 4857), published in the Official Gazette no. 25134 dated 10 June 2003	**ESS2** Labor and Working Conditions	**ESS2** Labor and Working Conditions ESF Guidance Note 2 Labor and Working Conditions Labour Management Procedures of the OIZ 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	**ESS2** Labor and Working Conditions	**ESS2** Labor and Working Conditions ESF Guidance Note 2 Labor and Working Conditions
3	Labor and working conditions	Regulation on Contractors and Sub- contractors, published in the Official Gazette no. 27010 dated 27 September 2008	**ESS2** Labor and Working Conditions	**ESS2** Labor and Working Conditions Labour Management Procedures of the OIZ Project.
4	Community Health and Safety	Law on Occupational Health and Safety (No. 6331), published in the Official Gazette no. 28339 dated 30 June 2012	**ESS4** Community Health and Safety	**ESS4** Community Health and Safety ESF Guidance Note 4 Community Health and Safety English WBG "Environmental, Health, and Safety Guidelines for Water and Sanitation"

5	Stakeholder engagement	Laws on Right to Information (No. 4982), published in the Official Gazette no 25269 dated 24 October 2003	**ESS1**0 Stakeholder Engagement and Information Disclosure	**ESS2** Labor and Working Conditions ESS 10 Stakeholder Engagement and Information Disclosure ESF Guidance-Note 10 Stakeholder Engagement and Information Disclosure English
6	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	**ESS1** Assessment and Management of Environmental and Social Risks and Impacts

below.

Table 3-1: GAP Analysis Between WB ESSs and National E&S Legislation

WB E&S Standards (ESS)	Gaps	Actions taken to fill gaps
ESS1: Assessment and Management of Environmental and Social Risks and Impacts	The social impact assessment is not fully integrated into the Turkish E&S Legislation, resulting in a lack of assessment of the project that triggered the social impacts, including impacts on the disadvantaged or vulnerable and impacts on gender-related issues.	Section 7.2 of this ESMP is comprised of assessment of the social impacts as well as the environmental impacts of the Project.
ESS2: Labor and Working Conditions	In general, Turkish national laws and regulations regarding labor and working conditions to a large extent meet the requirements of ESS2. The worker grievance mechanism is a key gap between national legislative requirement and ESS2. According to the Turkish national labor and working conditions legislation, there are no specific requirements regarding the grievance mechanism allowing workers to lodge their grievances with the employer. Another gap is related to Labour Management (LM) procedures.	A stakeholder disclosure and GM has been prepared under the Project and the grievance mechanism is defined in this plan. The channels through which workers can submit their grievances are explained in the SEP. Section 11.4 gives details for the Workers GM. Labor Management Procedures (LMP is developed as a part of E&S documents of the main project (TOIZP). LMPalso provides guidance on the required mitigations or management implementations such as provision of a 'workers' GM. Contractor's LM Plan will be in compliance with the LMP of the TOIZsP.
ESS3: Resource Efficiency and Pollution Prevention and Management	Most of the relevant national legislation regarding laws and regulations is in line with EU directives. There is not a big gap between ESS3 and legal requirements. Turkish EIA Regulation does not address resource consumption and resource efficiency measures.	The ESMP indicates measures to apply the waste hierarchy in waste management practices at all stages. Section 7.1.9 gives details about waste management to be implemented at all stages.
ESS4: Community Health and Safety	In general, there is no gap at policy level. However, at project-level management of certain risks such as labor influx, sexual exploitation, abuse and sexual harassment are key gaps vis-a-vis ESS4.	The ESMP provides measures against labor influx, gender-based violence, sexual exploitation, abuse and sexual harassment issues were determined as an impact and mitigation measures and monitoring methods were included in these impacts. Chapter 8 on Mitigation Plan and Chapter 9 on Monitoring Plan give details for mitigation and monitoring of GBV/SH/SEA.
ESS5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	Some gaps include the preparation of a resettlement plan, census of affected people, value appraisal method, impact assessment on informal land users, vulnerable groups and land-based livelihood restoration.	Given the Project location within the OIZ boundaries, there is no land acquisition and issues of livelihoods. ESS 5 is not triggered by the Project, thereby there are no special interventions.
ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	There is no gap at policy level. However, in some cases, the level of considerations of not legally protected sensitive ecological areas such as Key Biodiversity Areas in local EIA Process are not in accordance with the requirements stipulated by ESS6. Furthermore, management and monitoring of potential impacts, mitigation measures and residual impacts are not detailed in general.	Given the confined structure of the OIZ and its isolated location from its surroundings, ESS 6 is not triggered by the Project.
ESS10: Stakeholder Engagement and Information Disclosure	Although public participation is a requirement of the Turkish EIA Regulation, there are certain gaps such as the limited requirement for projects that require EIA only, while ESS10 is required for all projects and with a continuous stakeholder engagement approach proportional to the nature, scale and impact magnitude of the project throughout its lifecycle.	Chapter 11 gives details of a stakeholder engagement plan and Grievance Mechanism, which are disclosed and consultated as part of the ESMP.

WB E&S Standards (ESS)	Gaps	Actions taken to fill gaps
	According to ESS10, the project is expected to respond to concerns and grievances raised by affected parties regarding the environmental and social performance of the project. To meet this requirement, a grievance mechanism should be set up and implemented to receive and facilitate the resolution of such concerns and grievance. This mechanism must be accessible, inclusive, and proportional to the potential risks and impacts of the project. In this context, a Stakeholder Engagement Plan is required to identify different stakeholders, including those affected by the project and disadvantaged or vulnerable groups. Stakeholder engagement should be an ongoing process. An improved complaint mechanism will help bridge the gap between EIA regulations and ESS10.	

3.3 Project Standards

Standards that apply to the Project are designated below in Table 3-2. All parameters are evaluated based on the most stringent one.

Project Standards are determined by considering the most stringent of the national legislation and international standards and guidelines that are applicable to the project as given in Table 3-2 and these will be complied with during the implementation of the project.

Table 3-2: 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): LAeq, 5 min.< 65 dB(A) Evening time (19:00-23:00): LAeq, 5 min.< 60 dB(A) Night time (23:00-07:00): LAeq, 5 min.< 55 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.	Sensitive Receptors: Residential; institutional, educational: • Day time (07:00-22:00): • One Hour LAeq dB(A) < 55 dB(A) • Night time (22:00-07:00): • One Hour LAeq dB(A) < 45 dB(A) Sensitive Receptors:Industrial, commercial: • Day time (07:00-22:00): • One Hour LAeq dB(A) < 70 dB(A) • Night time (22:00-07:00): • One Hour LAeq dB(A) < 70 dB(A)	Receptor[2]: Residential, institutional, educational Day time (07:00-19:00): LAeq, 5 min.< 65 dB(A) Evening time (19:00-23:00): LAeq, 5 min.< 60 dB(A) Night time (23:00-07:00): LAeq, 5 min.< 55 dB(A)
2	Air Quality	• Regulation on the Assessment and Management of Air Quality (Official Gazette Date/Number: 06.06.2008/26898) Annex-1	PM10 1-Year: 40 µg/m3 24-Hour: 50 µg/m3 (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 Ambien Air Quality Guidelines	PM10 1-Year: 20 µg/m3 24-Hour: 50 µg/m3 (99th percentile (i.e. 3-4 exceedance days per year) PM2.5 1-Year: 10 µg/m3 24-Hour: 25 µg/m3 (99th percentile (i.e.3-4 exceedance days per year)	Turkish Legislation has not described a limit value for PM2.5. 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 limit values are used, which is 25 µg/m3 for both of them. PM10 1-Year: 20 µg/m3 24-Hour: 50 µg/m3 (99th percentile (i.e. 3-4 exceedance days per year) PM2.51-Year: 10 µg/m3 24-Hour: 25 µg/m3 (99th 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: 06.11.2020/31296) Annex- 2.1 "Table-2 Mass Flows"	Non-stack Mass Flow CO: 50 kg/h Dust: 1 kg/h NOx: (as NO2) 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 NO2) 4 kg/h SOx: 6 kg/h TOC: 3 kg/h

[2] Standards selected based on the presence of institutional receptors such as OKA and educational receptors OMÜ.

<table>
<tr><td>3</td><td>Effluent Water Quality</td><td rowspan="2">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)</td><td>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 ($SO4^{-2}$): 1500 mg/L
Total Kjeldahl Nitrogen (TKN): 20 mg/L
Fish Bioassay (TDF): 10
Color: 280 Pt-
Co pH:6-9</td><td>WBG General EHS Guidelines: Environmental Wastewater and Ambient Water Quality</td><td>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.</td><td>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. Limit values of Surface Water Quality.</td></tr>
<tr><td></td><td></td><td>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 (SO4-2): 1500 mg/L
Total Kjeldahl Nitrogen (TKN): 20 mg/L Fish
Bioassay (TDF): 10
Color: 280 Pt-Co
pH:6-9</td></tr>
<tr><td>4</td><td>Surface Water Quality</td><td>Regulation on Surface Water Quality-Water Quality Classes (Official Gazette Date/Number: 30.11.2012/ 28483) Annex — 5)</td><td>
<table>
<tr><th rowspan="2">Parameter</th><th rowspan="2">Unit</th><th colspan="3">Surface Water Quality Regulation Water Quality Classes</th></tr>
<tr><th>I (very good)</th><th>II (good)</th><th>III (moderate)</th></tr>
<tr><td>Ammonium (NH_4^+)</td><td>mg/L</td><td><0.2</td><td>1</td><td>>12</td></tr>
<tr><td>Colour</td><td>m^{-1}</td><td>RES 436 nm: ≤ 1,5
RES 525 nm: ≤ 1,2
RES 620 nm: ≤ 0,8</td><td>RES 436 nm: 3
RES 525 nm: 2,4
RES 620 nm: 1,7</td><td>RES 436 nm: > 4,3
RES 525 nm: > 3,7
RES 620 nm: 2,5</td></tr>
<tr><td>Oil and Grease</td><td>mg/L</td><td><0.2</td><td>0.3</td><td>>0.3</td></tr>
<tr><td>Biological Oxygen Demanded (BOD5)</td><td>mg/L</td><td><4</td><td>8</td><td>>8</td></tr>
</table>
</td><td>WBG General EHS Guidelines: Environmental Wastewater and Ambient Water Quality</td><td>WBG General EHS Guidelines Environmental-Wastewater and Ambient
Water Quality mention that: " Discharges to surface water should not result in contaminant concentrations in excess of local ambient water quality criteria or, in the absence of local criteria, other sources of ambient water quality."

Since National Standards exist, compliance with National Standards will be ensured.</td><td>
<table>
<tr><th rowspan="2">Parameter</th><th rowspan="2">Unit</th><th colspan="3">Surface Water Quality Regulation Water Quality Classes</th></tr>
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RES 525 nm:2,4
RES 620 nm:1,7</td><td>RES 436 nm:> 4,3
RES 525 nm:> 3,7
RES 620 nm: 2,5</td></tr>
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<tr><td>Biological Oxygen Demand (BOD5)</td><td>mg/L</td><td><4</td><td>8</td><td>>8</td></tr>
</table>
</td></tr>
</table>

			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 Demand (COD)	mg/L	<25	50	>50			Chemical Oxygen Demand (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
			Ortophosphate ($o\text{-}PO_4^-$)	mg/L	<0.05	0,16	>0.16			Ortophosphate	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
			Floride	µg/L	≤1000	1500	>1500			Floride	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 Arsenic Mercury Conductivty Cadmium Chloride Lead Sulfate Tetrachloroethylene Trichloroethylene		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 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.				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.		

			Salinity			
6	Soil Quality	The 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).	**Parameters**[2] 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: 1.8 Contaminated Land	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):-

2 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:1089, NACE Code: 1330, NACE Code:2511 (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**
1	Labor and working conditions	Labor Law (No. 4857), published in the Official Gazette no. 25134 dated 10 June 2003	**ESS2** Labor and Working Conditions	**ESS2** Labor and Working Conditions ESF Guidance Note 2 Labor and Working Conditions Labour Management Procedures of the OIZ 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	**ESS2** Labor and Working Conditions	**ESS2** Labor and Working Conditions ESF Guidance Note 2 Labor and Working Conditions
3	Labor and working conditions	Regulation on Contractors and Sub- contractors, published in the Official Gazette no. 27010 dated 27 September 2008	**ESS2** Labor and Working Conditions	**ESS2** Labor and Working Conditions Labour Management Procedures of the OIZ Project.

4	Community Health and Safety	Law on Occupational Health and Safety (No. 6331), published in the Official Gazette no. 28339 dated 30 June 2012	**ESS4** Community Health and Safety	**ESS4** Community Health and Safety ESF Guidance Note 4 Community Health and Safety English WBG "Environmental, Health, and Safety Guidelines for Water and Sanitation"
5	Stakeholder engagement	Laws on Right to Information (No. 4982), published in the Official Gazette no 25269 dated 24 October 2003	**ESS1**0 Stakeholder Engagement and Information Disclosure	**ESS2** Labor and Working Conditions ESS 10 Stakeholder Engagement and Information Disclosure ESF Guidance-Note 10 Stakeholder Engagement and Information Disclosure English
6	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	**ESS1** Assessment and Management of Environmental and Social Risks and Impacts

4 METHODOLOGY

This chapter includes the principles and the methodological approach of the ESMP specific to the Project. The ESMP is prepared as a result of desk studies, data collection, site visits and consultations with stakeholders.

The methodology is structured to ensure a comprehensive assessment of potential environmental and social impacts. The methodology includes desk studies, data collection, site visits, stakeholder consultations, and the development of mitigation measures. This approach aligns with international best practices and adheres to both Turkish regulations and World Bank Group (WBG) guidelines. The methodology is designed to be flexible and adaptive, allowing for ongoing updates and improvements as the project progresses.

4.1 Desk Studies

The initial stage of the ESMP involved extensive desk studies to gather and review existing documentation, reports, and data relevant to the project. The following key activities were conducted:

- **Review of Project Documentation**: Existing project reports, including the feasibility study, engineering designs for the existing wastewater treatment plant, were thoroughly reviewed.
- **Legal Framework Review**: A comprehensive review of Turkish environmental and social regulations, as well as the relevant WBG guidelines, was conducted. This review ensured that the ESMP is aligned with the legal requirements and best practices for environmental and social management.

4.2 Data Collection

Data collection activities included:

- Environmental Baseline Data: There is no available information on site-specific environmental parameters such as such as air quality, water quality, soil conditions. Biodiversity information such as protected areas was compiled from the national data base.
- Social Baseline Data: Social data, including demographic information was collected from published statistical data, which helped in understanding the social dynamics and potential impacts on local communities.
- Technical Data: Detailed technical data related to the existing wastewater treatment plant, including current capacity, operational procedures, environmental permits and approvals.

4.3 Site Visit

- To validate the data collected through desk studies and to gain a firsthand understanding of the project area, a site visit was conducted on 18-19 July 2024. The site visit was structured as follows:

- Reconnaissance Visit: A visit to the Samsun OIZ was conducted to familiarize the project team with the site and its surroundings. The reconnaissance visit involved a walk-through of the existing wastewater treatment plant, the proposed expansion area, and key environmental and social receptors, such as the Hıdırellez Creek and residential areas.

- Stakeholder Consultations: Stakeholder consultations were a vital part of the ESMP methodology, ensuring that stakeholders were informed about the project and its potential impacts and that the perspectives and concerns of those affected by the project were considered. The consultation process also included meetings with OIZ Management. Regular meetings were held with the management of the Samsun OIZ to discuss project details, potential impacts, and proposed mitigation measures. These meetings helped in aligning the ESMP with the operational goals of the OIZ.

4.4 Development of Mitigation Measures

Based on the data and information collected, the site visit and stakeholder consultations, specific mitigation measures were developed to address the identified environmental and social impacts. The development of these measures involved a risk assessment, designation of mitigation actions and monitoring planning.

- Assessment of risks and impacts: A risk and impact assessment was conducted to identify and prioritize potential environmental and social impacts. This assessment considered the likelihood and severity of impacts during both the construction and operation stages of the project.

- Mitigation Planning: For each identified risk, corresponding mitigation measures were developed. These measures were designed to be practical, effective, and aligned with both local regulations and WBG guidelines. The mitigation measures were integrated into the overall project design and implementation plan.

- Monitoring and Reporting: A monitoring plan was developed to track the effectiveness of the mitigation measures throughout the project's life cycle. The plan includes regular reporting requirements and adaptive management strategies to address any unforeseen impacts.

4.5 Impact Assessment Methodology

The impact assessment methodology is designed to systematically evaluate the potential environmental and social impacts arising from the project activities (See Chapter 7).

Impact Identification

The first step in the impact assessment process involved identifying potential environmental and social impacts associated with the project's construction and operational stages. See Chapter 7 for impact assessment, where assessment is based on a screening of Project Activities, interaction with receptors (such as air, water, soil, biodiversity, and local communities) and inputs from stakeholders.

Impact Prediction

After identifying potential impacts, the next step was to predict the scale, magnitude, and likelihood of these impacts. Expert judgment and experience was used from similar projects to estimate the potential extent and duration of these impacts. Where possible, quantitative methods were used to predict the intensity of impacts.

Impact Evaluation

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.

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 matrix given in Table 4-1Table 4-1 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 4-1: 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

Source: *Adapted from Scottish Natural Heritage – A handbook on environmental impact assessment, 2013.*

In addition to assessing the direct impacts of the project, cumulative impacts were also considered to account for the combined effects of the project along with other existing or planned projects within the Samsun OIZ. This included the cumulative impact of wastewater discharge from multiple industries within the OIZ, noise generation from all facilities and odor emission from the Samsun Water and Sewerage Authority (SASKI) wastewater treatment facility have been considered in overall assessment.

Mitigation and Enhancement Measures

For each significant impact identified, corresponding mitigation measures were developed and designated in Column 4 of the ESMP Matrix in Chapter 8. The development of these measures followed the mitigation hierarchy, which prioritizes:

Avoidance: Efforts to avoid the impact entirely. For example, careful siting of new treatment units to avoid areas of high ecological value.

Minimization: If avoidance is not possible, actions were planned to minimize the impact. For instance, using dust suppression techniques during construction or designing wastewater treatment processes to meet higher effluent standards.

Monitoring

To ensure the effectiveness of the mitigation measures, a monitoring plan has been developed (See Chapter 9). This plan includes specific indicators to be monitored during both the construction and operational stages.

Parameters such as air quality and noise levels during construction stage and odor during operation stage will be tracked by means of assessing nuisance-based complaints received through the grievance mechanism. On the other hand, quality of discharge water will be monitored on a bi-weekly basis as required by the environmental permit.

5 ENVIRONMENTAL BASELINE OF THE PROJECT

5.1 Project Location and Area of Influence

As described under Section 2.2, the Project Area is located within the Samsun OIZ that lies on the Black Sea coast, within the boundaries of the Tekkeköy district of Samsun Province. (See Title Deed in Annex-2).The Area of Influence (AoI) refers to the area significantly affected, influenced, or impacted by a particular project, development, or activity. In the context of wastewater treatment plants (WWTP), the AoI encompasses different areas of influence based on the risk issue that may experience direct or indirect effects resulting from the construction and operation of the facility.

Given the issues and risks related with the specific project, AoI is different on the basis of impact parameters. See Table 5-1 below for an evaluation regarding AoI for different parameters.

Table 5-1: Area of Influence Considerations

Impact/risk issue	Remarks	Possible AoI	Project Stage
Noise and Dust	The main concern here would be dust and noise during construction, which are noted as moderate and temporary. These are mainly felt by those in close proximity to the construction site. The social impact of noise and dust would typically extend to nearby industrial units and possibly residential areas within a few hundred meters of the construction zone.	Nearest receptors: OKA and Vocational School of OMÜ	Construction Stage
Community Health and Safety	Impacts associated traffic will be limited to the OIZ as transportation vehicles will not enter the settlement areas.	Highway and OIZ boundaries	Construction Stage
Odor	During operation, odor might be a nuisance, particularly for nearby industries and settlements. However, since there is a larger municipal treatment plant already causing odor issues, the incremental impact of the extension may be less significant compared to the existing situation.	Nearest receptors: OKA and Vocational School of OMÜ	Operation stage
Discharge Quality	The discharge of 4000 m^3/day is relatively low, and discharge quality will be frequently monitored based on the environmental permit requirement. This suggests that any impact on the Black Sea will be avoided, by ensuring efficient operation of treatment and compliance with environmental standards.	Black sea	Operation stage

Since the area is an organized industrial zone with no biodiversity concerns, it is not expected to have any significant ecological area of influence in terms of biodiversity.SiDHence, during the construction stage, AoI is limited to immediate vicinity of the construction site – OKA and Yeşilyurt Vocational School of OMÜ within 500 meters in terms of temporary nuisance from dust and noise. As for the operational stage, the area where odor might be noticeable would generally be within 1 km of the plant, depending on prevailing wind patterns and other environmental factors. However, as the existing municipal plant of Samsun Water and Sewerage Authority (SASKI) is already impacting the same areas, the additional impact from the extension might be less noticeable.

However, when assessed cumulatively, the overall odor impact in the area may slightly increase due to the contribution of both the existing municipal WWTP and the new extension. Nonetheless, this incremental increase is not expected to create a significant change compared to the current baseline odor levels. Still, mitigation measures will be taken to limit the additional impact.

5.2 Land Use

According to the "1/100,000 Scale Zoning Plan for the Samsun-Çorum-Tokat Planning Region" the Project Area is located within the area designated as "OIZ Area" (See Annex-3). There is no requirement for any land acquisition as the WWTP land is owned by OIZ. The site allocated for the capacity extention is currently covered by natural grass layer. There are few bushes and trees around the existing WWTP units. There will be no cutting of relocation of trees for the purpose of the Project.

The OIZ has been in operation since 1981 as an industrial area. There is no land within the OIZ boundaries that can be used for agricultural purposes or livestock breeding/grazing. As shown in Figure 5-1, the Corine 2018 Data Base of Land Use shows that the OIZ and its environs are occupied by industrial and commercial land-use. Irrigated lands and pasture areas are beyond the highway and outside the industrial zone.

Figure 5-1: Land-use Around Samsun OIZ

5.3 Geology

Tekkeköy, where the Project area is located, consists of formations with different geological ages and characteristics. While there are Quaternary aged lands in the parts of the district land above the Yeşilırmak Delta, the mountainous and rugged area that constitutes the northern slopes of the Canik Mountains and covers most of the district's surface area consists of Tertiary lands (Şahin, K. and Bağcı, H.R.).

The units that occupy the largest geological area in Tekkeköy are volcano sedimentaries consisting of Eocene aged sandstone-mudstone, basalt-andesite and agglomerates. These elements are named as "Tekkeköy Formation" that consists of basalt, andesite, agglomerate, sandstone, siltstone, conglomerate, tuff and tuffites. While there are resistant rocks such as basalt-andesite at the base of the formation, there are tuffs in the upper parts. At the base of the formation, there are sedimentary rocks, and volcano-clastics and volcanites surface towards the upper parts (Şahin, K. and Bağcı, H.R.).

5.4 Topography

The Project area is located on flat terrain between the Yeşilırmak and Kızılırmak deltas, at an elevation 3 m above sea level. An elevation map of Tekkeköy can be seen in Figure 5-2[3] to give an impression on the flat terrain structure of the region which shows the Project Area located over the 0-10 elevation zone.

[3] Source: Şahin, K. Geographical Characteristics of Tekkeköy, 2018

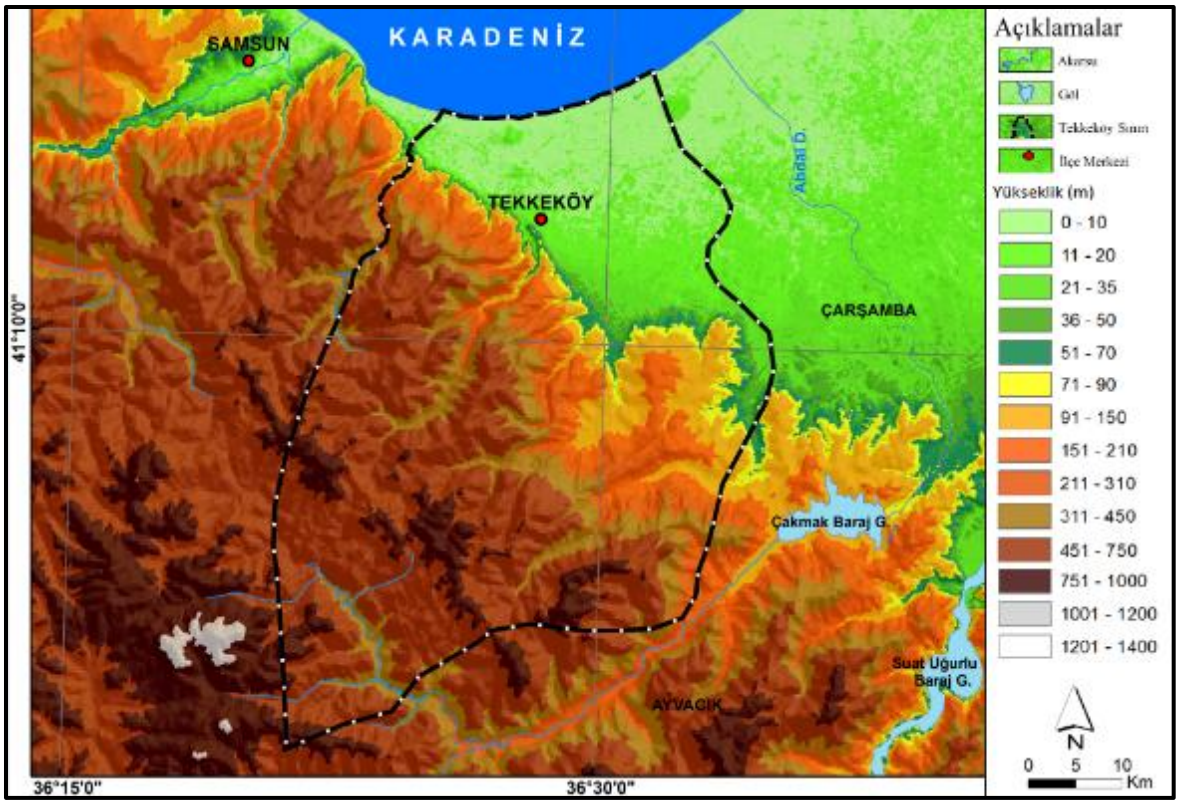

Figure 5-2: Elevation Map of Tekkeköy

5.5 Climate

The climate structure of Samsun is generally mild. However, different climate characteristics are observed in the coastal and inland parts of the province. The characteristics of the Black Sea climate are observed in the central district, Terme, Çarşamba, Bafra, Alaçam, 19 Mayıs, Tekkeköy and Yakakent districts on the coastline. In this climate type, summers are hot and winters are mild and rainy. In the districts of Vezirköprü, Havza, Ladik, Kavak, Asarcık and Salıpazarı in the interior of the province, climatic characteristics are formed under the influence of Akdağ, whose height reaches 2,000 meters, and the Canik Mountains, whose height reaches 1,500 meters. In this climate type, winters are cold, rainy and snowy and summers are cool.

In terms of temperature and precipitation, Samsun has a unique climate characteristic throughout Türkiye. While the weather changes several times in the same day in the province, in some years there are summer-like days in the winter season. While the coastline is covered with snow for no more than 2-3 days in winter, there are times when transportation is disrupted in the interior of the province. The strongest wind in Samsun in December is the Qibla wind blowing from the south-southwest direction, while it is constantly open to north winds.

Table 5-2: Long Term Meteorological Data of Samsun Province (1991-2021)

Parameter	January	February	March	April	May	June	July	August	September	October	November	December	Annual
	Last Climate Period (1991-2021)												
Avg. Temperature (°C)	7,2	7,2	8,0	11,3	15,6	20,3	23,2	23,7	20,3	16,5	12,8	9,5	14.6
Highest Avg. Temperature (°C)	10,8	11,0	12,1	15,3	19,1	23,7	26,6	27,2	24,0	20,4	16,8	13,1	18.3
Lowest Avg. Temperature (°C)	4,2	3,9	4,7	7,8	12,1	16,3	19,2	19,7	16,6	13,0	9,4	6,4	11.1
Avg. Sunshine Duration (hour)	2,7	3,2	3,6	4,7	6,3	8,3	8,9	8,2	6,3	4,7	3,8	2,7	5.3
Average Number of Rainy Days	13,57	13,65	15,27	13,53	12,72	9,33	5,96	6,20	9,61	11,99	11,83	12,97	136.6
Average Monthly Amount of Rain (mm)	72,9	59,3	67,7	57,2	49,1	47,4	34,9	37,1	54,6	79,2	83,0	80,8	723.2
	Measurement Period (1991-2021)												
Highest Temperature (°C)	24,2	26,5	33,6	37,0	37,4	37,4	37,5	39,0	38,7	38,4	32,4	28,9	39.0
Lowest Temperature (°C)	-8,1	-9,8	-7,0	-2,4	2,7	1,9	13,4	12,4	6,8	1,5	-2,8	-5,0	-9.8

Source: Turkish State Meteorological Service, 2023.

5.6 Soil Quality

Alluvial soils are located in the northern part of Tekkeköy, where the OIZ area is located, within the borders of the Yeşilırmak Delta. Alluvial soils are formed when rivers deposit the materials collected from the areas where the slope and other erosion conditions are favorable and where the slope decreases. While there is no horizonation in alluvial soils, various types of horizons are formed according to the characteristics of the material transported. Figure 5-3[4] shows the alluvial soils where the Project Area is located.

The alluvial soils spread in the north of Tekkeköy district are classified according to soil quality. According to soil class classification, alluvial soils in the region are categorised as easily cultivated agricultural land. However, the quality of alluvial soils decrease due to deteriorating conditions and salinization towards the coastal parts.

The project site is located within the OIZ area where the ground is paved. Vegetated soil layer can be observed at the location of the planned extension area of the WWTP. No oil stains or signs of soil contamination were observed during the site walkover on 18 July 2024.

[4] Source: Şahin, K. Geographical Characteristics of Tekkeköy, 2018

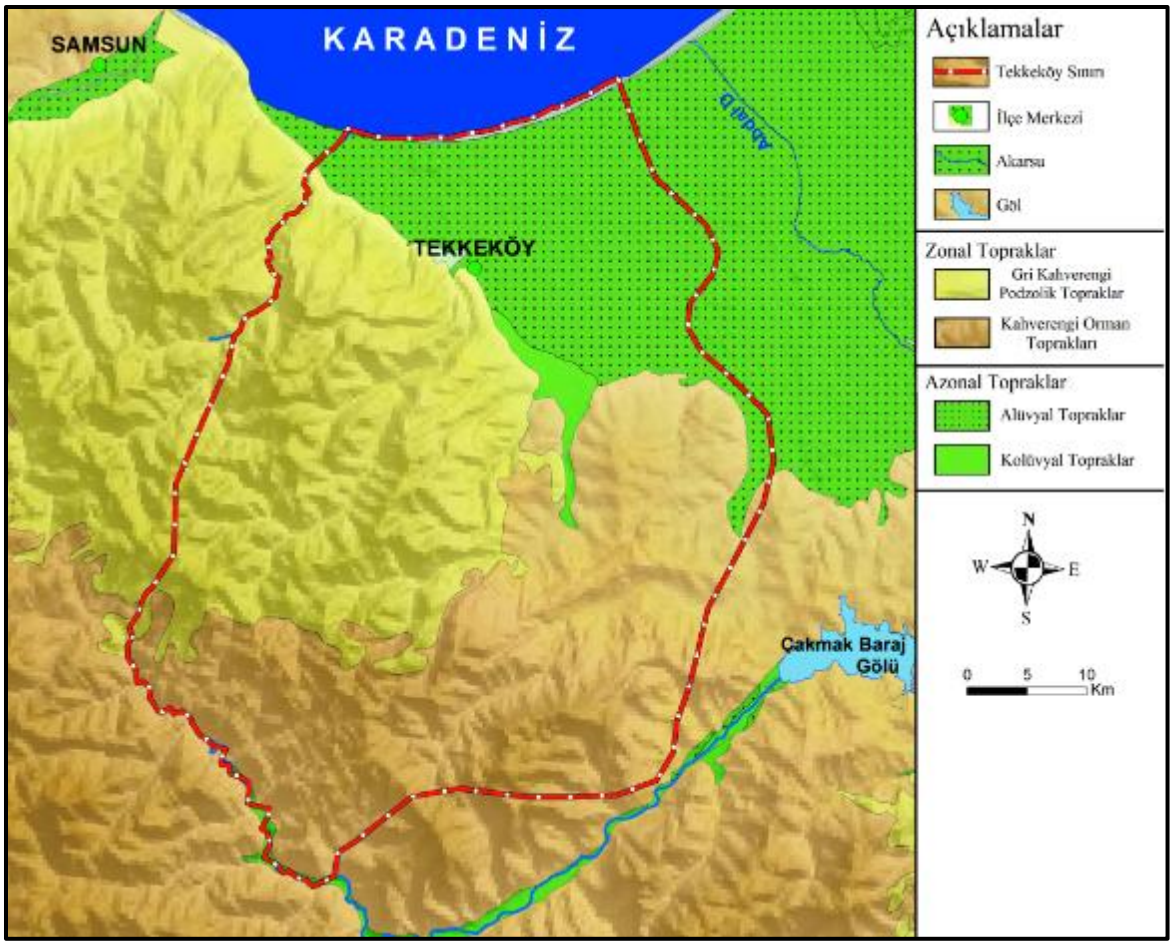

Figure 5-3: Major Soil Classes in Tekkeköy

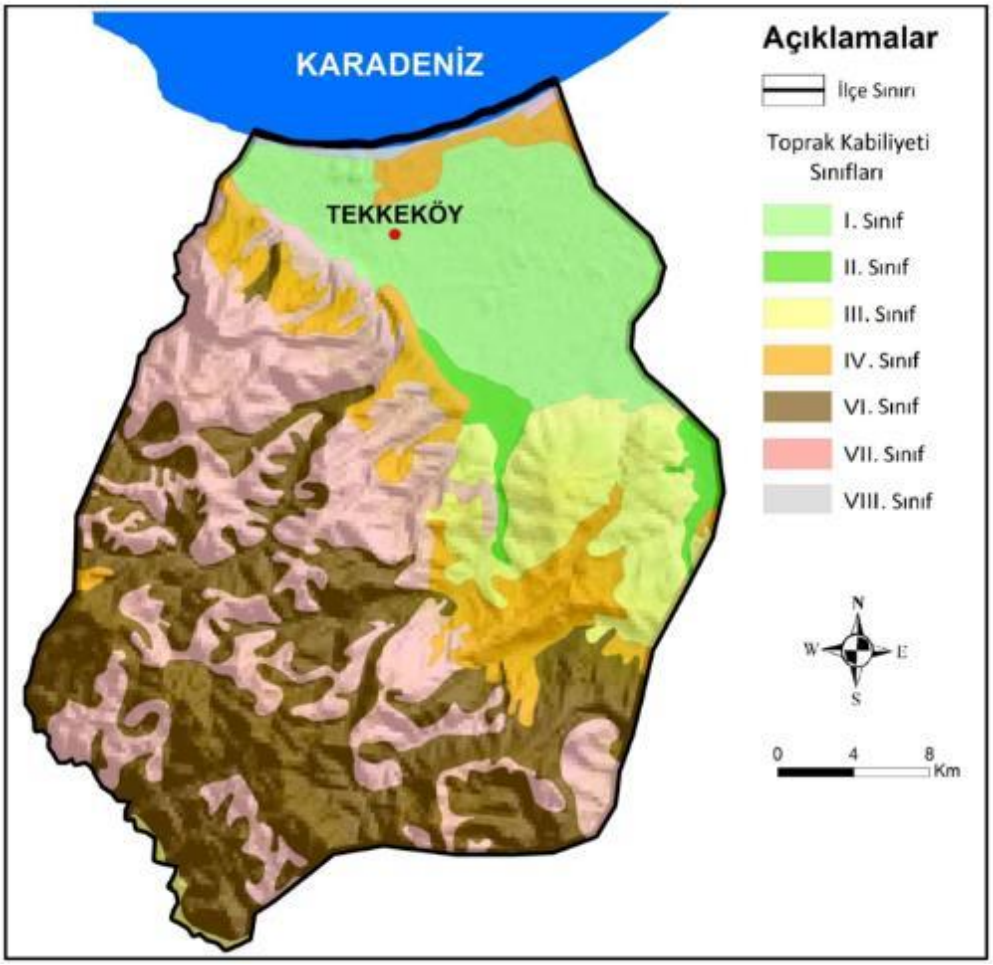

Figure 5-4: Soil Capability Classes in Tekkkeköy

Turkish General Directorate for Rural Services database defines the land use capabilities in eight (8) different classes as summarized in Figure 5-4[5]. 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 recreational area.

Given that the Project Area is located within an industrial zone, a classification based on landuse capability does not apply. According to the former Turkish General Directorate for Rural Services database analysis (1993), the major soil groups of the land occupied by the OIZ was historically Class I land, yet it is currently industrial area with no soil class categorization.

5.7 Air Quality

There are no records of air quality measurements neither for the WWTP nor for the OIZ in general. Yet it is known that the industries present in the OIZ cause emissions of greenhouse

[5] Source: Şahin, K. Geographical Characteristics of Tekkeköy, 2018

gases such as carbon dioxide (CO_2), methane (CH_4), nitrogen oxides (NO_x), sulfur dioxide (SO_2) and fugitive Voılatile Organic Carbons (VOCs) that contribute to climate change. There is also daily traffic of transportation vehicles for all industries in the OIZ that add to the emission of exhaust gases.

Odor is a nuisance issue for the nearby settlements neighboring the OIZ. The sources of odor are sludge drying of the OIZ WWTP, SASKI WWTP and various industrial establishments within the OIZ and neighboring industrial areas. Unrecorded complaints were received mainly from OKA located at about 200 m to the WWTP. It was explained to the complainants that the odor was caused mainly by the SASKI WWTP which has a larger capacity of 9,500 m^3/day.

In addition, it is acknowledged that the planned capacity increase of the OIZ WWTP itself may lead to an incremental rise in odor emissions during the operational phase. This potential increase in odor has been taken into account and addressed through specific mitigation and monitoring measures detailed in the related ESMP tables.

Records from the continous monitoring system of MoEUCC can be seen given in Table 5-3 below. No limit exceedances are observed as compared with WBG EHS limits and national standards from the Regulation on the Assessment and Management of Air Quality.

Table 5-3: Air Quality Measurements Result

Parameter	Averaging Period	WBG EHS Guideline Limit Value (µg/m^3)	National Standards (µg/m^3)	Tekkeköy District Air Measurement Station (µg/m^3)
NO_2	24-Hour	20	40	**14.89**
PM_{10}	24-Hour	50	50	**11,71**

Source: https://sim.csb.gov.tr/

To understand the baseline air quality of the project area, data has been retrieved from the continuous monitoring station of MoEUCC. NO_2 and PM_{10} data have been taken from the station located in Tekkeköy district, which is the closest monitoring station to the project area. Tekkeköy monitoring station is located at 2.5 km to the Project site. NO_2 is primarily emitted from vehicles and industrial activities, while PM10 parameter represents dust from construction activities as well as industrial activities and road transport.

Based on the records at Tekkeköy air quality measurement station on 03 October 2024, the 24 hours NO_2 value is below the limit values, annual and 24-hour PM_{10} values are below the WBG EHS Guidance Limit values. Hence, the air quality of the Project Area can be characterized as good due to low NO_2, and low PM_{10} monitored values. $PM_{2.5}$ and O_3 parameters were not recorded at Tekkeköy Monitoring Station.

5.8 Noise

Noise is another factor of cumulative nuisance caused by industrial establishments both within and outside the OIZ. There are no records of baseline noise measurements. Nearby settlements that can be imposed to noise during construction are Şabanoğlu and Kerimbey neighborhoods as well as the OKA and Yeşilyurt Vocation School as nearby sensitive receptors. There have been no complaints for noise until now for the current operations at the WWTP.

WBG General EHS Guideline Standards

Noise limit levels are described under, WBG Environmental, Health and Safety (EHS) Guidelines, General EHS Guidelines: Environmental Noise.

Table 5-2: Noise Level Guidelines of WBG EHS Guidelines

Receptor	One Hour LAeq (dBA)	
	Daytime 07:00 – 22:00	Nighttime 22:00 – 07:00
Residential, institutional, educational	55	45
Industrial, commercial	70	70

The facilities in IOIZ will comply with the specified limit values given in the Table 5-2. The baseline studies within the scope of ESMP, noise monitoring was not carried out since the main activities will be inside the OIZ itself. During the activities, noise measurements will be conducted upon grievance..

5.9 Surface Water and Groundwater

The project area is located within the Yeşilırmak basin, at close proximity to the Black Sea. There are no other surface water bodies except for the Hıdırellez Creek and Akkiraz Creek that can be seen in Figure 5-5 which pass through Samsun OIZ area. Treated wastewater from the WWTP is currently discharged into Hıdırellez Creek that functions as a drainage channel and flows along the eastern side of the WWTP into the Black Sea ultimately. OIZ plans to continue with the same mode of discharge after completion of the Project. Both creeks were rehabilitated by State Hydraulic Works (DSI)by paving with concrete at the bottom and sides for the purpose of flood control.

The nearest source of freshwater supply to the Project area is Çakmak Dam, approximately 20 km away. OIZ meets its water needs from this dam. See Figure 5-6 for the distance of the Project Area to Çakmak Dam.

Figure 5-5: Akkiraz and Hıdırellez Creeks

Figure 5-6: Geographic Location of Çakmak Dam in Tekkeköy, Samsun

5.10 Wastewater Management

All industries at the OIZ are connected to the sewerage system that discharge into the WWTP of the OIZ. The OIZ sewerage system is designed as a separate system, so rainwater from the treatment plant and all businesses within the OIZ is collected separately.

No wastewater such as cooling water or blow-off water is generated within the overall OIZ.

The treated effluent from the WWTP is discharged into the Hıdırellez Channel, and there is no deep-sea discharge. The treated effluent is not reused or recycled for irrigation.

Treated effluent is analysed in accordance with the Environmental Permit which stipulates that "Facilities with a capacity between 1001-10000 (m^3/day) must take samples every fifteen days for internal monitoring". No non-compliance has been detected upto date in the results of analysis of samples taken on regular basis with the oversight of the Provincial Directorate.

Quality of treated effluent is analyzed at the outlet of the WWTP on annual basis. Latest analysis was performed in March 2025 with results in compliance with the limit values in Water Pollution Control Regulation. Recent analysis records can be seen in Annex-4.

5.11 Waste Management

The waste management system that is currently in place complies with the "Waste Management Regulation," published in the Official Gazette No. 29314 dated 02.04.2015. An Industrial Waste Management Plan was prepared on 15.08.2023 and is valid until 15.08.2026. The current waste stream in the WWTP and management practices are described in Table 5-4 below.

Table 5-4: Current Waste Management at the WWTP

Type of waste	Current status of compliance
Domestic solid waste	Domestic solid waste generated in the Administrative Building is collected in covered trash bins and transferred to municipal waste containers located at the OIZ waste storage area and collected by Tekkeköy Municipality on a daily basis.
Vegetable oil waste	The facility does not have a cafeteria and food services are provided by an external source. There is no requirement for vegetable oil waste at the facility.
Screening residues	Large particles collected on the screens in the physical treatment unit (such as plastic bottles and bags) are transferred via conveyor belt to trash containers located at the lower part of the system. These are then transported to the municipal waste containers placed within the OIZ waste storage area, and collected by Tekkeköy Municipality on a daily basis.
Packaging waste	Separate bins are available for packaging waste collection. Packaging waste is stored separately at the packaging waste storage area and sent to a licensed recycling company. A Zero Waste Certificate (TS/55/C/20/60, dated 17/03/2022), is in place for recyclable waste. Packaging waste declarations are submitted through the Zero Waste Information System. A contract is current in place with Kesimoğlu for collection of packaging waste.
Contaminated waste	Cleaning rags, used filters, clothing and wipes, used PPE from motor and pump maintenance in all units of the facility are collected in labeled as "contaminated waste" and stored separately in the temporary storage area.

Used batteries	Used batteries from electronic and battery-operated devices are collected in waste battery bins located at two spots within the facility.
Hazardous waste	Hazardous and non-hazardous waste declarations are made regularly. Fluorescent lamps used in lighting systems are stored in a designated section of the hazardous waste storage area. Laboratory chemicals and kits containing hazardous substances are stored in closed containers in a designated area within the laboratory. "Hazardous Waste Financial Liability Insurance" is in place.
Treatment sludge	Sludge collected from the chemical precipitation and final precipitation tanks are transferred by submersible pumps to the sludge dewatering unit. The sludge from the dewatering unit is then stored in the adjacent sludge drying area using a beltpress. Sludges generated at the facility are sent to cement factories certified by MoEUCC (i.e. OYAK Cement Industry and Limak Cement Industry which use the sludge as an alternative raw material). The treatment sludge has been classified as "likely hazardous waste" according to the Waste Management Regulation as a result of the analysis by Marmara Research Center of the Scientific and Technological Research Council of Türkiye (TÜBİTAK). The analysis report was updated and issued on 18 February 2025.

5.12 Natural Disaster Potential

Tekkeköy district, where the Project Area is located, is situated in the 2nd and 3rd degree earthquake zones to the north of the North Anatolian Fault Line. There have been no significant

earthquakes recorded in the district over the last century. See

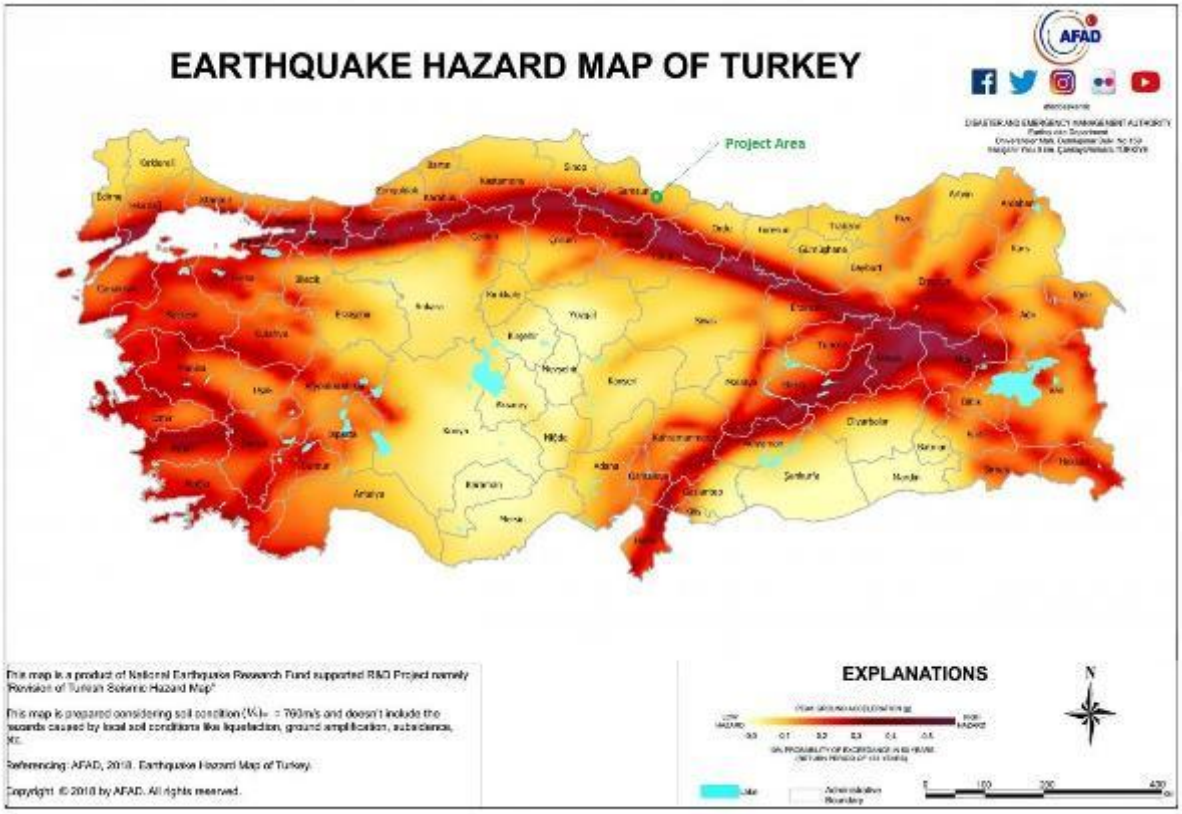

Figure 5-7 for the location of the Project in the Earthquake Hazard Map of Turkiye.

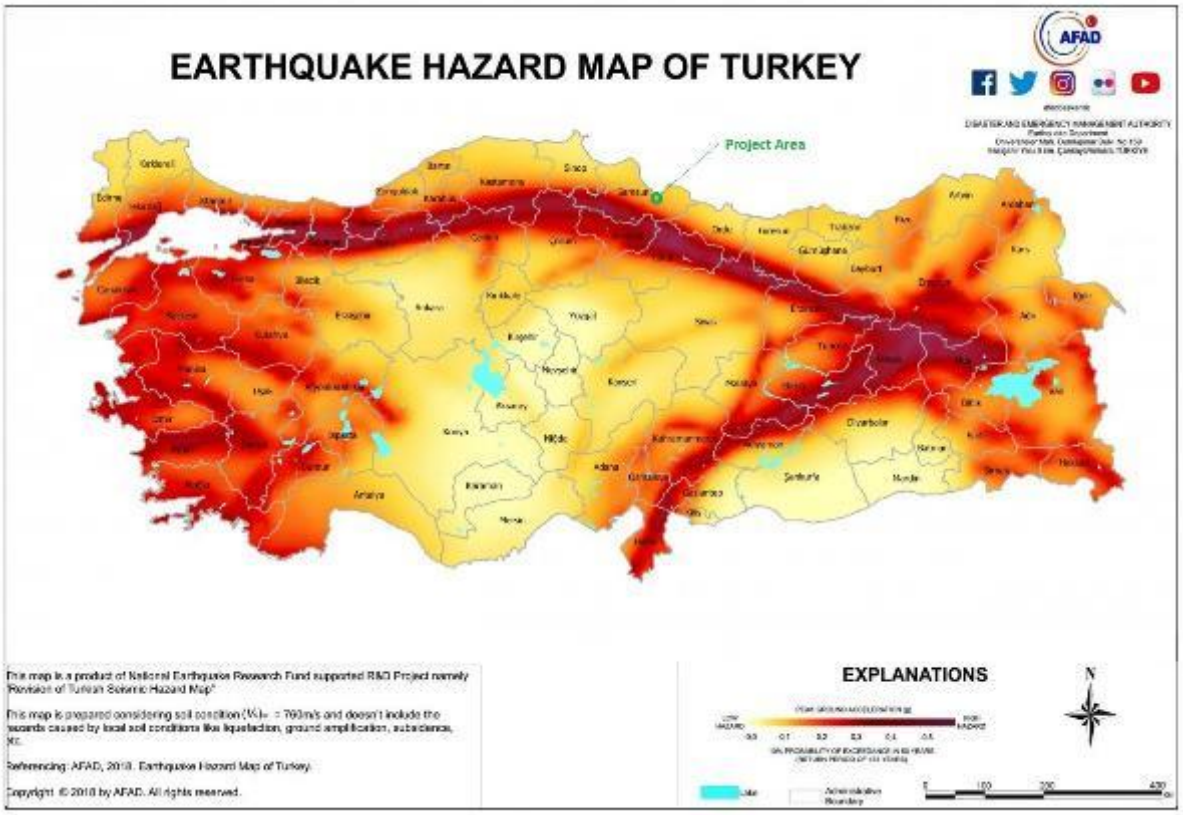

Figure 5-7: Earthquake Hazard Map of Türkiye

5.13 Biodiversity and Protected Areas

The project site and its impact area are located in constructed and industrial area where there are no features of nature.

According to the information obtained from the General Directorate of Nature Conservation and National Parks' system, to the west of the project area, approximately 2.8 km away, there is Bayraktepe Nature Park; to the east, at a distance of about 7.2 km, there is Hacıosman Forest Nature Conservation Area; and furthermore, to the northeast, at an approximate distance of 11.5 km, there is Yeşilırmak Delta Buffer Zone and Ecological Impact Area. See Figure 5-8 below.

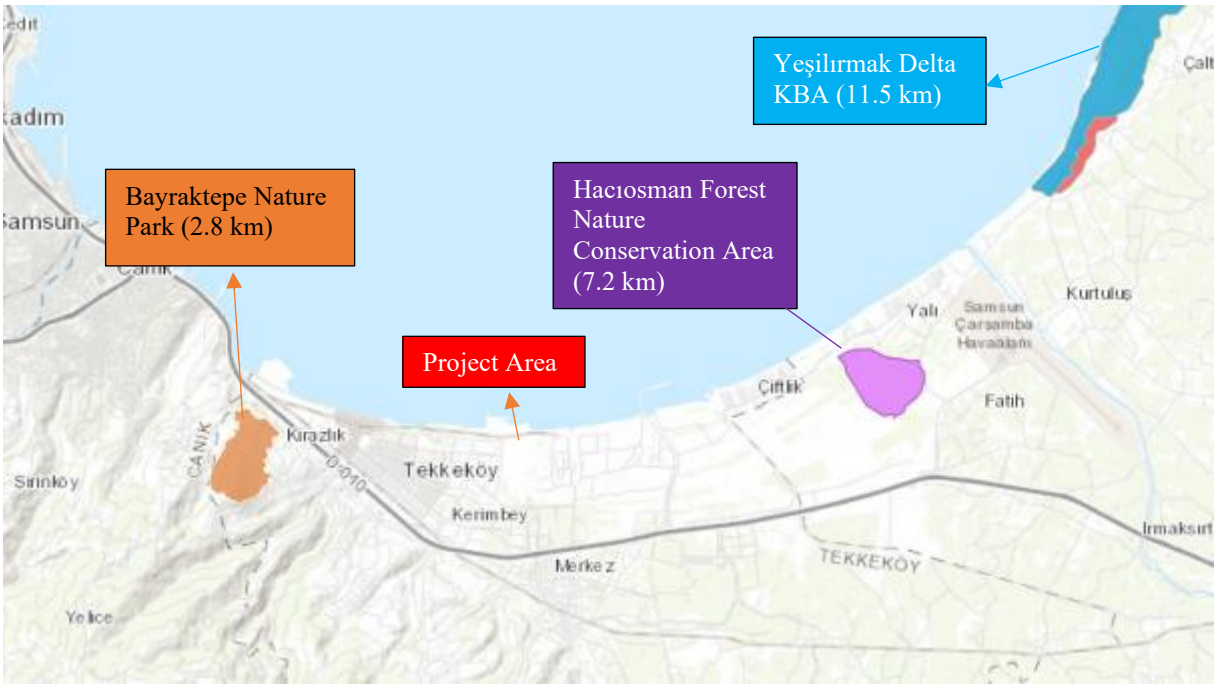

Figure 5-8: Distance of OIZ and WWTP to Protected Areas

There are no Important Plant Areas and Key Biodiversity Areas (KBAs) in the project area and close surroundings. Yeşilırmak Delta KBA is located at about 10 km to the OIZ. See Figure 5-9 for distance of Tekkeköy where the OIZ and the Project are located. Kızırmak Delta is located at about 12 km to the North West.

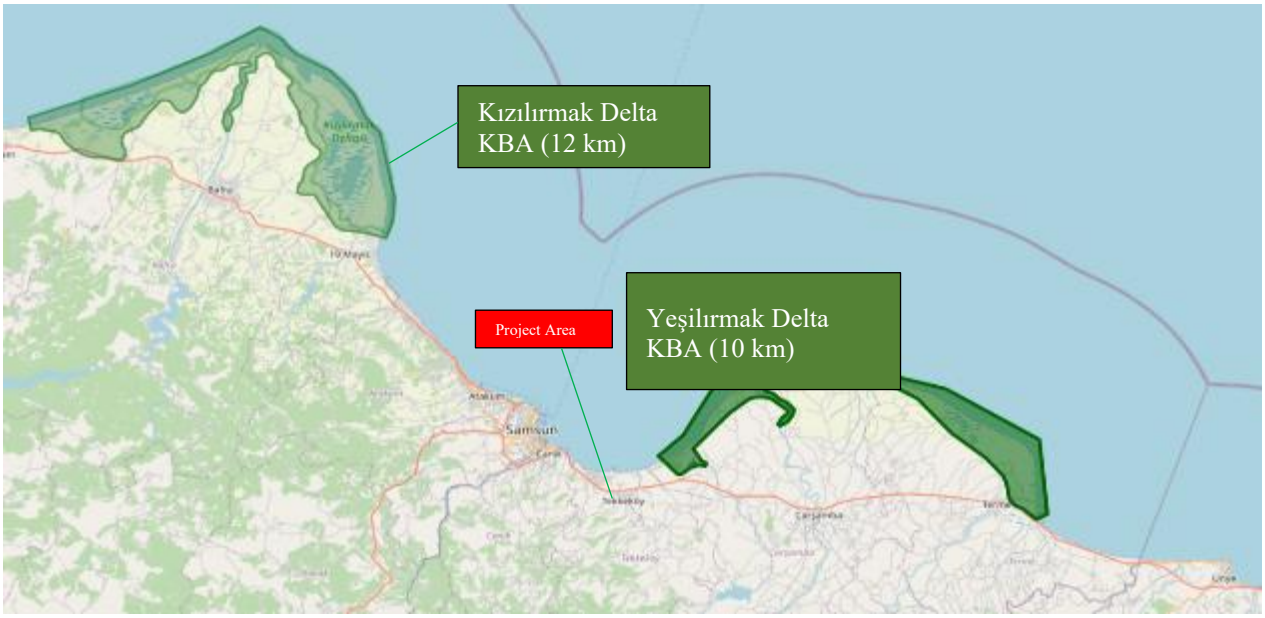

Figure 5-9: Distance to Yeşilırmak and Kızılırmak Deltas

Biodiversity assessment has been primarily based on a desktop study using publicly available literature and databases. The Project area and its environs are located within an industrial area

that has lost its natural characteristics over time, which limits the presence of sensitive species or habitats.The assessment also makes use of Environmental Impact Assessments of projects in the neighboring industrial facilities Istanbul Gübre Fertilizer Facility located at about 700 meters to the west and Eti Bakır Metals Recovery Plant located at about 2.5 km to the east of the Project Site.

In the preparation of these assessments, references to "field surveys" were noted in documents such as the EIA Report for Eti Bakır. However, upon review, it has been identified that no primary data collection specific to the Project Area was conducted under these studies. Therefore, the assessment in this section should be interpreted as relying predominantly on secondary data sources and desktop research.

To give an impression of the possible biodiversity characteristics of the Project Area and its surroundings, information is compiled from the EIA Report for Eti Bakır Metals Recovery Plant.

A review of the flora species indicate presence of many herbaceous plants, annuals, and perennials, which are commonly found in disturbed environments. These species are typically pioneer species or generalists that can tolerate a range of stressors commonly associated with human-modified landscapes. See Annex 10.

Species like Pulicaria dysenterica, Cirsium arvense, Trifolium arvense, and Vicia tetrasperma are often found in disturbed soils, which could indicate that these plants have adapted to thrive in areas with frequent human disturbance such as roadsides, abandoned fields, and wastelands. This trait makes them resilient to environmental stresses but also means they may not be highly specialized for undisturbed natural habitats. Some of the plants listed (such as certain species in the Apiaceae, Asteraceae, and Fabaceae families) are known to tolerate poor soil conditions, including heavy metals, low nutrient availability, and pollution. This suggests they may be well-suited to areas impacted by industrial activity where other more sensitive species might struggle.

The proximity of agricultural areas can result in the introduction of additional stressors: Herbicide and pesticide exposure can negatively affect plant species, though many of the annual herbaceous species listed might have evolved to tolerate or recover from such disturbances.

As a result no critical habitats or endangered species appear to be directly associated with this flora. In the context of a highly industrial area with nearby agricultural zones, the flora seems to represent a typical ruderal or disturbed plant community.

This evaluation reflects the context of the Project's location in a predominantly industrial landscape. It should be noted that the flora information presented here is derived from external reports and secondary data sources, as no direct field studies specific to the Project Area have been conducted.

The species listed do not include endemic, rare, or threatened species, which is typical for industrial or agricultural landscapes. Dominance of generalists and disturbance-tolerant species suggests the environment is one where plants must be highly adaptable to survive in the face of pollution, soil disturbance, and human encroachment.

The overall biodiversity value of the area is likely low compared to more natural ecosystems, and ongoing human activities might continue to limit the potential for higher biodiversity in this zone.

National and international conservation statuses of the species of amphibians, reptiles, birds and mammals in the project area and its vicinity can be seen in Annex 10.

Among the amphibians, all listed species are categorized as Least Concern (LC), except for Bufotes variabilis, which is Data Deficient (DD). This suggests that these amphibians are fairly common and not at immediate risk. All species are under Annex III according to Bern Convention, meaning they are protected to some extent. The presence of common amphibians suggests that there are still some semi-natural or disturbed wetland habitats in the area, but these could be at risk from industrial runoff or habitat destruction.

Regarding reptiles, the majority of the reptiles are Least Concern (LC), except for the Vulnerable (VU) Testudo graeca (Tosbağa), indicating that this species is at greater risk according to IUCN. Yet this species has wide domination Turkiye. Testudo graeca is protected under Annex II, while the others are listed under Annex III, offering some protection.

The common reptiles (Lacerta trilineata and Eirenis modestus) suggest some resilience to disturbance, as these species are often found in scrubland or agricultural margins where they can find shelter and food.

The information regarding amphibians and reptiles has been extracted from secondary sources, as no primary biodiversity surveys were conducted within the Project Area.

All bird species listed are Least Concern (LC). The bird community includes generalists like Passer domesticus (House Sparrow) and more specialized raptors like Buteo buteo (Common Buzzard) and Falco tinnunculus (Kestrel). The presence of raptors and songbirds in industrial and agricultural areas suggests that there are still areas of open land, hedgerows, or fragmented natural habitats providing food and nesting sites.

All mammal species are Least Concern (LC), except for no critical species in terms of IUCN classification. Sciurus anomalus (Squirrel) and Sus scrofa (Wild Boar) are under Annex II, which provides some level of protection.

The presence of species like squirrels, wild boar, and hedgehogs suggests a relatively diverse mammalian community that can adapt to a range of forest, scrubland, and urban habitats.

Species like wild boar (Sus scrofa) may indicate that there are still wild or semi-wild areas capable of supporting larger mammals, though these areas are likely shrinking due to agriculture and industrialization.

Generalist species like Rattus norvegicus (Norway Rat) are opportunistic and thrive in urban and industrial environments, indicating that the area is heavily impacted by human activity but still provides some ecological function.

As for the fish population in Black Sea; the European bass (Dicentrarchus labrax), the twaite shad (Alosa fallax), and the flathead mullet (Mugil cephalus) are classified as "LC" (Least Concern - low risk) according to the IUCN Red List categories. The species of the family Acipenseridae, such as the beluga sturgeon (Huso huso), the starry sturgeon (Acipenser

stellatus), and the stellate sturgeon (Acipenser güeldenstaedtii) are classified as "EN" (Endangered).

6 SOCIAL BASELINE OF THE PROJECT

As depicted in the maps provided, there are two settlements located within the impact area of the Samsun Organized Industrial Zone: Şabanoğlu and Kerimbey Neighborhoods, which are located in the Tekkeköy district.

Şabanoğlu settlement of Tekkeköy District

Kerimbey settlement of Tekkeköy District

Figure 6-1: Neighborhoods in the Impact Area

Both neighborhoods have experienced simultaneous growth alongside the establishment of the Samsun OIZ in 1981. Over the course of 43 years, since the Samsun OIZ provided increased employment opportunities, it has played a crucial role in the demographic and economic advancement of both settlements. However, in recent years, the neighborhoods have experienced a population decline, reflecting broader rural-to-urban migration trends despite the long-term positive socio-economic influence of the OIZ. Bunu türkçe yazar mısın.

The "Wastewater Treatment Plant Expansion Project" will be built in a pre-determined location within the existing "Domestic and Industrial Wastewater Treatment Plant" in Samsun OIZ.

Figure 6-2: Location of the Project distance to neighboring settlements

As a special administrative unit, OIZ is structurally isolated from the surrounding settlements. Therefore, except for a few exceptional cases, the social interaction with the local people living in AoI is limited to the working population in OIZ. (The exceptional case will be explained in detail in section 6.5. Education and Health below.) Thus, social interaction in the districts neighboring Samsun OIZ will be low during both the construction and operation stages of the Project as these neighbourhoods within the AoI already have limited itneraction with the OIZ.

Based on the observations and interviews conducted by the ESMP experts, as defined in section 5.1, and in view of the above, it was concluded that the social impact would primarily be concentrated in the OIZ, . Hence, while analyzing the socio-economic framework of the two adjacent neighborhoods to Samsun OIZ, this section will primarily concentrate on the influence it has on the workers and students within Samsun OIZ. Firstly, Sampa A.Ş., the most prominent company in the Samsun OIZ, is also the company that is in closest proximity to the Project, 200 meters to the WWTP. Furthermore, the Project also garnered attention due to its close proximity to the Central Black Sea Development Agency (OKA) and OMÜ Yeşilyurt Vocational School. Please see Figure 6-3 for surrounding premises of Sampa, OKA and OMÜ Yeşilyurt Vocational School; and Figure 6-4 which shows the proximity of OMÜ Yeşilyurt Vocational School to the WWTP where the photo was taken.

Figure 6-3: Location of Project Area and Surrounding Premises

Figure 6-4: The view of OMÜ Yeşilyurt Vocational School from the WWTP

Figure 6-5: View of OKA from the Project Area

Figure 6-6: View of the Project Area from the meeting room of OKA

6.1 Demography and Population

The population of Samsun is 1,377,546 as of 2023, and it has been steadily increasing over the years, as illustrated in the figure below:[6]

For the population of Samsun; 681,565 are male and 695,981 are female:

The population distribution of Samsun's 17 districts is as follows, and as can be seen, Tekkeköy, where Samsun OIZ is located, is the 8th most populated District of Samsun holding 4.26% of Samsun's population.

Tekkeköy District

[6] https://www.nufusune.com/samsun-nufusu

The population of the Tekkeköy district, where Samsun OIZ is situated, is 58,565 as of 2023, and it has been steadily increasing over the years. Of the population of Tekkeköy, 29,669 are male and 28,946 are female. In total, there are 63 neighborhoods in Tekkeköy. The project's impact area encompasses two of these neighborhoods: Şabanoğlu and Kerimbey.

Figure 6-7: Meeting with Staff from Tekkeöy Municipality

Şabanoğlu Neighbourhood

Based on the 2023 data, the population of Şabanoğlu Neighbourhood is currently 1132 and has been experiencing a decline in recent years.

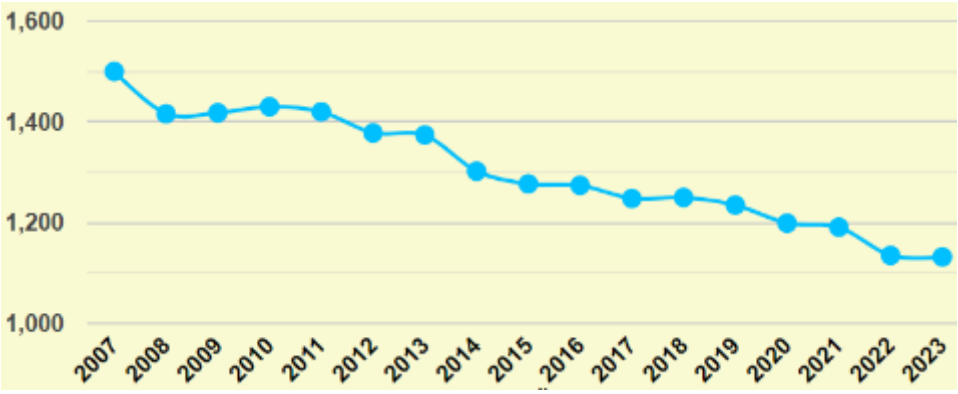

Figure 6-8: Population growth tendency of Şabanoğlu Neighbourhood

The population of Şabanoğlu consists of 576 males and 556 females:

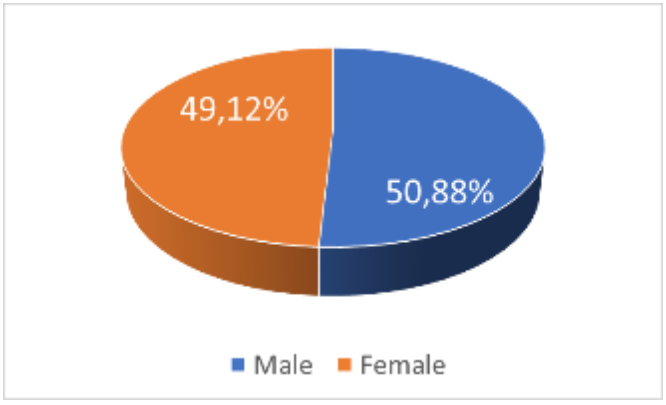

Figure 6-9: Gender division of population in Şabanoğlu Neighbourhood

Kerimbey Neighbourhood

Based on the 2023 data, the population of Kerimbey Neighbourhood is currently 871. Furthermore, it has been observed that the population of Kerimbey has been declining over the years:

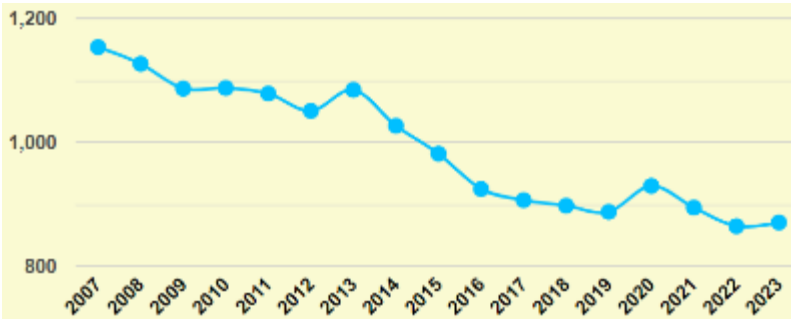

Figure 6-10: Population growth tendency of Kerimbey Neighborhood

The population of Kerimbey consists of 445 males and 426 females.

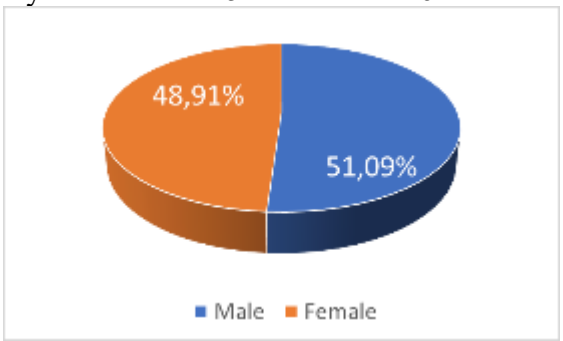

Figure 6-11: Gender division of population in Kerimbey Neighborhood

Samsun OIZ

Samsun OIZ, founded in 1981 with 103 industrial plots, currently hosts 96 operational enterprises employing a total of 6583 individuals.[7] Out of all these businesses, "Sampa Advanced Parts for Commercial Vehicles" (Sampa Otomotiv Sanayi ve Ticaret A.Ş.) is notable

[7] http://www.samsunosb.org.tr/kurumsal/hakkimizda

for having the highest number of employees. Sampa has a workforce of 4,700 employees, with 700 of them being women. Sampa is the facility that is nearest to the Project. Figure 6-12 shows a photo of the focus group discussion with Sampa workers comprised of a mix of white and blue collar employees, male and female.

Figure 6-12: Focus Group Discussion with Sampa workers

Ondokuz Mayıs University (OMÜ), Yeşilyurt Vocational School
OMU Yesilyurt Vocational School currently has a student population of 100 and approximately 10 lecturers.

OKA (Central Black Sea Development Agency - Orta Karadeniz Kalkınma Ajansı)
The Central Black Sea Development Agency Headquarters houses an estimated workforce of around 20 employees.

Figure 6-13: Meeting with staff of OKA

6.2 Cultural Heritage

Despite the abundance of cultural heritage structures in Tekkeköy, which holds a significant historical value, it is highly improbable that they will be impacted by the Project, both during its construction and operation stages.

As being religious cultural sites, there are two mosques located in OIZ within the social impact zone of the Project: Servet Beytekin Mosque, 400 meters from the Project Area, built in 2021 and İlkadım Sanayii Mosque, 2.4 kilometers to the Project area, built in 2003. Please see Figure 6-14.

Servet Beytekin Mosque

İlkadım Sanayi Mosque

Figure 6-14: Mosques Located Within the OIZ

6.3 Livelihoods and Employment

Samsun province is ranked 33rd out of the 81 provinces in Türkiye according to the Livability Index.[8]

Based on 2017 data, the GDP in Türkiye is 38,680 TL, whereas Samsun falls below the average at 32,904 TL. [9]

Tekkeköy District ranks 191st among 973 districts in Türkiye in terms of socio-economic development with a score of 0.650 and is among the second-level developed districts.[10] Compared to other districts of Samsun, Tekkeköy ranks third in terms of socio-economic development.

[8] Varıcı, İ and Mortaş, M. (2018) Samsun Ekonomik Raporu (Economic Report of Samsun), Samsun. https://www.samsuntb.org.tr/Icerik/Dosya/www.samsuntb.org.tr_68_126_PY6V25HZ_tobb_samsun_2018_raporu_.pdf, pp.6

[9] ibid, pp.12

[10] T.C. Sanayi ve Teknoloji Bakanlığı, Kalkınma Ajansları Genel Müdürlüğü (2023) SEGE 2022: İlçelerin Sosyo-Ekonomik Gelişmişlik Sıralaması Araştırması", Ankara. Pp. 295.

6.4 Major Economic Sectors

The agricultural sector is a prominent component of the economic structure of Samsun Province, alongside industry, animal husbandry, and tourism. Samsun is a highly desirable location for the advancement of vegetable and fruit cultivation, field crops, aquaculture, and animal husbandry. This is primarily due to its favorable natural resources, including its climate, soil quality, experience, and topography, which are all conducive to productive farming.[11]

The economic landscape of Tekkeköy, where the Samsun OIZ is located, is characterized by a variety of sectors that contribute to its growth and development. Agriculture, industry, and trade are the primary economic drivers in the district, with a particular emphasis on the cultivation of crops such as corn, wheat, and hazelnuts in the fertile land. Tekkeköy's economy is significantly influenced by agriculture, which sustains local livelihoods and generates employment opportunities.

In addition to agriculture, Tekkeköy is home to Samsun OIZ and manufacturing facilities that produce a variety of goods, such as textiles, machinery, and food products. These industries have a substantial impact on the district's economy, as they generate revenue, create employment opportunities, and promote economic stability. The economic growth and investment opportunities in Tekkeköy have been stimulated by the presence of a skilled workforce and industrial infrastructure.

6.5 Education and Health

In 2008, Samsun had a lower literacy rate compared to the average rate in Türkiye. However, by 2017, Samsun surpassed the Turkish average with a literacy rate of 97.38%.[12] The Tekkeköy district is home to a total of 59 educational institutions, spanning primary, secondary, and high school levels. Three of them are located within the project's social impact domain:

- The Nevra Hilmi Tören Primary School, located in the Şabanoğlu Neighborhood, consists of 9 classrooms, employs 11 teachers, and has a student population of 72.[13]
- Kerimbey Primary School consists of 5 classrooms, employs 9 teachers, and has a student population of 93. [14]
- Kerimbey Secondary School has a total of 6 classrooms, employs 12 teachers, and enrolls 8 students.[15]

Obviously the most prominent educational institution within the Project impact zone is Ondokuz Mayıs University, Yeşilyurt Vocational School of (OMÜ). The school just stands opposite to the Project area and has around 100 students where the Vocational School is on Automative Technology. During the meeting with the director of the vocational school, Prof.

[11] DAKA (2019) Şehir Şehir Türkiye (*Türkiye by Cities*), Doğu Anadolu Kalkınma Ajansı (East Anatolian Development Agency), Hakkari. Pp.350
[12] Ibid, pp.49
[13] https://nevrahilmitorenio.meb.k12.tr/
[14] https://kerimbeyio.meb.k12.tr/
[15] https://kerimbeyortaokulu.meb.k12.tr/

Kadir Kaya and deputy director Yücel Yaşar, they have mentioned that most often students tend to spend time in school only during the classes, but do not socialize there.

Figure 6-15: Interview with professors from Vocational School

6.6 Vulnerable Groups and Social Equity

Based on the 2019 population data, Samsun has a total of 5,795 Syrians who are currently under temporary protection, which is higher than the number in neighboring provinces.[16] While there is no official data available regarding the Syrian population residing in Tekkeköy and the surrounding neighborhoods, it has been confirmed that there is no Syrian population in the Şabanoğlu and Kerimbey neighborhoods. It has been reported that around 10 Syrian laborers are employed in Samsun OIZ. In addition, non-Turkish-speaking foreign workers employed within the OIZ may face challenges in accessing information and communicating effectively with local institutions or during emergency situations. Due to these constraints, this group is also considered vulnerable within the project's social context, and specific measures such as translation support are planned during the construction and operation phases.

During the interviews with neighborhood headmen on 19 July 2024, it was determined that there are also disabled and elderly people in need of care in the neighborhoods. On the other hand, it is not expected that the project construction and operation areas and transportation routes will affect the daily lives of the disabled and elderly people in need of care.

Similarly, two primary schools and one secondary school in the OIZ, but outside the project AoI, will not be affected by the project during the construction and operation phases.

On the other hand, Ondokuz Mayıs University, Yeşilyurt Vocational School, which is located right across from the project site, will be directly affected during both the construction and operation phases. A continuous consultation process with OMÜ management and, if possible, students is required for both traffic regulation and dust and noise management practices.

[16] Varıcı & Mortaş, Pp.10.

6.7 Infrastructure

The infrastructure of the settlements in the impact zone is problem-free. Households possess the ability to obtain potable water and dispose of sewage. Additionally, there are no issues with the electricity grid.

6.8 Traffic and Transportation

The D-010 highway known as Karadeniz Shore Highway passes through the settlements of Şabanoğlu and Kerimbey. The side roads within the settlement are generally covered with paving stones or asphalt. Deterioration in the surface coatings is frequently encountered.

7 ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS OF THE PROJECT

The Environmental and social management plan (ESMP) is set as an instrument that details the measures to be taken during the implementation and operation of a project to mitigate adverse environmental and social impacts, or to reduce them to acceptable levels.

More specifically, the anticipated impacts for each stage of the project are presented in this section. The project has been prepared according to WB ESS requirements and the relevant ESSs are listed in Table 7-1.

Table 7-1: ESS List Concerning the Project

Physical and Biological Environment	**Relevant ESS**
7.1.1 Land Use	ESS1, ESS3
7.1.2 Geology and Hydrogeology	ESS1, ESS3
7.1.3 Climate and Vegetation	ESS1, ESS3
7.1.4 Soil Quality	ESS1, ESS3
7.1.5 Air Quality and Odor	ESS1, ESS3
7.1.6 Noise	ESS1, ESS3
7.1.7 Water Resources and Use	ESS1, ESS3
7.1.8 Wastewater Management	ESS1, ESS3
7.1.9 Waste Management	ESS1, ESS3
7.1.10 Pesticide Use and Management	ESS1, ESS3
7.1.11 Biodiversity and Protected Areas	ESS1, ESS6
Socio-Economic Environment	**Relevant ESS**
7.2.1 Population/Demography	ESS1
7.2.2 Cultural Heritage	ESS1, ESS8
7.2.3 Economy/Employment	ESS1, ESS2
7.2.4 Vulnerable/Disadvantaged Groups	ESS1, ESS4, ESS10
7.2.5 Land Requirement	ESS1, ESS5
7.2.6 Working Conditions and Labor Management	ESS1, ESS2, ESS10
7.2.7 Community Health and Safety	ESS1, ESS4, ESS10
7.2.8 Traffic and Transportation	ESS1, ESS4, ESS10
7.2.9 Occupational Health and Safety	ESS1, ESS2

Table 7-2 presents an overall identification of the level of environmental and social impacts for the pre-construction, construction and operation stages of the Project.

Table 7-2: Identification Matrix of E&S Impact Levels

A. Impact Levels During Pre-Construction Stage

No	Environmental and Social Attributes	Impact Type															Sensitivity of the Receptor	Magnitude of the Impact	Impact Significance without ESMP	Impact Significance with ESMP
		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
1. Air Quality																					
1	Increase in dust concentration		✓	✓			✓				✓				✓			**Low**	**Low**	**Low**	**Negligible**
2	Exhaust emissions (SO2 PM, NOx)		✓	✓			✓				✓				✓			**Low**	**Low**	**Low**	**Negligible**
3	GHG emissions (CO2, CH4, N2O)		✓	✓					✓		✓				✓			**Low**	**Low**	**Low**	**Negligible**
2. Soils and Contaminated Land																					
1	Loss of topsoil at the WWTP		✓	✓			✓							✓		✓		**Low**	**Low**	**Low**	**Negligible**
2	Erosion potential		✓	✓			✓						✓			✓		**Low**	**Low**	**Low**	**Negligible**
3	Contamination of soil		✓	✓			✓						✓			✓		**Low**	**Low**	**Low**	**Negligible**
4	Pesticide use		✓	✓			✓						✓			✓		**Low**	**Low**	**Low**	**Negligible**
3. Water Resources																					
1	Change in surface water quality	✓		✓					✓			✓			✓			**Low**	**Low**	**Low**	**Negligible**

No	Environmental and Social Attributes	Impact Type																Sensitivity of the Receptor	Magnitude of the Impact	Impact Significance without ESMP	Impact Significance with ESMP
		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
2	Change in groundwater quality		✓		✓			✓			✓						✓	**Low**	**Low**	**Low**	**Low**
4. Noise																					
1	Increase in noise level		✓	✓				✓			✓				✓			Low	Low	Low	Negligible
5. Resources and Waste																					
1	Resources used during works		✓	✓				✓			✓				✓			Low	Low	Low	Negligible/ None
2	Improper waste management		✓	✓				✓			✓					✓		Low	Low	Low	Negligible/ None
6. Biological Environment																					
1	Damage or loss of terrestrial habitats & species		✓		✓			✓			✓					✓		Low	Low	Low	Negligible/ None
2	Disturbing of terrestrial species		✓		✓			✓			✓					✓		Low	Low	Low	Negligible/ None
3	Damage on aquatic habitat and/or species		✓		✓			✓			✓					✓		Low	Low	Low	Negligible/ None
7. Socioeconomic Environment																					
1	Infrastructure damage		✓	✓			✓			✓					✓			Low	Low	Low	Negligible/ None

No	Environmental and Social Attributes	Impact Type																Sensitivity of the Receptor	Magnitude of the Impact	Impact Significance without ESMP	Impact Significance with ESMP
		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
8. Community Health and Safety and Security																					
1	GBV and SEA/SHA		✓	✓				✓			✓				✓			Low	Low	Low	Negligible/ None
9. Labor Force and Working Conditions																					
1	Working conditions			✓			✓				✓					✓		Low	Low	Low	Negligible
2	OHS Risks		✓	✓			✓				✓					✓		Low	Low	Low	Negligible
3	Workers Engaged by Third Parties		✓	✓				✓			✓					✓		Low	Low	Low	Negligible

B. Impact Levels During Construction Stages

No	Environmental and Social Attributes	Impact Type															Sensitivity of the Receptor	Magnitude of the Impact	Impact Significance without ESMP	Impact Significance with ESMP
		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
1. Air Quality																					
1	Increase in dust concentration		✓	✓			✓				✓				✓			**Medium**	**Low**	**Low**	Negligible/ None
2	Exhaust emissions (SO2 PM, NOx)		✓	✓			✓				✓				✓			**Medium**	**Low**	**Low**	Negligible/ None
3	GHG emissions (CO2, CH4, N2O)		✓	✓					✓		✓				✓			**Medium**	**Low**	**Low**	Negligible/ None
2. Soils and Contaminated Land																					
1	Erosion potential		✓	✓			✓						✓			✓		**Low**	**Low**	**Low**	**Negligible/ None**
2	Contamination of soil		✓	✓			✓						✓			✓		**Medium**	**Medium**	**Medium**	**Low**
3	Pesticide use		✓	✓			✓						✓			✓		**Low**	**Low**	**Low**	**Negligible**
3. Water Resources																					
1	Change in surface water quality	✓		✓					✓			✓			✓			**Medium**	**Low**	**Low**	**Low**
2	Change in groundwater quality		✓		✓			✓			✓						✓	**Medium**	**Low**	**Low**	**Low**

No	Environmental and Social Attributes	Impact Type																Sensitivity of the Receptor	Magnitude of the Impact	Impact Significance without ESMP	Impact Significance with ESMP
		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
4. Noise																					
1	Increase in noise level		✓	✓				✓			✓				✓			Medium	Low	Low	Negligible/None
5. Resources and Waste																					
1	Resources used during works		✓	✓				✓			✓				✓			Low	Low	Low	Negligible/ None
2	Improper waste management		✓	✓				✓			✓					✓		Medium	Low	Low	Negligible/None
6. Biological Environment																					
1	Damage or loss of terrestrial habitats & species		✓		✓			✓			✓					✓		Low	Low	Low	Negligible/ None
2	Disturbing of terrestrial species		✓		✓			✓			✓					✓		Low	Low	Low	Negligible/ None
3	Damage on aquatic habitat and/or species		✓		✓			✓			✓					✓		Low	Low	Low	Negligible/ None
7. Socioeconomic Environment																					
1	Infrastructure damage		✓	✓			✓			✓					✓			Low	Low	Low	Negligible/ None
8. Community Health and Safety and Security																					

No	Environmental and Social Attributes	Impact Type																Sensitivity of the Receptor	Magnitude of the Impact	Impact Significance without ESMP	Impact Significance with ESMP
		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
1	GBV and SEA/SHA		✓	✓				✓			✓				✓			Low	Low	Low	Negligible/ None
9. Labor Force and Working Conditions																					
1	Working conditions			✓			✓				✓					✓		Medium	Low	Low	Negligible
2	OHS Risks		✓	✓			✓				✓					✓		Medium	Medium	Medium	Low
3	Workers Engaged by Third Parties		✓	✓				✓			✓					✓		Medium	Medium	Medium	Low

C. Impact Levels During Operation Stage

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 ESMP	Impact Significance with ESMP
		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
1. Air Quality and Odor																					
1	Odorous gas emission		✓	✓				✓					✓	✓	✓			**Medium**	**Medium**	**Medium**	**Low**
2	Exhaust emissions (SO_2 PM, NO_x)		✓	✓			✓						✓	✓	✓			**Low**	**Low**	**Low**	**Negligible/ None**
3	GHG emissions (CO_2, CH_4, N_2O)		✓	✓					✓				✓	✓	✓			**Low**	**Low**	**Low**	**Negligible/ None**
2. Geology, Soils and Contaminated Land																					
1	Contamination of Soil		✓		✓		✓					✓					✓	**Low**	**Low**	**Low**	**Negligible/ None**
2	Pesticide use		✓	✓			✓						✓			✓		**Low**	**Low**	**Low**	**Negligible/ None**
3. Water Resources																					
1	Change in overall physicochemical water quality	✓		✓					✓				✓		✓			**Positive**			
2	Change in groundwater quality		✓		✓			✓			✓						✓	**Medium**	**Low**	**Low**	**Low**
4. Noise																					

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 ESMP	Impact Significance with ESMP
		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
1	Increase in Noise Levels		✓	✓			✓							✓		✓		**Low**	**Low**	**Low**	**Negligible/ None**
5. Resources and Waste																					
1	Resources used		✓	✓				✓					✓		✓			**Low**	**Low**	**Low**	**Negligible/ None**
2	Waste generation at the WWTP site		✓	✓				✓					✓			✓		**Medium**	**Low**	**Low**	**Negligible**
3	Sludge generation		✓	✓				✓					✓		✓			**Medium**	**Medium**	**Medium**	**Low**
6. Biological Environment																					
1	Damage or loss terrestrial habitats and species		✓		✓			✓			✓					✓		**Low**	**Low**	**Low**	**Negligible/ None**
2	Damage or loss of aquatic habitat and aquatic species		✓		✓			✓			✓					✓		**Low**	**Low**	**Low**	**Negligible/ None**
7. Socioeconomic Environment																					
1	Infrastructure damage		✓	✓				✓			✓					✓		**Low**	**Low**	**Low**	**Negligible/ None**
8. Community Health and Safety																					
1	Community exposure to risks such as traffic accidents		✓	✓				✓			✓						✓	**Low**	**Low**	**Low**	**Negligible/ None**

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 ESMP	Impact Significance with ESMP
		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	Failure of operation		✓	✓					✓		✓					✓		**Medium**	**Medium**	**Medium**	**Low**
9. Labor Force and Working Conditions																					
1	Working conditions and protecting the workforce		✓	✓			✓				✓				✓			**Low**	**Low**	**Low**	**Negligible**
2	OHS risks		✓	✓			✓				✓				✓			**Medium**	**Medium**	**Medium**	**Low**
10. Stakeholder Engagement																					
1	Lack of stakeholder engagement		✓	✓			✓						✓			✓		**Medium**	**Medium**	**Medium**	**Low**
2	Grievance issues		✓	✓			✓						✓			✓		**Medium**	**Medium**	**Medium**	**Low**

7.1 Environmental Risks and Impacts

7.1.1 Land-use

Impacts in terms of space utilization associated with land-use are limited as the project area has already been allocated for the purpose of a treatment facility and it is already in a built-up zone of an industrial compund.

Paved surface of the OIZ in general and the WWTP may cause soil and groundwater contamination risks given the impermeable surfaces that could contribute to non-point source water pollution by limiting the soil's capacity to filter water flow, and the release of more pollutants into the Black Sea.

In addition to the possible impacts defined above, legal obligations regarding land use, and visual effects of landscaping are assessed in the following sub-sections for the pre-construction, construction and operation phases of the Project. All phases of the project will meet ESS1 and ESS3 in terms of land use.

Pre-Construction Stage

Proper planning, monitoring, and adherence to environmental and safety regulations are critical for minimizing the risks associated with land use during pre-construction activities in a wastewater treatment plant.

Permit Violations: Failure to obtain the necessary permits and/or non-compliance with permit conditions can result in regulatory fines and delays.

Environmental Regulations: Violations of environmental regulations can lead to legal consequences and additional costs for remediation and mitigation. Topsoil stripped during the pre-construction phase of the project will be used in green areas within the boundaries of the OIZ.

During the pre-construction phase, no significant sized impermeable surface will be constructed, thus any impacts related to impervious areas are not expected at this stage. As a result, impacts related to land use for pre-construction stage are short term, direct, and low severity thus assessed as negligible in significance.

Construction Stage

Before the construction starts, the storm water collection system of the WWTP and its connection to the OIZ drainage system will be checked for integrity. The drainage for the construction site will be connected to the current drainage so as to control any contamination risks along with surface flows.

The operation of construction machinery and equipment may also disturb the landscape of the Project area. The removal of vegetation, excavation of soil, trenching, etc. can cause landscape and visual effects. As a result, impacts related to land use for construction phase are short term, direct, and low severity thus assessed as negligible in significance.

Operation Stage

In the operational stage, drainage system will be maintained so as to check that they are functioning properly and free of blockages or malfunctions.

OIZ will also ensure regular cleaning and maintainance of stormwater drains, catch basins, and treatment systems to prevent accumulation of debris and contaminants.

Since the OIZ has an existing stormwater collection line that the Project's components will be connected to, the impact of impermeable areas will be minimal in operation phase as well. As a result, impacts related to land use for operation phase are short term, direct, and low severity thus assessed as negligible in significance.

7.1.2 Geology and Hydrogeology

Pre-construction and Construction Stages

Necessary measures will be taken against the risk of ground liquefaction. Construction of the units would be in accordance with the Building Earthquake Regulations. Impacts caused by the project, related to geology for construction stage are minimal thus assessed as negligible in significance.

Construction activities may create the potential for accidental release/leak of petroleum-based products such as lubricants, hydraulic fluids or fuels during storage, transportation or use in equipment. All chemical storage containers, including diesel fuel and hazardous liquid waste drums/containers, will be located to minimize the risk of soil, surface water, and groundwater contamination during construction.

There will be no discharges into groundwater resources.

Construction phase of the project will meet ESS1 and ESS3 in terms of geology and hydrogeology.

As a result, impacts related to geology and hydrogeology for pre-construction and construction stages are short term, direct, and low severity thus assessed as negligible in significance.

Operation Phase

Necessary measures will be taken against the risk of ground liquefaction. As a result, impacts related to geology and hyrogeology for operation phase are short term, direct, and low severity thus assessed as negligible in significance. Operation phase of the project will meet ESS1 and ESS3 in terms of geology and hydrogeology

7.1.3 Climate and Climate change

Pre-construction and Construction Stages

The Project's impacts on climate change during the pre-construction stage are due to the energy usage (fuel for construction machinery and generators, electricity for utilities, equipment and heating, LPG for construction machinery and heating), and resource consumption for the Project which will result in increase of greenhouse gases (CO_2, CH_4, N_2O) emissions. The Project's contribution to climate change through GHG emissions during *pre-construction and*

construction stage is assessed as a negative, short term and direct impact while impacts on vegetation is assessed as negative, short term and direct.

The Project's contribution to climate change during the *operation stage* will be similarly originated from energy usage and resource consumption. GHG generation in the operation stage will be caused by WWTP energy and material consumption, service vehicles and waste disposal trucks' fuel consumption, and maintenance works of these vehicles, utilities and the WWTP.

Accordingly, usage of fossil fuel burning equipment/machinery (including procurement of materials) usage will be limited. The Project's contribution to climate change through GHG emissions during *operation stage* is assessed as a negative, long term and direct impact.

7.1.4 Soil Quality

Pre-construction Impacts that could occur on the soil environment during pre-construction stage are related with disturbance of the natural soil as a result of soil stripping, levelling, excavation and filling activities and work of construction machinery.

Top soil stripped at the pre-construction stage will be stored at the vacant area adjacent on the western side of the WWTP plot until completion of the construction works. See a photo of the planned top soil storage area in Figure 7-1and location in Figure 7-2 below. The vacant area is known to provide parking area for long vehicles, hence particular care will be taken to isolate the in order not to contaminate the soil heaps from possible leaks and spills from vehicles. A site walkover will be conducted at the vehicle park before start of soil stripping for visual observation of possible contamination and site management conditions. In case of inadequate conditions, an alternative spot will be designated by Samsun OIZ for temporary storage of top soil.

As a result, impacts related to soil quality for pre-construction stage are short term, direct and low severity.These impacts can be easily managed and mitigated from low to negligible in significance with the implementation of the mitigation measures presented in Chapter 8.

Figure 7-1: Top Soil Storage Area

Figure 7-2: Photo of the Top Soil Storage Area

Construction Stage

The impacts on the soil environment are restricted to the construction site.

Soil contamination risks may arise due to leakage and spill of fuels, paints and oils that will be used for the construction machinery and equipment. The current storage locations are confined sufficiently to prevent any contamination risks related with storge of hazardous and non-hazardous materials and wastes.

These impacts can will be decreased to low in significance with the implementation of the mitigation measures presented in in Chapter 8.

Operation Stage

Impacts of the operation stage of the Project are related to the risks that accidental chemical spill/leakage of chemicals that are required for wastewater treatment operations and spillage/leakage of wastewater, oil and chemicals to the soil during repair and maintenance works. 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 reduced to *negligible* level in significance. The defined mitigation measures are presented in the ESMP Matrix in Chapter 8 .

7.1.5 Air Quality and Odor

Pre-construction Stage

In the pre-construction stage of the project, topsoil stripping will be carried out during the land preparation process.

Values showing uncontrolled and controlled dust emissions resulting from topsoil stripping are presented in the Annex-8 of this report.

Table 7-3: Calculated Emission Values and Project Standards (Pre-Construction Stage)

Parameter	Calculated Emission Values	Project Standards*
CO	24.5kg/h	50 kg/h
SO_2	0.0005kg/h	6 kg/h
NOx	0.15kg/h	4 kg/h
PM10	0.00116 kg/h	1 kg/h
PM2.5	0.000116kg/h	25 kg/h

These emission rates are calculated based on the worst-case scenario. It is found that the emission rate for uncontrolled activities is above the limit value defined for non-stack sources in Industrial Air Pollution Regulation (IAPCR), which is 1 kg/hour, while the emission rate for controlled activities is below the limit values. When the calculated CO, SO_2 andPM values are evaluated, it is seen that they are also below the limit value defined for non-stack sources in IAPCR.

As a result, impacts related to air quality for pre-construction stage are short term, direct, and low severity thus assessed as low in significance.

In addition, with implementation of a set of mitigation measures that are presented in Chapter 8, any related impacts on air will be reduced to negligible level.

Construction Stage

Emission calculations for the construction stage cover the excavation, loading, unloading, and transportation phases.

Table 7-4: Calculated Emission Values and Project Standards and (Construction Stage)

Parameter	Calculated Emission Values	Project Standards*
CO	0.1225 kg/h	50 kg/h
SO_2	0.0025 kg/h	6 kg/h
NOx	0.75 kg/h	4 kg/h
PM10	0.217 kg/h	1 kg/h
PM2.5	0.022 kg/h	25 kg/h

These emission rates are calculated based on the worst-case scenario. It is found that the emission rate for both uncontrolled and controlled activities are below the limit value defined for non- stack sources in IAPCR, which is 1 kg/hour. When the calculated CO, SO_2 and PM values are evaluated, it is seen that they are also below the limit value defined for non-stack sources in IAPCR. Therefore, impacts related to dust emissions are in low significance. In addition, with implementation of a set of mitigation measures that are presented in Chapter 8, any related impacts on air environment will be reduced to negligible.

Detailed air quality calculations are presented in Annex-8, and these impacts can be easily managed and mitigated to low in significance with the implementation of the mitigation measures presented in Chapter 8. Construction stage of the project will meet ESS1 and ESS3 in terms of air quality and odor.

Given the humid climate in Samsun, nuisance from dust dispersion is expected to be less likely as compared to a location at a dry climate zone. Yet all mitigation measures will be taken in order to minimize dust and gaseous emissions, as presented in the ESMP Matrix in Chapter 8.

Impacts during construction will be limited to the operation of site machinery and vehicles that will cause gaseous emissions.

As a result, impacts related to air quality for the construction stage are short term, direct, and low severity thus assessed as low in significance; and will be further decreased to negligible by taking mitigation measures defined in the ESMP Matrix in Chapter 8.

Operation Stage

Electric heaters are used for heating purposes in the facility. There are no activities that produce air emissions.

According to the "Environmental Permit and License Regulation" (Amended: OJ-16/10/2021-31630) Appendix-2 List, facilities that fall under "10.2 Urban and/or domestic wastewater treatment plants with a capacity of less than 20,000 m^3/day" and "1.2 and 10.8 ‘Businesses not listed in Appendices-1 and -2, which discharge wastewater into the receiving environment’" are exempt from environmental permits related to air emissions.

No materials are stored outdoors, hence no dust generation can occur. For possible dust from sludge drying, the area where the treatment sludge is stored has a roof covering. Although the sides are not enclosed, the roof prevents dust formation, whether the sludge is wet or dry. Hazardous Waste Temporary Storage Permit was granted as the temporary storage area was

confirmed to meet the conditions specified in Article 13 of the Waste Management Regulation. Thereby no dyst from sludge drying beds is expected.

Considering impact on air quality, odor problem 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. Odor problems can be mitigated with good management practices.

Odor measurements will be carried out monthly from the beginning of the operation phase. In addition, measurement will be repeated upon grievances. Anyone who has a complaint about odor will be able to use the Grievance Mechanism, which will be active in all phases of the Project. After all, if unwanted odor will be still generated, additional measures will be taken such as preventing anaerobic bacteria with control of pH levels or disinfection. Operation phase of the project will meet ESS1 and ESS3 in terms of air quality and odor.

As a result, impacts related to odor for the operation stage are long term, direct, and medium severity thus assessed as medium in significance and will be reduced to low level by means of measures indicated in ESMP Matrix in Chapter 8.

7.1.6 Noise

Construction projects potentially generate noise, impacting both the immediate environment and nearby communities. Common sources of noise include heavy machinery, construction equipment, and activities such as drilling and hammering. The noise can lead to disturbances, affecting the well-being of local residents and wildlife. Potential impacts include increased stress levels, sleep disturbances, and interference with daily activities.

The possible impacts mentioned above are assessed in the following sub-sections for the pre-construction, construction and operation phases. Values showing noise calculations are presented in the Annex-8 of this report. All phases of the project will meet ESS1 and ESS3 in terms of noise.

Pre-Construction Stage

During pre-construction stage of the Project, the noise would be potentially generated by vehicles and machinery to be used during land preparation activities. Despite the industrial chracatersitics of the OIZ, there are sensitive receptors such as the OMÜ Yeşilyurt Vocational School and Central Black Sea Development Agency (OKA) as the nearest sensitive receptors within 500 meters.

Noise impacts will be temporary nuisance for short-term furing the pre-construction stage and will be mainly managed with the use of a well-established grievance mechanism. As a result, impacts related to noise during preconstruction stage are short term, direct, and low severity thus assessed as low in significance.

Impacts will be mitigated by the implementation of the mitigation measures presented in The ESMP in Chapter 8.

Construction Stage

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.

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 The ESMP in Chapter 8.

As a result, impacts related to noise for construction stage are short term, direct, and low severity thus assessed as low in significance.

Operation Stage

During the operation stage 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.

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.

Noise impacts will be mitigated by the implementation of the mitigation measures presented in The ESMP Matrix in Chapter 8.

As a result, impacts related to noise during operation stage are short term, direct, and low severity thus assessed as negligible in significance.

7.1.7 Water Resources and Use

During the pre-construction and construction phases, employees' needs will create water supply requirement. The utility water used will be supplied by obtaining a construction site subscription from the Tekkeköy 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 calculations regarding water usage mentioned above are given in the following sub-sections for the pre-construction, construction and operation phases. All phases of the project will meet ESS1 and ESS3 in terms of water resources and use.

Pre-Construction Stage

During the pre-construction stage, employees' needs water supply. The drinking water needs of employees will be met by bottled water to be purchased from the local market. 5 people will work during pre-construction stage.

Daily water requirement of employees during the pre-construction stage will be; 5 employees x 0.228 m^3/cap/day = 1.14 m^3/day.

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 will 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.

As a result, impacts related to use of water resources during pre-construction stage are short term, direct, and low severity thus assessed as negligible in significance.These impacts will be mitigated by the implementation of the mitigation measures presented in ESMP in Chapter 8.

Construction Stage

During construction stage, employees' needs and dust suppression water supply. The water used for dust suppression and utility water will be supplied by obtaining a construction site subscription. There will be no accommodation on the construction site, and water use will be limited to the working hours of the employees. The number of personnel required is determined as 20. Therefore, the daily water requirement of employees during the construction stage will be:

20 employees x 0.228 m^3/cap/day = 4.56 m^3/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 is estimated as *8 m³/day*. Water will be provided from the OIZ's network. Since ready-mixed concrete will be used in construction, no additional water is needed for concrete preparation.

As a result, impacts related to use of water resources during construction stage are short term, direct, and low severity thus assessed as low in significance.

Operation Stage

During the operation stage of the Project, part of the water supply requirement will arise due to 2 additional staff. Therefore, the daily water requirement of a total of 10 employees during the operation stage will be;

10 employees x 0.228 m3/cap/day = 2.3 m^3/day

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. There is a risk of leakage of such chemical liquids. All storage tanks and drums will be placed in concrete areas with proper secondary containments. When necessary, spill kits, absorbent pads or materials and absorbent sands will be provided near the chemical storage areas at all times.

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. Samsun OIZ will ensure that the contractor will prepare an Emergency Preparedness Plan for the

impacts resulting from such problems. In the event of a possible breakdown, the impact will be eliminated in a short time.

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. 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 will be taken to prevent any unexpected deterioration in the receiving water quality. During the operation phase of the Project, the impact will be direct and positive with long-term duration.

7.1.8 Wastewater Management

Wastewater will be generated in all phases of the Project. Toilets and lavatories readily available at the WWTP will be used by workers during pre-construction and construction phases of the Project. There will be no camp site, no eating facilities and no site accommodation.

According to 2020 TurkStat data, the Municipality's Daily Wastewater Amount is 0.189 m^3/day. The calculations regarding wastewater generation mentioned above are given in the following sub- sections for the pre-construction, construction and operation phases.

All phases of the project will meet ESS1 and ESS3 in terms of wastewater management.

Pre-Construction and Construction Stage

5 people will work during pre-construction stage and 20 people will work during construction.

Therefore, the daily wastewater generation of employees during the pre-construction stage will be; 5 employees x 0.189 m^3/day = 0.95 m^3/day

Daily wastewater generation of employees during the construction stage will be:

20 employees x 0.189 m^3/day = 3.78 m^3/day

As a result, impacts related to wastewater management during pre-construction stage are short term, direct, and low severity thus assessed as negligible in significance.

Operation Stage

During the operation stage of the plant, generated domestic wastewater will be treated and discharged in the existing plant. The daily capacity of the plant will be 4,000 m^3/day. The total number of personnel required for the operation stage will be 10. Therefore, the daily wastewater generation of employees during the pre-construction stage will be;

10 employees x 0.189 m^3/day = 1.89 m^3/day

Wastewater from workforce will be directly discharged into the WWTP. This will not pose a significant additional load on the capacity of the wastewater tratment plant.

The project will have a positive impact on the wastewater treatment capacity of the whole OIZ.

Impacts related to wastewater management during operation stage are long term, direct, and low severity and will be negligible with mitigation measures defined.

7.1.9 Waste Management

The current waste management system at the WWTP is in compliance with the Waste Management Regulation.

In addition to the municipal waste and seperately stored recyclable wastes and hazardous waste in the current waste stream, addiitonal waste input during the *pre-construction and construction stages* will be the excavation and construction waste.

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.

The current system will be continued based on the avoidance and prevention of waste 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.

Along with the Project, there will be scrap equipment and associated cables and electrical parts to be discarded as waste after dismantling recyclable parts and removing parts that may contain hazardous components.

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 7-3. 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. All phases of the project will meet ESS1 and ESS3 in terms of waste management.

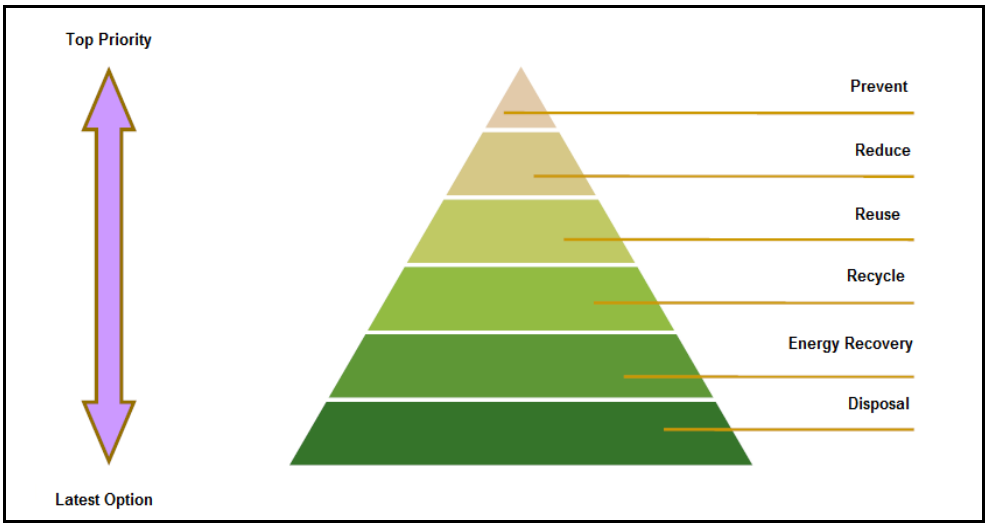

Figure 7-3: Waste Management Hyerarchy

Pre-Construction Stage

In order to determine the amount of municipal waste to be generated at site, the average daily municipal waste per person is taken as 1.03 kg according to the municipal waste statistics of TurkStat in 2022. The estimated amount of municipal waste to be generated during the pre-construction stage and construction stage 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 stage:

5 people x 1.03 kg/person/day = 5.15 kg/day

Contractor will be required to designate a staff who will be responsible for waste management during the pre-construction stage and construction stage of the project. Waste will be managed according to the waste hierarchy.

Table 7-6 lists the types of waste that can be generated during the pre-construction stage and construction stage of the Project and their waste codes according to the waste lists given in the annexes of the Waste Management Regulation

Efforts to minimize waste during the pre-construction stage involve strategic planning, efficient material use, and waste reduction measures. Implementing a waste management plan, as discussed earlier, can help identify, categorize, and manage the various sources of waste generated in the pre- construction stage.

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 of the Project.

Waste vegetable oil will not be generated at the site during the pre-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.

There will not be medical waste generation at site within the scope of the Project, as there will be no infirmary at the project site and hospitals/health centers located in Tekkeköy District will be used for possible medical interventions in case of an incident during the activities.No significant impact resulting from waste generation is expected due to the nature and scale of the Project, as explained above. Therefore, the impact during pre-construction stage is assessed as direct and negative with short term duration, local and low significance. However, mitigation measures proposed in Chapter 8 in order to prevent and/or minimize likely impacts will be implemented.

Construction Stage

The current waste management system of the WWTP and associated facilities (waste storage areas) will be used during the construction stage. 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 is readily available and has an impermeable base/ground and equipped with appropriate fire extinguishers and spill response kits.

The Temporary Storage Area belongs to the OIZ and is located within the WWTP site. See Figure 7-4 for the current temporary storage area.

Figure 7-4: Temporary Storage Area for Hazardous Waste

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 most recent municipal waste statistics of TurkStat (TurkStat, 2020). The estimated amount of municipal waste to be generated during the construction stage 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:

20 people x 1.13 kg/person/day = 22.6 kg/day

Hazardous wastes will be collected and disposed of by licensed companies. Samsun OIZ has contracts with companies licensed by the MoEUCC for transfer of hazardous wastes.

Similar to the pre-construction waste, there will be no waste vegetable oils, no end-of-life tires and no medical waste generation on the site during construction stage. There will be no oil waste generation from construction vehicles.

Levelling and excavation works will be carried out during the construction stage of the Project. For all activities regarding storage and reuse of excavation waste compliance will be ensured with the provisions of Regulation on the Control of Excavation, Construction and Demolition Waste.

Table 7-5 lists the waste types and waste codes that may occur during the pre-construction and construction stages of the project, according to the waste lists given in the Annex of the Waste

Management Regulation. The wastes generated during the pre-construction stage will be stored in the temporary waste storage area.

Table 7-5: List of Possible Waste Types during Pre-construction and Construction

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

As a result, impacts related to waste management during construction stage are short term, direct, and low severity thus assessed asand will be reduced to negligible in significance by taking mitigation measures defined in Chapter 8.

Operation Stage

In the operation stage, there will 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 contaminated waste.

2 additional staff is expected to be employed in the Project's operation stage. Therefore, the total staff will be 10 people during operation stage. In this respect, municipal waste generation at the WWTP will be 11.3 kg/day.

The same modes of waste management will be continued as defined for the construction stage.

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

Scrap equipment and parts will be first checked for hazardous components and ingredients such as oils, which will be treated as hazardous waste. Cables and electical parts will be treated as “waste electric and electonic equipment” and will be delivered to collection faiclities for such waste materials. Remaining scrap equipment will be delivered to a recycling facility licensed by MoEUCC.

The particular waste type to be managed during operation stage is the treatment sludge. The amount of treament sludge is expected to double along with the capacity of the WWTP. As known, the current treatment sludge was analysed to constitute hazardous contents. Thereby, the best solution will be to continue with the contract agreements with cement factories approved by the MoEUCC. Recent records of mobile tracking system of MoEUCC can be seen in Annex-5, showing recent 3 disposals by OYAK Cement Factory. According to the feasibility study, the current capacity of the WWTP sludge drying beds will be sufficient to accommodate additional sludge amounts from the increased treatment capacity. OIZ Administration is aware that the frequency of sludge disposal will increase as a result of the increased amount of sludge.

Table 7-6 lists the waste types and waste codes that may occur during the operational stage of the project, according to the waste lists given in the Annex of the Waste Management Regulation. The wastes generated during the operation stage will be stored in a temporary waste storage area.

Table 7-6: List of Possible Waste Types During Operation Stage

Waste Code	Definition of Waste Code
12	**Wastes From Shaping and Physical and Mechanical Surface Treatment of Metals**
12 01 09	Machining emulsions and solutions free of halogens
13	**Oil Wastes and Liquid Fuel Waste (Excluding Edible Oils, 05 and 12)**
13 02 08	Waste Engine, Transmission and Lubrication 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 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
16 05 06	Laboratory chemicals consisting of or containing hazardous chemicals
19	Waste from Waste Management Facilities, Offsite Wastewater Treatment Plants and Water Preparation Facilities for Human Consumption and Industrial Use
19 08 02	Wastewater Treatment Plant Waste Not Described otherwise (Screenings)
19 08 09	Grease and oil mixture from oil/water seperation
19 08 13	Sludges containing hazardous substances from other treatment of industrial wastewater
20	**Municipal Waste Including Separately Collected Fractions (Domestic and Similar Commercial, Industrial and Institutional Wastes)**
20 01 21	Separately Collected Fractions (i.e. fluorescent lamps)
20 01 33	Batteries and accumulators
20 03	Other Municipal Wastes

As a result, impacts related to waste management during operation stage are short term, direct, and low severity; and will be decreased to negligible in significance by means of mitigation measures in Chapter 8.

7.1.10 Pesticide use and Management

There will be soil removal during the land preparation and construction stages.

The currently vegetated top soil on the land allocated for the WWTP was not planted or cultivated in the past. Hence no specific mitigations are necessary during the removal and storage of the top soil against pesticide contamination.

No pesticide use is planned at any stage of the Project activities. Thus, no impact is expected in this regard in any stage of the Project.

In accordance with ESS3, WB attaches importance to the use and management of pesticides in projects. No pesticide use is planned at any stage of the Project activities. Still, against any future attempts of using pesticides, the Samsun OIZ 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 Environmental, Health, and Safety Guidelines (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.

All phases of the project will meet ESS1 and ESS3 in terms of pesticide use and management.

Pre-Construction and Construction Phases:

There will be soil removal and relocation during the land preparation and construction phases. There has been no historical use of pesticide since establishment of the OIZ. 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 will be done, 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 project while minimizing environmental impact.

Since there is no pesticide use in the area, there will be no impact due to pesticide use during the pre-construction and construction phases.

Operation Phase

Industrial area includes green areas or landscaping, it may be necessary to employ pest control methods, which might include the use of pesticides. Pesticides from the industrial zone could be transported by stormwater runoff into adjacent water bodies. Mitigating this risk can be achieved by implementing efficient stormwater management practices. The upkeep of roads, utilities, and other infrastructure might entail the application of herbicides for vegetation control. Spills of pesticides used in landscaping or for other purposes may occur during transportation.

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. As a mitigation measure, pesticides will not be used- at 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.

7.1.11 Biodiversity and Protected Areas

Although the OIZ is situated between the deltas of Yeşilırmak and Kızılırmak rivers with KBAs and nature parks, the OIZ land has turned in time into a constructed area with no natural feuatures. Evidently, habitats started to disappear at a stage when OIZ had first started with the start of industrial operations for which construction involved significant land clearing and alteration, which make it difficult for native plants and animals to survive. Many species that are sensitive to disturbances such as noise, air and artificial lighting may have migrated to less disturbed habitats over time. It is likely that only species that are highly tolerant to these altered conditions or have adapted to the industrial environment may persist. This shift in species composition typically results in lower biodiversity levels compared to more natural habitats. The Nationally Protected Areas and the Internationally Recognized Areas are considerably far to be affected by project activities. See Section 5.13 for distance to protected areas.

The OIZ also has extensive areas covered with impervious surfaces like concrete and asphalt, which reduces natural soil and vegetation cover, further limiting habitat availability for flora and fauna. In addition to the pollution, contamination and noise impacts, the OIZ creates a barrier to wildlife movement, preventing animals from accessing necessary resources and suitable habitats. Hence it is unlikely to find natural habitats or diverse species in and around such an industrial area.

On the overall, based on the flora, amphibian, reptile, bird, and mammal species listed in Annex-10, these are observed in highly industrial areas where the ecosystem seems to be relatively disturbed, but still functional and resilient. While there are species with conservation status, such as the vulnerable tortoise (Testudo graeca), this species is widely distributed across Turkey, and its presence in the area is not necessarily indicative of a critical habitat. In fact, the area seems to support a generalist community of species that are adapted to human-modified environments and tolerate the pressures of industrialization, pollution, and agriculture.

The flora and fauna do not include endemic or critically endangered species, nor are there habitats that are classified as critical for biodiversity preservation. This suggests that the area is not of high conservation priority and special protection measures would not be required in the event of a development project.

The species present show a degree of resilience to human impacts. The adaptation of generalist species (e.g., amphibians, reptiles, and mammals) to industrial and agricultural landscapes indicates that the ecosystem is able to tolerate and recover from disturbance, even if the overall biodiversity is lower than in natural habitats.

During soil-stripping and construction activities of the WWTP Project, habitat losses could occur due to dust emissions and noise generation in general. In such cases, species typically associated with invertebrates or small rodents, due to their high reproductive capacity and rapid

spread, move to alternative habitats in the close surrounding. Therefore, it is anticipated that no significant or critical habitat loss will occur. Bird species, due to their high mobility and migratory abilities, and small rodent species (Rodentia) and rabbits, due to their high reproductive potential, are capable of buffering the habitat losses and other negative impacts that may arise as a result of the project activities. Impacts on terrestrial biodiversity will be negligible.

As a result, no specific conservation measures are necessary for the area as a whole.

Sensitivity

Although the Project Area does not include natural features; the WB ESS6 criteria cross-checked in order to identify any critical habitats and species. 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).

As a result, the Project site characteristics do not exhibit any of the above criteria. Thereby, terrestrial and aquatic habitats and flora and fauna species determined in the Project Area are considered as not sensitive. All stages of the Project will meet ESS1 and ESS6 in terms of biodiversity and protected areas.

Despite these factors indicating potentially lower risks, conducting a preliminary survey and assessment of biodiversity is still necessary. This ensures that any residual or unforeseen ecological impacts are identified and addressed, and it helps in complying with environmental regulations and promoting sustainable practices. Such assessment would provide valuable insight for any presence of aquatic species in the Hıdırellez Creek where the treated wastewater will be discharged.

The two creeks flowing through the OIZ area were historically rehabilitated by DSI for the pupose of flood control and were paved with concrete at parts passing through the OIZ.

The quality of treated effluent discharged into Hıdırellez Creek, which flows into the Black Sea, is regularly monitored every 15 days as required by the environmental permit. Since the results consistently meet the standards set by the Water Pollution Control Regulation, the amount of treated water discharged is not expected to negatively impact the Black Sea's aquatic life. Additionally, the volume of wastewater from the WWTP is relatively small compared to the cumulative impact of discharges from other industrial zones and the nearby municipal wastewater treatment facility, which is located directly on the Black Sea coast. Given that the treated water quality is monitored strictly to comply with the pertinent legislation, the Project's impact on biodiversity during operation stage is considered positive.

Despite the limited presence of natural elements in and around the industrial compound, mitigation measures will still be implemented to minimize any potential nuisance to neighboring habitats. Adopting good industrial practices will help ensure that environmental impacts are managed effectively, preventing disruptions to surrounding ecosystems and maintaining the overall health of nearby areas.

Pre-Construction Stage

Terrestrial Habitats and Flora Species

The primary impact of the Project on habitats and flora species will be in the pre-construction and construction stages. Topsoil stripping will be carried out during the pre-construction phase, and this will cause the populations and habitats of the flora species 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 8 will be followed.

As explained above, 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 and will be decreased to negligible by means of mitigation measures defined in Chapter 8.

Terrestrial Fauna

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.

Possible impacts on the terrestrial fauna will be 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. There will also be some impact from vehicle traffic. Most fauna species will leave the construction sites due to pre-construction impacts and move towards similar habitats in the immediate vicinity. Possible impacts will be reduced by means of mitigation measures defined in Chapter 8. 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 Hıdırellez creek from being negatively affected by the project-related works. No pre-construction work will be done in the creek.

As a result, impacts related to biodiversity for pre-construction stage are short term, direct and low severity.

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 8 will be followed. As a result, the Project's impact on terrestrial habitats and flora species during the construction stage 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 fauna species will leave the construction sites due to impacts and move towards similar habitats in the immediate vicinity. As a result, the Project's impact on fauna species during the construction phase is considered low and will be decreased to negligible by means of mitigation measures defined in Chapter 8.

Aquatic Biodiversity

Controlled disposal of the wastes generated during construction is essential to prevent the Hıdırellez creek from being negatively affected by the project-related works. No construction work will be done in the creek. Furthermore, improved treatment efficiency in the WWTP will contribute positively to the surface water quality both in the creek and the Black Sea where the creek finally discharges.

As a result, impacts related to biodiversity for the construction stage are short term, direct and low severity.

Operation Stage

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 near 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. 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 the 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

positive. The impact of the Project on biodiversity has been evaluated as low/negligible/positive and the mitigation measures given in Chapter 8 will be followed.

As a result, impacts related to biodiversity for the operation stage are long term, direct and low severity; and will be decreased to negligible by means of mitigation measures defined in Chapter 8.

7.2 Social Impacts of the Project

Infrastructure projects have both beneficial and detrimental socioeconomic impacts. The operation of construction equipment, waste generation, noise and dust emissions, and increased traffic resulting from construction work can be considered as adverse effects. It is important to note that construction activities also create employment and supply opportunities, which can be seen as beneficial outcomes.

This section outlines the consequences of the construction and operation stages, encompassing potential adverse impacts on the socio-economic environment and how to mitigate them.

7.2.1 Population/Demography

Construction Stage

The construction stage requires technical personnel and materials that meet international standards, which must be brought in from outside the project area. Suppliers and job seekers may move to the project area to supply goods and services. However, among the estimated 15 to 20 employees, only a few are expected to be recruited from outside. Given the small number of worksforce, an influx of workers which may have impact on local population and demographical structure is not expected.

Due to the Project's technicality, unskilled labor will be sourced locally and skilled labor from non-local sources. Samsun OIZ will prioritize local hiring in order to reduce labor flow impacts. Contractor and sub-contractor contracts will be ensured to include this policy.

Operation Stage

2 additional staff will be recruitted, hence a total of 10 employees will be working for the operation of the WWTP which supposedly will not have impact on population and demographics of the impact zone.

7.2.2 Cultural Heritage

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The baseline assessment conducted as part of the ESMP identified no built heritage resources within the Project Area, and no cultural artifacts were found. Based on the assessment and previous excavation activities in the region, the likelihood of encountering cultural heritage items during the proposed excavations is considered very low. However, in line with the

requirements of ESS8 guidelines and National Legislation, should any cultural artifacts be discovered during excavation, all work in the immediate vicinity will be immediately suspended. The appropriate measures will then be taken to ensure the protection and preservation of the cultural heritage, preventing any potential damage to the artifacts.

In accordance with Article 4 of the Law on the Protection of Cultural and Natural Assets (Law No. 2863), a Chance Finds Procedure (Please See Annex-7) will be implemented in case of any chance finding during land preparation and construction. Please See Annex-7 for the procedure.

The impact is evaluated as negative, direct, low-significance, short-term, and on-site. It is anticipated that the operation stage will not have any impact on archaeological and cultural heritage, as there will be no activity beyond limited maintenance and repair work.

7.2.3 Economy/Employment

Construction Stage

It is foreseen that the Project will create temporary employment. The construction of the wastewater treatment plant is planned to take twelve – fifteen (12 -15) months from the date of project approval. The construction activities will require only a few additional/skilled labor from outside the locality. During the construction stage, it is planned to employ 15-20 (fifteen-twenty) people. Samsun OIZ plans to employ all of the required personnel locally to the extentfeasible.

Samsun OIZ will request the Contractor to plan the workforce and prepare a Labour Management Plan consistent with the LMP of the project and it shall be approved by the PMU. before construction during the contract process. To prevent workplace conflicts and unsafe behaviors, Samsun OIZ and the Contractor will provide orientation training on codes of conduct and public communication to all employees. The Project will establish fair and transparent employment and procurement policies to reduce favoritism and nepotism. Community leaders and members will be informed about this policy.

Operation Stage

Two employees will be recruited for the Project of capacity expansion stage in addition to the currently working 8 personnel which is supposedly not likely to have impact on population and demographics of the impact zone.

7.2.4 Vulnerable groups

The project does not entail any limitations on access, relocation, or physical displacement of individuals. There is no expectation of any significant harm to the income or livelihoods of vulnerable groups. However, potential impacts on vulnerable groups, such as those with respiratory illnesses, will be carefully considered, particularly regarding environmental factors such as odor or air quality. Measures will be implemented to mitigate any adverse effects on these groups, in line with best practices for health and safety.

7.2.5 Land requirement

The project will be built within the pre-existing industrial area of the OIZ. The WWTP area, specifically parcel number 2155/2, is under the ownership of Samsun OIZ (See Title Deed in Annex-2). This area is exclusively designated for the purpose of constructing a wastewater treatment plant, in accordance with the officially approved revised OIZ land use plan as of 30.12.1986. The project does not necessitate any additional land.

7.2.6 Working conditions and labour management

Project workers' rights and the management and control of activities that may pose labor-related risks will be explained in this section.

Procedures for managing labor, known as Labor Management Procedures (LMP), have been developed specifically for the Türkiye Organized Industrial Zones Project. The objective is to safeguard the rights of workers and oversee the management and regulation of activities that could potentially present risks to labor. The document outlines the measures that the Ministry of Industry and Technology (MoIT) will take to meet the criteria set by the World Bank Environmental and Social Standard 2 (ESS 2), which pertains to labor and working conditions.

Additionally, it ensures compliance with Turkish labor, employment, and occupational health and safety legislation.

The Turkish Labor Law (numbered 4857) regulates labor relations. The Law of Turkish on Occupational Health and Safety (numbered 6331) stipulates regulations regarding occupational health and safety. It is applicable to both direct and contracted workers, including foreign workers. The Social Security and General Health Insurance Law (Law No: 5510) governs the provisions of social insurance and general health insurance.

Samsun OIZ will have the responsibility of managing human resources throughout both the construction and operation stages. The Project will adhere to national labor, social security, and occupational health and safety laws, as well as the associated principles and standards. The Project will adhere to the labor, social security, and occupational health and safety laws of the country, as well as the principles and standards set forth by the International Labor Organization convention. The Project Owner is accountable for ensuring compliance with the International Labor Organization (ILO) regulations regarding minimum legal labor standards, which include provisions against child and forced labor, discrimination, limitations on working hours, and minimum wage requirements. Strict adherence to all Turkish Laws and International Labor Organization Conventions pertaining to child labor, coerced labor, prejudice, the right to form associations, collective bargaining, working hours, and minimum wages.

Samsun OIZ will have the responsibility for the following tasks:

- Prohibit the utilization of individuals under the age of 18 for construction purposes.
- Abstain from utilizing or engaging in coerced labor and establish a Human Resources Policy that adheres to the European Convention on Human Rights and the Turkish Constitution.

- The objective is to eradicate any form of bias or prejudice in labor relations, including discrimination based on language, race, sex, political opinion, philosophical belief, and religion.
- Guaranteeing workers' ability to engage in collective bargaining, as stipulated in Law No. 6356 on Trade Unions and 4857 Labor Law on Collective Bargaining,
- Ensure that there is access to a Project grievance mechanism that is functioning effectively.
- Ensure that workers are furnished with written contracts that include, among other things, a detailed job description, specified working hours, comprehensive information regarding their rights and responsibilities, a code of conduct, and details about workers' grievance mechanisms.
- To mitigate potential impacts on the surrounding neighborhoods, amenities such as food, sanitation facilities, and rest areas will be provided within the Project Area, catering to the needs of the employees.
- Evaluate and authorize the contractor's labor management plans to ensure they align with the LMP before the construction stage begins.
- Assess and authorize the contractor's Occupational Health and Safety (OHS) plan before the construction stage begins.
- Ensure that contractors/sub-contractors comply with their responsibilities towards contracted workers as outlined in the applicable procurement documents, in accordance with ESS2, LMP, national labor, and occupational health and safety laws.
- Maintaining documentation of the recruitment and employment procedures for employees under direct supervision,
- Monitor the potential hazards of child labor, coerced labor, and significant safety concerns concerning primary supply workers and supervise the actions in order to avoid those if any of them are detected and to report it to related state body.
- Supervise the training of appropriate project personnel,
- Establish and implement a grievance mechanism for project workers, and ensure that workers are informed about it.
- Supervise the employees' training on the Code of Conduct and ensure their adherence to it.
- Ensure compliance with national occupational health and safety legislation, ESS2 OHS requirements, and occupational health and safety plan to monitor workplace safety standards.
- Supervising employees' adherence to workplace conduct regulations,
- Develop and enforce a protocol for recording and documenting project-related incidents, including occupational accidents, illnesses, and accidents resulting in time loss.

- In instances of severe, fatal, and large-scale accidents, it is necessary to notify the law enforcement authorities, the Labor Inspectorate, and the Ministry of Industry and Trade (MoIT).

Aside from complying with legal obligations and the Labor Management Procedure, the contractor will assume responsibility for the following:

- Hire or enlist competent social, labor, and occupational safety professionals to execute the project-specific labor management plan, occupational health and safety plans, and oversee the subcontractors' performance.
- Create a labor management protocol to be reviewed and approved for Samsun OIZ.
- Create an Occupational Health and Safety (OHS) plan for the purpose of being reviewed and approved by Samsun OIZ.
- Ensure the implementation and adherence of the labor management plan and occupational health and safety plan by all contracted and subcontracted workers.
- Oversee subcontractors' compliance with the labor management procedure and Occupational Health and Safety (OHS) plans,
- Maintaining documentation of the recruitment and employment procedures for contracted employees,
- Monitor the progress of subcontracted workers' employment process to ensure compliance with this labor management procedure and national labor law.
- Designing and executing a formal procedure for addressing employee grievances, assessing concerns raised by contracted and subcontracted personnel,
- Ensure that contracted workers are provided with comprehensive written contracts that clearly outline their job descriptions, wages, working hours, as well as their rights and duties and access to a workers' Grievance Mechanism..
- Conduct regular induction training for employees, covering topics such as Occupational Health and Safety (OHS), social familiarization, Code of Conduct, and prevention of Sexual Harassment/Sexual Abuse.
- Prior to commencing work, it is imperative to ensure that all employees of contractors and subcontractors comprehend and formally acknowledge the Code of Conduct by signing it.
- Develop and execute a protocol for documenting project-related incidents, including occupational accidents, illnesses, and time-loss accidents.
- In the event of severe, fatal, or mass accidents, it is imperative to inform law enforcement, the Labor Inspectorate, and the OIZ.

Construction Stage

The Contractor will hire personnel for the construction phase of the project. It is anticipated that between 15 and 20 workers will be employed during this stage. The Contractor will

prioritize the employment of local workers as much as feasible, depending on project needs and availability of specific skills locally.

. Full compliance with all Turkish laws and International Labor Organization (ILO) Conventions regarding child labor, forced labor, discrimination, freedom of association, and the right to collective bargaining will be ensured.

Due to the limited number of personnel required for the project, there will be no labor influx. Where hiring workers from outside is necessary, residential rental properties located in the city center is expected to be used for their accommodation.

Operation Stage

Currently 8 people are working at the WWTP. 2 additional staff will be employed in relation with the operation of extension units, thus the total number of employees will be 10 during the operation stage of the project.Samsun OIZ intends to hire the additional staff from the local area.

All employees will receive on-the-job and occupational health and safety (OHS) training, which will be documented in accordance with the Regulation on the Procedures and Principles of Occupational Health and Safety Trainings of Employees published in the Official Gazette numbered 30430 and dated 05.2018.

As per the LMP (Labor Management Procedures), project workers will undergo Occupational Health and Safety (OHS) training at the start of their employment as part of their induction process. Additionally, they will receive regular OHS training to ensure compliance with legal requirements. The training will encompass the pertinent facets of Occupational Health and Safety (OHS) that are connected to daily work, such as the capacity to halt work in the absence of immediate peril and effectively handle emergency situations.

The consultant will additionally deliver training to the personnel regarding the environmental and social standards of the project, as well as the ESMP and SEP. The Contractor is required to instruct its personnel, under the supervision of the Samsun OIZ, on the proper execution of measures aimed at preventing and/or reducing environmental and social impacts during the construction process.

Workers will receive training on the Code of Conduct. The Code of Conduct will encompass:

- Terms and conditions
- The protection of fundamental human rights and workers' rights
- International humanitarian law
- Environmental conservation
- Combating corruption
- Prevention of Gender-Based Violence (GBV), Sexual Harassment, Sexual Exploitation and Abuse (SH/SEA)

- Grievance Mechanism

The contractor will additionally deliver trainings on prevention of Gender-Based Violence (GBV), Sexual Exploitation and Abuse/Sexual Harassment (SEA/SH), and Gender Mainstreaming (GM) to the employees. The training will be periodically repeated, considering the evolving and emerging risks outlined in the Regulation on the Procedures and Principles of Occupational Health and Safety Trainings for Employees. Information and training activities will be conducted for both employees and the general public regarding measures to ensure public health and safety.

Assessment and appraisal will be conducted upon completion of the training. The evaluation results can determine the effectiveness of the training and, if needed, prompt adjustments to the training program or trainers, or even a repetition of the training.

Training records will be stored in a file. The records will contain a comprehensive account of the training, including a detailed description, the total number of training hours, attendance records, and the outcomes of evaluations.

7.2.7 Community health and safety

The WB ESF ESS4 encompasses the domain of Community Health and Safety. It specifically focuses on the identification and mitigation of health, safety, and security risks and their effects on communities affected by a project. Borrowers are obligated to take measures to prevent or reduce these risks and impacts, paying special attention to individuals who may be more susceptible due to their unique circumstances.

Construction Stage

The Project may give rise to risk factors during its construction and operation periods, which are associated with public health and safety issues. The subsequent potential consequences were recognized during the construction stage of the Project.

- The project may lead to a rise in both traffic volume and the number of road traffic accidents and injuries.
- The project's effect on community accessibility in the area will be assessed.
- The negative consequences include harm to the current infrastructure, heightened strain on the current infrastructure, and disturbance of services.
- Acoustic disturbances and oscillations,
- The presence of construction workers and business opportunists poses a threat to the community's culture, safety, and security.
- There is a potential for the spread of infectious diseases, including sexually transmitted diseases, as a result of the movement of workers and their interactions with local communities.

The transportation and traffic to the project area will utilize the D010 highway, recognized as the Blacksea Highway and the internal roads of the OIZ. Local roads designated for settlement

access will be avoided. Consequently, there will be no adverse effects associated with transportation and traffic.

The project does not entail any form of access limitation; hence, it will not affect the community's accessibility.

The project area is located within the OIZ, which already has existing infrastructure. Therefore, there are no circumstances that would cause any disruptions to public services in the project area.

The activities conducted during the construction stage of the Project are linked to a variety of actions that produce sound. Given that the proposed expansion of the wastewater treatment plant (WWTP) is located in an industrial zone, the closest residential area to the facility is...

There are industries located in the adjacent parcels.

Additional cautions will be taken regarding the existing Vocational School as part of Ondokuz Mayıs University nearby the construction site.

There will be no influence on the culture and safety of the community, as there will be no direct interaction with society and no effect on community transportation or vulnerable populations is anticipated. Given that the Project area is situated within the OIZ, which is presently enclosed by fences, precautionary measures such as warning signs and enhanced security protocols will be enforced to ensure that access is restricted and any potential adverse effects on public health are avoided.

As previously stated, the contractor will also deliver trainings on Gender-Based Violence (GBV), Sexual Exploitation and Abuse/Sexual Harassment (SEA/SH), and Gender Mainstreaming (GM) to the employees. In addition to organizing awareness-raising activities, efforts will be made to prevent cultural issues arising from workers and security personnel displaying rude behavior towards the local population. These issues include gender-based violence (GBV), sexual exploitation and abuse, sexual harassment, and disruptive attitudes such as noise. Security personnel is currently present at three entrance gates of the OIZ,and there will be no recruitment of new security personnel at the WWTP. OIZ Security Personnel will be trained on human rights, crowd management, limiting and prudent use of security activity, proportional use of force and community relations and communication. The trainings will emphasize the importance of respecting human rights, maintaining professional behavior, and adhering to applicable law, the World Bank's security guidelines(ESS4) and ethical standards as well as awareness on GBV, SEA/SH issues.

Operation Stage

Throughout the operational stage of the project, there will be no possibility or likelihood of occurrence of community health and safety hazards.. Access to the project area will be restricted to authorized individuals only. Inspections will be conducted on wire fences for this specific purpose. Therefore, the adverse consequences that may arise as a result of unregulated access will be averted.

During the operational stage of the project, emissions are not anticipated to be generated. However, if appropriate operating conditions are not provided, there may be issues with unpleasant smells.

In the event that the generation of odor is detected during future operations, the staff will thoroughly examine and modify the operational conditions.

7.2.8 Traffic and Transportation

Transportation of materials to the site will be via the Samsun-Ordu highway and roads that lead through industrial zones rather than residential areas. Main traffic concern will be trucks carrying excavation materials between the site and the disposal area located to the site located at the northwest of the OIZ. Therefore, negative impacts related to transportation and traffic will not be caused. Considering the current traffic and capacity of the state highway, the project will not bring additional traffic load to the state highway. Still, general measures such as driver training, speed limits, limiting unnecessary use of noisy equipment, etc. will be implemented.

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7.2.9 Occupational Health and Safety

Pre-construction and Construction Stages

During the pre-construction stage (before construction works start), the contractor will prepare a Risk Assessment Report, Emergency Preparedness and Response Plan and Occupational Health and Safety Management Plan in accordance with Turkish legislation, WB ESS 2 and WB EHS Guidelines for Water and Sanitation, WBG General EHS Guidelines: Occupational Health and Safety, and ILO standards.

Occupational Health and Safety Management Plan will include the assessment of below topics as applicable and as a minimum:

- General Facility Design and Operation
- Communication and Training
- Physical Hazards
- Chemical Hazards
- Biological Hazards
- Radiological Hazards
- Personal Protective Equipment (PPE)
- Special Hazard Environments
- Monitoring

Specifically, the objectives associated with the Occupational Health and Safety Management Plan are:

- Minimize the risk of occupational health and safety hazards to the workers,
- Prevention of work-related accidents, reporting near misses, personnel injuries and occupational illnesses,
- Ensure compliance with all applicable occupational health and safety regulations and other legal and contractual requirements,
- Integrate health and safety procedures and safe work practices into every operational activity,
- Encourage employees to maintain a healthy and safe workplace through periodic reviews of operational procedures, and provision of training,
- Ensure the availability of resources to fully implement the Health and Safety policy.

According to the relevant provision of the national laws/ regulations and international conventions/ standards, all contractors and sub-contractors will manage the construction site in such a way that the workers and communities are properly protected against possible OHS risks. The following OHS standard requirements will be as a minimum be included in the OHS Plan to be prepared by the contractors:

- Risk assessment procedure,
- Work permitting for hazardous work (working at heights, hot work, work on energized lines, work within confined spaces and etc.),
- Golden rules for life-threatening works,
- Emergency response procedure,
- Fall prevention and working at heights procedure,
- Excavations safety, ladders and scaffolders safety; welding and cutting safety; Cranes, Derricks, and forklifts safety; power and hand tools safety,
- Respiratory prevention of chemical and airborne hazards procedure (including dust, silica and asbestos);
- Electrical safety procedure (hazardous energies control, lock out tag out, energy verification, safe distance work, wiring and design protection, grounding, circuit protection, arc fault protection, PPE and dielectric tools);
- Hazards communication procedure; noise and vibration safety; steel erection safety; fire safety; material handling safety; concrete and masonry safety,
- Using PPE procedure,
- OHS training procedure, and
- Refuse to work policy.

The Occupational Health and Safety Management Plan will be periodically revised by the contractor whenever there is a major accident, changes in organization, processes, procedures, approved materials (including risk assessment), legislation, and work patterns. In addition, the Occupational Health and Safety Management Plan will, among other issues, also include roles and OHS responsibilities. The contractor will appoint its own OHS staff that will be responsible for the implementation and supervision of the OHS.

For a possible accident and emergency, such as failure of operation, an Emergency Preparedness and Response Plan will be prepared by the contractor, emergency teams will be established, and drills and trainings will be conducted in accordance with emergency scenarios. The emergency Preparedness and Response Plan will include;

- Emergency scenarios and relevant emergency preparedness and response actions with the allocations of responsibilities to local communities and authorities where appropriate,
- First aid training,
- Special trainings to be given to extinguishing, rescue and protection teams,
- Specific stakeholder engagement based on consultation and participation with government and communities regarding the nature and potential consequences of the Project-related risks,
- Training of the personnel for the response to emergencies in accordance with the requirements outlined in the specifications,
- Emergency drills to be conducted, at least once a year and in formats according to Regulation on Emergencies in Workplaces,
- Evaluation of findings and lessons learnt from drills and corrective actions.

Operation Stage

Main OHS risks are summarized as follows:

Working at Height

Work at height is the biggest single cause of fatal and serious injury in the construction industry, particularly on smaller projects. Working from a level difference and the possibility of injury as a result of falling are considered for the employees as “working at height”.

Ladders, scaffolds, mobile elevating work platforms and suspended access equipment will be used during the construction and falls occur from them.

The risk related to working at height will be mitigated by the implementation of the mitigation measures presented in Chapter 8.

Working with Chemicals

Many products used at construction sites consist of chemicals. Workers may be exposed to dangerous chemicals during construction activities. These include lead, silica, carbon monoxide, and paints. The chemicals can exist in several forms and can enter the body in a

variety of different ways including inhalation (breathed in), ingestion, absorption and injection. Chemical exposure causes acute and chronic health problems.

The risk related to working with chemicals will be mitigated by the implementation of the mitigation measures presented in Chapter 8.

Fire and Explosion

Flammable materials, electrical equipment and heat sources will be present at the construction site. This means that there's a multitude of sources for fires or explosions. Hazards that can cause fires and explosions during the construction period are given below:

- There will be many hazards of high heat and sparks on construction sites. Equipment, such as those used in welding, cutting, and grinding, may create sparks when being used that can catch fire.
- Electrical errors, i.e. electrical wires short-circuit, are insufficient ground fault protection causes fires.
- Defective equipment, for example tools, heating equipment, and electrical wiring can cause a fire when being used.
- Sources of fuel, such as propane, gas lines, and acetylene on construction sites can cause a fire if they come in contact with a heat source.
- Chemical explosions (open solvents/fuels, fuel tanks and chemical tanks or drums), fires (open solvents and vehicles/heavy equipment), pressurized container explosions (vehicle tires, pipes/pipelines and water tanks) and arc flashes/blasts (switchboards, circuit breakers, transformers, other electrical wiring and parts) might cause to construction site explosions.
- Temporary lighting and lamps - where necessary the illumination of work areas is from temporary lighting installed or from specific task lighting. The hazards from such lighting come from placing light units too close to combustible items not allowing the lamps to cool or from broken lamp units where hot surfaces are exposed. Lighting units should be secured in a position away from combustible material to prevent them from being dislodged. Halogen and halide lights should not be used due to their high operating temperatures. Lamp holders should be provided that ensure bulbs of different operating voltages cannot be interchanged and those not fitted with a bulb should be capped off. Light units should be inspected periodically and broken units should be removed immediately.
- Portable heaters should only be permitted where necessary and then portable heaters should be regarded in the same category as 'hot work' and an assessment should be made of the suitability of the heater and its location; the most hazardous types of portable heaters should be avoided.

In all applications Regulation on Protection of Workers from Explosive Hazards will be complied with. Explosion protection document which is necessary according to the regulation

will be prepared by the contractor. The risk related to fire and explosion will be mitigated by the implementation of the mitigation measures presented in Chapter 8.

8 ENVIRONMENTAL AND SOCIAL ASPECTS, AND BEST PRACTICE MITIGATION MEASURES

8.1 Mitigation Plan for the Pre-Construction Phase

Issue	Potential Impact	Impact Significance Before Mitigation	Mitigation Measure	Anticipated Impact After Mitigation	Cost of Mitigation (if substantial)	Responsible Parties
Air Quality: Dust Emissions	• Nuisance due to dust from soil stripping and transportation of materials and equipment	Low	• Samsun OIZ will ensure that the contractor will prepare and implement an Air Quality and Emissions Management Plan that is in line with the WB ESS1 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; This condition will be included within Contractor's contract. 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	Negligible	Included in pre-construction cost	Contractor (implementation) Samsun OIZ (performance control and management) Construction Supervision Consultant (supervision/monitoring)

Issue	Potential Impact	Impact Significance Before Mitigation	Mitigation Measure	Anticipated Impact After Mitigation	Cost of Mitigation (if substantial)	Responsible Parties
			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; • When there will be windy weather conditions (wind speed is above 30 km/hour) in the Project Area, excavation will not be carried out or additional measures such as placement of wind shields/barriers will be taken to prevent dust dispersion; • 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; • 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,			

Issue	Potential Impact	Impact Significance Before Mitigation	Mitigation Measure	Anticipated Impact After Mitigation	Cost of Mitigation (if substantial)	Responsible Parties
			• Compliance with the air emission limit values stipulated in Project Standards 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 Project Standards limit values. • Compliance with the air emission limit values stipulated in national legislation and WB Compliance with the air emission limit values stipulated in Project Standards			
Air Quality: Exhaust Emissions	• Nuisance on neighborhoods and surrounding facilities due to gaseous emissions (CO, Dust, NOx, SOx, TOC) from vehicles	Low	• All vehicles to be used in transportation activities will be issued an emission control stamp which is renewed every year by measuring the emissions from the exhausts; • 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; • Vehicles that can provide European Euro VI standards will be selected; • Relevant provisions of the Regulation on Air Pollution Control Sourced from Industry and Regulation on the Assessment and Management of Air Quality will be complied with to minimize air emissions sourced from construction machinery and trucks;	Negligible	Included in pre-construction cost	Contractor (implementation) Samsun OIZ (performance control and management) Construction Supervision Consultant (supervision/monitoring)

Issue	Potential Impact	Impact Significance Before Mitigation	Mitigation Measure	Anticipated Impact After Mitigation	Cost of Mitigation (if substantial)	Responsible Parties
			• Exhaust systems of the vehicles (daily and periodically) will be controlled regularly. 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. • Vehicle speed will be controlled when passing through public transport areas, thus minimizing dust dispersion from vehicle transportation. • 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; • Idling of vehicles and machinery will be avoided. • Energy uses associated with construction vehicles and equipment will be monitored; • Training will be performed for project personnel regarding energy efficiency.			

Issue	Potential Impact	Impact Significance Before Mitigation	Mitigation Measure	Anticipated Impact After Mitigation	Cost of Mitigation (if substantial)	Responsible Parties
Soil Environment: Preserving Topsoil	• Loss of topsoil, • Possibility of increased risk of erosion	Low	• Samsun OIZ 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 (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; This condition will be included within Contractor's contract. • Where there is topsoil, topsoil will be stripped to a sufficient depth (15- 30 cm, depending on the topsoil depth) 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); • Topsoil and subsoil will not be mixed in any case. During reinstatement and landscaping works topsoil will be spread on subsoil for reinstatement and landscaping purposes • Stripping of topsoil will not be conducted earlier than required to prevent the erosion of soil (wind and water); • Topsoil will be stored temporarily to be reused for landscaping at the WWTP or elsewhere in the OIZ later. • The stripped topsoil will not be used for agribusiness. • Top soil storage area will be ensured to be free from any contamination by not allowing any storage of contaminants such as fuels, oils and all kinds of	Negligible	Included in pre-construction cost	Contractor (implementation) Samsun OIZ (performance control and management) Construction Supervision Consultant (supervision/monitoring)

Issue	Potential Impact	Impact Significance Before Mitigation	Mitigation Measure	Anticipated Impact After Mitigation	Cost of Mitigation (if substantial)	Responsible Parties
			chemicals on this area.			
Soil Environment: Erosion Potential	• Possibility of increased risk of erosion, • Possibility of increased dust emissions caused by wind erosion.	Low	• The contractor will take additional mitigation measures, such as soil sampling, in case of a requirement revealed 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;	Negligible/ None	Included in pre-construction cost	Contractor (implementation) Samsun OIZ (performance control and management) Construction Supervision Consultant (supervision/monitoring)

Issue	Potential Impact	Impact Significance Before Mitigation	Mitigation Measure	Anticipated Impact After Mitigation	Cost of Mitigation (if substantial)	Responsible Parties
			• 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. • Once the work is completed, construction areas will be quickly covered with topsoil and revegetated. • Mulch, sod or compacted soil will be used to stabilize exposed areas.			
Soil Environment: Soil Contamination	• Soil contamination risks • Groundwater contamination risks • Improper reuse of contaminated soil	Low	• 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; • Provisions of the Regulation on the Control of Soil Pollution and Sites Contaminated by Point Sources	Negligible	Included in pre-construction cost	Contractor (implementation) Samsun OIZ (performance control and management) Construction Supervision Consultant (supervision/ monitoring)

Issue	Potential Impact	Impact Significance Before Mitigation	Mitigation Measure	Anticipated Impact After Mitigation	Cost of Mitigation (if substantial)	Responsible Parties
			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 ESS1, 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, Samsun OIZ 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 Samsun OIZ 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: o 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; o Only licensed waste haulers will be used to			

Issue	Potential Impact	Impact Significance Before Mitigation	Mitigation Measure	Anticipated Impact After Mitigation	Cost of Mitigation (if substantial)	Responsible Parties
			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.			
Water Resources	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	Samsun OIZ will ensure that the contractor will prepare and implement a Water Resources Management Plan that is in line with the WB ESS1 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; This condition will be included within Contractor's contract. • Surface runoff resulted from rain/storm water or wastewater generation due to dust suppression activities will be prevented; • Stripping of topsoil will not be conducted earlier than required to prevent the erosion of soil (wind and water); • 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 usein equipment. • All chemical storage containers, including diesel fuel and hazardous liquid waste drums/containers will be placed in secondary containment in	Negligible	Included in pre-construction cost	Contractor (implementation) Samsun OIZ (performance control and management) Construction Supervision Consultant (supervision /monitoring)

Issue	Potential Impact	Impact Significance Before Mitigation	Mitigation Measure	Anticipated Impact After Mitigation	Cost of Mitigation (if substantial)	Responsible Parties
			temporary storage area so as tominimize the risk of soil, surface water and groundwater contamination during the construction; • For a case of possible breakdown and natural disaster situation, the OIZ will ensure that that contractor will prepare, implement and monitor an Emergency Preparedness Plan and theemployees will be trained on the plan. • The flow of natural waters should not be obstructed or diverted to another direction, which may lead to drying up of river beds or flooding of settlements. • Activities will not affect the availability of water for drinking and hygienic purposes. • No polluted substances, solid waste, toxic or hazardous substances will be stored, spilled or disposed of in water bodies for dilution or disposal.			
Noise Management	• Possible health hazards due to Extended exposure to high noise and vibration in/around the Project Area. • Over exposure to increased noise and vibration levels may disturb routine life of human and	Low	• Samsun OIZ will ensure that the contractor will prepare and implement a Noise Management Plan that is in line with the WB ESS1 and WBG EHS Guidelines (both general and sector specific) prior to the pre-construction works and the employees will be trained on the Plan. This condition will be included within Contractor's contract. • 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	Negligible	Included in pre-construction cost	Contractor (implementation) Samsun OIZ (performance control and management) Construction Supervision Consultant (supervision /monitoring)

Issue	Potential Impact	Impact Significance Before Mitigation	Mitigation Measure	Anticipated Impact After Mitigation	Cost of Mitigation (if substantial)	Responsible Parties
	animal populations nearby.		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; • A grievance mechanism will be established to manage noise related grievances as well. • The work schedule will be adjusted by communicating with sensitive receptors.			

Issue	Potential Impact	Impact Significance Before Mitigation	Mitigation Measure	Anticipated Impact After Mitigation	Cost of Mitigation (if substantial)	Responsible Parties
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, groundwater and air quality, and/or soil contaminatio n due to improper storage, handling and transfer of hazardous	Low	• The Contractor will be required to prepare and implement a Waste Management Plan. The Plan will be made ready 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 readily available within the currently operational WWTP area. • Waste recycling, transport and disposal will be carried out by means of licensed companies and/or relevant Tekkeköy Municipality's vehicles. • Incineration or burying of waste by any means at the 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 situated on impervious foundation. • 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	Negligible	Included in pre-construction cost	Contractor (implementation) Samsun OIZ (performance control and management) Construction Supervision Consultant (supervision /monitoring)

Issue	Potential Impact	Impact Significance Before Mitigation	Mitigation Measure	Anticipated Impact After Mitigation	Cost of Mitigation (if substantial)	Responsible Parties
	wastes, • Possibility of air and/or soil pollution risk due to unauthorized burial and burning of waste on the site.		controlled by the Samsun OIZ. • 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". • 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. • Reaction of waste with each other will be prevented by 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 is in place 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. • Excavated material that will not be used for backfilling will be removed from the site after			

Issue	Potential Impact	Impact Significance Before Mitigation	Mitigation Measure	Anticipated Impact After Mitigation	Cost of Mitigation (if substantial)	Responsible Parties
			construction is completed.			
Biodiversity and Protected Areas	• Loss of or damage on natural habitats or terrestrial species • Loss of or damage on aquatic species	Low	• A pre-construction survey and assessment of biodiversity will be conducted before start of pre-construction activities in order to identify the presence and distribution of these species on the project site. In case that any critical habitats or critical species are designated as a result of the survey, disturbance or destruction of these habitats/species will be avoided during construction activities.	Negligible	Included in pre-construction cost	Contractor (implementation) Samsun OIZ (performance control and management) Construction Supervision Consultant (supervision /monitoring)
Pesticide Management	•Possible use of pesticides.	Low	• Samsun OIZ 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. • Pesticide usage will be limited to those such that have negligible adverse human health effects; they will be shown to be effective against the target species; and they will have minimal impact on nontarget species and the natural environment.	Negligible	Included in pre-construction cost	Contractor (implementation) Samsun OIZ (performance control and management) Construction Supervision Consultant (supervision /monitoring)
Stakeholder Engagement	• Objections and obstruction efforts during the project/design phase due to lack of information to the people who are likely to be affected by the	Low	• Before the start of construction works, the local people and all relevant stakeholders will be informed of the works to be performed and the measures to be taken. • Comprehensive information on stakeholder engagement is provided in the SEP of the Project and the SEP will be updated and implemented throughout the Project. • Informing the persons or organizations likely to be affected by the project about the project • Establishing a grievance and suggestion mechanism in	Negligible	Included in pre-construction cost	Contractor (implementation) Samsun OIZ (performance control and management) Construction Supervision Consultant (supervision /monitoring)

Issue	Potential Impact	Impact Significance Before Mitigation	Mitigation Measure	Anticipated Impact After Mitigation	Cost of Mitigation (if substantial)	Responsible Parties
	project • Suspension of the project due to lack of Stakeholder Engagement Process and not receiving suggestions and complaints • Insufficient stakeholder engagement activities and public consultation		order to inform the persons and organizations that are likely to be affected by the Project as specified in the SEP, about any adverse environmental and social risks and how to submit any grievances, if required. • Collection and evaluation of suggestions and complaints about the project			
Occupational Health and Safety	• Risk of occupational health and safety hazards to the workers • Work-related accidents (near misses, personnel injuries and occupational illnesses, fatalities) • Noncompliance with all applicable	Low	• Preparation of the following plans and procedures for the approval of the OIZ and the Supervision Consultant by the Contractor before the commencement of construction works. These will be included within Contractor's contract: o Occupational Health and Safety (OHS) Plan based on construction site OHS risk assessment, including work procedures (such as permit to works etc.), checklists and daily record forms o Emergency Preparedness and Response Plan, o Labor Management rocedures (including Worker Code of Conduct) in line with the LMP, to be approved by PMU o Grievance Mechanism Procedure including	Negligible	Included in pre-construction cost	Contractor (implementation) Samsun OIZ (performance control and management) Construction Supervision Consultant (supervision /monitoring)

Issue	Potential Impact	Impact Significance Before Mitigation	Mitigation Measure	Anticipated Impact After Mitigation	Cost of Mitigation (if substantial)	Responsible Parties
	occupational health and safety regulations and other legal and contractual requirements • GBV and SEA/SH related incidents		Grievance Register o Accident investigation and root cause analyze • GM, GBV, SEA/SH trainings will be given to whole personnel before the construction.			
Community Health and Safety	• Risk of health and safety hazards to the community members such as access from outside etc.	Low	• Preparation and implementation of the Community Health and Safety Plan such as • Informing community about the risks • Installing warning signs, fence/curtain for the perimeter of the construction area, etc.	Negligible	Included in pre-construction cost	Contractor (implementation) Samsun OIZ (performance control and management) Construction Supervision Consultant (supervision /monitoring)

8.2 Mitigation Plan for the Construction Stage

Issue	Potential Impact	Impact Evaluation Before Mitigation	Mitigation Measure	Anticipated Impact After Mitigation	Cost of Mitigation (if substantial)	Responsible Parties
Air Quality: Dust Emissions	Reducing air quality surrounding the Project Area,	Low	• Samsun OIZ will ensure that the contractor will implement an Air Quality and Emissions Management Plan that is in line with the WB ESS1 and WBG EHS Guidelines (both general and sector specific). This condition will be included within Contractor's contract. • The employees will be trained on an 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	Negligible	Included in construction cost	Contractor (implementation) Samsun OIZ (performance control and management) Construction Supervision Consultant (supervision /monitoring)

Issue	Potential Impact	Impact Evaluation Before Mitigation	Mitigation Measure	Anticipated Impact After Mitigation	Cost of Mitigation (if substantial)	Responsible Parties
			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; • When there will be windy weather conditions (wind speed is above 30 km/hour) in the Project Area, excavation will not be carried out or additional measures such as placement of wind shields/barriers will be taken to prevent dust dispersion; • 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; • 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			

Issue	Potential Impact	Impact Evaluation Before Mitigation	Mitigation Measure	Anticipated Impact After Mitigation	Cost of Mitigation (if substantial)	Responsible Parties
			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. • Compliance with the air emission limit values stipulated in national legislation and WB Compliance with the air emission limit values stipulated in Project Standard;			
Air Quality: 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 SO2, PM, NOx emissions. • Increase in	Low	• All vehicles to be used in transportation activities will be issued an emission control stamp which is renewed every year by measuring the emissions from the exhausts; • 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; • Vehicles that can provide European Euro VI standards will be selected; • Relevant provisions of the Regulation on Air Pollution Control Sourced from Industry and Regulation on the Assessment and Management of Air Quality will be complied with to minimize air	Negligible	Included in construction cost	Contractor (implementation) Samsun OIZ (performance control and management) Construction Supervision Consultant (supervision/ monitoring)

Issue	Potential Impact	Impact Evaluation Before Mitigation	Mitigation Measure	Anticipated Impact After Mitigation	Cost of Mitigation (if substantial)	Responsible Parties
	Greenhouse Gas emissions (CO2, CH4, N2O)		emissions sourced from construction machinery and trucks; • Exhaust systems of the vehicles (daily and periodically) will be controlled regularly. 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. • 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; • Idling of vehicles and machinery will be avoided. • Energy uses associated with construction vehicles and equipment will be monitored; • Training will be performed for project personnel regarding energy efficiency.			
Erosion Potential of Soil	• Possibility of increased risk of erosion, • Possibility of increased dust emissions caused by wind erosion.	Low	• 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;	Negligible	Included in construction cost	Contractor (implementation) Samsun OIZ (performance control and management) Construction

Issue	Potential Impact	Impact Evaluation Before Mitigation	Mitigation Measure	Anticipated Impact After Mitigation	Cost of Mitigation (if substantial)	Responsible Parties
			• 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.			Supervision Consultant (supervision/ monitoring)
Soil Contamination Risks	• 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	Medium	• Samsun OIZ will ensure that the Contractor will continue to comply with the Soil Management Plan that was prepared in line with the WB ESS1 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 Oil and Chemical Spill Contingency Management Plan and renew the training if necessary; • 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 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	Low	Included in construction cost	Contractor (implementation) Samsun OIZ (performance control and management) Construction Supervision Consultant (supervision/ monitoring)

Issue	Potential Impact	Impact Evaluation Before Mitigation	Mitigation Measure	Anticipated Impact After Mitigation	Cost of Mitigation (if substantial)	Responsible Parties
	soil as landscaping,		(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 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 ESS1, 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, Samsun OIZ 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			

Issue	Potential Impact	Impact Evaluation Before Mitigation	Mitigation Measure	Anticipated Impact After Mitigation	Cost of Mitigation (if substantial)	Responsible Parties
			MoEUCC and Samsun OIZ 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: • 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.			
Water Resources: Quality Change in Water Bodies	• Possibility of leakage of generated municipal wastewater that may cause to degradation in groundwater qualities, • Possibility of leakage of generated municipal wastewater that	Medium	• The Contractor will be required to prepare a Water Resources Management Plan 30 days prior to commencement of the works and employees will be trained in the Water Resource Management Plan. • Surface runoff resulting from rain/storm water or wastewater generation due to dust suppression activities will be prevented; • Water to be used for dust suppression will be monitored and recorded in terms of amount used. • Discharge of wastewater, residues or other waste into groundwater or into surface water will not be allowed.	Low	Included in construction cost	Contractor (implementation) Samsun OIZ (performance control and management) Construction Supervision Consultant (supervision/ monitoring)

Issue	Potential Impact	Impact Evaluation Before Mitigation	Mitigation Measure	Anticipated Impact After Mitigation	Cost of Mitigation (if substantial)	Responsible Parties
	may cause to degradation in the Black Sea • Increased possibility of surface runoff occurrence		• Toilets at the currently WWTP will be used. • All chemical storage containers, including diesel fuel and hazardous liquid waste drums/containers will be placed on secondary containment at the temporary storage area. • In case of possible breakdown and natural disaster situation, Samsun OIZ will ensure that that contractor will prepare, implement and monitor an Emergency Preparedness Plan and the employees will be trained on the plan. • No polluted substances, solid waste, toxic or hazardous substances will be stored, spilled or disposed of in water bodies for dilution or disposal. • Activities will not affect the availability of water for drinking and hygienic purposes. • The flow of natural waters will not be obstructed or diverted to another direction, which may lead to drying up of river beds or flooding of settlements. •			

Issue	Potential Impact	Impact Evaluation Before Mitigation	Mitigation Measure	Anticipated Impact After Mitigation	Cost of Mitigation (if substantial)	Responsible Parties
Noise Management	• Possible health hazards due to extended exposure to high noise and vibration in/around the Project Area. • Over exposure to increased noise and vibration levels may disturb routine life of human and animal populations nearby.	Low	• The Contractor will be required to plan and implement a Noise Management Plan 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 and construction stages will not be operated at the same point/location but homogeneously distributed at 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 periodically. • All vehicles to be used in transportation activities will obey the speed limits set out in the legislation. • 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 and working hours. • 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, public will be informed 1 week in advance about the time of construction activities. • A grievance mechanism will be established to manage noise related grievances as well.	Negligible	Included in construction cost	Contractor (implementation) Samsun OIZ (performance control and management) Construction Supervision Consultant (supervision/ monitoring)

Issue	Potential Impact	Impact Evaluation Before Mitigation	Mitigation Measure	Anticipated Impact After Mitigation	Cost of Mitigation (if substantial)	Responsible Parties
			• The work schedule will be adjusted by communicating with sensitive receptors such as the surrounding facilities within the OIZ and close neighborhoods. •			
Waste Generation	• Inefficient management of resources and increased amount of waste due to not separating waste and/or	Medium	• The Contractor will be required to prepare and implement a Waste Management Plan. The Plan will be made ready 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	Low	Included in construction cost	Contractor (implementation) Samsun OIZ (performance control and management)

Issue	Potential Impact	Impact Evaluation Before Mitigation	Mitigation Measure	Anticipated Impact After Mitigation	Cost of Mitigation (if substantial)	Responsible Parties
	storing, handling or transferring wastes • Improperly, • Possibility of increased public health hazard risks, deterioration of surface water, groundwater 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.		waste management hierarchy. • Waste will be separated (i.e., hazardous / non-hazardous, recyclable / non-recyclable) and stored in designated temporary storage areas readily available within the currently operational WWTP area. • Waste recycling, transport and disposal will be carried out by means of licensed companies and/or relevant Tekkeköy Municipality's vehicles. • Incineration or burying of waste by any means at the 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 situated on impervious foundation. • 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 Samsun OIZ. • Waste batteries from construction site and accumulators from vehicles will be disposed of in compliance with the consumer responsibilities			Construction Supervision Consultant (supervision/ monitoring)

Issue	Potential Impact	Impact Evaluation Before Mitigation	Mitigation Measure	Anticipated Impact After Mitigation	Cost of Mitigation (if substantial)	Responsible Parties
			specified in Article 13 of the "Regulation on Control of Waste Batteries and Accumulators". • 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. • Reaction of waste with each other will be prevented by 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 is in place from the Provincial Directorate of Environment, Urbanization and Climate Change. • Excavated material that will not be used for backfilling will be removed from the site after construction is completed. • Spill kits will be available at the Temporary Storage Area and necessary precautions will be taken against possible fires such as provision of			

Issue	Potential Impact	Impact Evaluation Before Mitigation	Mitigation Measure	Anticipated Impact After Mitigation	Cost of Mitigation (if substantial)	Responsible Parties
			appropriate firefighting equipment.			
Biodiversity and Protected Areas	• Loss of or damage on natural habitats or terrestrial species • Loss of or damage on aquatic species	Low	• According to the results of the pre-construction survey and assessment of biodiversity that will be conducted before start of pre-construction activities, in case that any critical habitats or critical species are designated, disturbance or destruction of these habitats/species will be avoided during construction activities.	Negligible	Included in construction cost	Contractor (implementation) Samsun OIZ (performance control and management) Construction Supervision Consultant (supervision/ monitoring)
Pesticide Management	• Possible use of pesticides.	Low	• Samsun OIZ 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. • Pesticide usage will be limited to those such that have negligible adverse human health effects; they will be shown to be effective against the target species; and they will have minimal impact on nontarget species and the natural environment.	Negligible	Included in construction cost	Contractor (implementation) Samsun OIZ (performance control and management) Construction Supervision Consultant (supervision/ monitoring)

Issue	Potential Impact	Impact Evaluation Before Mitigation	Mitigation Measure	Anticipated Impact After Mitigation	Cost of Mitigation (if substantial)	Responsible Parties
Employment / Economy	• Contribution to economy	Low	• Care will be taken to contribute to the local economy through the use of local materials and to procure various goods and services from local resources. • Priority will be given to the local labour where possible and practical. • Efforts will be exercised to allocate employment opportunities to residents of nearby neighborhoods.	Negligible	Included in construction cost	Contractor (implementation) Samsun OIZ (performance control and management) Construction Supervision Consultant (supervision/ monitoring)

Community Health and Safety	• Risk of health and safety hazards to the community members such as access from outside etc. • Direct and indirect threats posed by construction activities to traffic and pedestrians	Low	• Preparation and implementation of the Community Health and Safety Plan • Installing warning signs, fence/curtain for the perimeter of the construction area, etc. • Traffic safety will be provided. • All vehicles to be used in transportation activities will comply with the speed limits specified in the Highway Traffic Regulation, • Traffic and warning signs will be placed around and near the project area. • The project area will be made visible. • Local people will be informed about potential hazards and risks through brochures and posters left in common areas frequently used by local people such as workplaces and other common areas that the employees in OIZ use. • The activities affecting the local traffic will be planned considering the rush hours of the traffic as much as possible. • Vehicles carrying construction machinery and materials will not park outside the project area and parking lot • Setting speed limits • Protectors carrying work machines and materials must have appropriately qualified persons. • Hanging warning signs about speed limit in the Project Area • All drivers involved in the project will be informed about road safety, speed limits, and traffic rules to be followed during the project, and requirements to be observed.	Negligible	Included in construction cost	Contractor (implementation) Samsun OIZ (performance control and management) Construction Supervision Consultant (supervision/ monitoring)

Issue	Potential Impact	Impact Evaluation Before Mitigation	Mitigation Measure	Anticipated Impact After Mitigation	Cost of Mitigation (if substantial)	Responsible Parties
Community Health and Safety	• Potential Community Disturbance	Medium	• The OIZ will ensure that contractors establish the code of conduct and will check that workers will be given training. In case of workers of foreign nationaliy contractor will provide support on translation and communication. • There will be also support for translation and communication for the non-Turkish workers who work in the OIZ – in case of necessity • The operations to be carried out during construction works will be performed not to restrict/hinder the social and economic life of local people. • To avoid any impact on the safety and daily life of communities, safety and information signs will be placed on site before the work. • The perimeter of the construction areas will be blocked with a wire fence and warning signs will be hung.	Low	Included in construction cost	Contractor (implementation) Samsun OIZ (performance control and management) Construction Supervision Consultant (supervision/ monitoring)
Labour and Working Conditions	• Improper Working Conditions, Child labour, forced labour and unregistered employment	Low	• The Contractor will be required to prepare and implement a Labour Management Plan in line with the LMP. • Written contracts will be provided to all workers upon recruitment, including job description, working hours, wages, terms and conditions of employment and rights in accordance with national legislation and Code of Conduct. • Keeping personnel data files including contracts, training records, signed codes of conduct, health reports. Workers will be informed about and have	Negligible	Included in construction cost	Contractor (implementation) Samsun OIZ (performance control and management) Construction Supervision Consultant

Issue	Potential Impact	Impact Evaluation Before Mitigation	Mitigation Measure	Anticipated Impact After Mitigation	Cost of Mitigation (if substantial)	Responsible Parties
			access to the Grievance mechanism. • All workers will be given training on discrimination and codes of conduct. The training given to the employees will include the concepts of sexual harassment and abuse (SH/SA), sexual exploitation, gender-based violence (GBV), abuse, and intervention with harassment. • Minimum legal labour standards will be met (prevention of child/forced labour, anti-discrimination, working hours, minimum wages) as per International Labor Organization (ILO) regulations. • At the same time, national laws/ regulations and international conventions/ standards will be complied with in terms of the working conditions. • Discrimination based on language, race, gender, political thought, philosophical belief and religion will be avoided in business relations.			(supervision/ monitoring)
Labour and Working Conditions	• Inadequate workers' health and safety conditions	Medium	• The PMU will include an OHS expert with a "Class A" specialization certificate who will take part full-time and effectively control the implementation of the Project. She/he will monitor the site implementations. • The consultant and the OIZ will make sure that the measures provided below are taken by the contractor and enforce necessary actions/sanctions in case of lack of these measures on-site. In accordance with the Occupational Health and Safety Regulation in Construction Works, the required person, information, plan, and	Low	Included in construction cost	Contractor (implementation) Samsun OIZ (performance control and management) Construction Supervision Consultant (supervision/ monitoring)

Issue	Potential Impact	Impact Evaluation Before Mitigation	Mitigation Measure	Anticipated Impact After Mitigation	Cost of Mitigation (if substantial)	Responsible Parties
			organization will be provided. • An Emergency Response Plan will be prepared and shared with all employees. • The OIZ will require all employees and contractors to adhere to local and international health and safety legislation and guidelines. Workers will be provided with all necessary personal protective equipment (PPE) (hard hats, safety harnesses, protective coveralls, glasses, gloves, safety shoes, etc.). • Non-smoking areas will be allocated at the construction site. • Appropriate hand and face washing facilities will be provided to the employees, and also shower facilities for dusty works. • Technical and OHS training, including the code of conduct indicating the possible risks regarding the work site and works to be carried will be given to workers by the contractor. •			
	• Work suspension due to work accident (lack of appropriate OHS measures/ unsafe work environment)	Medium	• The Contractor will be required to plan and implement OHS Plan, Emergency Preparedness and Response Plan (EPRP), Accident/incident Investigation and Reporting and Root Cause Analysis Procedure, and Non-Conformity / Non-Compliance and Corrective / Preventive Action Procedure. • The Contractor will have a full-time OHS Expert with relevant certification and experience in charge of occupational health and safety and s/he will	Low	Included in construction cost	Contractor (implementation) Samsun OIZ (performance control and management) Construction Supervision

Issue	Potential Impact	Impact Evaluation Before Mitigation	Mitigation Measure	Anticipated Impact After Mitigation	Cost of Mitigation (if substantial)	Responsible Parties
			control and monitor the site implementations. • Safety barriers and warning signs will be placed around work areas. • Occupational safety meetings/toolbox talks will be organized with workers before starting work every day. • Legal periodic inspection of work equipment will be conducted at the construction site by an authorized expert. • Daily control of work equipment by its operators. • First aid boxes for each work team for first aid response. • Providing certified first aid training to workers. • Establishment of a first aid team consisting of workers for each work zone. • Providing workers with Personal Protective Equipment (PPE) specific to their tasks. • Provide a safe and healthy work environment for the workers. Provide equipment that meets international standards in terms of performance and safety. • Inform all workers about the required safety rules, risks, and related regulations to be followed at the construction site throughout the construction period. • Establish emergency teams and carry out training/drills according to the emergency scenarios. • Record all accidents and incidents (fatalities, lost			Consultant (supervision/ monitoring)

Issue	Potential Impact	Impact Evaluation Before Mitigation	Mitigation Measure	Anticipated Impact After Mitigation	Cost of Mitigation (if substantial)	Responsible Parties
			time incidents, any significant events including spills, fire, pandemic outbreak or infectious diseases, social unrest, etc.) as well as near misses. The project owner will ensure that all OHS measures are taken by the Contractor and enforce necessary actions/sanctions in case of lack of these measures on sites. • The Contractor will promptly notify the OIZ in case of any incident or accident related to the Project which has, or is likely to have, a significant adverse effect on the environment, the affected communities, the public and workers such as OHS accidents or that result in threatening community health and safety and the OIZ will immediately (not later than 48 hours) inform MoIT, and MoIT will inform the World Bank. In such cases, the OIZ will provide sufficient details regarding the incident or accident, findings of the Root Cause Analysis (RCA), indicating immediate measures taken or that are planned to be taken to address it, compensation paid, and any information provided by any contractor and supervising entity/consultant, as appropriate. The OIZ will submit the incident report, including root cause analysis, precautions and compensation measures taken, to MoIT within 30 business days. MoIT will forward the incident report to the Bank immediately upon receipt from the OIZ. • Within the scope of electrical safety, work will not be carried out other than authorized and competent persons.			

Issue	Potential Impact	Impact Evaluation Before Mitigation	Mitigation Measure	Anticipated Impact After Mitigation	Cost of Mitigation (if substantial)	Responsible Parties
			• Providing periodic training to the workers on OHS issues including emergency response such as firefighting and recording all provided training. • Providing appropriate type and number of fire extinguishing equipment in each working area • Machinery and equipment to be used during land preparation and construction activities will not be operated at the same point/place, but will be distributed homogeneously on the site, • Care will be taken to select equipment with low noise levels within the scope of the project, • Maintenance of construction machinery and equipment will be done regularly and periodically, • In case of complaints, noise measurements will be conducted and additional mitigation measures (such as noise barriers, etc.) will be applied if the measured values exceed the project standards. Equipment and vehicles used externally will be regularly maintained. • "Low noise" equipment will be used as much as possible during the construction stage. Where construction equipment is provided with impermeable acoustic covers or enclosures, covers will be kept closed while the equipment is in operation. • When equipment is not working, it will be turned off or reduced to the minimum level. • Vibration levels will be monitored in case of complaints, and measures will be taken to reduce vibration if standards are exceeded.			

Issue	Potential Impact	Impact Evaluation Before Mitigation	Mitigation Measure	Anticipated Impact After Mitigation	Cost of Mitigation (if substantial)	Responsible Parties
			• Noise measurement will be carried out at the nearest noise-sensitive receptors in accordance with the international standard, in case of any complaints.			
Stakeholder Engagement	Lack of communication with the stakeholders. Insufficient stakeholder engagement activities and public consultation.	Low	• Draft ESMP will be disclosed and consulted with stakeholders before approval and before start of work. Adequate timing will be planned for interaction/communication with communities and for engagement. • Regular public awareness and sufficient public engagement will be carried out with the authorities and communities regarding: • Information about current progress of the Project • Implementation of project-specific Grievance Mechanism (GM) • Grievance mechanisms and tools other than project-specific GM implementations. • All the documents informing the locals about the project and about the GM will be translated into Arabic language, in case of necessity	Negligible	Included in construction cost	Contractor (implementation) Samsun OIZ (performance control and management) Construction Supervision Consultant (supervision/ monitoring)
Stakeholder Engagement	Insufficient and/or ineffective grievance mechanism for the internal and external stakeholders.	Low	• An efficient Grievance Mechanism will be initiated to allow potentially affected individuals to voice their concerns on the Project. • All grievances will be collected, recorded and resolved/closed in a short period of time. • All stakeholders/grievance holders will be given feedback regarding the complaints, suggestions and requests.	Negligible	Included in construction cost	Contractor (implementation) Samsun OIZ (performance control and management)

Issue	Potential Impact	Impact Evaluation Before Mitigation	Mitigation Measure	Anticipated Impact After Mitigation	Cost of Mitigation (if substantial)	Responsible Parties
			• Contractor will be required to establish an effective grievance mechanism working in coordination with the Project Owner			Construction Supervision Consultant (supervision/ monitoring)

8.3 Mitigation Plan For the Operation Stage

Issue	Potential Impact	Impact Significance Before Mitigation	Mitigation Measure	Impact Significance After Mitigation	Cost of Mitigation (if substantial)	Responsible Parties
Air Quality: Odorous Gas Emissions	• Odor problems around WWTP	Medium	• Screenings will be collected and disposed frequently for odor prevention. • Treatment sludge will be stored in roofed area to prevent flies and odor. • Oxidizing material (such as hydrogen peroxide, sodium hypochlorite) will be added as necessary. • pH levels will be controlled. • Odorous compounds will be oxidized by the help of chemicals. • In case of grievances, the Preliminary Treatment Units will be enclosed. Grievance Mechanism will continue to operate.	Low	Included in operation cost.	Samsun OIZ
Air Quality: 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 SO2, PM, NOx emissions • Increase in GHG emissions (CO2, CH_4, N_2O)	Low	• 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 stage vehicles will not be permitted to keep engines running while waiting or standing by for duty. • Speed restrictions will be adopted by operation stage vehicles and optimal use of operation stage equipment to optimize fuel efficiency; • Regular maintenance of operation stage vehicles and equipment will be applied. • Energy uses associated with operation stage vehicles and equipment will be monitored; • Regular maintenance of WWTP machinery, and equipment	Negligible	Inluded in operation cost.	Samsun OIZ

			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.			
Soil Contamination	• Contamination of soil, • Possibility of contamination of ground 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	Low	• 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; • Machinery and equipment will be checked regularly for leaking oil and fuel; • 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; • 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). The sludge dried in the licensed facility will be sent to cement factories as fuel.	Negligible	Inluded in operation cost.	Samsun OIZ
Water Resources: Quality Change in Water	• Quality of treated wastewater at the point of Hıdırellez creek discharge point	Low	• 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; • No polluted substances, solid waste, toxic or hazardous substances will be stored, spilled or disposed of in water bodies for dilution or disposal.	Positive	Inluded in operation cost.	Samsun OIZ
Noise Control	• Increase in background noise	Low	• During the procurement of equipment and machinery, sound levels given in the technical specifications/data		Inluded in	Samsun

			sheet will be taken into consideration; • Grievance Mechanism will be established to manage noise related grievances as well.	Negligible	operation cost.	OIZ
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, ground 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	• Waste Management Plan will be updated by Samsun OIZ to reflect the operation stage conditions before commencement of the operation stage. Relevant measures defined for the construction stage also apply also to the operation stage. 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 Tekkeköy Municipality; • Domestic waste will be collected by Tekkeköy Municipality and transferred to the Samsun Metropolitan Municipality Landfill. Other wastes generated will be given to licensed organizations within the framework of the legislation. • No incineration or burying of waste will be implemented by any means on site and/or dumping of waste to nearby roads or water resources will absolutely not be implemented; • 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; • 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	Negligible	Inluded in operation cost.	Samsun OIZ

			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 appropriate firefighting equipment.			
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.	Medium	• Samsun OIZ will prepare and implement monitor a Water Resources and Effluent Management Plan that is in line with WB ESS1 and WBG EHS Guidelines (both general and sector specific) will be prepared and the employees will be trained on the plan, prior to the operation stage 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 stage of WWTP, • Regular inspection and maintenance will be conducted; • A leak detection and repair program will 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 will 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	Low	Inluded in operation cost.	Samsun OIZ

			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.			
Waste Management: Sludge Generation	• Generation of sludge at the end of the water treatment process.	Medium	• Samsun OIZ will prepare and implement a Sludge Management Plan in line with WB ESS1 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 will 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	Inluded in operation cost.	Samsun OIZ
Pesticide Management	• Possible future use of pesticides for landscaping, etc. •	Low	• Samsun OIZ 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. • Pesticide usage will be limited to those such that have negligible adverse human health effects; they will be shown to be effective against the target species; and they will have minimal impact on nontarget species and the natural environment.	Negligible	Inluded in operation cost.	Samsun OIZ
Biodiversity and Protected	• Loss of or damage on natural habitats or	Low	• According to the results of the pre-construction survey and assessment of biodiversity that will be conducted	Negligible	Inluded in operation	Samsun OIZ

Areas	terrestrial species • Loss of or damage on aquatic species		before start of pre-construction activities, in case that any critical habitats or critical species are designated, disturbance or destruction of these habitats/species will be avoided during operation stage.		cost.	
Community Health and Safety	• Community health and safety risks	Medium	• The public, nearby institutions and organizations, and hospitals and schools will be informed at least two days before starting repair/maintenance works that may cause disturbance. • Updated information about the grievance mechanism will continue to be provided. In case of an update in the documents, the updated information will be announced to the local people through the relevant muhtar's office.	Low	Inluded in operation cost.	Samsun OIZ
Labour and Working Conditions	• Improper Working Conditions	Low	• In line with continued adherence to the LMP of the TOIZsP concluding written contracts with workers upon recruitment, including job description, working hours, wages, terms and conditions of employment and rights in accordance with national legislation and Code of Conduct • • Workers will be familiar with the grievance mechanism officer and will be enabled to have access to and be aware of the Grievance mechanism. • Minimum legal labour standards will be met (child/forced labour, anti-discrimination, working hours, minimum wages) as per ILO regulations. • At the same time, national laws/ regulations and international conventions/ standards will be complied with in terms of the working conditions.	Negligible	Inluded in operation cost.	Samsun OIZ
Labour and Working Conditions	• Inadequate workers' health and safety conditions	Medium	• Prior to start of operation, Occupational Health and Safety Plan will be prepared based on operational OHS risks. • Before starting work, employees will have written contracts with job descriptions, responsibilities, wages and working hours, Code of Conduct, relationships with	Low	Inluded in operation cost.	Samsun OIZ

			the local people, and risks that may threaten occupational health and safety. • Workers will be provided with appropriate induction, health and safety training and information. • All equipment used during the operation stage will be kept in good working condition. • Emergency Plans" will be prepared for a potential accident or emergency. Emergency teams will be formed, and drills and training programs will be carried out in line with emergency scenarios. • Employees will have a good command of emergency plans, and the grievance will be reported to the authorized teams and resolved if they require urgent action. • In case of any potential accident involving injury during the operation stage, the equipment for first aid will be kept available at the rehabilitation centre, taking into account that first aid response may be required before the casualty is referred to the nearest healthcare provider. • The OIZ formally agrees that all work will be carried out in a safe and disciplined manner and is designed to minimize risks to neighbouring residents and the environment. • All activities will be implemented in line with both the Law on Occupational Health and Safety and its relevant regulations, and also the WBG's EHS Guidelines. • Both training and incidents (fatalities, lost time incidents, outbreak of pandemic or communicable diseases, social unrest, etc.) will be recorded. • In the event of any significant incident (e.g. environmental, social, labour or lost-time incidents) the OIZ will inform the MoIT and WB within three business days. Then, within 30 days, a report on the root causes of the incident and the corrective actions to be taken will be presented to the MoIT and WB.			

			• Equipment that meets international standards in terms of performance and safety will be used in the Project • The chemicals will be stored indoors by taking sealing precautions and only experienced personnel will handle chemicals, while employees will have minimal contact with them in terms of quantity and duration. • Adequate ventilation systems will be installed in all areas where chemicals are stored or used to ensure that air quality standards are maintained, and the risk of exposure is minimized. • Necessary precautions will be implemented at the working areas at height by covering ground- mounted safety railing and compliant handrail systems, lifelines, working/maintaining platforms			
Stakeholder Engagement	• Lack of communication with the stakeholders. • Insufficient stakeholder engagement activities and public consultation.	Medium	• Interaction/communication will be established with communities, and adequate timing will be planned for engagement activities. Additionally, annual consultations will be carried out with the • authorities and communities regarding the project management.	Low	Included in operation cost.	Samsun OIZ
Stakeholder Engagement	• Grievance Issues. Insufficient and/or ineffective grievance mechanism for the internal and external stakeholders.	Medium	• An efficient grievance mechanism will be initiated to allow potentially affected community members and employees to voice their concerns on the Project.	Low	Inluded in operation cost.	Samsun OIZ

9 ENVIRONMENTAL AND SOCIAL MONITORING PLAN

The main objective of the Monitoring Plan is to assess the implementation of the mitigation measures and requirements of this ESMP.

Information collected with the monitoring can be used to improve management plans during all stages 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.

Monitoring will ensure the proper implementation of impact mitigation measures and optimization of environmental protection by using best practices at all stages of the Project.

Given the moderate risks of the Project that will be lowered to low and insignificant levels as a result of industrial best practices, monitoring tables in Sections 9.1, 9.2 and 9.3 are mostly relevant to nuisance based grievances that can be received throughout project implementation and operation.

Responsible parties during the pre-construction and construction stages include Samsun OIZ, the Contractor and the Construction Supervision Consultant. The Contractor is included as a key responsible party as they are directly responsible for implementing specific environmental management measures on-site during both construction and operation phases. Contractors are expected to assign qualified environmental, social, and occupational health and safety (OHS) specialists within their project team to conduct day-to-day monitoring of ESMP requirements. These specialists regularly report to the Construction Supervision Consultant and the Ministry of Industry and Technology Project Implementation Unit (MoIT PIU), ensuring that monitoring activities are carried out professionally, independently, and in accordance with applicable standards. While the Supervision Consultant oversees compliance, the Contractor plays a critical role in the direct implementation and ongoing monitoring of environmental and social performance. For the operation stage, the responsible party is only the OIZ Administration.

9.1 Monitoring Plan for the Pre-Construction Stage

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-frequency of measurement or continuous?)	**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**
Air Quality	Settled dust PM_{10} and $PM_{2.5}$	Below the Project standards PM_{10}: 1-Year: 20 µg/m3 24-Hour: 50 µg/m3 (99th percentile (i.e.3-4 exceedance days per year) $PM_{2.5}$: 1-Year: 10 µg/m3 24-Hour: 25 µg/m3 (99th percentile (i.e.3-4 exceedance days per year) No air quality related grievance received Administration office of Contractor for the follow-up of records No air quality related grievance received	In case of a complaint, in the relevant area	Sampling/analysis via an authorized environmental laboratory Visually, on the basis of irritation of the respiratory system, in case of a grievance/complaint received via the Grievance Mechanism.	In case of a nuisance-based grievance	Included in pre-construction cost	Samsun OIZ (performance control and management) Contractor (implementation) Construction Supervision Consultant (supervision/monitoring)
Air Quality	Maintenance and exhaust decal records of all machinery and equipment	Below the Project Standards: CO: 50 kg/h Dust: 1 kg/h NOx: (as NO2) 4 kg/h SOx: 6 kg/h TOC: 3 kg/h	In case of a complaint, in the relevant area	Maintenance records	Monthly during the pre-construction phase	Included in pre-construction cost	Samsun OIZ (performance control and management) Contractor (implementation) Construction Supervision Consultant (supervision/monitoring)
Noise Levels	dB(A) Levels	≤ 65 dB(A) during daytime; ≤ 55 dB(A) during nighttime	In case of a complaint, in the relevant area	measurements via an authorized environmental laboratory	In case of a nuisance-based grievance	Included in pre-construction cost	Samsun OIZ (performance control and management) Contractor (implementation) Construction Supervision Consultant (supervision/monitoring)
Soil Quality	Presence of hydrocarbons	No contamination	Soil sampling points near WWTP and storage areas	Visual observation for stains Soil sampling and laboratory analysis	After any spill event At time of visually detected stains	Included in pre-construction cost	Samsun OIZ (performance control and management) Contractor (implementation) Construction Supervision Consultant (supervision/monitoring)

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 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 (SO4 -2): 1500 mg/L	At the upstream and downstream of Hıdırellez Creek	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	Samsun OIZ (performance control and management) Contractor (implementation) Construction Supervision Consultant (supervision/monitoring)
Waste Management	Volume and type of hazardous and non-hazardous waste generated	Proper classification, storage, and disposal according to regulations	Waste storage areas within WWTP	Regular inspection and documentation review	Monthly	Included in pre-construction cost	Samsun OIZ (performance control and management) Contractor (implementation) Construction Supervision Consultant (supervision/monitoring)
Biodiversity	Presence of any critical species and critical habitats	Minimal disturbance of vegetation, especially rare species Limited disturbance on habitats	Project site and immediate surrounding area	Visual investigation	Once at the start and once at the end of top soil removal	Included in pre-construction cost	Samsun OIZ (performance control and management) Contractor (implementation) Construction Supervision Consultant (supervision/monitoring)
Pesticide Management	Potential use, storage and disposal of pesticides and containers	No pesticide usage on the site	Construction site, landscape areas, chemicals storage area	Visual inspection for any signs of pesticide usage, including labels or containers	Once at the start and once at the end of top soil removal	Included in pre-construction cost	Samsun OIZ (performance control and management) Contractor (implementation) Construction Supervision Consultant (supervision/monitoring)
Worker Health and Safety	Number of incidents/accidents, use of PPE	Zero accidents/incidents Zero worker grievances All grievances to be responded to in an adequate manner within 15 days following the day of application.	Construction and operational areas within WWTP	Incident reporting system, PPE usage checks Grievance mechanism	Continuous monitoring and incident-based And at times of worker grievances	Included in pre-construction cost	Samsun OIZ (performance control and management) Contractor (implementation) Construction Supervision Consultant (supervision/monitoring)
Protecting the Workforce	Age of candidate employee	No cases of child labor	Administration office and Project area	Age verification with National ID	Before each recruitment	Included in pre-construction cost	Samsun OIZ (performance control and management) Contractor (implementation) Construction Supervision Consultant (supervision/monitoring)
Workers Engaged by Third Parties and the		No nonconformity is observed	Administration office	Contract reviews by ESHS		Included in pre-construction cost	Samsun OIZ (performance control and management)

Supply Chain	Contractor and sub-contractor agreements	with the ESMP		expert(s)	Before each agreement made		Contractor (implementation) Construction Supervision Consultant (supervision/monitoring)
Gender Based Violence (GBV), Sexual Exploitation Abuse / Sexual Harassment (SEA/SH)	GBV and SEA/SH related incidents Grievance records	No GBV and SEA/SH related issues Minimum 1 annual refresher training for SEA/SH and GBV All grievances submitted responded to in adequate and timely manner through the prescribed confidential process	Administration office and Project area	Document review Review of grievance logs Training records	Quarterly Upon relevant grievances Yearly	Included in pre-construction cost	Samsun OIZ (performance control and management) Contractor (implementation) Construction Supervision Consultant (supervision/monitoring)

9.2 Monitoring Plan for the Construction Stage

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-frequency of measurement or continuous?)	**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**
Air Quality	Settled dust PM_{10} and $PM_{2.5}$	Below the Project standards PM10: 1-Year: 20 µg/m3 24-Hour: 50 µg/m3 (99th percentile (i.e.3-4 exceedance days per year) PM2.5: 1-Year: 10 µg/m3 24-Hour: 25 µg/m3 (99th percentile (i.e.3-4 exceedance days per year) No air quality related grievance received Administration office of Contractor for the follow-up of records No air quality related grievance received	In case of a complaint, in the relevant area	Sampling/analysis via an authorized environmental laboratory Visually, on the basis of irritation of the respiratory system, in case of a grievance/complaint received via the Grievance Mechanism.	In case of a nuisance based grievance	Included in construction cost	Samsun OIZ (performance control and management) Contractor (implementation) Construction Supervision Consultant (supervision/monitoring)
Air Quality	Maintenance and exhaust decal records of all machinery and equipment	Below the Project Standards: CO: 50 kg/h Dust: 1 kg/h NOx: (as NO2) 4 kg/h SOx: 6 kg/h TOC: 3 kg/h	Project area	Maintenance records	Monthly during the pre-construction phase		Samsun OIZ (performance control and management) Contractor (implementation), Construction Supervision Consultant (supervision/monitoring)
Noise Levels	dB(A) Levels	≤ 65 dB(A) during daytime; ≤ 55 dB(A) during nighttime	In case of a complaint, in the relevant area	measurements via an authorized environmental laboratory	In case of a nuisance based grievance	Included in construction cost	Samsun OIZ (performance control and management) Contractor (implementation), Construction Supervision Consultant (supervision/monitoring)
Soil Quality	Presence of hydrocarbons	No contamination	Soil sampling points near WWTP and storage areas	Visual observation for stains Soil sampling and laboratory analysis	After any spill event At time of visually detected stains	Included in construction cost	Samsun OIZ (performance control and management) Contractor (implementation), Construction Supervision Consultant (supervision/monitoring)

~~Water resource management~~							
Waste Management	Volume and type of hazardous and non-hazardous waste generated	Proper classification, storage, and disposal according to regulations	Waste storage areas within WWTP	Regular inspection and documentation review	Monthly	Included in construction cost	Samsun OIZ (performance control and management) Contractor (implementation), Construction Supervision Consultant (supervision/monitoring)
Biodiversity	Presence of any critical species and critical habitats	Minimal disturbance of vegetation, especially rare species Limited disturbance on habitats	Project site and immediate surrounding area	Visual investigation	Monthly	Included in construction cost	Samsun OIZ (performance control and management) Contractor (implementation) Construction Supervision Consultant (supervision/monitoring)
Pesticide Management	Potential use, storage and disposal of pesticides and containers	No pesticide usage on the site	Construction site, landscape areas, chemicals storage area	Visual inspection for any signs of pesticide usage, including labels or containers	Monthly	Included in construction cost	Samsun OIZ (performance control and management) Contractor (implementation) Construction Supervision Consultant (supervision/monitoring)
Worker Health and Safety	Number of incidents/accidents, use of PPE	Zero accidents/incidents Zero worker grievances All grievances responded to in an adequate manner within 15 days following the day of application.	Construction and operational areas within WWTP	Incident reporting system, PPE usage checks Grievance mechanism	Continuous monitoring and incident-based And at times of worker grievances	Included in construction cost	Samsun OIZ (performance control and management) Contractor (implementation) Construction Supervision Consultant (supervision/monitoring)
Protecting the Workforce	Age of candidate employee	No cases of child labor	Administration office and Project area	Age verification with National ID	Before each recruitment	Included in construction cost	Samsun OIZ (performance control and management) Contractor (implementation) Construction Supervision Consultant (supervision/monitoring)
Workers Engaged by Third Parties and the Supply Chain	Contractor and sub-contractor agreements	No nonconformity is observed with the ESMP	Administration office	Contract reviews by ESHS expert(s)	Before each agreement made	Included in construction cost	Samsun OIZ (performance control and management) Contractor (implementation) Construction Supervision Consultant (supervision/monitoring)
Gender Based Violence (GBV), Sexual Exploitation Abuse / Sexual Harassment (SEA/SH)	GBV and SEA/SH related incidents Grievance records	No GBV and SEA/SH related issues Minimum 1 annual refresher training for SEA/SH and GBV All grievances submitted responded to in adequate and	Administration office and Project area	Document review Review of grievance logs Training records	Quarterly Upon relevant grievances Yearly	Included in construction cost	Samsun OIZ (performance control and management) Contractor (implementation) Construction Supervision Consultant

		timely manner through the prescribed confidential process					(supervision/monitoring)

*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.

9.3 Monitoring Plan for the Operation Stage

Issue	Parameter to be Monitored	Target/Threshold Value	Monitoring Location	Monitoring Method	Frequency	Cost of Monitoring	Responsible Party/Parties
Air Quality	PM10 and PM2.5	National ambient air quality standards	In case of a complaint, in the relevant area	Sampling/analysis via an authorized environmental laboratory	In case of a nuisance based grievance	Included in operation cost	Samsun OIZ
Noise Levels	dB(A) Levels	≤ 65 dB(A) during daytime; ≤ 55 dB(A) during nighttime	In case of a complaint, in the relevant area	measurements via an authorized environmental laboratory	In case of a nuisance based grievance	Included in operation cost	Samsun OIZ
Water Quality	pH, BOD, COD, TSS, Heavy Metals	Compliance with national water quality standards in the environmental permit	Effluent discharge point into Hıdrellez Creek	Laboratory analysis of water samples	Bi-weekly	Included in operation cost	Samsun OIZ
Soil Quality	Presence of hydrocarbons	No contamination	Soil sampling points near WWTP and storage areas	Visual observation for stains Soil sampling and laboratory analysis	After any spill, At time of visually detected stains	Included in operation cost	Samsun OIZ
Odor	Odor intensity	No significant odor complaints	At and around the WWTP, particularly near sludge drying areas	Field inspections and community surveys	During high-risk activities (e.g., sludge handling)	Included in operation cost	Samsun OIZ
Waste Management	Volume and type of hazardous and non-hazardous waste generated	Proper classification, storage and disposal	Waste storage areas within WWTP	Regular inspection and documentation review	Monthly	Included in operation cost	Samsun OIZ
Biodiversity	Presence of any critical species and critical habitats	Minimal disturbance of vegetation, especially rare species Limited disturbance on habitats	Project site and immediate surrounding area	Visual investigation	Quarterly	Included in operation cost	Samsun OIZ
Pesticide Management	Potential use, storage and disposal of pesticides and containers	Zero pesticide use or if used, strictly according to regulations	Landscape areas, chemicals storage area	Visual inspection for any signs of pesticide usage, including labels or containers	Quarterly	Included in operation cost	Samsun OIZ
Worker Health and Safety	Number of incidents /accidents, use of PPE	No OHS incidents occurred	Administration	Incident reporting system, PPE usage checks, Employee grievance mechanism	Daily and incident-based; At times of employee grievances.	Included in operation cost	Samsun OIZ

10 INSTITUTIONAL ARRANGEMENTS AND TRAINING

The main responsible organization for the implementation of this ESMP is the Samsun OIZ. Samsun OIZ/PMU does not yet have the personnel and resources to ensure the implementation of the Environmental and Social Management Plan (ESMP), which covers all stages of the Project and consists of management plans on different issues.

A PMU will be established to carry out operational and administrative tasks. The PMU staff consist of the Samsun OIZ's own staff.

Besides, on different stages of the Project, various parties (contractors, Construction Supervision Team, Ministry of Industry and Technology (MoIT), etc.) will take responsibility for various parts of the ESMP. All mentioned works will be coordinated by the Samsun OIZ. Mitigation and monitoring tables, which are given in this ESMP, summarize the relevant responsibilities.

10.1 Roles and Responsibilities

The entire Project will be financed by the WB. MoIT is responsible for the coordination of the sub-project and acting as the contracting authority, and Samsun OIZ is the sub-borrower.

The draft ESMP will be made available to the public in both Samsun OIZ's and MoIT's web site prior to any activity on site and be subject to stakeholder consultations. MoIT Project Implementation Unit (PIU) will include an environmental specialist, a social expert and an OHS specialist to supervise the implementation of the ESMP. The specialist will supervise the implementation of the ESMP by Samsun OIZ and document performance, recommendations and any further actions required. He/she will provide guidance to Samsun OIZ officials on WB procedures, consultation and disclosure requirements. In addition, Samsun OIZ will inform MoIT and WB on any project changes or unforeseen circumstances in the approved project documents.

Samsun OIZ 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, Samsun OIZ 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 Samsun OIZ's own staff.

The parties responsible for the monitoring progress are contractor, supervision consultant and Samsun OIZ/PIU during the construction stage, while only Samsun OIZ/PMU is responsible for monitoring progress during the operation stage of the Project. Depending on the monitoring plan, the Contractor will prepare monthly Environmental and Social Monitoring Reports (ESMRs) to be submitted to Samsun OIZ; whereas Samsun OIZ will review and submit ESMRs to MoIT monthly. Environmental engineer/expert will appoint a representative on site to lead the development of this ESMP and its onsite implementation.

During the construction stage, the Contractor is primarily responsible for implementing the project in accordance with the Environmental and Social Management Plan (ESMP) and ensuring compliance with environmental, health, and safety (EHS) standards. This includes monitoring specific environmental and social parameters such as air and water quality, noise levels, waste management, and worker health and safety. The Contractor is also responsible for taking timely corrective actions in case of any non-compliance with ESMP requirements.

To ensure effective implementation, the Contractor is expected to assign qualified environmental, social, and occupational health and safety (OHS) specialists to oversee day-to-day ESMP monitoring activities. These specialists are required to prepare monthly Environmental and Social Monitoring Reports (ESMRs) and submit them to Samsun OIZ. Samsun OIZ will review and forward the reports to the MoIT PIU.

While the Contractor is responsible for internal monitoring of its own activities, the Construction Supervision Consultant plays a crucial role in overseeing the objectivity, accuracy, and completeness of these monitoring efforts. In cases where impartiality may be a concern, the Contractor may also be required to engage an independent third party for verification, under the guidance of the Supervision Consultant.

Regarding implementation of the ESMP, a team (project management unit) to be established by the OIZ management will be specified to include team members detailed as follows and indicated in the below chart.

The Samsun OIZ's Project Coordinator

- Overall responsibility for the ESMP implementation,

The Samsun OIZ's Project Manager

- Ensure that ESMP provisions are implemented to mitigate environmental (including OHS) and social impacts, and contractor's Labour Management Plan is in accordance with the LMP
- 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 Specialist

- 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 Specialist

- Adopt and implement the project-specific 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.

As per ESS2 requirements, the Contractor is responsible for establishing and maintaining a functional Workers' Grievance Mechanism (GM) on-site. This mechanism must be accessible, confidential, and responsive to workers' concerns. To ensure transparency and impartiality, the Samsun OIZ PMU Social Specialist will regularly monitor the functioning of the Workers' GM and intervene if necessary to address any irregularities or conflicts of interest. This division of responsibilities ensures that the GM is both effectively implemented and independently overseen.

OHS Specialist

- Ensure that implementation and supervision of Occupational Health and Safety Management Plan,
- Preparedness and response to emergency situations 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.
- Ensure monitoring of the LMP implementation

Technical Specialist

- Responsible for the project design,
- Coordinating the actions and evaluations in case of a change due to engineering/design changes.

The organizational structure of PMU can be seen in Figure 10-1 below.

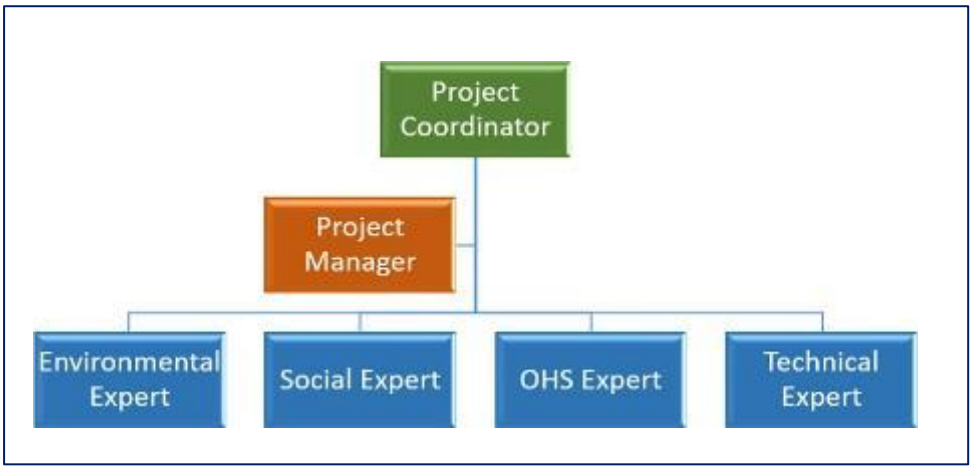

Figure 10-1: Organizational Chart of Project Management Unit (PMU)

Responsibilities for the MoIT PIU, OIZ PMU, E&S consultant, construction supervision Consultant and contractor is given in Table 10-1 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 the table below.

Table 10-1: Parties Responsible for the Management of the Project

Institution	Responsibilities
MoIT Project Implementation Unit (PIU)	• Providing guidance to OIZ and the E&S consultant that is responsible for preparation of this ESMP in line with ESMF of the TOIZP and 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 this ESMP, • 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 ESMP 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 project implementation. Meet with these groups during site visits, as necessary, • In case of necessity, providing coordination and communication regarding the field visits • To provide CoC, GM, GBV, SEA/SH, OHS training to the contractor, construction supervision consultant and OIZ PMU specialists before the construction activities

OIZ Project Management Unit (PMU)	• Assigning/hiring one environmental, one social expert and one OHS specialist with sufficient qualifications and skills • Implementation of this 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 on site • Sharing the ESMP with the Contractor and Construction Supervision Consultant, • 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 MoIT PIU via monthly ES Monitoring Reports which will be prepared in line with ESMF 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 MoIT PIU, • To provide CoC, GM, GBV, SEA/SH, OHS training to the project personnel before construction activities and repeat annually. Training records will be kept. • Suspending work in any situation that threatens environment and community and occupational health and safety and informing MoIT PIU, • Analyzing and following-up the environmental (including OHS) and social accidents/incidents. Specifically, for any significant environmental or social incidents (e.g. fatalities, lost time incidents, environmental spills etc.), the OIZs will inform MoIT PIU in 3 business days, • Notifying MoIT 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 MoIT in 30 business days,
E&S Consultant	• Preparation and finalizing this ESMP following consultations of the draft ESMP with as per the concerns/opinions of the stakeholders of the Project for the approval of MoIT PIU and WB, • Supporting the PIU to organize and carry out the stakeholder consultation meeting for the draft version of this ESMP, • Organizing and delivering a training to the respective OIZ PMU on ESMP implementations, GM, GBV, SEA/SH trainings and commitments, which covers project related environmental and social impacts and risks, and 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.

Construction Supervision Consultant	• 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. The requirements of the WB and the Construction Contract including this ESMP, SEP and LMP will be chased and cooperating with the MoIT PIU for the supervision of construction activities, • 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 PMU on time If any non-compliances are encountered, • Monitoring and evaluating the performance of the services provided by the Contractor, • To provide CoC, GM, GBV, SEA/SH, OHS training to the project personnel before construction activities and repeat annually. Training records will be kept. • Providing guidance to the OIZ PMU 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 PMU in a timely manner if necessary.

Contractor	• 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 (mentioned above in the relevant sections and the mitigation measures Tables) in line with this ESMP, including OHS plans before construction, as part of their method statement and submit to the OIZ PMU 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, • To provide CoC, GM, GBV, SEA/SH, OHS training to the project personnel before construction activities and repeat annually. Training records will be kept. • 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) on environmental and social issues, mitigation, results and findings throughout the construction period to the construction supervision consultant and OIZ PMU, • Notifying immediately of the contingencies such as environmental, social and labor issues or accidents, incidents or loss of time to construction supervision consultant and OIZ PMU 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 construction supervision consultant and OIZ PMU within 30 days, • On the basis of 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 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. • Establishment and implementation of project specific grievance mechanism for the Project construction activities in coordination with OIZ PMU.

10.2 Reporting

Reporting process that will be followed during the implementation stage of the project is an important tool to record and chase project activities in compliance with the project standards. Therefore, the requirements of such processes are presented in Table 10-2 and the reporting process can be seen in Figure 10-2

Table 10-2: Requirements of Reporting Processes

Responsible Party	Roles & Responsibility
MoIT (PIU)	• 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 visits will be included in the quarterly ESRs. • OHS, GM, GBV, SEA/SH training will be given to OIZ PMU, Supervision Consultant and Contractor's Environmental and Social Specialists and training records will be kept.
OIZ (PMU)	• Review and submit monthly ESMRs to MoIT PIU • Submitting the monthly GMR to cover both Consultant's GMR and Contractor GMR to MoIT PIU • OHS, GM, GBV, SEA/SH training will be given to employees and training records will be kept.
Construction Supervision Consultant	• Prepare and submit monthly ESMR to OIZ 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 PMU prepared in line with the complaint received and combine it with monthly the Grievance Mechanism Report prepared by the Contractor • OHS, GM, GBV, SEA/SH training will be given to employees and training records will be kept.
Contractor	• 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 • OHS, GM, GBV, SEA/SH training will be given to employees and training records will be kept.

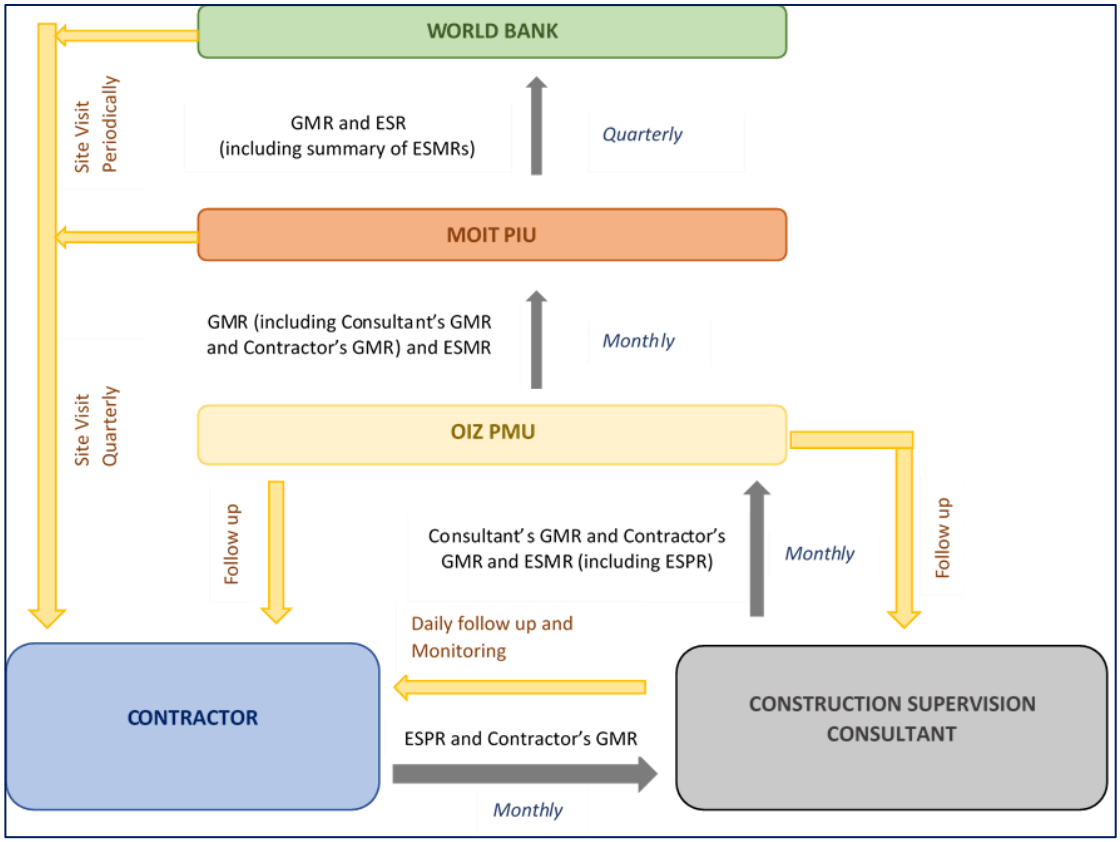

Figure 10-2: Reporting Process for ESMP Implementation

10.3 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 and will also be refreshed during the work period and conducted at diffirent of levels. Some short-term training is required for the Environment Expert, 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 with 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 investigated, and likely solutions provided to the PIU.

The mentioned training will take place within maximum two (2) days. This period will be determined by considering 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 including Code of Conduct, GBV & SEA/SH, GM, EHS and ESMP Requirements, and
- First-Aid and Emergency Preparedness Measures
- Root cause analysis
- Code of Conduct

Table 10-3 provides examples of the basic training for the ESMP implementation. The training programs will be developed annually and delivered by the PIU.

Table 10-3: Training Program

Training Topics	Responsible Party (Trainer Party)	Target Group	Duration	Time
Overview of potential impacts and mitigation measures	OIZ PMU with support of MoIT PIU Contractor Construction Supervision Consultant	Contractor, related authorities: On- site construction management staffs, environmental staffs of contractor, related authorities	Two (2) days of training twice a year to be repeated on a yearly basis depending on needs.	After signing the works contract
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				
Code of conduct training				
GM training				
SEA/SH and GBV training/ awareness				
Trainings for the E&S documents	Environmental and Social Consultant	Contractor, Construction Supervision Consultant, PMU	One (1) day	Before construction
General environmental and social management relating to the Project	OIZ PMU	Whole personnel related to the Project.	Two (2) days of training twice a year to be repeated on a yearly basis until the end of the Defect Liability Period.	Soon after the Project effectiveness but at least one (1) month before the construction of th contract. The follow- up training will be scheduled as needed.
Requirements on environmental and social monitoring				
Monitoring and implementation of mitigation measures				
Guide and supervise contractor in implementation of the ESMP				
Documentation and reporting				
Risk response and control				
Other areas to be determined				

SEA/SH and GBV training	PMU	Whole personnel related to the Project	Two (2) days of training twice a year to be repeated on a yearly basis until the end of the DLP.	Soon after the Project effectiveness s but at least one (1) month before the construction of contract and the training will be renewed whenever a need arises. Minimum one (1) annual refresheretraining to be conducted after first training.

In addition, the training program/modules will 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,
- Awareness-raising about the potential risk and impacts from the project activities,
- Grievance mechanism developed within the scope of the project, grievance 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.

11 STAKEHOLDER MANAGEMENT

11.1 Introduction

A stakeholder is defined as any individual, organization or group who is potentially affected by the Project or who has an interest in the Project and its impacts. The objective of stakeholder identification is to establish which stakeholders may be directly or indirectly affected – either positively or negatively - ("affected parties") or have an interest in the Project ("other interested parties").

The term "project affected parties" includes those likely to be affected by the project because of actual impacts or potential risks to their physical environment, health, security, cultural practices, well-being, or livelihoods. These stakeholders may include individuals or groups, including local communities.

The term "other interested parties" refers to individuals, groups, or organizations with an interest in the project, which may be because of the project location, its characteristics, its impacts, or matters related to public interest. For example, these parties may include regulators, government officials, the private sector, the scientific community, academics, unions, women's organizations, other civil society organizations, and cultural groups.

Table 11-1: Stakeholders and Relevance to the Project

Stakeholder Group			**Relevance of Stakeholders to the Project**
Project Affected Parties	Communities (residents and businesses)	Şabanoğlu Neighbourhood (with a population of 1132)	Potential noise and dust emission during the construction stage
		Kerimbey Neighbourhood (with a population of 871)	Potential noise and dust emission during the construction stage
		Ondokuz Mayıs University, Yeşilyurt Vocational School of (OMÜ Yeşilyurt Meslek Yüksekokulu) (with around 100 students and 10 lecturers)	Potential noise and dust emission during the construction stage
	Business and Employees	Manufacturing facilities within the AoI in Samsun OIZ (Samsun Makina and Sampa Automotive)in	Potential noise and dust emission during the construction stage, User/ beneficiary after commissioning
		Employees of Firms: 6583 Employees	Potential noise and dust emission during the construction stage
		OKA (Central Black Sea Development Agency - Orta Karadeniz Kalkınma Ajansı) (with around 20 employees)	Potential noise and dust emission during the construction stage

Stakeholder Group			Relevance of Stakeholders to the Project
Other Interested Parties	Central and Local Authorities	Samsun Provincial Governorate	Public healthcare, environmental and social services
		District Governorate of Tekkeköy	Public healthcare, environmental and social services
		Samsun Provincial Directorate of Environmental Urbanism and Climate Change	The authority consulted for the project preparation and implementation stages
		Samsun Industry and Technology Provincial Directorate	Project implementing local partner
		State Hydraulic Works 7th Regional Directorate	Responsible for discharged river
		Tekkeköy Municipality	Public services
	Non-Governmental Organizations	Organized Industrial Zones Association	Protection and development of economic, social rights and interests of OIZs
		Organized Industrial Zones Supreme Organization	Unity of application and cooperation between OIZs and solving the problems of OIZs.
		Samsun Chamber of Trade and Industry	Strive for the development of trade and industry
		Environmental NGOs (i.e. Samsun Environmental Platform as a local environmental NGO and nature conservation NGOs at national level, i.e. Nature Research Society, Bir Researcch Society, WWF Turkiye, etc.)	Protection of environmenta and conservation of nature
	Media/ Electronic Media	Samsun Gazetesi https://www.samsungazetesi.com/	Information disclosure
		Gazete Gerçek https://www.gazetegercek.com.tr/	Information disclosure
		Samsun Haber https://www.samsunhaber.com/	Information disclosure
		Denge Gazetesi https://www.dengegazetesi.com.tr/	Information disclosure
		Samsun Kent Haber https://www.samsunkenthaber.com.tr/	Information disclosure

Stakeholder Group			Relevance of Stakeholders to the Project
		Gazete Arena https://www.gazetearena.com/	Information disclosure
		Gazete Kızılırmak https://www.kizilirmakgazetesi.com/	Information disclosure
		Samsun Son Haber https://www.samsunsonhaber.com/	Information disclosure
		Günaydın Samsun https://www.gunaydinsamsun.com/	Information disclosure
		Hedef Halk https://www.hedefhalk.com/#google_vignette	Information disclosure

11.2 Previous Stakeholder Engagement Activities

No stakeholder activities have been held yet for the project.

11.3 Disclosure and Consultation of the ESMP

As part of the requirements of WB ESF and ESSs, the draft ESMP is to be publicly disclosed and consulted which will be the responsibility of the Project Implementation Unit (PIU). The Samsun OIZ will ensure that the final approved ESMP to be disclosed will be available locally at the Samsun OIZ offices, places easily accessible to affected groups such as headmen's offices and local NGOs and will be published on Samsun OIZ website (www.samsunosb.org) and MoIT PIU website (yesilosb.sanayi.gov.tr). The ESMP is a dynamic document and will be reviewed, updated, and approved as necessary throughout the implementation of the Project. For each approved updated version of this ESMP, the Samsun OIZ and the firm will be responsible for disclosure through the communication channels.

A range of tools will be utilized for stakeholder engagement under this Project. Different engagement methods are proposed and cover different stakeholder needs for before construction, during construction and operation stages as stated below:

- Formal/ informal face-to-face meetings,
- Digital communication tools (including web pages, correspondence by phone/email, whatsapp, short message service),
- Written materials,
- Grievance mechanism,
- Media promotions.

A Stakeholder Consultation Meeting (SCM) will be conducted prior to the approval of this Draft ESMP. During the meeting, details about the project, its potential environmental and social impacts/risks, mitigation measures to be taken, and implementation/monitoring/reporting responsibilities of different parties will be shared with the stakeholders; and then their opinions and suggestions will be received during the question-answer (Q&A) session. Minutes of the Stakeholder Consultation will be prepared and published on the Samsun OIZ website (www.samsunosb.org.tr) and Main Project website (yesilosb.sanayi.gov.tr).

11.4 Grievance Mechanism

The main aim of the grievance mechanism is to assist in resolving complaints and grievances in a timely, effective, and efficient manner that satisfies all parties involved. The GM is intended to serve as a mechanism to:

- Allow identification and impartial, timely and effective resolution of issues affecting the project,
- Strengthen accountability of the beneficiaries, including project-affected stakeholders, and
- Provide channels for the stakeholders to provide feedback and raise concerns.

Steps of the grievance mechanism is detailed in Table 11-2 below.

Table 11-2: Procedural Steps of GM

Step	Description of Process	Time Frame	Responsibility
GM implementation structure	There exist three Grievance Mechanisms at the National Level: • Presidency's Communication Center and • Foreigners Communication Center • MoIT level GM Additionally there is also a Project Level GM.that will provide a local, accessible process for affected stakeholders to raise project-related grievances.	-	• Presidency's Communication Center, Foreigners Communication Center • Related authorities • MoIT PIU • OIZ PMU
Grievance uptake	Grievances can be submitted via the following channels: telephone, E-mail, letter to Grievance focal points at local facilities, complaint form to be lodged via any of the above channels and walk-ins may register a complaint in a grievance logbook at a facility or suggestion box. Contact details for OIZ PMU are: Suleyla Kasap Phone: +90 (362) 266 58 00 Email: info@smsunosb.org Address: Vali M. Erdoğan Cebeci St. No: 48 Tekkeköy Samsun	-	• Presidency's Communication Center, • Foreigners Communication Center • Related authorities • MoIT PIU • OIZ PMU In addition to the project-specific grievance channels, complaints may also be submitted through national platforms such as the Presidency's Communication Center (CIMER) at www.cimer.gov.tr/ and hotline Alo 150 and the Foreigners Communication Center (YIMER) at www.yimer.gov.tr/ and hotline Alo 157. When grievances are submitted through these external mechanisms and are found to be related to the project or require further investigation, they are forwarded to the OIZ PMU. The OIZ PMU then coordinates with the relevant project teams and institutions to

			assess, address, and resolve the issue in a timely and appropriate manner.
Sorting, processing	Any complaint received is forwarded to PMU, logged in the Grievance Log, and categorized according to the following complaint types: Level 1 Complaint: A complaint that is isolated or 'one-off' based on the available information during the reporting period (one year) and is localized. If a complaint is later found to be recurring, it will be reclassified accordingly Level 2 Complaint: A complaint that is widespread and repeated (e.g., noise from the facilities, dust, etc.). Level 3 Complaint: A one-off complaint, or one which is widespread and/or repeated that, in addition, has resulted in a serious breach of the Project's policies or National law and/or has led to negative national/international media attention, or is judged to have the potential to generate negative comment from the media or other key stakeholders (e.g., inadequate waste management). If the complaint is assessed to be out of the scope of the Grievance Mechanism, the grievant will be notified through the desired communication method and an alternative mode of solution will be suggested.	-	• OIZ PMU
Acknowledgement and follow-up	Receipt of the grievance is acknowledged to the complainant by PMU/ Social Expert through a personal meeting, phone call or letter as appropriate, within a target of 2 working days after submission. If the grievance is not well understood or if additional information is required, clarification will be sought from the complainant.	Within 2 working days after submission	• OIZ PMU
Verification, investigation, action	Investigation of the complaint is led by the Project Manager and/or by the relevant unit/section etc. The Project Manager is notified of Level 1, 2 or 3 grievances. The PMU, as appropriate, supports the Project Manager in deciding who should deal with the grievance and determines whether additional support for the response is necessary.	-	• Project Manager • OIZ PMU • Workers' representative

	If the complaint is the subject to the Workers GM a worker's representative will be participate in this process		
Provision of feedback	All stakeholders/grievance holders are given feedback regarding the complaints, suggestions and requests. A response is developed by the delegated team within 15 days. The response identifies a suitable resolution to the grievance and involves further information to clarify a situation, taking measures to mitigate problems or compensate for any damages that have been caused during the Project activities through financial compensation. The social expert ensures that the response is agreed and implemented and communicated to the aggrieved party.	15 days	• OIZ PMU

In line with ESS2 (Labor and Working Conditions), the Contractor is responsible for providing access to the Workers' Grievance Mechanism (Workers GM) for all project workers, including both direct and indirect employees. This grievance mechanism is designed to ensure workers can raise issues related to their working conditions, safety, or other project-related concerns. It provides an effective process for the early identification, assessment, and resolution of grievances throughout the lifespan of the project.

The Workers GM will be described in detail within the Labor Management Plan (LMP), which outlines how grievances will be addressed, including the procedure for filing complaints, timelines for resolution, and protections against retaliation. The mechanism will ensure that all workers are informed of its availability, understand how to use it, and feel confident that their complaints will be treated confidentially and without retaliation. The process where the grievances are systematically communicated, tracked, and resolved is outlined below:

Workers can raise grievances through multiple channels such as direct reporting to supervisors, safety officers, suggestion boxes, or a dedicated worker grievance hotline/email.

Once a grievance is raised, it would be addressed initially by the contractor or the immediate supervisor at the construction site or facility. Issues related to OHS or other immediate concerns (e.g., safety, hygiene) would be resolved immediately or within a short time frame.

If the grievance cannot be resolved at the site level or if it requires higher-level intervention (e.g., labor conditions, wages, or community relations), the grievance will be escalated to the OIZ PMU. This could be done via a formal reporting process, such as:

- Direct transfer via email or project management software.
- A weekly or monthly grievance summary report from the contractor to the OIZ PMU.
- A dedicated grievance liaison or officer who acts as a point of contact between the site and the PMU.

The scope of the Workers' GM can be summarized as follows, but not limited to; occupational health and safety, labour conditions, wages, problems with the local community or co-workers, hygiene problems in common areas, insufficient food and/or worker safety, etc. Grievance related to OHS would be addressed and managed immediately, where feasible. Procedural steps of Worker GM is same as described .

All grievances will be documented in a grievance log or database, which is shared between the contractor and OIZ PMU for tracking purposes. This ensures transparency and accountability in addressing grievances.

The OIZ PMU would then work with relevant stakeholders (e.g., HR, health and safety officers, legal team) to address and resolve the grievance. The resolution process would be communicated back to the worker and documented.

11.4.1 The OIZ PMU will ensure that workers are informed of the outcome of their grievance. Feedback can be provided through meetings, reports, or direct communication.The World Bank and the Borrower do not tolerate reprisals and retaliation against project stakeholders who share their views about Bank-financed projects.Grievances Related GBV/SH/SEA

To properly address SEA/SH risks, theoverall GM will also be adapted and utilized for SEA/SH-related complaints. It will be in place prior to contractors mobilizing. For GBV—and particularly SEA/SH—complaints, there are risks of stigmatization, rejection and reprisals against complainant. This creates and reinforces a culture of silence so complainant may be reticent to approach the project directly. To enable victims of GBV, SH/SEA to safely access the GM, multiple channels will be made available through which complaints can be registered in a safe and confidential manner. The GM operators and the the contact point of the OIZ PM will be trained in how to collect SEA/SH cases confidentially and empathetically (with no judgement).

To ensure victims of SEA/SH are aware of where to submit complaints, the GM will provide clear, accessible, and confidential reporting channels tailored to the project's environment. These will include a dedicated hotline, email, and a designated in-person reporting option at a safe location within the industrial zone, such as the project's site office or community liaison office. Information about these channels will be included in contractor induction materials, posted at key locations around the site, and shared with local community stakeholders to ensure widespread awareness. GM operators and the contact point of the OIZ PM will also ensure that these reporting channels are operated sensitively and confidentially, respecting the privacy of potential complainants.

To ensure victims of SEA/SH are able to lodge complaints safely and confidentially, the project will provide clear, accessible, and multiple reporting channels of the overall GM.

Project will have multiple complaint channels. No identifiable information on the survivor will be stored in the GM. The GM will not ask for, or record, information on more than the following related to the SEA/SH allegation:

- The nature of the complaint (what the complainant says in her/his own words without direct questioning);
- If, to the best of the survivor's knowledge, the perpetrator was associated with the project;
- If possible, the age and sex of the survivor; and
- If possible, information on whether the survivor was referred to services.

The information in the GM will be confidential, especially when related to the identity of the complainant.

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ANNEXES

ANNEX-1: APPROVALS AND PERMITS

Annex-1A: EIA Exemption Letter

T.C.
SAMSUN VALİLİĞİ
Çevre ve Şehircilik İl Müdürlüğü

Sayı : 66335631 E-201681 08/03/2016
Konu : Samsun Merkez Organize Sanayi Bölgesi Atıksu Arıtma Tesisi

SAMSUN MERKEZ ORGANİZE SANAYİ BÖLGE MÜDÜRLÜĞÜ
(Vali M. Erdoğan Cebeci Blv, No:48 Tekkeköy/SAMSUN)

İlgi : 08/03/2016 tarihli ve 53502 Referans No'lu Başvuru

Samsun İli, Tekkeköy İlçesinde Organize Sanayi Bölgesi, Vali M. Erdoğan Cebeci Blv, No:48 mevkiinde Samsun Merkez Organize Sanayi Bölge Müdürlüğü tarafından yapılması planlanan Samsun Merkez Organize Sanayi Bölgesi Atıksu Arıtma Tesisi (2000 m^3/günlük kurulu olup toplam 4000 m^3/günlük kurulması planlanan) projesi, 25/11/2014 tarih ve 29186 sayılı Resmi Gazete'de yayımlanarak yürürlüğe giren ÇED Yönetmeliği Listelerindeki eşik değerden az olduğu için kaps..n dışı olarak değerlendirilmiştir.

Ancak, planlanan yatırım ile ilgili olarak, 5491 sayılı kanunla değişik 2872 sayılı Çevre Kanunu ile bu Kanuna istinaden çıkarılan Yönetmeliklerin ilgili hükümlerine uyulması ve diğer mer'i mevzuat çerçevesinde öngörülen gerekli izinlerin alınması, ekolojik dengenin bozulmamasına, çevrenin korunmasına ve geliştirilmesine yönelik tedbirlere riayet edilmesi gerekmektedir.

Bilgilerinizi ve gereğini rica ederim.

Sedat KURNAZ
Çevre ve Şehircilik İl Mü 'ür V.

ADRES: Bahçelievler Mah. Lise Cad. No:41 55070 SAMSUN Tel:0 362 230 80 40 Fax: 230 80 61 e-posta: samsun@csb.gov.tr
Elektronik Ağ: http://www.csb.gov.tr Ayrıntılı Bilgi İçin İrtibat: (Çevre Müh. C.T.ALKAN Dâhili: 1609)

Annex-1B: Environmental Permit (Based on Wastewater Discharge)

T.C.
SAMSUN VALİLİĞİ
Çevre Şehircilik İl Müdürlüğü

ÇEVRE İZİN BELGESİ

Belge No	: 231201368.0.1
Başlangıç Tarihi	: 27.05.2021
Bitiş Tarihi	: 27.05.2026
Tesis Adı	: SAMSUN ORGANİZE SANAYİ BÖLGESİ EVSEL VE ENDÜSTRİYEL ATIKSU ARITMA TESİSİ
Tesis Adresi	: Şabanoğlu OSB Mahallesi Yaşardoğu Cadde No: 35-TEKKEKÖY/SAMSUN
İşletme Vergi No	: 7420036894
Çevre İzin ve Lisans Konusu	: Atıksu Deşarjı

Yukarıda adı ve açık adresi belirtilen tesise Çevre İzin ve Lisans Yönetmeliği kapsamında ÇEVRE İZİN BELGESİ verilmiş olup 27.05.2021 tarihli ve 44902951-150/E.8219 sayılı yazı ile birlikte geçerlidir. Ayrı kullanılmaz.

e-imzalıdır
Ömer BOLAT
Çevre ve Şehircilik İl Müdürü

5070 sayılı Elektronik İmza Kanunu gereği bu belge elektronik imza ile imzalanmıştır.

Atık Yönetimi Yönetmeliği Madde 5 "*Atıkların toplanması, taşınması, geri kazanılması ve/veya bertaraf edilmesi işlemleri, Bakanlık ve/veya il müdürlüğünden gerekli izin ve/veya çevre lisansı almış tesisler, üretici/yetkilendirilmiş kuruluşlar, atık taşımaya yetkili/lisanslı taşıyıcılar tarafından izinleri/lisansları kapsamında gerçekleştirilir. Atıkların bu firmalar/tesisler dışında üçüncü kişiler tarafından toplama, taşıma, geri kazanım ve/veya bertaraf faaliyetlerinin gerçekleştirilmesi, diğer maddelerle ve yakıtlara karıştırılarak yakılması yasaktır.*" Hükmü hereğince işletmede bertaraf işlemi gerçekleştirilmemektedir. Yeterlilik sahibi firmalara tesisimizde oluşan ilgili yönetmelik hükümlerinde gönderilmektedir.

8- Geçici Depolama Alanı Bilgileri

Çevre Şehircilik ve İklim Değişikliği Bakanlığı tarafından yayınlanan "Tehlikeli ve Tehlikesiz Atık Geçici Depolama Alanları" doküman uyarında geçici depolama alanı oluşturulmuştur. İşletmede 2 farklı alanda geçici depolama alanı mevcuttur. Depolama alanlarından biri arıtma çamurları için kullanılmaktadır. Çamur alanının 3 tarafı tel örgü ile çevrilmiştir. Zemin tamamen beton kaplı olup sızıntı suları için drenaj kanalları mevcuttur. Çamur kurutma alanının etrafının teller ile çevrilmesinin nedeni rüzgar ve güneş yardımı ile çamurun kurutulmasının amaçlanmasıdır. Ayrıca çamurun bertarafı aşamasında çamurun kamyona yükleme yapılması için giriş bölümünün açık bırakılmıştır.

Diğer tehlikeli atık depolama alanının üstü kapalı ve her türlü dış etkenden atıkları koruyacak şekilde tasarlanmış, zemini beton malzemeden yapılmış, kapısında "Tehlikeli Atık Geçici Depolama Alanı" ibaresi bulunan geçici atık deposu mevcuttur. Depo kapısı kullanımı dışında daima kapalı ve kilitli tutulmaktadır. Yetkili olmayan kişilerin girmelerine izin verilmemektedir.

14.08.2020 tarihli 72 sayılı Tehlikeli Atık Geçici Depolama İzni konulu dilekçemize esas ***03.09.2020 tarihli E.24128 sayılı yazı ile Çevre İl Müdürlüğü tarafından "Geçici Depolama İzni" atıkların geçici depolanması için oluşturulan alanın AYYGDB 13. Maddesinde yer alan şartlarını sağladığını görülerek geçici depolama izni verilmiştir.***

- Evsel nitelikli katı atıklar ve fiziksel arıtma ünitesindeki ızgaralardan alınan katı atıklar Tekkeköy Belediyesi tarafından alınmaktadır.
- Elektronik ve pilli cihazlardan kaynaklanan ömrü tükenen piller için tesis içerisinde 2 noktada atık pil toplama kutularında biriktirilmektedir.
- Jeneratör ve trafo bakımı Organize Bölge Müdürlüğü sorumluluğunda olup yetkili firmalara yaptırılmaktadır. Yağ değişimi sonrası tesiste atık yağ bırakılmamıştır.
- Aydınlatma sistemlerinde kullanılan floresanlar tehlikeli atık depolama alanında bu atıklar için ayrılmış bölümde muhafaza edilmektedir.
- Laboratuvarda oluşan tehlikeli maddeler içeren laboratuvar kimyasalları ve deney kitleri ağzı kapalı bidonlarda laboratuvar içerisinde bulunan kapalı bölmede geçici olarak muhafaza edilmektedir.
- Ambalaj atıklarının ayrı toplanması için ayrılmış atık kutuları mevcuttur. Sıfır atık sistemi kurulmuş olup sıfır atık belgesi temin edilmiştir. Ambalaj atıkları 5li sistem kutularında toplanıp lisanslı firmaya gönderimi sağlanmaktadır.

9- İl Müdürlüğünce Gerekli Görülen Diğer Bilgi ve Belgeler

EKLER: (Dilekçe Ek' inde sunulmuştur.)

Nezir KASAP
15.08.2023
SAMSUN MERKEZ
ORGANİZE SANAYİ BÖLGESİ
EVSEL VE ENDÜSTRİYEL
ATIK SU ARITMA TESİSİ

15.08.2023
Süheyla KASAP
Çevre Görevlisi

Annex-1D: Hazardous Waste Liability Insurance

TURKIYE SIGORTA
Gücü, adında

TEHLİKELİ MADDELER VE TEHLİKELİ ATIK ZORUNLU MALİ SORUMLULUK SİGORTASI SİGORTA POLİÇESİ

Müşteri No	Acente No	Poliçe No	Ek Belge No	Tanzim Tarihi	Sigorta Başlangıç-Bitiş Tarihi	Süre (Gün)
20008236491	30922	300573272/5	0	23.07.2024	23.07.2024 - 23.07.2025	365

SÖZLEŞME TARAFLARI

Sigorta Şirketi Unvanı	TÜRKİYE SİGORTA AŞ
Adresi	Büyükdere Cad.No:110 Esentepe 34394 Şişli-İstanbul
Acente Adı / Unvanı	CEM NECATİ SABUNCU - CEM SABUNCU SİGORTA ARA. HİZ.
Acente Adresi	Kale Mah. Sanat Sok. No: 17/3 Kat: 2 Pk: 55030 Kale Mahallesi Sanat Sok. No:17/3 Kat : 2 İlkadım / Samsun İlkadım Samsun TÜRKİYE
Acente Levha Kayıt No	G08611-H4JC
Düzenleyen Tek.Pers.Ad	DAMLA KAYAOĞLU / 202302944
Sigortalı Ad Soyad / Unvan	SAMSUN - MERKEZ ORGANİZE SANAYİ BÖLGESİ
Adres	Organize Sanayi Bölgesi Mah. Yaşar Doğu Cad. Sosyal Tesisler Alanı Sok. . Sitesi ../. .. Kat Pk:55000 Tekkeköy Samsun TÜRKİYE
T.C. Kimlik No / Vergi No	/ *4****6*94
Riziko Adresi	Organize Sanayi Bölgesi Mah. Yaşar Doğu Cad Cad. Sosyal Tesisler Alanı Sok. 35 / Tekkeköy Samsun

Risk Bilgileri

Sigorta Konusu	Tehlikeli Atık	**Ruhsat Baslangiç Tarihi**	27/05/2021
Yerleşim Alanı	Şehrin İçinde	**Ruhsat Bitis Tarihi**	27/05/2026
Önceki Şirket Adı	TÜRKİYE SİGORTA A.Ş.(T	**Ruhsat No**	231201368.0.1
Çalışan Kişi Sayısı	10	**Hava gazı dahil mi?**	HAYIR
Denize Uzaklik	2		

Sigorta Konusu / Bedel (TL)

PRİM BİLGİLERİ

TAKSİT NO	TARİH	TUTAR	ÖDENECEK PRİM	
Peşinat	23.07.2024	267,50 TL	Net Prim	750,00 TL
1.	23.08.2024	267,50 TL	Güvence Hesabı	15,00 TL
2.	23.09.2024	267,50 TL	BSMV	37,50 TL
			Toplam Brüt Prim	**802,50 TL**

Yalnız : SekizYüzİki Türk Lirası Elli Kuruş

***Ödeme Planı ile ilgili bilgiler yukarıda Prim Ödeme Tablosu ile gösterilmiştir**

Tahsil Yöntemi **Blokeli 3 Taksitli**

TEMİNAT HAKKINDA GENEL BİLGİLER

Faaliyet Konusu	Üretim, Depolama, Toptan Satış ve Kullanım
Faaliyet Detayı_tm	2872 sayılı Çevre Kanunu kapsamında bulunan tehlikeli atıklar
Tahmini Yıllık Kullanım Tutarı	10000

Annex-1E: Approval for Temporary Storage of Hazardous Wastes

T.C.
SAMSUN VALİLİĞİ
Çevre ve Şehircilik İl Müdürlüğü

Sayı : 60972061-145.01-E.24128 03.09.2020

Konu : Tehlikeli Atık Geçici Depolama İzni

SAMSUN-MERKEZ O.S.B. EVSEL VE ENDÜSTRİYEL ATIKSU ARITMA TESİSİ
(Şabanoğlu OSB Mah. Yaşardoğu Cad. No:35 Tekkeköy SAMSUN)

İlgi : Dna Çevre ve Arıtma Teknolojileri LTD. Şti.'nün 14.08.2020 tarihli ve 72 sayılı yazısı.

İlgi yazınız ile; Samsun-Merkez O.S.B. Evsel ve Endüstriyel Atıksu Arıtma Tesisinin faaliyeti sonucu oluşan tehlikeli atıklar için "Geçici Depolama İzni" talep edilmektedir.

İlgi yazı doğrultusunda İl Müdürlüğümüz teknik elemanları tarafından tesisinizde gerçekleştirilen inceleme neticesinde; Atıkların geçici depolanması için oluşturulan alanın Atık Yönetimi Yönetmeliği'nin Geçici Depolama Başlıklı 13. Maddesinde yer alan şartları sağladığı ve Bakanlığımızın 01.04.2016 /E-4536 sayılı yazısı ile belirlenen geçici depolama alanı özelliklerine sahip olduğu tespit edilmiş olup, oluşan tehlikeli atıkların bu alanda 180 günü geçmeyecek şekilde geçici depolanması uygun görülmüştür.

Bilgilerinizi ve gereğini rica ederim.

e-imzalıdır
Salih SAĞIR
Çevre ve Şehircilik İl Müdürü

Annex-1F: Emergency Response Plan

Annex-1G: Waste Management Plan

TÜRKİYE CUMHURİYETİ
ÇEVRE, ŞEHİRCİLİK VE
İKLİM DEĞİŞİKLİĞİ BAKANLIĞI

SIFIR ATIK

T.C. SAMSUN VALİLİĞİ ÇEVRE,ŞEHİRCİLİK VE İKLİM DEĞİŞİKLİĞİ İL MÜDÜRLÜĞÜ

SIFIR ATIK BELGESİ

(Temel Seviye)

Belge No: TS/55/B2/8/2

Tarih: 15/12/2022

Adı: SAMSUN MERKEZ ORGANİZE SANAYİ BÖLGESİ
Adresi: SAMSUN,ŞABANOĞLUOSB Mahallesi, VALİ M.ERDOĞAN CEBECİ BUL BULVAR, No: 48-1, TEKKEKÖY,Türkiye
Vergi No: 7420036894
Türü: Bina/Yerleşke

12/07/2019 tarihli ve 30829 sayılı Resmi Gazete'de yayımlanarak yürürlüğe giren Sıfır Atık Yönetmeliği'nce Sıfır Atık Yönetim Sistemi'ni kurarak **Sıfır Atık Belgesi**'ni almaya hak kazanmıştır.

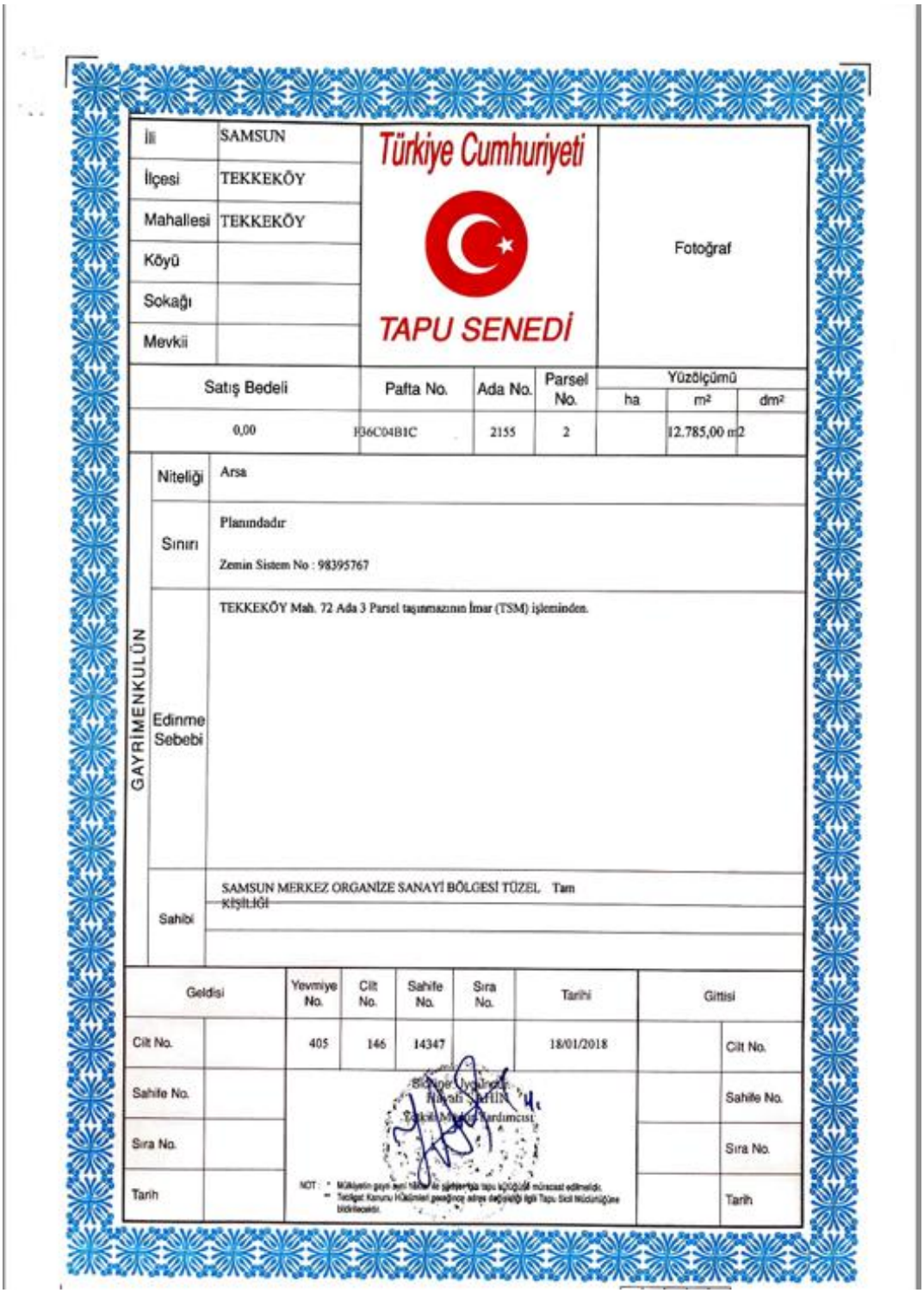
Ömer BOLAT
Çevre,Şehircilik ve İklim Değişikliği İl Müdürü

E-İMZALIDIR

Belge Son Geçerlilik Tarihi:
15/12/2027

Bu belge, güvenli elektronik imza ile imzalanmıştır.

ANNEX-2: TITLE DEED



İli	SAMSUN
İlçesi	TEKKEKÖY
Mahallesi	TEKKEKÖY
Köyü	
Sokağı	
Mevkii	

Türkiye Cumhuriyeti

TAPU SENEDİ

Fotoğraf

Satış Bedeli	Pafta No.	Ada No.	Parsel No.	Yüzölçümü ha	Yüzölçümü m²	Yüzölçümü dm²
0,00	H36C04B1C	2155	2		12.785,00 m2	

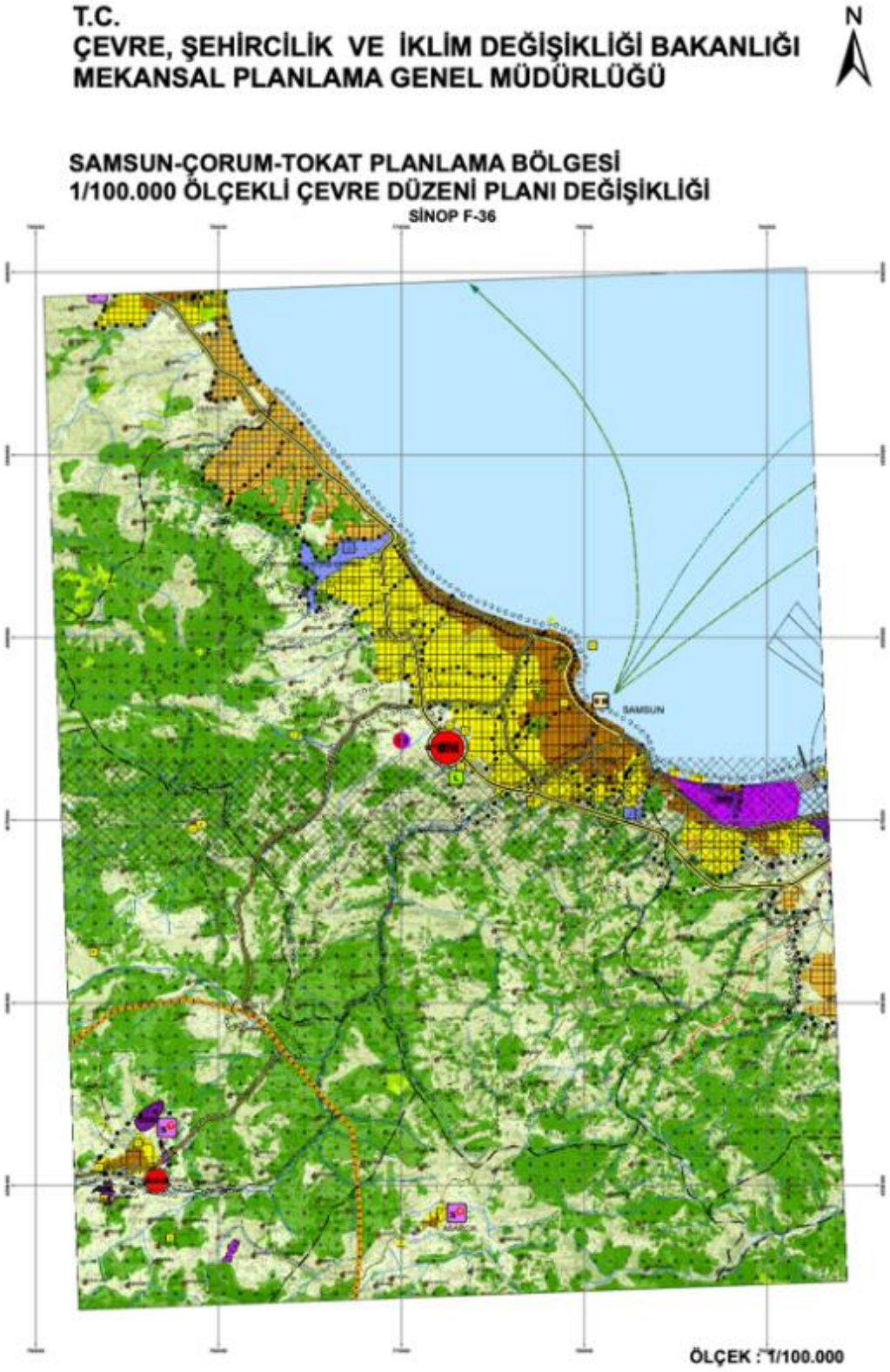
GAYRİMENKULÜN

Niteliği	Arsa
Sınırı	Planındadır Zemin Sistem No : 98395767
Edinme Sebebi	TEKKEKÖY Mah. 72 Ada 3 Parsel taşınmazının İmar (TSM) işleminden.
Sahibi	SAMSUN MERKEZ ORGANİZE SANAYİ BÖLGESİ TÜZEL KİŞİLİĞİ Tam

Geldisi		Yevmiye No.	Cilt No.	Sahife No.	Sıra No.	Tarihi	Gittisi	
Cilt No.		405	146	14347		18/01/2018		Cilt No.
Sahife No.								Sahife No.
Sıra No.								Sıra No.
Tarih								Tarih

NOT : * Mülkiyetin geçmesi halinde işlemlerde tapu müdürlüğüne müracaat edilmelidir.
** Tedbiat Kanunu Hükümleri gereğince adres değişikliği ilgili Tapu Sicil Müdürlüğüne bildirilecektir.

ANNEX-3: 1/100,000 ZONING PLAN



Legend for the 1/100,000 Zoning Plan

ANNEX-4: RECORDS OF DISCHARGE WATER QUALITY

Yeterlik Belge No
Y-55/250/2019

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

AB-0012-T
SAM.AS.25.0317001
04-25

ANALİZ RAPORU

Firma Adı	SAMSUN ORGANİZE SANAYİ BÖLGESİ EVSEL VE ENDÜSTRİYEL ATIKSU ARITMA TESİSİ
Rapor No / Tarihi	SAM.AS.25.0317001 / 09/04/2025

Analiz Parametreleri	Analiz Metodu	Birim	Analiz Sonucu	SKKY-Tablo 19 (Sınır Değer)
Askıda Katı Madde-AKM (Toplam) (*)	SM 2540 D	mg/L	6,1	200
Balık Biyodeneyi Tayini (*)	SKKY NAAMT EK 1	ZSF	2	10
Krom VI (Cr+6) (*)	SM 3500-Cr B	mg/L	<0,1	0,5
pH (*y)	SM 4500-H+ B	-	7,5	6-9
Kimyasal Oksijen İhtiyacı (KOİ) (*)	SM 5220 B	mg/L	18,29	250
Renk (*)	SM 2120 C	Pt-Co	15,48	280
Yağ Gres (*)	SM 5520 D	mg/L	<10	20
Bakır (Cu) (a)	İşbirliği/Taşeron Laboratuvar Metodu	mg/L	0,014	3
Civa Tayini (a)	İşbirliği/Taşeron Laboratuvar Metodu	mg/L	<0,00008	0,05
Çinko Tayini (a)	İşbirliği/Taşeron Laboratuvar Metodu	mg/L	2,489	5
Demir Tayini (a)	İşbirliği/Taşeron Laboratuvar Metodu	mg/L	0,149	10
Florür (F-) (a)	İşbirliği/Taşeron Laboratuvar Metodu	mg/L	<0,1	15
Kadmiyum Tayini (a)	İşbirliği/Taşeron Laboratuvar Metodu	mg/L	<0,0005	0,1
Kurşun Tayini (a)	İşbirliği/Taşeron Laboratuvar Metodu	mg/L	0,01	2
Sülfat (a)	İşbirliği/Taşeron Laboratuvar Metodu	mg/L	256	1500
T.Kjeldahl Azotu Tayini (a)	SM 4500-Norg B	mg/L	2,84	20
Toplam Fosfor Tayini (a)	İşbirliği/Taşeron Laboratuvar Metodu	mg/L	<0,01	2
Toplam Krom Tayini (a)	İşbirliği/Taşeron Laboratuvar Metodu	mg/L	0,034	2
Toplam Siyanür Tayini (a)	İşbirliği/Taşeron Laboratuvar Metodu	mg/L	<0,01	1

(*) İşaretli parametreler Bakanlık ve Türkak kapsamında raporlanmıştır.
(*y) İşaretli parametre firmamız yetkili numune alma personeli tarafından yerinde ölçülmüştür.
(a) İşaretli parametreler işbirliği laboratuvarı tarafından analiz edilmiştir.

Açıklamalar : Bu rapor 1(bir) nüsha halinde hazırlanıp, müşteriye gönderilmiştir. Bu rapor laboratuvarımız tarafından elektronik ortamda arşivlenmektedir.

Sorumlu İmzalar :

Sezin GÖKSEL
Şube Laboratuvar Müdür Yardımcısı

Murat ÖZTÜRK
Şube Laboratuvar Müdürü

FORM NO:FR.510.01.01

ANNEX-5: RECORDS OF MOBILE WASTE TRACKING SYSTEM

(Records of Transport of Treatment Sludge to Cement Factories)

E5973887			130208	30	ATA-34-32 - OMSAN LOJİSTİK A.Ş.	34KM5943	65008 - PETDER - PETROL SANAYİ DERNEĞİ İKTİSADİ İŞLETMESİ (YETKİLENDİRİLMİŞ KURULUŞ) (ÇKN: 224893424)	20.03.2024 17:24		süheyla kasap 0544 261 38 37
E5968469			190813	9.150	ATA-55-09 - AMİSOS GERİ DÖNÜŞÜM BERTARAF NAKLİYE SANAYİ TİCARET LİMİTED ŞİRKETİ	55AGD126	1465 - OYAK ÇİMENTO FABRİKALARI A.Ş. ÜNYE ÇİMENTO ŞUBESİ (ÇKN: 222443142)	12.03.2024 13:25		-
E5962515			190813	11.770	ATA-55-09 - AMİSOS GERİ DÖNÜŞÜM BERTARAF NAKLİYE SANAYİ TİCARET LİMİTED ŞİRKETİ	55AGD126	1465 - OYAK ÇİMENTO FABRİKALARI A.Ş. ÜNYE ÇİMENTO ŞUBESİ (ÇKN: 222443142)	08.03.2024 14:00		-
E5942129			190813	10.660	ATA-55-09 - AMİSOS GERİ DÖNÜŞÜM BERTARAF NAKLİYE SANAYİ TİCARET LİMİTED ŞİRKETİ	55AGD126	1465 - OYAK ÇİMENTO FABRİKALARI A.Ş. ÜNYE ÇİMENTO ŞUBESİ (ÇKN: 222443142)	04.03.2024 12:50		
E5724705			150110	50	ATA-55-04 - KARÇEVRE ENERJİ ENDÜSTRİYEL ATIK YÖNETİMİ LOJİSTİK İNŞAAT İTHALAT İHRACAT SANAYİ TİCARET LİMİTED ŞİRKETİ	55AAU264	205500 - KARÇEVRE ENERJİ ENDÜSTRİYEL ATIK YÖNETİMİ LOJİSTİK İNŞAAT İTHALAT İHRACAT SANAYİ TİCARET LİMİTED ŞİRKETİ (ÇKN: 233638836)	25.12.2023 18:22		

Waste Code 130208: Treatment Sludge

ANNEX-6: LEGAL FRAMEWORK

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.

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.

Occupational Health and Safety Law No. 6331, which is ratified June 2012 (Official Gazette dated 30.06.2012 and numbered 28339), is other principal legislation related to the Project. Occupational Health and Safety Law enforces various by-laws and decrees to regulate and uphold health and safety standards.

The Environmental Impact Assessment (EIA) Regulation (Official Gazette dated July 29, 2022 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. 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.

Samsun OIZ Wastewater Treatment Plant Project with the total capacity of 4,000 m3/day, is outside the scope of the EIA regulation due to its capacity. The EIA Exemption Letter was issued by by Samsun Provincial Directorate of Environment and Urbanization on 08.03.2016.

The rest of the Turkish Legislation that the Project will comply with is presented in Table 1 below.

Table- 1 Turkish EHS Legislation Related to the Project

Legislation	Official Gazette Date	Official Gazette Number	Implications for the Project Stages
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 stage 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 stages 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 stages 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 stage 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 stage.
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	December 26, 2022	32055	This regulation applies on electrical and electronic equipment waste as a result of

Electrical and Electronic Equipment			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 stage, wastewater generated by the site staff during pre-construction and construction stages.
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 stages 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 stages 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 stages.
Regulation on Surface Water Quality	November 30, 2012	28483	This regulation applies on discharge of treated effluent and monitoring of water quality at receiving body during operation stage.
Regulation on the Monitoring of Surface Waters and Groundwater	February 11, 2014	28910	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	This regulation applies on determination of the receiving body sensitivity during pre-construction stage and discharge of treated effluent during operation stage.
Communiqué on Technical Personnel Working in Wastewater Treatment Plants	May 23, 2019	30782	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 stage.
Air Quality Control and Management			
Regulation on the Air Quality Assessment and Management	June 6, 2008	26898	This regulation applies on activities that may cause the deterioration of the air quality during the lifetime of the Project, especially the construction stage of the Project.
Regulation on Industrial Air Pollution Control	July 3, 2009	27277	This regulation applies on activities that may cause air pollution during the lifetime of the Project, especially the construction stage of the Project.
Regulation on the Control of Odor Causing Emissions	July 19, 2013	28712	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	This regulation applies on greenhouse gas emissions during the lifetime of the Project.
Regulation on Exhaust Gas Emission Control	March 11, 2017	30004	This regulation applies on exhaust gas emissions sourced from project vehicles, machinery and equipment during the lifetime of the Project.
Noise Control and Management			
Regulation on the Environmental Noise Emissions Caused by Equipment Used Outdoors	December 30, 2006	26392	This regulation applies on the noise emissions caused by equipment used outdoors within the Project especially throughout the construction stage.
Regulation on Environmental Noise Control	November 30, 2022	32029	This regulation applies on the management of noise emissions during lifetime of the Project.
Soil Quality Control and Management			
Regulation on Soil Pollution Control and Point Source Contaminated Fields	June 8, 2010	27605	This regulation applies on the protection of soil against pollution during lifetime of the Project.
Environmental Management, Permitting and Planning			
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 that should be followed at all stages of the project.

Regulation on Environmental Permits and Licensing	September 10, 2014	29115	This regulation applies on the required environmental permits and licenses at all stages 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 lifetime of the Project as committed in theproject specific and approved PIF.
Community Health and Safety			
Highways Traffic Law No: 2918	October 13, 1983	18195	This law applies on ensuring traffic order on the highways during the all stages 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 stages of the Project.
Regulation on Highway Traffic	July 18, 1997	23053	This regulation applies on ensuring traffic order on the highways during the all stages 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.
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.

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 stages.
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 stages 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 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 stages.

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 stage.
First Aid Regulation	July 29, 2015	29429	This regulation applies on in case of a first aid requirement during construction and operation stages.
Regulation on Personal Protection Equipment	May 1, 2019	30761	This regulation applies on personal protection equipment to be used during construction and operation stages.
Management of Chemicals and Other Dangerous Substances			
Regulation on the Classification, Labelling and Packaging of Materials and Mixtures	December 11, 2013	28848	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	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	This regulation applies on to ensure a high level of protection of human health and the environment during the construction and operation stages, 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	This regulation applies on hazardous goods to be transported during lifetime of the Project.
Land Use			
Soil Conservation and Land Use Law No: 5403	July 19, 2005	25880	This law applies on management of change in the land use during the planning stage of the Project.
Regulation on the Protection, Usage and Planning of Agricultural Lands	December 9, 2017	30265	This regulation applies on management of change in the land use during the planning stage of the Project.
Stakeholder Engagement			

Constitution of the Republic of Türkiye	November 09, 1982	17863	Citizens and foreigners resident in Türkiye, with the condition of observing the principle of reciprocity, have the right to apply in writing to the administrative authorities and the Grand National Assembly of Türkiye about the requests and complaints concerning themselves or the public. Regarding with the Project Citizens and foreigners at the AoI have the right to apply in writing to the MoIT and the Grand National Assembly of Türkiye concerning the requests and complaints concerning themselves or the public.
Use of the Right to Petition Law No: 3071	November 10, 1984	18571	Citizens and foreigners have the right to apply in writing to the MoIT and the Grand National Assembly of Türkiye concerning the requests and complaints concerning themselves or the public.
Right to Information Law No: 4982	October 24, 2003	25269	Citizens can request information from MoIT and OIZ. The institutions will provide the requested information within 15 working days.
Regulation on Environmental Impact Assessment	July 29, 2022	31907	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, the Public Participation Meeting has not been held.
Others			
Law on Conservation of Cultural and Natural Assets No. 2863	July 21, 1983	18113	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	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	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	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	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	This regulation applies on ozone depleting substances to be used during construction and operation stages.
Building Earthquake Regulation	March 18, 2018	30364	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 stages.

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 will be undertaken to guarantee that the Project's design, construction and operation will be satisfactory for international environmental and social standards alongside national legislation.

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.

International Legal and Regulatory Framework for Ecology and Biodiversity

Bern Convention

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 with their explanations:

Table- 2 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

CITES

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- 3.

Table- 3 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- 4. 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-4: 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
NE	Not Evaluated	NE	Not Evaluated

3. World Bank Environmental and Social Framework (ESF)

The project classified as Moderate Risk according to WB's E&S Policy, which states that for moderate risk projects the potential risks and impacts and issues are likely to have the following characteristics: (i) predictable and expected to be temporary and/or reversible, (ii) low in magnitude, (iii) site-specific, without likelihood of impacts beyond the actual footprint of the project and (iv) low probability of serious adverse effects to human health and/or the environment (e.g., do not involve use or disposal of toxic materials, routine safety precautions are expected to be sufficient to prevent accidents, etc.).

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.

The World Bank's Environmental and Social Framework (ESF) aims to create better long-term development outcomes. Environmental and Social Standards in the ESF have a more comprehensive approach, especially on social issues.

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.

ANNEX-7: CHANCE FINDS 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 Samsun OIZ 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 the OIZ 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 OIZ
  - Contractor records the decision on Part B of Chance Find form and sends a copy to the OIZ
  - 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 OIZ
- 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 OIZ
- Contractor records the decision on Part C of Chance Find form and sends a copy to the OIZ
- 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 OIZ
- OIZ 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 OIZ
- Contractor records the decision on Part C of Chance Find form and sends a copy to the OIZ
- 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 OIZ
- OIZ 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 OIZ
- 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 municipality
- 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.

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. 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.

Annex 6-1 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?		☐ Yes ☐ No	
Was a buffer zone created to protect the chance find?		☐ Yes ☐ No	
NOTIFICATION			
Municipality contacted		☐ Yes ☐ No	
CHANCE FIND DETAILS			
GPS coordinates		Photo record ☐ Yes If not, explain why: ☐ No Other records ☐Yes Specify (drawings, videos, etc.): ☐ No	
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 ☐ Yes ☐ 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:		
Site/Finding of no significance - Construction to proceed with no further action – End of chance find procedure Date of notice to resume work:	Site/Finding of significance - Further actions required Please Fill out Part C	
Name of museum directorate representative/archeologist: Contact information:		
Municipality contacted ☐ Yes ☐ No		
PART C		
FURTHER FIELD INVESTIGATION		
☐ Site/Finding of minor significance	☐ Site/Finding of moderate significance	☐ 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:		
Municipality contacted ☐ Yes ☐No		

Date of Find	Summary of Chance Find	Name of Authority Notified	Action Taken	Chance Find Form Completed	Status Open or Closed	Remarks

ANNEX-8: DUST EMISSION CALCULATIONS

PRE-CONSTRUCTION STAGE

In the pre-construction stage of the Project, topsoil stripping will be carried out during the land preparation process. The total Project area is about 2000 m^2. It is estimated that a minimum of 30 cm of topsoil stripping will be carried out. Table 1 below shows the dust emission factors is given to calculate the dust emissions resulting from the topsoil stripping process. It is estimated that soil stripping will be performed through 15 days.

The area of the Project area deviates from the Screenin Report. The project area is about 2000 m^2.

The density of topsoil can vary depending on several factors, including moisture content, compaction, and the specific composition of the soil (such as the proportions of sand, silt, clay, and organic matter). The density of topsoil usually falls between 1.2 and 1.6 tons/m^3. Using a density of 1.6 tons/m^3 is on the higher end of the typical range, which might be appropriate if the topsoil is moist or compacted.

Emissions for Soil Stripping (Uncontrolled):

Total work hours = 8hours/day×15days = 120 hours

Soil Stripping PM10 Emissions (for 120 hours):

Area to be stripped: 2000 m^2

Depth of soil stripping: 0.3 m (30 cm)

Duration: 15 days

Working hours per day: 8 hours/day

Total working hours: 15 days × 8 hours/day = 120 hours

Machinery: 1 truck and 1 loader

Fuel consumption:

Truck: 25 L/hour

Loader: 25 L/hour

The volume of soil to be stripped is calculated using the area and the depth of soil:

Volume of soil=Area×Depth=2000 m2×0.3 m=600 m^3

The storage height is 2.5 meters, so the storage area is:

Volume of soil / Height=600 m3/2.5 m=240 m^2

Emission factors for dust can be seen in Table 1.

Table 1. Dust Emission Factors

Sources	Emission Factors		Unit
	Uncontrolled	Controlled	
Dismantling/Excavation	0.025	0.0125	
Loading	0.010	0.0050	

Unloading	0.010	0.0050	kg/ton
Storage	5.800	2.9000	kg/ha
Transportation (total distance of round trip)	0.700	0.3500	kg/km- vehicle

Source: Annex 12 of Industrial Air Pollution Control Regulation

PM10 from storage:

PM10 from storage=Storage area×Emission factor=240 m2×0.00058 kg/m2=0.1392 kg

PM2.5 from storage is typically 10% of PM10

PM2.5 from storage = 0.01392 kg

In addition to the dust emissions, there will be exhaust emissions of heavy construction machinery. Primary emissions from exhaust gases of vehicles are NO2, CO, SOx 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. The equipment to be used during pre- construction stage is given in Table 2.

Table 2: Equipment List to be Used During Pre-construction Stage

Construction Machinery/Equipment	Number
Truck	1
Loader	1

Dust and gas emission from vehicles are calculated as below. The emission factors for CO, SO2, NOx, PM and particulate matter are given in Table 3.

Table 3: Emission Factors for 1 L Diesel Consumption

Pollutant	Emission Factor (g/L)
CO	0.49
SO2	0.01
NOx	3.0
PM	0.12

Source: Environmental Protection Agency (EPA), 2023.

The diesel consumption by each construction vehicle is assumed as 25 L/hour. Total diesel consumption for 2 construction vehicles given in Table- 11 is 50 L/hour. The results of calculation by using emission factors and diesel consumption of construction vehicles are as:

For CO: 50 L/h x 0.49 g/L = 0.0245 kg/h

For SO2: 50 L/h x 0.01 g/L = 0.0005 kg/h

For NOx: 50 L/h x 3.0 g/L = 0.15 kg/h

PM10 and PM2.5 emissions are quite small compared to the gaseous emissions (CO, SO_2, NOx) because dust emissions are usually lower from storage (unless additional activities such as vehicle movement or wind are considered.

The gaseous emissions (CO, SO_2, NOx) primarily come from the machinery fuel consumption, with the truck and loader being the primary sources.

CONSTRUCTION STAGE

As in the pre-construction stage 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 NOx, CO, SO2 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.

Activities during the construction stage are:

- Excavation
- Loading
- Transportation
- Storage

It is assumed that that storage time is 1 day (24 hours) and the emissions are spread across the 24-hour period.

The construction machinery and equipment list are 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, NOx, and particulate matter given in Table 2 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 3 equals to 250 L/hour. The results of calculation by using emission factors and diesel consumption of construction vehicles are as:

CO: 250 L/h x 0.49 g/L = **0.1225 kg/h**

SO2: 250 L/h x 0.01 g/L = **0.0025 kg/h**

NOx: 250 L/h x 3.0 g/L = **0.75 kg/h**

PM: 250 L/h x 0.12 g/L = **0.03 kg/h**

Emission Factors (Uncontrolled):

- PM10: 0.025 kg/ton (excavation), 0.010 kg/ton (loading), 0.700 kg/km (transportation)
- PM2.5: PM2.5 = 10% of PM10
- CO: 0.49 kg/L diesel
- SO_2: 0.01 kg/L diesel
- NOx: 3.0 kg/L diesel

1. Excavation (Uncontrolled)

- Volume of excavated soil: 6000 m^3
- Soil density: 1.6 tons/m^3
- Excavation time: 2 months (approximately 352 hours)

Soil mass:

Soil mass = 6000 m3×1.6 tons/m3 = 9600 tons

PM10 from excavation (per hour):

PM10 (excavation) = 9600 tons×0.025 kg/ton÷352 hours≈0.068 kg/hour

PM2.5 from excavation:

PM2.5 (excavation) = 0.068 kg/hour×0.10≈0.007 kg/hour

CO, SO_2, NOx from excavation (per hour, assuming 25 L/hour fuel consumption for excavators):

Diesel consumption for excavation (2 excavators): 25 L/hour×2 excavators×352 hours

- CO: CO = 25×2×352×0.49÷352 ≈ 24.5 kg/hour
- SO_2: SO_2 = 25×2×352×0.01÷352 ≈ 0.5 kg/hour
- NOx: NOx = 25×2×352×3÷352 ≈ 150 kg/hour

2. Loading (Uncontrolled)

Loading time: 352 hours

Soil mass: 9600 tons

PM10 from loading (per hour):

PM10 (loading) = 9600 tons×0.010 kg/ton÷352 hours≈0.027 kg

PM2.5 from loading:

PM2.5 (loading) = 0.027 kg/hour×0.10≈0.003 kg/hour

3. Transportation (Uncontrolled)

Number of trucks: 5

Round trip distance: 10.4 km

Fuel consumption per truck: 25 L/hour

Number of trips per hour: 1 trip per truck per hour (simplified)

PM10 from transportation (per hour):

PM10 (transportation) = 5×10.4 km×0.700 kg/km÷352 hours≈0.074 kg/hour

PM2.5 from transportation:

PM2.5 (transportation) = 0.074 kg/hour×0.10≈0.007 kg/hour

4. Storage (Uncontrolled)

PM10 emissions from storage (as previously calculated):

PM10 (storage)≈0.048 kg/hour

PM2.5 from storage:

PM2.5 (storage) = 0.048 kg/hour×0.10 = 0.005 kg/hour

These values represent the uncontrolled emissions from the excavation, loading, transportation, and storage activities.

Gas emission from vehicles are calculated as below. In calculations, the emission factors for CO, SO2, NOx, and particulate matter are given under pre-consstruction stage.

The diesel consumption by each construction vehicle is assumed as 25 L/hour. Total diesel consumption by 5 construction vehicles equals to 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 0.49 g/L = 0.1225 kg/h

For SO2: 250 L/h x 0.01 g/L = 0.0025 kg/h

For NOx: 250 L/h x 3.0 g/L = 0.75 kg/h

Summary tables can be seen in Section 7.1.5.

ANNEX-9: NOISE LEVEL CALCULATIONS

The total equivalent noise level created by noise sources is calculated with the help of the formula given below:

$$L_p = L_{wT} + 10 \times \log \frac{Q}{4\pi r^2}$$

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:

$$L_{wT} = 10 \times \log \sum_{i=1}^{n} 10^{\frac{L_{wi}}{10}}$$

Where:

Q: 1

r: Distance (m)

Lp: Noise level (dBA)

1. Pre-construction Stage

The equipment to be used in the pre-construction stage and their noise levels are given below.

Table 1. Noise Levels of Machinery/Equipment

Equipment	Number	Lwi dBA
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 dBA.

In addition, using formula numbered 2, the noise levels depending on distance for pre-construction stage are calculated and given in Table 2.

Table 2. Noise Levels of Depending on Distance

Distance (m)	Lp (dBA)	Project Standard (dBA)
15	74.9	55
50	64.5	55
100	58.5	55
200	52.4	55
300	48.9	55
400	46.4	55
500	44.5	55
600	42.9	55
700	41.6	55
800	40.4	55
900	39.4	55
1000	38.5	55
1500	34.9	55
2000	32.4	55
2500	30.5	55

2. Construction Stage

The equipment to be used in the pre-construction stage and their noise levels are given below.

Table 3. Noise Levels of Machinery/Equipment

Equipment	Number	Lwi (dBA)
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 dBA.

In addition, using formula numbered 2, the noise levels depending on distance for pre-construction stage are calculated and given in Table 4.

Table 4. Noise Levels Depending on Distance

Distance (m)	Lp (dBA)	Project Standard (dBA)
15	85.1	55
50	74.7	55
100	68.6	55
200	62.6	55
300	59.1	55
400	56.6	55
500	54.7	55
600	53.1	55
700	51.7	55
800	50.6	55
900	49.6	55
1000	48.6	55
1500	45.1	55
2000	42.6	55
2500	40.7	55

ANNEX-10: BASELINE ON TERRESTRIAL FLORA AND FAUNA

Tables in this section are retrieved from the EIA Report (2023) for the Metal Recovery Plant of Eti Bakır, located at about 2.5 km East of the Prpoject Area.

Table 1: List of Flora Species

Family	Species name in Turkish	Scientific Name of Species	Type	Phyto-geography	IUCN Status	Bern Convention Status	Endemism	CITES	Resource
Papaveraceae	Şahtereotu	Fumaria officinalis	Herbaceous	Europe-Siberia	-	-	-	-	
Salicaceae	Aksöğüt	Salix alba	Perennial tree	Europe-Siberia	-	-	-	-	
Apiaceae	Tek yıllık-ot	Artedia squamata	Annual herb	Mediterranean	-	-	-	-	
	Küçük Pıtrak	Caucalis platycarpos	Annual herb	Eastern Mediterranean	-	-	-	-	
	Diş otu	Ammi visnaga	Annual or biennial herb	Mediterranean	-	-	-	-	
	Kişkiş	Scandix pecten-veneris	Perennial woody climber	Mediterranean	-	-	-	-	
Asteraceae	Çok yıllık-otsu	Pulicaria dysenterica	Perennial herb	Europe-Siberia	-	-	-	-	
	Tüylü Kanak	Crepis foetida	Annual herb	Unknown	-	-	-	-	
	Çok yıllık, otsu	Lepidium latifolium	Perennial herb	Unknown	-	-	-	-	
	Kel papatya	Anthemis altissima	Annual herb	Unknown	-	-	-	-	
	Çok yıllık-otsu	Cirsium arvense ssp. arvense	Perennial herb	Unknown	-	-	-	-	
	Keçe otu	Filago eriocephala	Annual herb	Eastern Mediterranean	-	-	-	-	
	Tek yıllık-otsu	Pallenis spinosa	Annual herb	Mediterranean	-	-	-	-	
Fabaceae	Teknecik	Medicago orbicularis	Annual herb	Europe-Siberia	-	-	-	-	
	Yonca	Trifolium arvense var. arvense	Annual herb	Europe-Siberia	-	-	-	-	
	Tek yıllık-ot	Vicia tetrasperma	Annual herb	Unknown	-	-	-	-	
Boraginaceae	Tek yıllık-ot	Buglossoides arvensis	Annual herb	Unknown	-	-	-	-	
	Tek yıllık-ot	Heliotropium supinum	Annual herb	Unknown	-	-	-	-	

Lamiaceae	Ballıbaba	Lamium amplexicaule	Annual herb	Europe-Siberia	-	-	-	-	
	Çok yıllık-ot	Stachys byzantina	Perennial herb	Europe-Siberia	-	-	-	-	
	Ak Sedef Otu	Teucrium polium	Perennial woody herb	Unknown	-	-	-	-	
Rosaceae	Alıç	Crataegus monogyna	Perennial shrub or small tree	Mediterranean	-	-	-	-	
Poaceae	Tek yıllık-ot	Poa annua	Annual herb	Unknown	-	-	-	-	
	Tek yıllık, Ot	Poa bulbosa	Annual herb	Unknown	-	-	-	-	
	Çok yıllık-ot	Glyceria fluitans	Perennial herb	Unknown	-	-	-	-	
	Tek yıllık-ot	Briza maxima	Annual herb	Unknown	-	-	-	-	
Caryophyllaceae	Tek yıllık-ot	Silene gallica	Annual herb	Unknown	-	-	-	-	
	Çok yıllık-ot	Stellaria holostea	Perennial herb	Europe-Siberia	-	-	-	-	

Table 2: Amphibians in the Near Surroundings

Family	Species	Turkish Name	IUCN Status	Bern Convention (Annex)	Endemic
Ranidae	Pelophylax ridibundus	Ova Kurbağası	LC (Least Concern)	Annex III	-
Bufonidae	Bufotes variabilis	Değişken Desenli Gece Kurbağası	DD (Data Deficient)	Annex III	-
Bufonidae	Bufo bufo	Siğilli Kurbağa	LC (Least Concern)	Annex III	-

Table 3: Reptiles in the Near Surroundings

Family	Species	Turkish Name	IUCN Status	Bern Convention (Annex)	Endemism
Lacertidae	Lacerta trilineata	İri Yeşil Kertenkele	LC (Least Concern)	Annex II	-
Colubridae	Eirenis modestus	Uysal Yılan	LC (Least Concern)	Annex III	-
Colubridae	Natrix natrix	Yarı Sucul Yılan	LC (Least Concern)	Annex III	-
Testudinidae	Testudo graeca	Tosbağa	VU (Vulnerable)	Annex II	-

Table 4: Birds in the Near Surrounding

Family	Species	Turkish Name	Regional Status [17]	Red Data	IUCN	Bern Convention	Endemism
ACCIPITRIDAE	Buteo buteo	Şahin	R, WV, PM	A 4	LC	Annex II	-
ACCIPITRIDAE	Buteo rufinus	Kızıl Şahin	R, WV	A 4	LC	Annex II	-
FALCONIDAE	Falco tinnunculus	Kerkenez	R	A 4	LC	Annex II	-
FALCONIDAE	Falco vespertinus	Ala Doğan	PM	A 2	LC	Annex II	-
ALAUDIDAE	Alauda arvensis	Tarla Kuşu	R	A 4	LC	Annex I, III	-
MOTACILLIDAE	Anthus pratensis	Çayır İncirkuşu	SM, PM, WV	-	LC	Annex II	-
MOTACILLIDAE	Motacilla flava	Sarı Kuyruksallayan	SM	A 4	LC	Annex II	-
COLUMBIDAE	Streptopelia turtur	Üveyik	SM	A 4	LC	Annex II, III	-
STRIGIDAE	Bubo bubo	Puhu	R	A 3	LC	Annex II	-
HIRUNDINIDAE	Hirundo rustica	Kır Kırlangıcı	R	A 4	LC	Annex II	-
TURDIDAE	Saxicola rubetra	Çayır Taşkuşu	R	A 4	LC	Annex I, II	-
SITTIDAE	Sitta europea	Sıvacı Kuşu	R	A 4	LC	Annex I, II	-
CORVIDAE	Pica pica	Saksağan	R	A 4	LC	Annex II	-
CORVIDAE	Corvus frugilegus	Ekin Kargası	R, WV	A 4	LC	Annex II	-
STURNIDAE	Sturnus vulgaris	Sığırcık	R	A 4	LC	Annex I	-
PASSERIDAE	Passer domesticus	Serçe	R	A 4	LC	Annex II	-

Table 5: Mammals in the Near Surrounding of the Project Area

Family	Species	Turkish Name	IUCN Status	Bern Convention (Annex)	Endemism
Sciuridae	Sciurus anomalus	Sincap	LC (Least Concern)	Annex II	-
Erinaceidae	Erinaceus concolor	Kirpi	LC (Least Concern)	-	-

[17] R: Resident; WV: Winter Visitor; SM: Summer Migrant; T: Transit Migrant

Suidae	Sus scrofa	Yabandomuzu	LC (Least Concern)	Annex II	-
Talpidae	Talpa levantis	Kör Köstebek	LC (Least Concern)	-	-
Soricidae	Sorex minutus	Cücefare	LC (Least Concern)	-	-
Muridae	Rattus norvegicus	Göçmen Sıçan	LC (Least Concern)	-	-