TÜRKİYE ORGANIZED INDUSTRIAL ZONES PROJECT

ASO 2-3 Organized Industrial Zone

Advanced Environmental Analysis Laboratory Project

Environmental and Social Management Plan (ESMP)

FEBRUARY 2025

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REVISION HISTORY

Ver	Date of Issue	Issue Reason	Project Owner	Submitted	Consultant
0	11th August, 2024	Preliminary Review	ASO 2-3 OIZ	ASO 2-3 OIZ	Infratech Yazılım, Mühendislik ve İnovasyon A.Ş.
1	15th August, 2024	First submission	ASO 2-3 OIZ	Ministry of Industry and Technology	Infratech Yazılım, Mühendislik ve İnovasyon A.Ş.
2	20th September, 2024	Second submission	ASO 2-3 OIZ	Ministry of Industry and Technology	Infratech Yazılım, Mühendislik ve İnovasyon A.Ş.
3	8th October, 2024	Third submission	ASO 2-3 OIZ	Ministry of Industry and Technology	Infratech Yazılım, Mühendislik ve İnovasyon A.Ş.
4	20th November, 2024	Forth submission	ASO 2-3 OIZ	Ministry of Industry and Technology	Infratech Yazılım, Mühendislik ve İnovasyon A.Ş.
5	24th January, 2025	Fifth submission	ASO 2-3 OIZ	Ministry of Industry and Technology	Infratech Yazılım, Mühendislik ve İnovasyon A.Ş.
6	4th February, 2025	Sixth submission	ASO 2-3 OIZ	Ministry of Industry and Technology	Infratech Yazılım, Mühendislik ve İnovasyon A.Ş.

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AC	Alternating Current
AFAD	Disaster and Emergency Management Presidency
AoI	Area of Influence
ASO 2-3 OIZ	Ankara Chamber of Industry 2nd and 3rd Organized Industrial Zone
AZE	Alliance for Zero Extinction
BOD	Biological Oxygen Demandimz
CCTV	Closed-circuit television
CH4	Methane
cm	centimetre
CO_2	Carbon dioxide
COD	Chemical Oxygen Demand
CR	Critically Endangered
dBA	Decibels adjusted
DC	Direct current
DEM	Digital Elevation Model
DNP	Defects Notification Period
E&S	Environmental and Social
EHS	Environmental, Health and Safety
EIA	Environmental Impact Assessment
EN	Endangered
EPA	Environmental Protection Agency
ESCOPs	Environmental Codes of Practice
ESF	Environmental and Social Framework
ESHS	Environmental, Social Health, and Safety
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
ESMR	Environmental and Social Monitoring Report
ESMS	Environmental and Social Management System
ESRs	Environmental and Social Reports
ESS	Environmental and Social Standards
EU	European Union
EUNIS	European Nature Information System
E-W direction	East-West Direction
GBV	Gender Based Violence
GHG	Green House Gas
GIS	Geographic Information Systems
GMR	Grievance Mechanism Report
HEPA	High Efficiency Particulate Air
HJT	Hetero-junction

HVAC	Heating Ventilation and Air Conditioning
IAPCR	Industrial Air Pollution Control Regulation
IBA	Important Bird Area
IBC	Interdigitated back contact
IBRD	International Bank for Reconstruction and Development
ICP	Inductively Coupled Plasma
IEC	International Electrotechnical Commission
ILO	International Labor Organization
INFRATECH	Infratech Yazılım, Mühendislik ve İnovasyon A.Ş.
IUCN	International Union for Conservation of Nature
KBA	Key Biodiversity Area
KWh	Kilowatt-hour
kWp	Kilowatt peak
LMP	Labor Management Procedures
LPG	Liquefied Petroleum Gas
MAK	Central Hunting Commission Decisions
mm	Millimeter
MoEUCC	Ministry of Environment, Urbanization and Climate Change
MoIT	Ministry of Industry and Technology
MSDS	Material Safety Data Sheet
MW	Megawatt
N/A	Not Applicable
NO_2	Nitrogen oxides
NOx	Nitrogen oxides
NT	Near Threatened
OHS	Occupational Health and Safety
OIZ	Organized Industrial Zone
OSE	Occupational Safety Expert(s)
PERC	Passivated emitter rear contact
PGA	Peak Ground Acceleration
PGV	Peak Ground Velocity
PID	Project Identification Document
PIF	Project Identification File
PIU	Project Implementation Unit
PM	Particulate Matter
PM_{10}	Particles with aerodynamic diameter smaller than 10µm
$PM_{2.5}$	Particles with aerodynamic diameter smaller than 2.5µm
PMP	Pest Management Plan
PMU	Project Management Unit
PoEUCC	Provincial Directorate of Environmental Urbanisation and Climate Change
PPE	Personal Protective Equipment

PS	Performance Standards
PV	Photovoltaic
PVC	Polyvinyl Chloride
R&D	Research and Development
RAMAQ	Regulation on the Assessment and Management of Air Quality
RENC	Regulation on Environmental Noise Control
rpm	Revolutions Per Minute
SCADA	Supervisory Control and Data Acquisition
SEA/SH	Sexual Exploitation Abuse / Sexual Harassment
SEP	Stakeholder Engagement Plan
SO2	Sulphur dioxide
SPS	Standby Power Supply
TAP	Portable Battery Manufacturers and Importers Association
TDF	Fish Bioassay
TDS	Total Dissolved Solids
TKN	Total Kjeldahl Nitrogen
TN	Total Nitrogen
TOIZ	Türkiye Organized Industrial Zone
TOIZsP	Türkiye Organized Industrial Zones Project
ToR	Terms of Reference
TP	Total Phosphorus
TS	Turkish Standards
TS EN	Turkish Standards Institute
TSS	Total Suspended Solids
TurkStat	Turkish Statistical Institute
UNESCO	United Nations Educational, Scientific and Cultural Organization
UV	Ultraviolet
UV VIS	Ultraviolet–visible
V	Volt
VOCs	Volatile Organic Compounds
VU	Vulnerable
W/m²K	Watts per square meter per kelvin
WB	World Bank
WBG	World Bank Group
WGM	Workers' Grievance Mechanism
WHO	World Health Organization
WW	Wastewater
WWTP	Wastewater Treatment Plant

EXECUTIVE SUMMARY

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

The main organization responsible for the implementation of this Environmental and Social Management Plan (ESMP) is ASO 2-3 OIZ. A Project Management Unit (PMU) will be established to carry out operational and administrative tasks. The PMU staff will be the ASO 2-3 OIZ's own staff who have previous WB Project experience. Besides, on different phases of the Project (pre-construction, construction and operation), different parties (Consultant, Contractors, Construction Supervision Consultant, MoIT/Project Implementation Unit (PIU)) will take responsibility for various works in the scope of the ESMP. All the work mentioned will be coordinated by the ASO 2-3 OIZ. The roles and responsibilities of these parties are detailed in Section 8.

Presently, domestic and industrial wastewater originating from factories and facilities in the OIZ is treated in a wastewater treatment plant with a capacity of 4,900 m^3/day and an electro-flocculation process and discharged to the receiving environment (Ankara Creek) in accordance with the Water Pollution Control Regulation Table 19 Standards. The dewatered excess sludge which is stored in sludge container within the existing WWTP and reaches a dry content of 40-60% is regularly delivered to licensed disposal facility and sludge management will continue in the same way. OIZ has made an agreement with Limak Çimento (Cement Plant) for the disposal of wastewater sludge (see Annex-18).

The Environmental Laboratory is currently accredited by Turkish Accreditation Agency (TÜRKAK) for a total of 107 parameters in water/wastewater/seawater matrices.[1] In addition, the laboratory is authorized for 38 parameters in the scope of the Environmental Measurement and Analysis Certificate of Competence water/wastewater matrices issued by T.C. The Ministry of Environment, Urbanization and Climate Change.

Upon the commissioning of the sub-project, a microbiology laboratory and an emission laboratory will be established, new parameters will be added to the scope of water/wastewater, and it will be increased to a total of 192 parameters in TÜRKAK accreditation in water/wastewater/seawater/fluegas/emission/ waste matrices. With this investment, there will be an approximately 70-80% increase in the current scope, and the dependency of the laboratory on subcontracted laboratories will decrease and the payments made to subcontracted laboratories will be reflected as income to the laboratory. After the establishment of the emission laboratory, scope expansion will be applied to the Ministry of Environment, Urbanization and Climate Change. Since the investment will be made within the OIZ, there is no land cost.

The sub-project area will be within the existing WWTP parcel inside the existing OIZ borders and ownership is clearly documented in the title deed provided in Annex-1. The sub-project area consists of a single parcel, which is Block 100500, Parcel 2. No additional land will be required for the project. The Laboratory building, which is planned on an area of 854 m^2, was initially planned to consist of 3 floors in total, including partial basement, ground floor, first floor and attic floor with a total closed area of 1.712 m^2. Within this planning, pre-feasibility studies and screening studies were carried out. However, the size of the project area was increased due to the insufficiency of technical areas during the application projects phase. In the current situation, the construction area has been revised as 2,366.65 m^2. According to this revision, the Environmental Laboratory has an indoor area of 1,973.49 m^2 and building footprint of 1,109.95 m^2 after deducting the technical areas.[2]

[1] https://www.asobcev.com.tr/turkak/87/20/

[2] Email dated 14 August 2024 sent by Baran Arslan, Expert of the OSB

The advanced environmental laboratory building to be built within the scope of the sub-project is planned to include various sustainability measures with its green building design. If this design is realized, the following savings are anticipated:

- 24-30% reduction in energy consumption
- 33-39% reduction in carbon dioxide emissions
- 30-50% reduction in water consumption
- 70% reduction in solid waste
- 10-15% reduction in maintenance costs

Under normal conditions, the building is expected to consume approximately 27,000 kWh of electricity and 15,000 m³ of natural gas annually. However, thanks to green building design, it is expected to save approximately 6,500 kWh in electricity consumption and approximately 4,000 m³ in natural gas consumption. By implementing green building design, both environmental sustainability and economic savings will be achieved.

According to the information obtained from ASO 2-3 OIZ, the consultancy tender phase of the Project will last for ten months. After the consultancy period, the design review and revisions by consultant, which will take two months for the project. The bid preparation, bidding and bid evaluation phases are planned to last six months. After these phases, contract signing and construction phase will last 30 months, including tests and commissioning work & training of laboratory personnel. The last 12-month period of the construction phase and commissioning of the subproject is the Defects Notification Period (DNP).

Local people will be given priority in personnel employment during the pre-construction and construction phases of the Project. It is anticipated that 5 people will be employed for the pre-construction phase, 50 people for the construction phase and 15 people for the operation phase.

The Project will comply with the good international practice, including WB Environmental and Social Standards (ESSs), the Environmental and Social Management Framework (ESMF) of the TOIZs 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 fall within 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 is provided in Table 1.

Table 1 Summary of the Significant Impacts and Mitigation Measures

Potential Environmental and Social (E&S) Impacts/Risks	Mitigation Measures
Air Emissions and Odor	Dust and exhaust emissions management Air quality and odor monitoring Speed limitations will be applied
Soil Pollution and Contaminated Land	Topsoil preservation and restoration Prevention of soil contamination Erosion control measures

Potential Environmental and Social (E&S) Impacts/Risks	Mitigation Measures
Impacts on Water Resources	Proper storage of chemicals Prevention of surface runoff Effluent discharge consistent with the Project Standards
Noise emissions	Regular maintenance of the construction machinery, equipment and vehicles Noise monitoring Coordinate the working schedule with sensitive receptors Establishment of a robust grievance mechanism
Impacts on Biological Environment	Re-vegetation, where possible Measures to further avoid and minimize the construction footprint
Landscape and Visual Impacts	Prevent glare and reflection of solar panels and laboratory building
Use of Resources and Waste Production	Wastes management in accordance with the waste management hierarchy Selection of most appropriate raw materials by evaluating clean production options
Employment and Procurement Opportunities	Providing transparent, non-discriminatory, equal recruitment opportunities with respect to ethnicity, religion, language, gender and sexuality
Infrastructure and Services	Prompt compensation of any damage to infrastructure
Labor Force	Labour Management Procedures of TOIZsP, incl. a grievance mechanism Preparation of information materials Managing and monitoring the performance of contractors in relation to the prohibition of child labor, unregistered employment and forced labor Proper adaptation of human rights policy and labor rights
Impacts on Community Health, Safety and Security	Usage of appropriate traffic signage
Archaeological and Cultural Heritage Impacts	Informing related Civilian Authority or Museum Directorate

As a part of the mitigation measures, this site-specific Environmental and Social Management Plan (ESMP) has been developed. The ESMP includes management plans and procedures required for both phases of the Project, which are given in Table 2. along with guidelines for preparation of the management plans to be prepared by the contractor. The ESMP will be included in the bidding documents. In addition, the TOIZsP Stakeholder Engagement Plan (SEP) will be used for this sub-project and all project parties will be responsible for ensuring compliance with the TOIZsP SEP.

Table 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 Phase				
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 and Vibration 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
Community Health, Safety, and Security 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
Occupational Health and Safety Management Plan	Prior to pre-construction	Contractor	Construction Supervision Consultant	MoIT PIU
Labour 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
Contractor Management Plan	Prior to pre-construction	ASO 2-3 OIZ		MoIT PIU
Operation Phase				
Waste Management Plan	Prior to operation	ASO 2-3 OIZ		MoIT PIU
Occupational Health and Safety Management Plan	Prior to operation	ASO 2-3 OIZ		MoIT PIU
Community Health, Safety, and Security Management Plan (with Life and Fire Safety Requirements)	Prior to operation	ASO 2-3 OIZ		MoIT PIU
Hazardous Materials Management Plan	Prior to operation	ASO 2-3 OIZ		MoIT PIU
Sustainable Operations Plan (Due to the green building concept)	Prior to operation	ASO 2-3 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,
  - 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 phases of the project and the mitigation measures taken to manage these impacts are presented in Chapter 8.

In Chapter 9, details of all necessary monitoring activities for monitoring of ESMP implementation conditions and the effectiveness of the mitigation measures are defined for relevant impacts and environmental factors. The monitoring activities for pre-construction, construction and operation phases are defined.

1 INTRODUCTION

1.1 Project Background and Rationale

The World Bank/International Bank for Reconstruction and Development (IBRD) is funding the Türkiye Organized Industrial Zones Project (TOIZsP) via a loan. The Ministry of Industry and Technology (MoIT), appointed by the Ministry of Treasury and Finance, will oversee the project's execution. This initiative aims to enhance the efficiency, environmental sustainability, and competitiveness of Türkiye's Organized Industrial Zones (OIZs). To measure progress, the project has identified specific indicators:

- Measuring energy savings resulting from OIZ spending on essential and eco-friendly infrastructure.
- Assessing water conservation achieved through OIZ investments in eco-friendly infrastructure.
- Tracking the decrease in CO_2 emissions resulting from the funded investments.
- Evaluating the proportion of OIZs successfully attracting new investments.

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

The Ministry of Industry and Technology (MoIT) has a significant track record in enhancing Organized Industrial Zones (OIZs). These zones in Türkiye are strategically located to comply with specific regulations (Organized Industrial Zones Law No. 4562) and receive backing from the MoIT. The primary aim of the Türkiye Organized Industrial Zones Project is to enhance the effectiveness, eco-friendliness, and competitiveness of chosen OIZs in Türkiye.

Sub-projects within the framework of the "Türkiye Organized Industrial Zones Project" (TOIZsP) 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 TOIZsP'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 responsible for execution and Ankara Chamber of Industrial (ASO) 2-3 Organized Indusrty Zone (OIZ is the subproject owner) responsible for the implementation of the Project at the local level.

Advanced Environmental Laboratory Project (''the Project'') by ASO 2-3 OIZ has been accepted as one of the sub-projects in the Türkiye Organised Industrial Zones (TOIZ) under the Ministry of Industry and Technology due to reduction in energy consumption, supporting waste management capacity and increasing the use of renewable energy. A microbiology laboratory and an emission parameters analysislaboratory will be established, new parameters will be added to the scope of water/wastewater analysis, and it will be increased to a total of 192 parameters in TÜRKAK accreditation in water/wastewater/seawater/fluegas/emission/ waste matrices. With this investment, there will be an approximately 70-80% increase in the current scope, and the dependency of the laboratory on subcontracted laboratories will decrease and the payments made to subcontracted laboratories will be reflected as income to the laboratory. Location of the Advanced Environmental Laboratory Project of ASO 2-3 OIZ in Ankara is shown in Annex-2.

1.2 Purpose and Scope of Environmental and Social Management Plan (ESMP)

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 fall within 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 reasons for the risk characterization of the Project are given below:

1. Medium scale construction activities and short-term excavation,
2. 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 phase, such as noise, OHS concerns, and the generation of waste can be effectively controlled using established management systems,
3. No negative impact on surrounding environmental receptors is expected,
4. Activities will be carried out within the boundaries of the OIZ and there is no sensitive ecosystem close to OIZ area,
5. Waste will be disposed of in line with national regulations and WB Environmental, Health and Safety (EHS) Guidelines.
6. Wastewater to be generated by workers during the construction phase will be treated in the existing WWTP and will be discharged to the Ankara Creek after physical treatment.
7. Land acquisition and/or resettlement is not needed,
8. No land acquisition has been made in the last 5 years,
9. Excessive labour influx will not be generated,
10. Livelihoods of households within the AoI, specially vulnerable groups and formal-informal users on land will not be damaged,
11. No impact of the Project on cultural heritage,
12. Employment opportunities will increase for local communities including women and vulnerable groups,
13. 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.

One of the tasks under the scope of the Project is the preparation of an ESMP in accordance with WB, ESSs, the ESMF of the TOIZsP, WBG General EHS Guidelines and Industrial Sector Guidelines and the national legislation and regulations in force in Türkiye. Accordingly, this ESMP has been prepared by Infratech Yazılım, Mühendislik ve İnovasyon A.Ş. (Infratech) to identify and assess 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 phases 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;
- 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 person;
- To prevent environmental degradation as a result of either individual 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 ensure that the project impact mitigation measures are properly implemented and monitored since it is an Action Plan and roadmap; and
- To ensure that all stakeholders' concerns are addressed.

A Stakeholder Engagement Plan (SEP) has not been prepared for the ASO 2-3 OIZ project by Infratech at Project level. On the other hand, SEP was prepared by the Ministry of Industry and Technology in January 2021, aiming to fulfil the World Bank's ESS 10 Stakeholder Engagement and Information Disclosure requirements. Stakeholder engagement activities will be based on the plan prepared by the MoIT and stakeholders at Project level have been identified and their relevance to the project is stated in Chapter 11 of this ESMP. The TOIZsP Stakeholder Engagement Plan (SEP), (available at https://yesilosb.sanayi.gov.tr/projedokumanlari) will be implemented throughout the lifecycle of this sub-project and all project parties (including contractor, Organized Industrial Zone (OIZ) and Ministry of Industry and Technology (MoIT) PIU) will be responsible for ensuring compliance with the TOIZsP SEP.

This plan was structured around the below main headings. The information provided in the plan 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; introduction to the project and ESMP , providing project details.
- 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, addresses how the identified gaps will be bridged via relevant standards and guidelines and identifies environmental and other relevant to the project.
- Chapter 4 Methodology; describes ESMP preparation methodology
- Chapter 5 Environmental Baseline of the Project; describes the baseline conditions in and around the proposed Project Area, including physical, 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, identifes mitigation measures.
- Chapter 8 Environmental and Social Aspects This chapter includes the ES management plan for the various phases of the project specific.
- Chapter 9 Environmental and Social Monitoring Plan; describes monitoring activities.
- Chapter 10 Institutional Arrangements and Training; gives information about environmental and social management structure and environmental and social monitoring reports.
- Chapter 11 Stakeholder Management Under ESMP; 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.
- Chapter 12 Deviation from Screening Studies; describes the deviations between the findings obtained during the ESMP studies and the findings obtained during the Screening studies.

2 PROJECT DESCRIPTION

2.1 Objectives of the Project

Within the scope of the project, it is planned to expand the laboratory's business volume by constructing a laboratory building. In this context, a microbiology laboratory and an emission laboratory will be established, and new parameters will be added to the scope of water/wastewater. Within the scope of the project, it is planned to establish a microbiology laboratory and an emission parameters analysis laboratory to expand throughput of the laboratory.

Domestic and industrial wastewater originating from factories and facilities in the OIZ is treated in a wastewater treatment plant with a capacity of 4,900 m^3/day and an electro-flocculation process and discharged to the receiving environment (Ankara Creek) in accordance with the Water Pollution Control Regulation Table 19 standards.

The dewatered excess sludge which is stored in sludge container within the existing WWTP and reaches a dry content of 40-60% is regularly delivered to licensed disposal facility and sludge management will continue in the same way. OIZ has made an agreement with Limak Çimento (Cement Plant) for the disposal of wastewater sludge (see Annex-18).

The Environmental Laboratory is currently accredited by Turkish Accreditation Agency (TÜRKAK) for a total of 107 parameters in water/wastewater/seawater matrices.[3] In addition, the laboratory is authorized for 38 parameters in the scope of the Environmental Measurement and Analysis Certificate of Competence water/wastewater matrices issued by T.C. The Ministry of Environment, Urbanization and Climate Change. It is planned to expand the scope of the laboratory by considering the out-of-town visits carried out to expand the business volume of the laboratory. Within the scope of the Project, a microbiology laboratory and an emission laboratory will be established, new parameters will be added to the scope of water/wastewater, and it will be increased to a total of 192 parameters in TÜRKAK accreditation in water/wastewater/seawater/fluegas/emission/waste matrices. With this investment, there will be an approximately 70-80% increase in the current scope, and the dependency of the laboratory on subcontracted laboratories will decrease and the payments made to subcontracted laboratories will be reflected as income to the laboratory. After the establishment of the emission laboratory, scope expansion will be applied to the Ministry of Environment, Urbanization and Climate Change. Since the investment will be made within the OIZ, there is no land cost.

The aim of the investment is to construct the new laboratory building and to increase the scope of the service provided in the Emission Analysis, Water / Wastewater Analysis, Treatment Sludge Analysis, Waste Analysis, and Soil Analysis matrices.

It is foreseen that 15 staff will be employed in the laboratory building. Accordingly, under normal conditions, water consumption in the building will be 450 m^3/year and waste generation will be 3 tons/year. In the green building concept, it is estimated that water consumption will be reduced to 225 m^3/year and the amount of waste generated to 1.15 tons/year. In addition, considering that under normal conditions, the building will use approximately 27,000 kwh/year of electricity and 15,000 m^3/year of natural gas, it is estimated that the green building will save approximately 6,500 kwh/year in electricity and approximately 4,000 m^3/year in natural gas.

Under normal conditions, the building is expected to consume approximately 27,000 kWh of electricity and 15,000 m^3 of natural gas annually. However, thanks to green building design, it is expected to save approximately 6,500 kWh in electricity consumption and approximately 4,000 m^3 in natural gas consumption. By implementing green building design, both environmental sustainability and economic savings will be achieved.

Upon the commissioning of the Project, it is estimated that the following savings will be realized;

- 24-30% reduction in energy consumption,
- 33-39% Reduction in carbon dioxide emissions,
- 30-50% Reduction in water consumption,

[3] https://www.asobcev.com.tr/turkak/87/20/

- 70% Reduction in the amount of solid waste,
- 10-15% Reduction in maintenance costs.

2.2 Project Location

The ASO 2-3 OIZ (Organized Industrial Zone) is situated in the Alcı OSB Neighborhood of Sincan district within Ankara. Sincan district itself spans an area of 397 square kilometers and has an elevation of 850 meters above sea level. There are a total of 601 parcels within the OIZ, 468 of them are industrial parcels, 219 of these parcels are in production, 79 of them are under construction, 170 of them are under project. Currently, there are no empty industrial plots within the OIZ.

The Project area will be within the existing WWTP parcel inside the existing OIZ borders and ownership is clearly documented in the title deed provided in Annex 1. The Project area consists of a single parcel, which is Parcel No. 2 of Block 100500, and it has an area of 2,366.65 m^2 within 34,482.79 square metre parcel area. The laboratory building will consist of 3 floors in total: partial basement, ground floor, first floor and roof floor, with a total indoor area of 1,973.49 m^2.

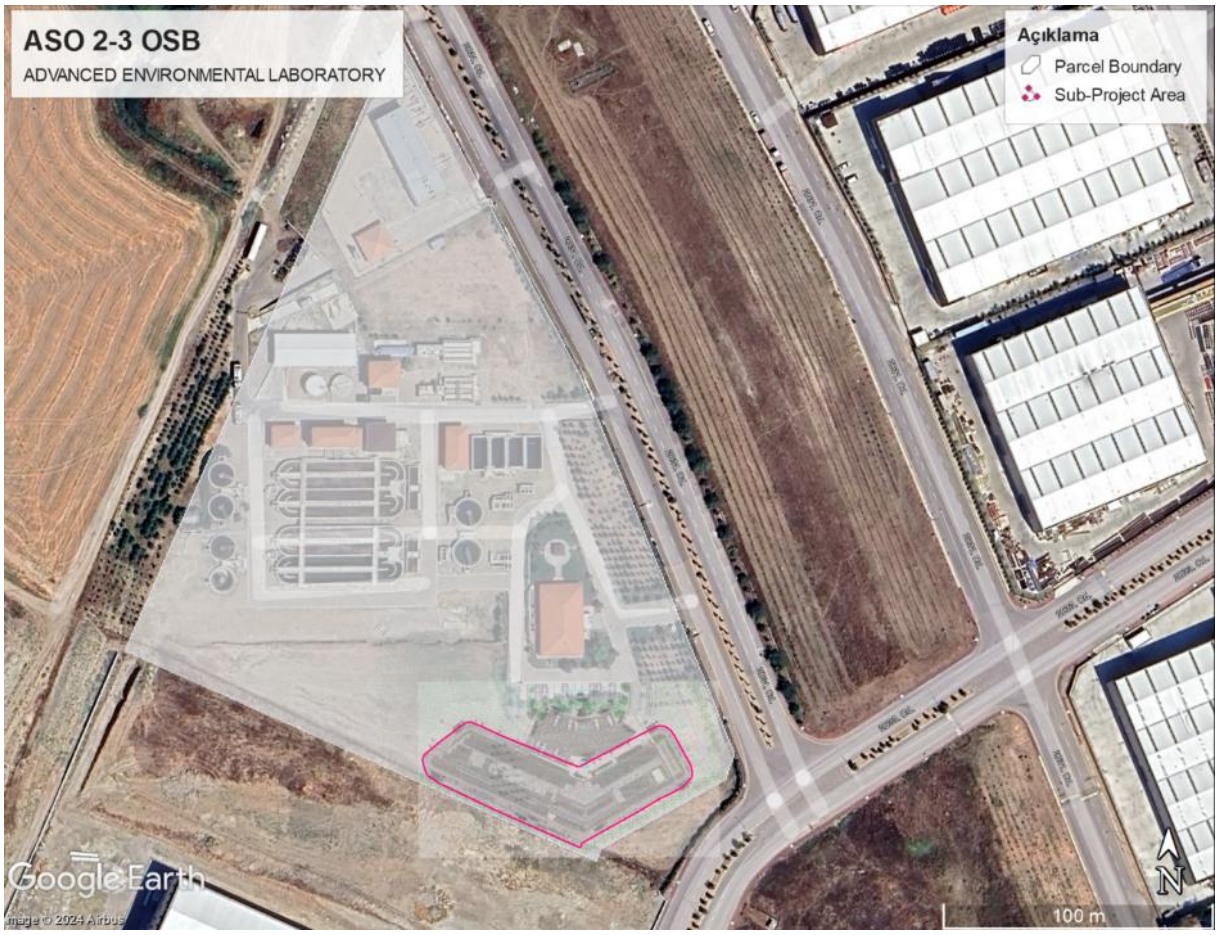


Figure 1 Project Location on Google Earth

A figure showing the Advanced Environmental laboratory area given as Figure 1. The project area is not currently used and there are bushes in the area. The site photographs of the area where the Advanced Environmental laboratory will be constructed are given in Figure 2.

Figure 2 Advanced Environmental Laboratory Area

Maps prepared for application in the ESMP within the scope of the Project are given in Annex-2. In order to have an overview of the Project vicinity, the area of influence map is given in Figure 3.

No expropriation or addition of land is required within the scope of the project. Consensual purchase and expropriation procedures were completed in 2001. The 1/1000 scale parceling plan of the zone was approved by the Ministry of Science, Industry and Technology on 14.10.2009 and following the registration of the parceling plan in the land registry, the legal construction started in ASO 2-3 OIZ as of the beginning of 2010. On the other hand, the site selection of ASO 2nd Organised Industrial Zone Additional Area was approved by the Ministry of Science, Industry and Technology on 03.08.2012 and became final and the 1/5000 and 1/1000 scale zoning plans were approved by the Ministry of Science, Industry and Technology on 21.07.2015 and entered into force. The land where the Project area is planned is land belonging to the OIZ since 2001.

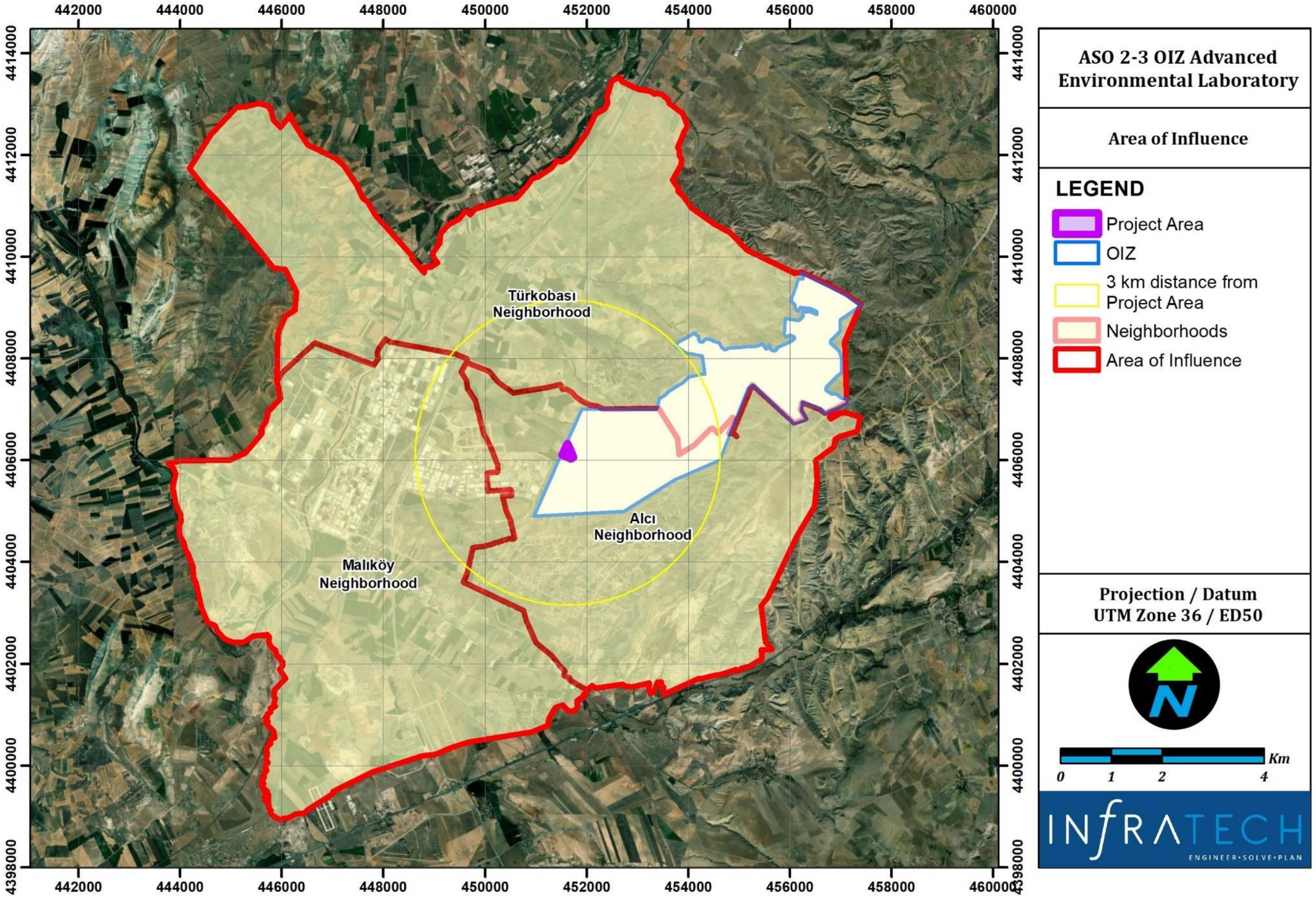


Figure 3 Area of Influence

2.3 Project Components and Timeline

Architectural studies were carried out and physical space designs for laboratory needs were completed. Within the scope of the project, the ground floor of the laboratory building planned to be constructed in the project has a gross construction area of 2,366.65 m^2 as the area sitting on the ground. The laboratory building footprint will be 1,109.95 m^2 in total, including partial basement, ground floor, first floor and roof floor. The designed floor plans are shown below.

Green Laboratory building design project is planned to be located in ASO 2-3 OIZ WWTP zone. The 3D model views of the design are given below between Figure 5-Figure 9.

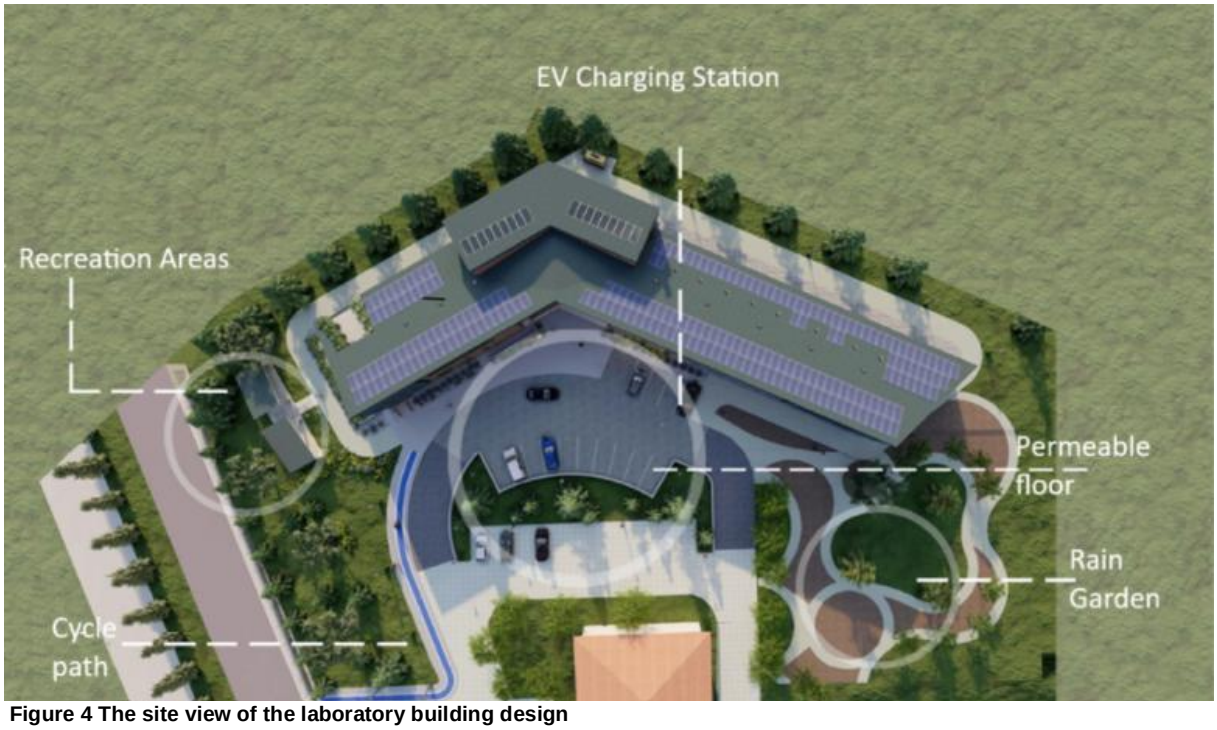


Figure 4 The site view of the laboratory building design

Figure 5 Architectural project visuals-1

Figure 6 Architectural project visuals-2

Figure 7 Architectural project visuals-3

Figure 8 Architectural project visuals-4

Figure 9 Architectural project visuals-5

In order to provide the targeted services in the laboratory building to be constructed within the scope of the Project, the following equipment will also be supplied:

- Gas Emission Group Equipment
- Microbiology Group Equipment
- Water Residue Analysis Instrument Group
- Laboratory Infrastructure and Equipment; workbenches and lower cabinet systems, chemical storage cabinets, fume hoods, ventilation, and plumbing systems

Laboratory equipment to be provided within the scope of the project are given in list below.

Table 3 Gas Emission Group Equipment

No	Definition	Pieces
1	Gas Chromatography Mass Spectrometry Device (GC/MS)	1
2	Thermal Desorber (TD)	1
3	Gas Chromatography Mass / Mass Spectrometry Device (GC-MS/MS)	1
4	ICP-OES (Optical Emission Spectrometer)	1
5	ICP-MS (Inductively Coupled Plasma Mass Spectrometry)	1
6	UV VIS Spectrometry Device	1

Table 4 Microbiology Group Equipment

No	Definition	Pieces
1	pH meter Seven Direct SD20 Kit	1
2	ED115-230V, Standard, Series ED Avantgarde.Line - Drying and heating chambers with natural convection, 11 Drying-Oven ED115-230V, Standard, Series ED - Drying/heating chambers Avantgarde.Line with natural convection, 115 L, 230 V 1 ph 50/60 Hz	1
3	BD115-230V, Standard, Series BD Avantgarde.Line - StandardIncubators with natural convection, 112 L, 230 INCUBATOR (37) BD115-230V, Standard, Series BD - Incubators Avantgarde.Line with natural convection, 115 L, 230 V 1 ph 50/60 Hz	1
4	BD115-230V, Standard, Series, BD Avantgarde.Line - Standard Incubators with natural convection, 112 L, 230 INCUBATOR (44) BD115-230V, Standard, Series BD - Incubators Avantgarde.Line with natural convection, 115 L, 230 V 1 ph 50/60 Hz	1
5	PX224 4 Digit Scale Pioneer Analytical Balance 0,1mg, 220g	2
6	PX225D 5 Digit Scale Capacity: 82g/220 gr Accuracy: 0.00001 gr Readability: 0.01mg/0.1mg* LCD display *GLP/GMP data *Application Modes: Weighing, % Weighing, Particle Counting, Density Determination, Dynamic Weighing *RS232, and USB Connection Port	2
7	Automatic Pipettes: 3-pack, option 1, incl. 3 Eppendorf Research® plus pipettes (0,5 - 10 µl, 10 - 100 µl, 100 - 1000 µl) and epT.I.P.S.® boxes	1
8	Bottletop dispenser: Dispensette® S Organic, Digital, DE-M marking, 2,5-25 ml, with recirculation valve	1
9	Digital Burettes: Bottletop dispenser, Dispensette® S Organic, Digital, DE-M marking, 2,5-25 ml, with recirculation valve	1
10	Dishwasher: 2850401TR PG8504 TR AE AD	4
11	Refrigrator: VWR-LIEBSRFFG4001	4
12	VERTICAL LAMINAR FLOW CABINET ESCO LVG-4AG-F8, GEN 3 , GLASS SIDES (4FT/1.2M W, 2.25 FT / 0.7 M H) Only sample protected and vertical air flow External dimensions of the device without stand (WxDxH): 1340 x 784 x 1270 mm Internal dimensions of the device (WxDxH): 1270 x 739 x 689 mm Working surface area:0.8 m² Average air flow rate: 0.45 m/second DC ECM motor with 70% energy saving 5 mm tempered glass side wall for easy visibility Filters: 0.1 -0.3 micron feed ULPA filter and pre-filter at 99.999% efficiency Exoskeleton made of corrosion resistant ISOCIDE antibacterial powder coated electrogalvanized steel Sentinel™ Gold microprocessor controller http://www.escoglobal.com/products/download/9010230-Laminar-Flow-LHG-LVGBrochure-A4-v2-LR.pdf	2
13	Vapourline-ECO 50 Automatic Vertical Autoclave-With Printer: 50 Litres	2
14	Muffle furnaces with fold down door L 5/11 (1-phase) 1100 °C 5	1
15	Sigma 2-16P, laboratory benchtop centrifuge, 220-240 V, 50/60 Hz Maximum speed: 15,000 rpm	1

No	Definition	Pieces
	Maximum precipitation value: 20.627xg Maximum capacity: 4 x 100 ml Program: 50 2 acceleration curves 2 deceleration curves RoHS compliant CE Certificate Warning system to alert the user in case of unbalanced loading Backlit LCD display http://www.sigmazentrifugen.de/fileadmin/user_upload/sigma/produkte/pdf/broschueren/EN/Sigma_2-16P_2-16KL_E_06-2012__1_.pdf	

Table 5 Water Residue Analysis Instrument Group

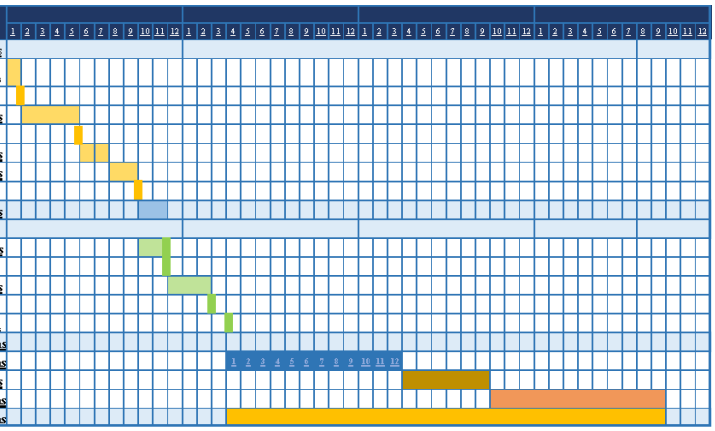
No	Definition	Pieces
1	TCR TECORA G4 Isokinetic Dust Sampler	1
2	TCR TECORA G4 Isokinetic Dust Sampler Heated / Unheated Probe (Local Production)	1
3	Integrated EPA Method 5 Sampling Chain Glassware Set for IsoKinetics Sampling Device	1
4	TCR TECORA DDS VOC Sampling Device	1
5	MCZ LVS1 PM 10 Dust Sampling Device	1
6	MCZ PM 2.5 Sampling Head	1
7	KIMO HQ 210 HT Thermo-Hygrometer	1
8	THC Model Protative FID TOC Analyzer	1
9	MADUR GA 21 PLUS Flue Gas Measuring Instrument Basic Unit -Portable	1
10	Chiller	1

Project Schedule

According to the information obtained from ASO 2-3 OIZ, the consultancy tender phase of the Project will last for ten months. After the consultancy period, the design review and revisions by consultant, which will take two months for the project. The bid preparation, bidding and bid evaluation phase are planned to last six months. After these phases, contract signing and construction phase will last 30 months, including tests and commissioning work & training of laboratory personnel. The last 12-month period of the construction phase and commissioning of the subproject is the Defects Notification Period (DNP). The anticipated schedule of the Project is provided in Table 6.

Table 6 Time Schedule of the Project

No	Activity	Duration
A	Consultant Selection for Design Review and Construction Supervision	10 months
A-1	Consultancy Selection PQ Stage(1st stage of Consultant Selection) Preparation	1 month
A-2	Consultancy Selection PQ Stage Launch	
A-3	Consultancy Selection PQ Evalutaion	4 months
A-4	Shortlist Announcement& RfP document	
A-5	Consultancy Selection: Second Stage Applications	2 months
A-6	Consultancy Selection: Second Stage Evaluation	3 months
A-7	Contract signing with Consultancy	
B	Design Review and Revisions (by selected Consultant)	2 months
C	Bidding for Contractor Selection:	6 months
C-1	Bidding Document Preparation	2 months
C-2	Bidding	
C-3	Bid Evaluation	3 months
C-4	Contract signing with Contractor	
C-5	Commencement of Contractor	1 month
D	Construction Contract of Laboratory	30 months
D-1	Construction of Laboratory	12 months
D-2	Tests and Commissioning Works & Training of Laboratory Staff	6 months
D-3	Defect Notification Period	12 months
E	Site Supervision (by selected Consultant)	30 months



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.

In accordance with the Regulation on Permits and Licences Required by the Environmental Law, it is mandatory to obtain an environmental permit as of March 31, 2023, for the discharge of industrial wastewater into the receiving environment. WWTP Project Approval of ASO 2-3 OIZ was given by the Ministry of Environment, Urbanization and Climate Change (MoEUCC) on 16 June 2022 (see Annex 16).

The organisation chart of ASO 2-3 OIZ is given in Annex-10.

This organisation chart shows the management and operational structure of an enterprise in detail. At the top of the chart is the Board of Directors, which makes strategic decisions, and the Regional Manager, who manages operations. Support departments include critical roles such as quality and environmental safety management. Main departments such as Administrative Affairs, Financial Affairs and Human Resources, Zoning and Public Works, Energy Operation and Environmental Management and Treatment are managed by personnel with various areas of expertise. The number of positions clearly shows the distribution of staff, and service purchases and vacancies are colour coded. This structure demonstrates that the organisation has a comprehensive and well-defined hierarchy and that the specific tasks and responsibilities of each department are clearly defined.

ASO 2-3 OIZ has received ISO 9001:2015 Quality Management System, ISO 10002:2018 Customer Satisfaction Management System, ISO 14001:2015 Environmental Management System certificates in line with the services and activities carried out within the scope of the Organised Industrial Zones Law and Implementation Regulation. It also has ISO 45001:2018 Occupational Health and Safety Management System and ISO 50001:2018 Energy Management System certificates. These certificates are given in Annex-11. The validity date of the ISO 10002 certificate is 24 October 2025 and the validity date of the other certificates is 8 March 2025.

In addition, there are several management plans, procedures and instructions prepared by ASO 2-3 OIZ on environmental, social and OHS issues, including but not limited to the following:

- Pr01 Procedure for Control of Documented Information
- Pr02 Internal Audit Procedure
- Pr03 Non-Conformity Corrective Actions Procedure
- Pr04 Management Review Procedure
- Pr05 Training Procedure
- Pr06 Calibration Procedure
- Pr07 Infrastructure and Working Environment Management Procedure
- Pr08 Human Resources Procedure
- Pr09 Emergency Procedure
- Pr10 Risk and Opportunity Analysis Procedure
- Pr11 Monitoring and Evaluation Procedure
- Pr12 Occupational Health and Safety Procedure
- Pr13 Environmental Size and Impact Assessment Procedure
- Pr14 Cys Operational Control Procedure
- Pr15 Enys Operational Control Procedure
- Pr16 Quality Management System Operational Control Procedure
- Pr17 Contact Procedure
- Pr18 Procedure for Monitoring Legal and Other Requirements and Assessing Compliance
- Pr19 Customer Satisfaction Complaint Procedure
- Pr20 Greenhouse Gas Monitoring Procedure
- Pr21 Green Osb Procedure
- Tl01 Personal Gas Detector
- Tl02 Personal Gas Detector Ps200
- Tl03 Parachute Type Seat Belt Operating Instructions
- Tl04 Traktor Operating Instructions
- Tl05 Forklift Operating Instructions
- Tl06 Overhead Crane Operating Instructions
- Tl07 Personnel Service Vehicle Operating Instructions
- Tl08 Vehicle Operating Instructions
- Tl09 Vacuum Road Sweeper Operating Instructions
- Tl10 Trash Collector Operating Instructions
- Tl11 Alcohol and Smoking Instructions
- Tl12 Vehicle Loading and Unloading Instruction
- Tl13 Safety Instructions During Maintenance
- Tl15 Manual Handling Instructions
- Tl16 Work Safety Instruction in Electrical Works
- Tl17 General Work Safety Rules Instruction
- Tl19 Instruction on The Use of Work Equipment
- Tl20 Safety Instructions for Welding Works
- Tl21 Personal Protective Equipment Instructions for Use
- Tl22 Safety Instructions for Machines and Machine Tools
- Tl24 Instructions for Working and Storing Hazardous Substances and Chemicals
- Tl25 Work at Height Instruction 13122023
- Tl26 Instructions for Working with Vehicles with Screen
- Tl27 First Aid Instruction
- Tl28 Fire Instruction

- TI30 Instruction on Occupational Health and Safety Rules for Subcontractors, Trainees and Visitors
- TI33 Instructions for Working in Confined and Enclosed Spaces
- TI34 Safety Instructions for Boarding and Alighting from Vehicles
- TI35 Full Face Mask Instructions for Use
- TI36 Lifebuoy Instructions for Use
- TI37 Drill Bench Instruction
- TI38 Compressor Instructions for Use
- TI39 Strut Arm Crane Operating Instructions
- TI40 Rewindable Fall Arrestor Instructions for Use
- TI41 Generator Instructions for Use
- TI42 Backhoe Loader Operating Instructions
- TI43 Polishing Machine Operating Instructions
- TI44 Oil Heater Operating Instructions
- TI45 Grinder Cutting Machine Operating Instructions
- TI46 Instructions for Use of Hand Tools
- TI47 Portable Eye Dropper Instructions for Use
- TI48 Jigsaw Operating Instructions
- TI49 Welding Machine Operating Instructions
- TI50 Plastic Welding Machine Operating Instructions
- TI51 High Pressure Washer Operating Instructions
- TI52 Hammer Drill Operating Instructions
- TI53 Electric Fan Heater Operating Instructions
- TI54 Rotary Hammer Operating Instructions
- TI55 Pallet Truck Operating Instructions
- TI56 Soil Megeri Instructions for Use
- TI57 Probe Line Detection Detector Instructions for Use
- TI58 Chemical Work Instruction
- TI59 Submersible Pump Instructions for Use
- TI60 Leakage Intervention Instruction

ASO 2-3 OIZ currently has a Zero Waste Certificate and the last inspection of its existing facilities within the scope of this certificate was carried out by the Ministry of Environment and Urbanization on August 26, 2021 (see Annex 15). The validity period of the certificate is 5 years.

In addition, ASO 2nd OIZ was entitled to receive Silver Level Green Organised Industrial Zone Certificate.

2.4.2 Permits

In the Technical Documentation Report prepared for the ASO 2-3 OIZ Project, the names of the documents required for the Project during the pre-construction, construction and implementation phases are given in Table 7.

Table 7 Checklist of permits

Phase	List of Documents (Design, License, Permits etc.)	Legislative Basis / WB Standards vs.	Completion Status	Explanation
Pre-Construction Phase	EIA out of Scope Decision	National Regulation on Environmental Impact Assessment (29.07.2022 / 31907)	✓	-
	Environmental and Social Management Plan	WB Environmental and Social Framework ESS-1: Environmental and Social Assessment	ongoing	This plan has been prepared as part of the contract between the MoIT and the Contractor.
	Labour Management Plan	WB Environmental and Social Framework ESS-2: Labor and Working Conditions. Labour Legislation (4857 Labour Law), Occupational Health and Safety Plan and Procedures (6331 Occupational Health and Safety Law) and 5510 Social Insurance Law	-	Labor Management Plan (LMP) of the Project will be developed in line with Labor Management Procedure of the main project.
	Environmental and Social Monitoring Reports	WB Environmental and Social Framework ESS-1: Environmental and Social Assessment	-	E&S monitoring reports will be prepared in monthly basis by the OIZ, construction supervisor and contractor.
	Stakeholder Engagement Plan (SEP)	WB Environmental and Social Framework ESS-10- Stakeholder Engagement and Information Disclosure	✓	In consultation with the Bank, the Project owner (OIZ) will use the SEP of the main project and disclose the details of each Project consultation on the Project's and respective OIZ's webpages.

Phase	List of Documents (Design, License, Permits etc.)	Legislative Basis / WB Standards vs.	Completion Status	Explanation
	Detailed Design	-	x	Because tendering will be FIDIC Red Book conditions, detailed designs will be prepared in this phase.
Construction Phase	Permit(s) from OIZ	-	x	Coordinates will be specified at the site. Permits for excavation and other related items for construction should be obtained by Contractor.
	Permit(s) from Local Energy Company	-	x	The location of the energy supply panel should be determined and related permits should be obtained.
	Permit(s) from Local Water Company	-	x	The location of the water supply should be determined and related permits should be obtained.
	Environmental and Social Monitoring Reports	WB Environmental and Social Framework ESS-1: Environmental and Social Assessment	x	E&S monitoring reports will be prepared in monthly basis by the OIZ, construction supervisor and contractor.
Operation Phase	Permit(s) from Local Energy Company	-	x	Permits taken in Construction Phase are valid in this phase.
	Permit(s) from Local Water Company	-	x	Permits taken in Construction Phase are valid in this phase.

The Project-related permits to be taken are as follows:

- Advanced Environmental Laboratory EIA Regulation Out of Scope letter (obtained on April 4th, 2023)
- Environmental Permit Certificate on Wastewater Discharge (valid until 31st of March 2028)
- Letter of Compliance in terms of Environmental Legislation for WWTP (obtained on 16th of June 2022)
- Three-year Industrial Waste Management Plan from Provincial Directorate of Environment, Urbanization and Climate Change (obtained on 17th June 2022)
- Zero Waste Certification (valid until 26th of August 2026)
- Hazardous Waste Liability Insurance by insurance companies (valid until 17th of May 2025)
- Wastewater Treatment Plant Project Approval from Provincial Directorate of Environment, Urbanization and Climate Change (obtained on 16th of June 2022)
- Construction License from ASO 2-3 OIZ by Contractor (in pre-construction phase of the Project),
- Building License from ASO 2-3 OIZ by Contractor (in pre-construction phase of the Project),
- Temporary Certificate of Operation from Provincial Directorate of Environment, Urbanization and Climate Change (after construction phase of the Project),
- Operation License from MoEUCC Provincial Directorate before operation phase of the Project,
- Permit for electricity distribution line connection by BAŞKENT Electricity Distribution Company after project approval by MoIT.
- Project Base Map (Plankote) Approval from the Industrial Zones Ministry of Industry and Technology, General Directorate (in planning phase of the Project)

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, a gap analysis is conducted between national legislation and the ESF is carried out and how these gaps will be closed 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 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.

3.1.1 National Environmental, Health and Safety Legislation

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

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 out of scope of EIA Regulation Opinion from the Provincial Directorate of Environment, Urbanization, and Climate Change regarding the proposed advanced environmental laboratory was obtained by the ASO 2-3 OIZ. The out of scope of EIA Regulation Opinion of the PoEUCC regarding the advanced environmental laboratory was also obtained in 4th April, 2023 (See Annex-3).

ASO 2-3 OIZ shall 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 attached in Annex 5 and any license and/or permit required for the upcoming stages of the Project will be acquired accordingly.

3.2 International Agreements and Standards

3.2.1 World Bank Environmental and Social Framework (ESF)

Since the main finance source of the Project is WB, the Project must be in compliance with Environmental and Social Framework (ESF) standards and WB Group's Environmental, Health and Safety (EHS) guidelines, and best practice documents alongside the national legislation.

The project is 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 reasons regarding to the risk characterization of the Project are given below:

1. Medium scale construction activities and short-term excavation,

2. 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 phase, such as noise, OHS concerns, and the generation of waste can be effectively controlled using established management systems,
3. No negative impact on surrounding environmental receptors is expected,
4. Activities will be carried out within the boundaries of the OIZ and there is no sensitive ecosystem close to OIZ area,
5. Waste will be disposed of in line with national regulations and WB Environmental, Health and Safety (EHS) Guidelines.
6. Wastewater to be generated by workers during the construction phase will be treated in the existing WWTP and will be discharged to the Ankara Creek after physical treatment.
7. Land acquisition and/or resettlement will not be needed,
8. No land acquisition has been made in the last 5 years,
9. Excessive labour influx will not be generated,
10. Livelihoods of the households, vulnerable groups and formal-informal users on land will not be damaged,
11. No impact of the Project on cultural heritage,
12. Employment opportunities will increase for local communities including women and vulnerable groups,
13. 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 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.

3.2.2 Comparison of Turkish EIA Regulation and WB ESSs

Since the main finance source of the Project is WB; the Project must be in compliance with Environmental and Social Framework (ESF) standards and WB Group's Environmental, Health and Safety (EHS) guidelines, and best practice documents alongside the national legislation.

The World Bank (WB) ESF 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. 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 Annex 5.

3.3 Project Standards[4]

Table 8 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): $LA_{eq,\ 5\ min.}$< 65 dB(A) Evening time (19:00-23:00): $LA_{eq,\ 5\ min.}$< 60 dB(A) Night time (23:00-07:00): $LA_{eq,\ 5\ min.}$< 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.	• 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) • 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, industrial, commercial:[5] Day time (07:00-19:00): $LA_{eq,\ 5\ min.}$< 65 dB(A) Evening time (19:00-23:00): $LA_{eq,\ 5\ min.}$< 60 dB(A) Night time (23:00-07:00): $LA_{eq,\ 5\ min.}$< 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	PM_{10} 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	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)	Turkish Legislation has not described a limit value for $PM_{2.5}$. Therefore, in the assessment of the measurement result, the limit value set forth by the Ambient Air Quality and Cleaner Air for Europe (Directive 2008/50/EC) and WBG 24-hour limit values are used, which is 25 µg/m3 for both of them. 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)
		• 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 NO_2) 4 kg/h SOx: 6 kg/h	WBG General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality	WBG General EHS Guidelines: Environmental Air Emissions and Ambient Air Quality mention that: "Emissions do not result in pollutant concentrations that reach or exceed relevant ambient quality guidelines and standards by applying national legislated standards, or in their absence, the current WHO Air Quality Guidelines" Since National Standards exist, compliance with National Standards will be ensured.	The limit values for exhaust gas defined in Industrial Air Pollution Control Regulation will be complied in Project. Non-stack Mass Flow CO: 50 kg/h Dust: 1 kg/h NOx: (as NO_2) 4 kg/h SOx: 6 kg/h

[4] All parameters were evaluated based on the most stringent one.
[5] Since there are residential, industrial and commercial commercial areas within the project area of influence, this project standard was selected specifically for noise.

Environmental Standards						
No	**Topic**	**National Standards/ Requirements**	**Limit Values in National Legislation**	**International Standards/ Requirements**	**Limit Values in International Legislation**	**Project Standards**
3	Effluent Water Quality[6]	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 existing WWTP: COD: 250 mg/L TSS: 200 mg/L Oil and grease: 20 mg/L Total Phosphorus (P): 2 mg/L Total Chrome: 2 mg/L Chrome (Cr^{+6}): 0.5 mg/L Lead (Pb): 2 mg/L Total Cyanide (CN-): 1 mg/L Cadmium (Cd): 0.1 mg/L Ferrous (Fe): 10 mg/L Fluoride (F-): 15 mg/L Copper (Cu): 3 mg/L Zinc (Zn): 5 mg/L Mercury (Hg): 0.05 mg/L Sulphate (SO_4^{-2}): 1500 mg/L Total Kjeldahl Nitrogen (TKN): 20 mg/L Fish Bioassay (TDF): 10 Color: 280 Pt-Co pH:6-9	WBG General EHS Guidelines: Environmental Wastewater and Ambient Water Quality	WBG General EHS Guidelines Environmental-Wastewater and Ambient Water Quality mention that: "Compliance with national or local standards for sanitary wastewater discharges or, in their absence, the indicative guideline values applicable to sanitary wastewater discharges shown in Table 1.3.1." Since National Standards exist, compliance with National Standards will be ensured.	The discharge criteria of the WWTP have been decided on the basis of the Water Pollution Control Regulation, Urban Wastewater Treatment Regulation, EU directives and WBG EHS Guidelines: Environmental Wastewater and Ambient Water Quality. 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

[6] This standard is given since OIZ has WWTP and discharges wastewater.

Environmental Standards

<table>
<tr><th>No</th><th>Topic</th><th>National Standards/ Requirements</th><th>Limit Values in National Legislation</th><th>International Standards/ Requirements</th><th>Limit Values in International Legislation</th><th>Project Standards</th></tr>
<tr>
<td>4</td>
<td>Surface Water Quality[7]</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 BOD(BOD_5)</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 Demanded (COD)</td><td>mg/L</td><td><25</td><td>50</td><td>>50</td></tr>
<tr><td>Nitrate (NO_3^-)</td><td>mg/L</td><td><3</td><td>10</td><td>>10</td></tr>
<tr><td>pH</td><td>-</td><td>6-9</td><td>6-9</td><td>6-9</td></tr>
<tr><td>Total Phosphorus, (TP)</td><td>mg/L</td><td><0.08</td><td>0.2</td><td>>0.2</td></tr>
<tr><td>Ortophosphate (o-PO_4)</td><td>mg/L</td><td><0.05</td><td>0,16</td><td>>0.16</td></tr>
<tr><td>Total Kjeldahl Nitrogen(, TKN)</td><td>mg/L</td><td><0.5</td><td>1.5</td><td>>1.5</td></tr>
<tr><td>Total Nitrogen, (TN)</td><td>mg/L</td><td><3.5</td><td>11.5</td><td>>11.5</td></tr>
<tr><td>Floride</td><td>µg/L</td><td>≤1000</td><td>1500</td><td>>1500</td></tr>
<tr><td>Manganese</td><td>µg/L</td><td>≤100</td><td>500</td><td>>500</td></tr>
<tr><td>Selenium</td><td>µg/L</td><td>≤10</td><td>15</td><td>>15</td></tr>
<tr><td>Sulphur</td><td>µg/L</td><td>≤2</td><td>5</td><td>>5</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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<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 BOD(BOD_5)</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>
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<tr><td>Chemical Oxygen Demanded (COD)</td><td>mg/L</td><td><25</td><td>50</td><td>>50</td></tr>
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<tr><td>Total Phosphorus, (TP)</td><td>mg/L</td><td><0.08</td><td>0.2</td><td>>0.2</td></tr>
<tr><td>Ortophosphate (o-PO_4)</td><td>mg/L</td><td><0.05</td><td>0,16</td><td>>0.16</td></tr>
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<tr><td>Floride</td><td>µg/L</td><td>≤1000</td><td>1500</td><td>>1500</td></tr>
<tr><td>Manganese</td><td>µg/L</td><td>≤100</td><td>500</td><td>>500</td></tr>
<tr><td>Selenium</td><td>µg/L</td><td>≤10</td><td>15</td><td>>15</td></tr>
<tr><td>Sulphur</td><td>µg/L</td><td>≤2</td><td>5</td><td>>5</td></tr>
</table>
</td>
</tr>
<tr>
<td>5</td>
<td>Groundwater Quality</td>
<td>Regulation on the Protection of Groundwater Against Pollution and Deterioration (Official Gazette Date/Number: 07.04.2012/ 28257) (Annex – 3)</td>
<td>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
Conductivity
Cadmium
Chloride
Lead
Sulfate
Tetrachloroethylene
Trichloroethylene
Salinity</td>
<td>WBG General EHS Guidelines: Environmental Wastewater and Ambient Water Quality</td>
<td>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.</td>
<td>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.</td>
</tr>
</table>

[7] This standard is given since OIZ has WWTP and discharges wastewater.

Environmental Standards						
No	**Topic**	**National Standards/ Requirements**	**Limit Values in National Legislation**	**International Standards/ Requirements**	**Limit Values in International Legislation**	**Project Standards**
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).	[8]Antimony: 31 mg/kg Arsenic: 0.4 mg/kg Boron: - Cadmium: 70 mg/kg Chromium (VI): 235 mg/kg Copper: 3129 mg/kg Lead: 400 mg/kg Mercury: 23 mg/kg Nickel: 1564 mg/kg Selenium: 391 mg/kg Silver: 391 mg/kg Zinc: 23464 mg/kg Tin: 46929 mg/kg Titanium: 312857 mg/kg Total Petroleum Hydrocarbons (TPH): - Total Organic Halogens (TOX): -	WBG General EHS Guidelines: Environmental	Since limit values regarding soil quality are not given at WBG General EHS Guidelines: Environmental, compliance with National Standards will be ensured.	Antimony: 31 mg/kg Arsenic: 0.4 mg/kg Boron: - Cadmium: 70 mg/kg Chromium (VI): 235 mg/kg Copper: 3129 mg/kg Lead: 400 mg/kg Mercury: 23 mg/kg Nickel: 1564 mg/kg Selenium: 391 mg/kg Silver: 391 mg/kg Zinc: 23464 mg/kg Tin: 46929 mg/kg Titanium: 312857 mg/kg Total Petroleum Hydrocarbons (TPH): - Total Organic Halogens (TOX):-

Social Standards						
No	**Topic**	**National Laws / Regulations**	**International Standards**	**Project Standards**	**Identified gaps between Turkish Legislation and WB ESF / corrective actions and the standards to be followed**	**Targets**
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	Gaps between national legal standards and WB ESG are the main non-compliances. Turkish national laws and regulations regarding labour and working conditions largely satisfies ESS2 requirements. Workers' grievance mechanism is the main gap between national legislative requirement and ESS2 and the requirement that all workers receive written contracts with job descriptions, working hours, wages etc. These gaps will be bridged through full compliance with the requirements in ESS2. Labor Management Procedures (LMP) is developed as a part of E&S documents of the main project (TOIZsP). LMP will form the basis for the Contractor's Labour Management Plan(s) and will also provide guidance on the required mitigations or management implementations such as workers.	Comply with national laws / regulations, international standards
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 WBG "Environmental, Health, and Safety Guidelines for Water and Sanitation"	Occupational Health and Safety plan, risk assessment, emergency response plan, explosion protection document will be prepared.	Comply with national laws / regulations, international standards.
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 WBG "Environmental, Health, and Safety Guidelines for Water and Sanitation" Labour Management Procedures of the OIZ project incl. Grievance mechanism	Labor Management Procedures (LMP) is developed as a part of E&S documents. LMP will form the basis for the Contractor's Labour Management Plan(s) and grievance mechanism.	Comply with national laws / regulations, international standards.
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"	Project level management of specific risks such as labour influx, sexual exploitation and abuse and sexual harassment are the key gaps. The plans such as Traffic Management Plan and Community Health and Safety Plan etc. will be prepared.	Comply with national laws / regulations, international standards.

[8] 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**	**Identified gaps between Turkish Legislation and WB ESF / corrective actions and the standards to be followed**	**Targets**
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 ESS 10 Stakeholder Engagement and Information Disclosure ESF Guidance-Note 10 Stakeholder Engagement and Information Disclosure English	Effective and transparent stakeholder engagement is the main gap in terms of ESS10 requirement. Within this scope, a Stakeholder Engagement Plan will be prepared, identifying the different stakeholders (project-affected parties and other interested parties including disadvantaged or vulnerable groups), their engagement process throughout the duration of the project and public grievance mechanism.	Comply with national laws / regulations, international standards.
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	Robust social risk assessments and required plans addressing relevant mitigations are the main gaps between Turkish regulation and ESS1.	Comply with national laws / regulations, international standards.

Health and Safety Standards						
No	**Topic**	**National Standards/ Requirements**	**Limit Values in National Legislation**	**International Standards/ Requirements**	**Limit Values in International Legislation**	**Project Standards**
1	Drinking Water Quality	Regulation on Water Intended for Human Consumption published in the official Gazette no. 25730 dated 17 February 2025	Given in Annex-1 of the Regulation on Water Intended for Human Consumption; **Microbiological parameters** E. coli: 0/250 ml Enterococci: 0/250 ml Coliform bacteria: 0/250 ml P. aeruginosa: 0/250 ml Anaerobic spore sulfite-reducing bacteria: 0/50ml **Chemical parameters** Acrylamide: 0.1 µg/L Antimony: 5.0 µg/L Arsenic: 10 µg/L Benzene: 1.0 µg/L Benzo(a)pyrene: 0.010 µg/L Boron: 1 mg/L Bromate: 10 µg/L Cadmium: 5.0 µg/L Chromium: 50 µg/L Copper: 2 mg/L Cyanide: 50 µg/L 1,2-dichloroethane: 3.0 µg/L Epichloridine: 0.10 µg/L Fluoride: 1.5 mg/L Lead: 10 µg/L (applied as 25 µg/L for drinking-use water until 31 December 2012) Mercury: 1.0 µg/L Nickel: 20 µg/L Nitrate: 50 mg/L Nitrite: 0.50 mg/L Pesticides: 0.10 µg/L Total pesticides: 0.50 µg/L Polycyclic aromatic hydrocarbons: 0.10 µg/L Selenium: 10 µg/L Tetrachloroethene and trichloroethene: 10 µg/L Trihalomethanes-total: 100 µg/L (applied as 150 µg/L for drinking-use water until 31 December 2012) Vinyl Chloride: 0.50 µg/L	WBG General EHS Guidelines: Community Health and Safety	The fourth edition of the World Health Organization's (WHO) Guidelines for drinking-water quality (GDWQ)	Comply with national laws / regulations, international standards.

4 METHODOLOGY

The Project's scope includes the preperation of an Environmental and Social Management Plan (ESMP) in compliance with the ESMF of the TOIZsP and WB ESF. Furthermore, while ESMP is not required by national legislation, compliance with national legislation requirements is evaluated while assessing relevant sections of the plan. As a result, this ESMP has been prepared to assess and identify the adverse potential environmental and social impacts and risks arising from the Project's development, as well as to recommend mitigation measures for significant adverse environmental and social impacts/risks. It also describes the monitoring and institutional requirements required to implement this Plan.

The goal of impact assessment and mitigation is to identify and evaluate the significance of potential impacts (positive or negative) and risks on identified receptors and resources using defined assessment criteria; to develop and describe the measures that will be taken to avoid or minimize any potential adverse effects while enhancing potential benefits; and to report on the significance of residual impacts that remain after mitigation.

The impact assessment took into account the obtained data from the desk research as well as the outcomes of site visits. The assessment of environmental and social impacts/risks has been done based on the criteria presented below, mostly using expert judgement, appropriate standards, and guidelines:

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

The magnitude and severity of the adverse impacts have been assessed based on the criteria given above and significance of the impacts has been determined based on this assessment and sensitivity of the receiver/source exposed to the impact, as much as possible. The matrix given in Table 9 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 9 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

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

An ESMP development methodology involves a systematic process to ensure comprehensive assessment, management and mitigation of environmental and social impacts throughout the life cycle of a project.

Desk Study: It starts with a desk study in which preliminary information is collected by examining the existing literature, reports and data regarding the project area and its surroundings.

Data Collection: Conducting comprehensive data collection involving a variety of sources, including environmental, social and geographic data. This phase includes data from government agencies, existing studies, and private research.

Site-Specific Data Collection Approach: The choice of measurement points is justified by various factors. This includes consideration of proximity to project activities, potential impact zones, and ecological significance. The rationale lies in ensuring representative coverage of critical areas for accurate assessment of potential impacts.

Area of Influence Definition and Justification: Defining the project's impact area includes determining the geographical area likely to be affected by project activities. The justification is based on scientific methodologies and knowledge of the project's potential impacts on the environment and surrounding communities.

Site Visits and Surveys: Field visits are crucial to make first-hand observations and verify existing data. Surveys conducted during visits help understand local conditions, verify data accuracy, and identify potential environmental and social impacts.

Stakeholder Consultations: Direct stakeholders, such as local communities and businesses, are consulted to understand their concerns and needs. Indirect stakeholders, such as NGOs or government bodies, provide valuable insight into wider social and environmental outcomes.

Impact Assessment Methodology: A comprehensive impact assessment methodology is used to assess potential environmental and social impacts. A comprehensive methodology is used to assess environmental and social impacts, taking into account factors such as air and water quality, biodiversity, socio-economic aspects, etc.

Mitigation Measures Definition: Once impacts are identified, mitigation measures are designed based on the severity and nature of these impacts. The approach involves recommending specific actions to minimize, prevent or compensate for adverse impacts. Mitigation measures are designed to ensure compliance with local regulations and international standards in accordance with stakeholders' concerns and project feasibility.

This structured approach within an ESMP ensures a thorough understanding of potential impacts and the implementation of effective mitigation strategies for sustainable project development.

5 ENVIRONMENTAL BASELINE OF THE PROJECT

5.1 Project Location

The ASO 2-3 OIZ (Organized Industrial Zone) is situated in the Alcı OSB Neighborhood of Sincan district within Ankara. Sincan district itself spans an area of 397 square kilometers and has an elevation of 850 meters above sea level. There are a total of 601 parcels within the OIZ, 468 of them are industrial parcels, 219 of these parcels are in production, 79 of them are under construction, 170 of them are under project. Currently, there are no empty industrial plots within the OIZ.

ASO 2-3 OIZ, which was placed on an area of 235 ha (34 ha expansion area), has a total of 28 industrial parcel (8 in use and 1 in construction) and is adjacent to the E80 and O7 motorways (Northern Marmara Highway). The Project area will be within the existing WWTP parcel inside the existing OIZ borders and ownership is clearly documented in the title deed provided in Annex 1. The Project area consists of a single parcel, which is Parcel No. 2 of Block 100500, and it has an area of 2,366.65 m^2 within 34,482.79 square metre parcel area. The laboratory building will consist of 3 floors in total: partial basement, ground floor, first floor and roof floor, with a total indoor area of 1,973.49 m^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 Advanced Environmental laboratory, the AoI encompasses areas that may experience direct or indirect effects resulting from the construction and operation of the facility. The AoI selected for this specific project is centred on Alcı Neighbourhood, where ASO 2-3 OIZ is located, and includes 2 surrounding neighbourhoods, namely Malıköy and Türkobası. Although the project is located in Alcı neighborhood, considering the location of the project parcel, the closest settlement is Türkobası neighborhood and therefore should be included in the AoI. In addition, the people who use the stream for irrigation of agricultural lands after WWTP discharge are from Türkobası neighborhood. Also, Malıköy neighborhood is included in the AoI as it is located in the survey form and close to the OIZ. This deliberate selection is based on determining the potential of project activities to directly and indirectly affect environmental conditions, and the stakeholders within the surrounding areas. The Project's Area of Influence is given in Annex-2 Figure 34.

5.2 Land Use

The area sizes to be used within the scope of the Project are given in the previous section. No expropriation or land acquisition is required within the scope of the project.

The location selection of ASO 2nd Organised Industrial Zone Additional Area as 328 ha mixed and 105 ha specialised was approved by the Ministry of Science, Industry and Technology on 03.08.2012 and the 1/5000 and 1/1000 scale zoning plans were approved by the Ministry of Science, Industry and Technology on 21.07.2015 and entered into force. As a result of the latest planning, ASO 2nd Organised Industrial Zone serves as a mixed and specialised OIZ on 1,053 ha. The total area of our region is determined as 1,538 ha.

The proposed Project, namely Advanced Environmental laboratory, is planned on the wastewater treatment plant parcel, which is Parcel No. 2 of Block 100500.

There are a total of 601 parcels within the OIZ, 468 of them are industrial parcels, 219 of these parcels are in production, 79 of them are under construction, 170 of them are under project. Currently, there are no empty industrial plots within the OIZ. As of 2023, OIZ provides employment to 9,069 people. The land uses of ASO 2-3 OIZ are given in the table below. Currently, there are no empty industrial parcels within the OIZ.

Table 10. Distribution of Land Use

Types of Land Use	Area (ha)	Percentage (%)
Industrial Area	420	68
Comman Areas	152.9	25

Types of Land Use	Area (ha)	Percentage (%)
Health Protection Zone Area	39.21	6
Service and Support Area	5.8	1
Total Area	**618**	**100**

Source: E&S Screening Checklist filled by the OIZ

The land where Advanced Environmental laboratory will be established has grasses and scrubs, and the soil condition was not modified (See Figure 2). Although it is certain that some trees in the project area will be cut down and affected due to project activities, the number of these trees is limited. Some trees within the parcel may be relocated by the contractor in line with the landscape implementation project. For each tree that cannot be relocated and will be cut down due to Project activities, a sapling will be planted. The trees to be planted will not be less than the cut trees. To ensure this, this will be included in the contract terms of the Contractor and possible subcontractors. The property has the status of technical infrastructure and has been allocated as a treatment plant area. It also includes a waste collection centre, environmental laboratory, hazardous and non-hazardous waste temporary storage area, generator room, scada room and workshop.

Around the OIZ, the predominant land use in the surrounding area is predominantly industrial zones, whereas residential and agricultural uses are also observed.

According to land use map prepared based on Environmental Master Plan for Ankara planning area, the Project Area shows Organized Industrial Zone. The land use map according to Environmental Master Plan is presented in Annex-2 Figure 26. The planned Project will be constructed at the lowest part of the OIZ since it will be located on the wastewater treatment plant parcel.

5.3 Topography

Sincan's landscape includes small hills, valleys, and minor water bodies, along with parks and green spaces that provide recreational areas for residents, embodying the diverse yet typical topography of the greater Ankara region.

The ASO 2-3 OIZ (Organized Industrial Zone) is situated in the Alcı OSB Neighborhood of Sincan district within Ankara. In order to better understand the topography, a regional Digital Elevation Model (DEM) was generated. The Digital Elevation Model (DEM) map including the A-A' section profile in E-W direction is also shown in Annex-2 Figure 27.

According to the Digital Elevation Model created, the highest point of the region is approximately 1,160 m and the lowest point is located at an altitude of approximately 749 m.

5.4 Geology

The geology of the Sincan district reflects the broader geological features of the Central Anatolian Plateau. The region primarily consists of sedimentary rocks, including limestone, sandstone, and claystone. These rocks were formed during different geological periods and are prevalent across the Central Anatolian Plateau. The geological history of Ankara and its surroundings includes periods of volcanic activity. As a result, there are deposits of volcanic rocks such as tuff and basalt in some areas. Sincan also features significant alluvial deposits, especially in its low-lying areas and along watercourses. These deposits are typically composed of gravel, sand, silt, and clay, resulting from erosion and sedimentation processes.

The geology of Sincan provides various materials used in construction, such as limestone, sand, and gravel. These materials are extracted from local quarries and deposits. The district also has deposits of clay, which are used in brick and tile manufacturing, contributing to the local economy.

Although Project area lacks major rivers, it features small streams. These water bodies are supported by local hydrogeological conditions and serve as important resources for irrigation and recreation.

The generalized stratigraphic column section of the project area and its surroundings is given in Annex-2 Figure 28.

The entire project area is located on the Alcı Formation. The Alcı Formation is primarily composed of volcanoclastic rocks. These are sedimentary rocks formed from volcanic materials, such as ash, pumice, and volcanic rock fragments, that were transported and deposited by volcanic and sedimentary processes. Geology map of project area and its surroundings is given in Annex-2 Figure 29.

5.5 Climate

The climate of Sincan, a district in Ankara, is characterized by a continental climate, typical of the Central Anatolian Plateau. This results in hot, dry summers with temperatures often exceeding 30°C and cold, snowy winters where temperatures can drop below freezing. Precipitation is relatively low, averaging around 380-420 mm annually, with the majority falling in the spring and autumn months. The region experiences significant temperature variations between day and night throughout the year, contributing to its distinct seasonal changes.

According to the records of Ankara Meteorological Station, the prevailing wind direction is north-west and the second degree prevailing direction is north-east. Detailed meteorological statistics are presented in Table 11.

Table 11 Long Term Meteorological Data of Ankara Province (1927-2023)

Parameter	January	February	March	April	May	June	July	August	September	October	November	December	Annual
	Last Climate Period (1927-2023)												
Avg. Temperature (°C)	0.3	1.7	5.7	11.3	16.1	20	23.4	23.5	19	13.2	7.3	2.6	12.0
Highest Avg. Temperature (°C)	4.3	6.5	11.5	17.4	22.4	26.6	30.3	30.5	26.1	20	13.1	6.6	17.9
Lowest Avg. Temperature (°C)	-3.2	-2.2	0.7	5.4	9.7	13	15.9	16.1	11.9	7.2	2.6	-0.7	6.4
Avg. Sunshine Duration (hour)	2.6	3.8	5.0	6.4	8.2	9.8	11.1	10.6	9.1	6.7	4.6	2.6	6.7
Average Number of Rainy Days	12.2	11.11	10.77	11.12	12.32	8.89	3.52	2.72	4.02	6.85	8.15	11.67	103.3
Average Monthly Amount of Rain (mm)	39.9	35.1	39.7	41.8	51.4	36.7	14.1	12.7	17.9	27.1	31.8	44.2	392.4
Measurement Period (1927-2023)													
Highest Temperature (°C)	18.4	21.3	27.8	31.6	34.4	37	41	40.5	39.1	33.3	24.7	20.4	41.0
Lowest Temperature (°C)	-24.9	-24.2	-19.2	-7.2	-1.6	3.8	4.5	5.5	-1.5	-9.8	-17.5	-24.2	-24.9

Source: Turkish State Meteorological Service, 2024.

5.6 Soil Quality

Turkish General Directorate for Rural Services database defines the land use capabilities in eight (8) different classes as summarized in Table 12. These classes represent the agricultural potential of the soil. In this classification system, soils are categorized between Class I, which represent the arable lands on which agricultural activities can be conducted in the most efficient, economic and simplest way without causing erosion, and Class VIII, which represent the lands that are not arable, cannot even be used as grassland or forest areas but support only wildlife development or can be used as resting area or national park by human. Characteristics of each class are summarized in Table 12 (*Former Ministry of Agricultural and Rural Services, July 2008*).

Table 12 Agricultural Potentials Represented by Different Land Use Capability Classes and Their Characteristics

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

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

The Major Soil Group Map of the Ministry of Agriculture and Forestry was analysed through the Atlas Portal of the Ministry of Environment, Urbanisation and Climate Change[9]. Although the soil group of the Project area is not defined, there are brown soils adjacent to it (see Figure 10). In terms of land cover classification, it has the status of " industrial and commercial areas (121)" according to the Corine 2018 database (see Figure 11). During the field study conducted on 28.06.2024, no pollution was detected by visual observation.

[9] https://atlas.gov.tr/

Figure 10 Major Soil Group Map

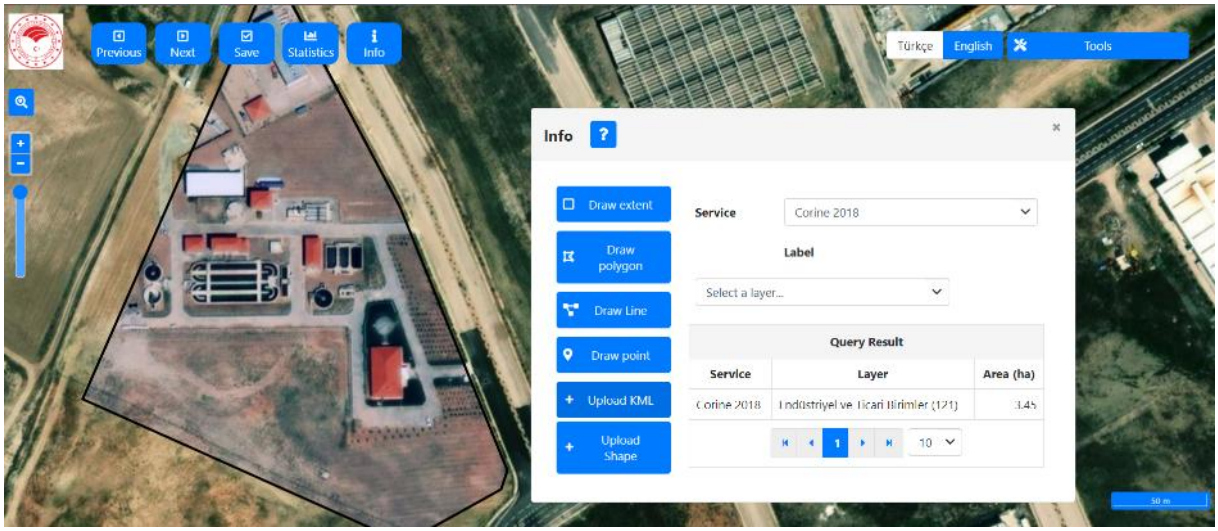


Figure 11 Corine 2018 Database

5.7 Air Quality and Odor

OIZs emit large amounts of greenhouse gases, especially carbon dioxide (CO_2), methane (CH_4), nitrogen oxides (NO_x), sulfur dioxide (SO_2) and fugitive volatile organic carbons (VOCs) that contribute to climate change. Since the project area is in the organized industrial zone, there are many companies generating air emissions.

To understand the baseline air quality of the project area, data from continuous monitoring studies by MoEUCC were examined. In the air quality analysis, the data of the station located in Polatlı district, which is the closest monitoring station to the project area, was used. Data obtained from Ankara-Polatlı Air Quality Monitoring Station (between 28.07.2023-28.07.2024), WBG EHS Guidelines Limit Values and limit values according to Turkish Legislation are presented in Table 13. According to the data in the table;

- 24 hours SO_2 value is below the limit values,
- annual and 24-hour PM10 values above the WBG EHS Guidance Limit values,
- Daily maximum O_3 value below limit values, and
- Annual and hourly NO_2 values above the limit values.

According to the comparison of local air quality data with the limit values, the air quality of the Project Area cannot be characterised as good due to the high PM_{10} and NO_2 values monitored.

Table 13 Air Quality Measurements Result

Parameter	Averaging Period	WBG EHS Guideline Limit Value in µg/m^3	Regulation on the Assessment and Management of Air Quality Limit Value in µg/m$_3$	Ankara-Polatlı Air Quality Monitoring Station
SO_2	24-Hour	20	20	15.26
	10-Minute	500		-
PM_{10}	1-Year	20	40	31.30
	24-Hour	50	50	62.89 (35th max)
$PM_{2.5}$	1-Year	10	-	-
	24-Hour	25	25	
O_3	8-Hour daily maximum	100	120	36.96
NO_2	1-Year	40	40	42.37
	1-Hour	200	200	328.99

Source: https://sim.csb.gov.tr/STN/STN_Report/StationDataDownloadNew

The management of OIZ hasn't received any odor-related complaints while the existing WWTP is in operation, and this indicates that the plant operates well.

5.8 Noise

Environmental noise in Türkiye is regulated by the Regulation on Environmental Noise Control (RENC) which is published in the Official Gazette dated 30.11.2022 and numbered 32029. This regulation is intended to ensure that precautions are taken to prevent disturbance to peace and tranquility, and to ensure the physical and mental health of persons potentially exposed to environmental noise. For this purpose, the regulation sets out requirements regarding noise mapping, acoustic reporting, environmental noise assessment for determination of noise exposure levels and preparation and application of action plans to prevent or mitigate negative impacts of noise exposure on human being and the environment.

The Project activities within the construction phase are associated with a range of activities that generate noise. Since the planned advanced environmental laboratory is in an industrial area, the closest settlements to the construction site are Alcı and Türkobası Neighbourhood, each 1.6 km away. There exist industries in the neighbouring parcels. As there are no sensitive receptors such as health centres, schools, or mosques near the Project Area, no baseline noise measurement is considered required. It was stated by the OIZ authorities that no noise related complaints were received. Noise pollution is not considered as a source of concern within the Project area of influence.

5.9 Water Resources and Use

The Project area is located in the Sakarya basin, which is not an international waterway under the scope of the Project. There are no wetlands, mangroves, or estuarine region within or adjacent to the Project area. There is approximately an 8 km distance to Ankara Creek, 10 km distance to Kuğu Lake, 27 km distance to Beytepe and İkizce Pond from the Project area. Eymir Lake is 32 km away and Mogan Lake is 30 km away from the Project area. Also, there are no waterways, such as dry or flowing streams, in the Project area and its vicinity.

There is no source of drinking water or the use of rivers involved. OIZ utilizes groundwater as process water and has a groundwater usage permit, obtained from the Ministry of Agriculture and Forestry, DSİ 5th Regional Directorate. The groundwater utilisation certificate for these wells is given in Annex-12. In addition, water is supplied to ASO 2-3 OIZ from the wells belonging to Başkent OIZ in line with the protocol signed with Başkent OIZ. The domestic water supplied from underground wells is stored in 4 water tanks with a total capacity of 10,000 m^3 and distributed through approximately 36 km water pipeline within the OIZ. Since the underground water source supplied from the wells of ASO 2-3 OIZ is

not suitable for drinking and potable water standards in terms of its properties; it has been licensed by the General Directorate of State Hydraulic Works for "process use".

The wastewater generated in the existing environmental laboratory is discharged to Ankara Stream after complying with the parameters given in 'Table 19' in the annex of the 'Water Pollution Control Regulation (see Table 14). The Environmental Permit for Wastewater Discharge was obtained from the General Directorate of Environmental Impact Assessment, Permitting and Inspection on 31.03.2023 and is valid until 31.03.2028 (see Annex-4). Within the scope of the OIZ's internal monitoring, wastewater analyses are carried out every 15 days.

Table 14. Discharge Standard

Parameters	Unit	2-Hour Composite Sample
Chemical Oxygen Demand (COD)	(mg/l)	250
Suspended Solid (SS)	(mg/l)	200
Oil and Grease	(mg/l)	20
Total Phosporus (P)	(mg/l)	2
Total Chrome	(mg/l)	2
Chrome (Cr^{+6})	(mg/l)	0.5
Lead (Pb)	(mg/l)	2
Total Cyanide (CN^{-})	(mg/l)	1
Cadmium (Cd)	(mg/l)	0.1
Iron (Fe)	(mg/l)	10
Floride (F^{-})	(mg/l)	15
Copper (Cu)	(mg/l)	3
Zinc (Zn)	(mg/l)	5
Mercury (Hg)	(mg/l)	0.05
Sulphate (SO_4^{-2})**	(mg/l)	1500
Total Kjeldahl Nitrogen (TKN)*	(mg/l)	20
Fish Bioexp. (ZSF)	-	10
Color	(Pt-Co)	280
pH	-	6-9

According to the Regulation on the Identification of Sensitive Water Bodies and Areas Affecting These Bodies and the Improvement of Water Quality (Official Gazette dated 23.12.2016 and numbered 29927), Ankara Creek, where wastewater is currently discharged, is not defined as Sensitive Water Body.

The proposed Project area does not coincide with surface water or groundwater resources. The closest surface water is Pirenli Creek, 220 m north-west (See Figure 12).

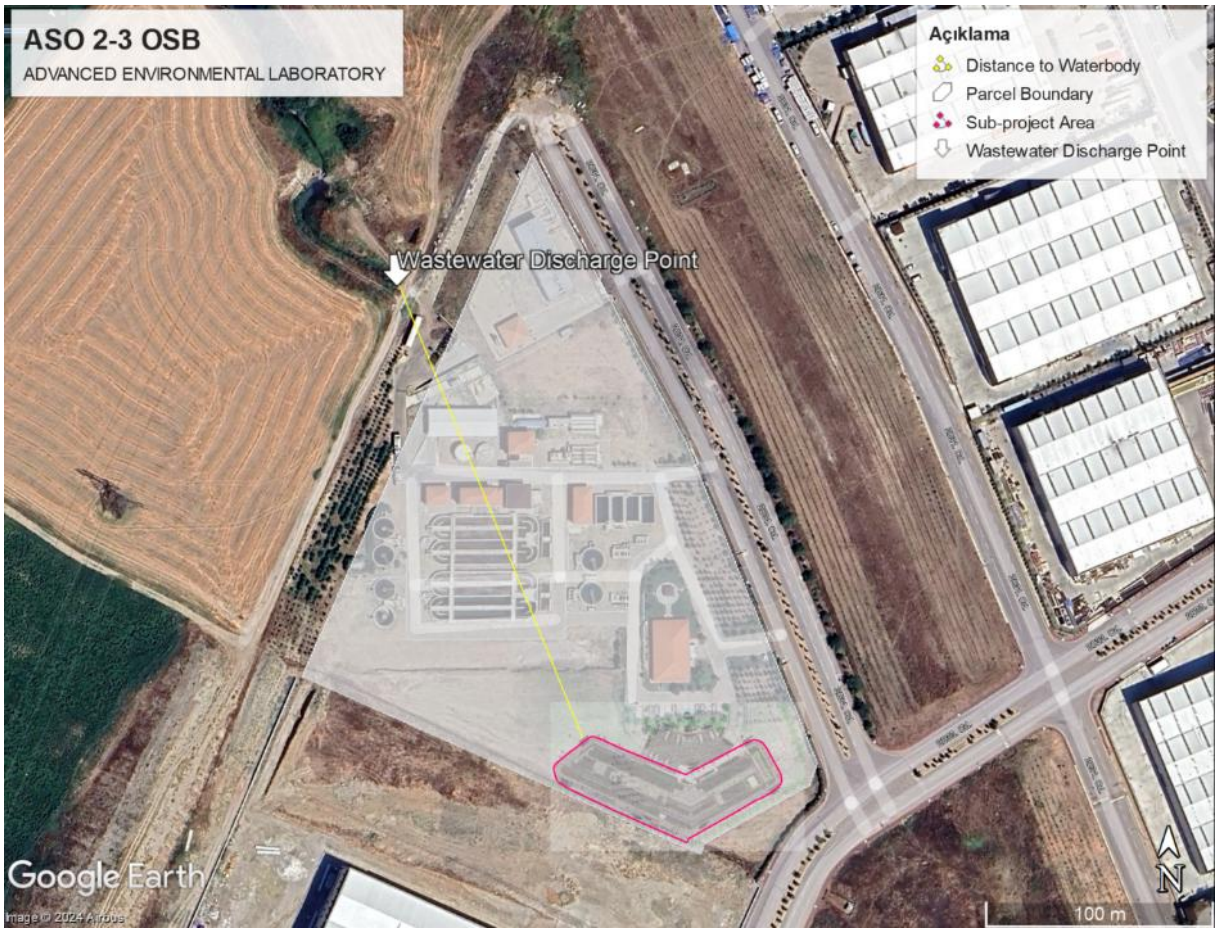


Figure 12 Closest Surface Waters to the Project Area

The distance to water resources map of Project is presented in Annex-2 Figure 35. Gavuryolu, Pirenli, Köy and Kocayar creeks shown on the map flow into Ankara Stream.

5.10 Wastewater Management

The proposed Project, namely Advanced Environmental laboratory, is planned on the wastewater treatment plant parcel.

Domestic and industrial wastewater originating from factories and facilities in the OIZ is treated in a wastewater treatment plant with a capacity of 4,900 m^3/day and an electro-flocculation process and discharged to the receiving environment (Ankara Creek) in accordance with the Water Pollution Control Regulation Table 19 standards.

During the site visits, it was observed that the water was extracted by pumps immediately after the discharge point and used for agricultural irrigation. This information was confirmed during the interviews with landowners. The discharged creek has a seasonal flow and when there is no natural flow, the entire flow of the creek consists of the existing WWTP discharge. The Environmental Management and Treatment Manager of the OIZ stated that during the maintenance and repair of the existing WWTP, no discharge was made and the creek dried up. It has been determined that agricultural irrigators are aware of this situation, they cannot find irrigation water for their agricultural activities during the non-discharge period and they need this discharge water. As a result, it was understood that wastewater discharge was used for agricultural irrigation, especially during the dry periods of the creek.

The use of treated wastewater for agricultural irrigation presents potential health risks primarily due to the presence of pathogens, chemical contaminants, and heavy metals. Even after treatment, wastewater may contain bacteria, viruses, and protozoa that can cause illnesses if they come into contact with food crops or workers. Additionally, residual pharmaceuticals, personal care products, and industrial

chemicals can accumulate in the soil and enter the food chain. Heavy metals such as lead, cadmium, and arsenic pose long-term health risks by accumulating in plants and ultimately affecting human consumers. The level of risk depends on the quality of wastewater treatment, the type of crops grown, and the irrigation method used.

Assessing the long-term health impacts of wastewater irrigation requires epidemiological and toxicological studies to track disease transmission and chemical exposure over time. Research on communities using treated wastewater for irrigation can provide valuable data on potential health effects. Establishing buffer zones around fields, enforcing strict regulations, and promoting awareness among consumers and farmers are crucial steps in ensuring public health safety. When managed effectively, treated wastewater can serve as a sustainable water source for agriculture while maintaining health and environmental safety.

Although ASO 2-3 OIZ is not directly responsible for the use of treated wastewater in agricultural irrigation, it should officially notify the Provincial Directorate of Environment, Urbanization and Climate Change and the Provincial Directorate of Agriculture and Forestry. Public institutions should take action to ensure public health and safety by organizing trainings and workshops for farmers on agricultural irrigation. ASO 2-3 OIZ can take part in providing this organization.

Figure 13 Water pumped for agricultural irrigation

Wastewater to be generated during all phases of the Project will be treated at the existing wastewater treatment plant of the OIZ and discharged in compliance with legal discharge standards. Treatment plant effluent standards will be discharged according to the limit values given for the 2-hour composite sample in "Water Pollution Control Regulation Table 19 - Discharge Standards of Wastewaters to Wastewater Infrastructure Facilities.

5.11 Waste Management

According to Environmental Law No. 2872, it is prohibited directly or indirectly to deliver, store, transport, or dispose of any types of waste and residues to the receiving environment in violation of the standards and methods established in the applicable regulation. ASO 2-3 OIZ manages waste in compliance with the Waste Management Regulation.

ASO 2-3 OIZ currently has a Zero Waste Certificate and the last inspection of its existing facilities within the scope of this certificate was carried out by the Ministry of Environment and Urbanization on August 26, 2021 (see Annex 15). The validity period of the certificate is 5 years.

Domestic wastes generated in ASO 2-3 OIZ are collected by OIZ waste collection vehicles and brought to the waste transfer centre within the OIZ. Waste is separated according to waste codes and stored on impermeable grounds. There is also a hazardous waste storage area in the OIZ, which was authorised for temporary storage by PoEUCC on July 22, 2019. ASO 2-3 OIZ's current industrial waste management plan was prepared on June 17, 2022 and approved by PoEUCC (see Annex-13).

Solid waste generated in the Industrial Zone is collected by Industrial Zone personnel (8 staff) and vehicles (3 garbage trucks, 1 van) and transported to the disposal facility. Domestic waste is sent to the integrated solid waste facility (ITC Sincan). The waste is disposed of through either biometanization or incineration processes. Medical waste is also sent to same integrated solid waste facility and disposed of by incineration. Mixed packaging waste is sent to Mert Oğulları Recycling Company (see Annex 17).

Figure 14 Waste Management

The dewatered excess sludge, which is stored in the sludge container in the existing WWTP and reaches 40-60% dry content, is regularly sent to the licensed disposal facility and sludge management will continue in the same way. OIZ has made an agreement with the Limak Çimento for the disposal of wastewater sludge. The treatment sludge has been collected in sludge collection tanks having impermeable surfaces and disposed of to the licensed facilities regularly. This sludge has been disposed of with the waste code "19 08 13: Sludges containing hazardous substances resulting from industrial wastewater treatment by other methods"

5.12 Natural Disaster Potential

The project area was taken as the center point and the epicenter distribution of earthquakes with magnitude M≥4 that occurred between 1900 and 2024 within a circle with a radius of 50 km is shown in Annex-2 Figure 31. The project area was examined on the interactive earthquake hazard map published by AFAD and it was determined that the maximum ground acceleration (PGA 475) of the project area was 0.133 g and the ground velocity (PGV 475) was 9.468 cm/s for a Recurrence Period of 475 years. Earthquake hazard map of Türkiye where the project area is marked is shown in the Annex-2 Figure 32.

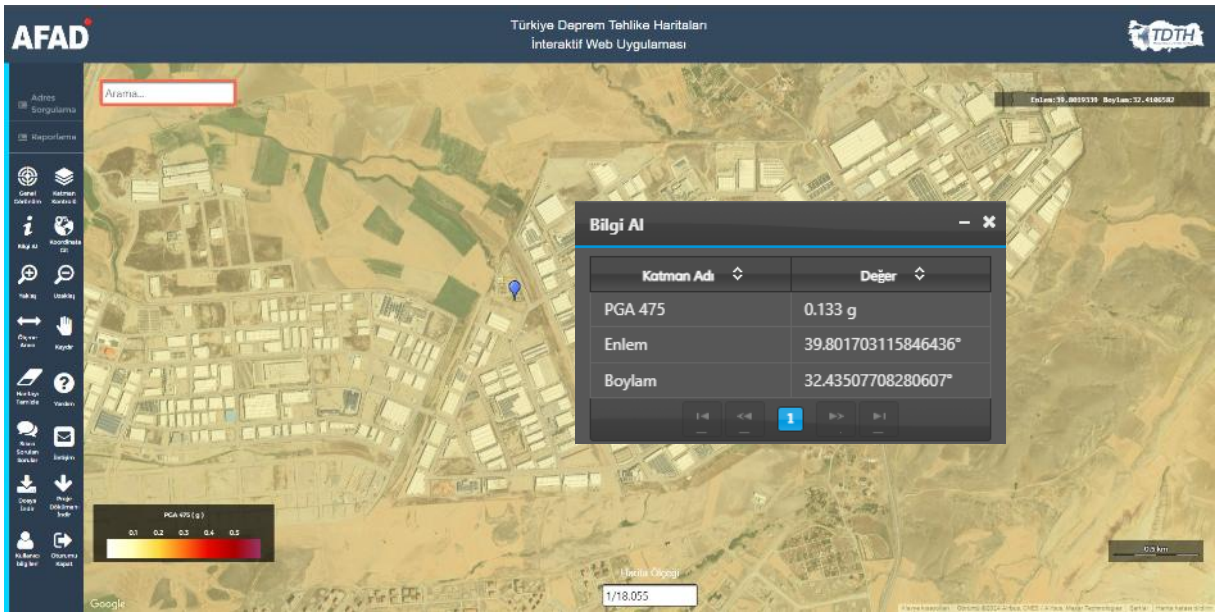


Figure 15 Türkiye Earthquake Hazard Maps Interactive Web Application

5.13 Biodiversity and Protected Areas

Field studies of the biological environment of this Project Area and the potential impact area were carried out on 28th June 2024 and details of the studies are given in Annex-6. The studies covered terrestrial and aquatic environment, including flora and fauna species, vegetation and habitat descriptions. The study results are given in detail in Annex-6.

As a consequence of flora-fauna research conducted in and around the project area, terrestrial flora and fauna species have been identified and provided in Annex-6 in tables with Latin-English names, protection status, and endemism status. Additionally, EUNIS habitat classification has been completed, and the map is given in Annex-6.

As a result of the studies carried out within the scope of the project, it was determined that the project area is within the existing facility and is completely under anthropogenic impacts. There are industrial areas and settlements around the project area. Therefore, it is seen that the flora and fauna elements are very limited in the project area, while it has been determined that the flora and fauna of the surrounding area of the project area have deteriorated due to anthropogenic effects caused by human activities.

According to the flora list created by compiling the field studies carried out within the scope of the project and literature data, it has been determined that there is no endemic, protected and endangered plant taxa among the plant taxa found and likely to be found in and around the project area. The plant taxa in and around the project area are widely distributed throughout the province and this situation prevents the destruction that will occur within the scope of the project from causing irreparable consequences.

National protected areas and internationally recognized areas in the project area and its immediate surroundings have been researched and mapped (Annex-6). As a result, according to research conducted with current databases, there is no nationally protected area in and around the Project Area.

Since the level of anthropogenic impact is high in and around the project area, fauna species distributed in the area have previously left the region. The existing species consist of species adapted to anthropogenic impacts. In addition, it is predicted that the impact of the activity on fauna species will be minimal due to the absence of an endemic species among the identified fauna species, the mobility of fauna species and the presence of alternative habitats to migrate around the project area.

6 SOCIAL BASELINE OF THE PROJECT

The overall Study Area for the social impact assessment represents the potential Area of Influence (AoI) of the Project. This is 'the area over which significant effects of the Project could reasonably occur, either on their own or in combination with those of other developments and projects'.

The Project has no impact on housing and other assets and will be built on the existing OIZ area. Consensual purchase and expropriation procedures were completed in 2001. The 1/1000 scale parceling plan of the zone was approved by the Ministry of Science, Industry and Technology on 14.10.2009 and following the registration of the parceling plan in the land registry, the legal construction started in ASO 2-3 OIZ as of the beginning of 2010. The land where the Project area is planned is land belonging to the OIZ in 2001. The Project area was included in the OIZ land 23 years ago. The Project does not require any other land acquisition and the nearest settlements to construction site is about 1.6 km. The Area of Influence (AoI) for social impact assessment was determined as Türkobası, Alcı, Malıköy neighborhoods. The Project's social Area of Influence is given in Figure 3.

6.1 Demography and Population

The largest industrial sectors that provide employment in Ankara are the production, mining, energy sector sectors. Moreover, in recent years, there has been a serious increase in employment in the region within the scope of R&D and Innovation. There are 13 organized industrial zones, 7 technoparks in Ankara.

According to the Labor Market Research Ankara Province 2023 Final Report[10], the total number of employees of enterprises with 20+ employment in Ankara province has been determined as 741,33. Based on gender, 513,820 employees consist of men and 227,213 employees are women. According to the Social Security Institution (SSI) data for the period of October 2023 in Ankara, the number of workplaces employing compulsory 4a insurance is 161,069. A total of 1,261,804 insured persons are employed in these workplaces.

There are 3 settlements in the social Area of Influence (AoI) of the Project. The distance of these settlements to the Project area and the distribution of the existing population, male and female, are given in Table 15.

Table 15 Population of Settlements at AoI

Settlement	Approximate distance	Total	Female	Male	Female %	Male %
Türkobası neighbourhood	1.6 km	464	222	242	47.8	52.2
Alcı neighbourhood	1.6 km	3,326	1,595	1,731	48	52
Malıköy neighbourhood	4.2 km	709	356	353	50.2	49.8

Source: TurkStat, 2023

During the site visit, the mukhtars of Türkobası, Alcı and Malıköy neighborhoods were interviewed and all of the mukhtars stated that there has been no significant change in the population of their neighborhoods in the last 5 years. When the last 5-year population data of other neighborhoods obtained from TurkStat are examined, it is determined that there has been no significant change in the population.

6.2 Cultural Heritage

There are 29 cultural assets in Sincan District in the cultural inventory list of Ankara Regional Directorate for the Protection of Cultural Assets.The archaeological site within the boundaries of the area of influence and the closest archaeological site with a distance of 1,600 metres to the project area is Türkobası Tumulus I Degree Archaeological Site (see Figure 16).

[10] https://media.iskur.gov.tr/88084/ankara.pdf

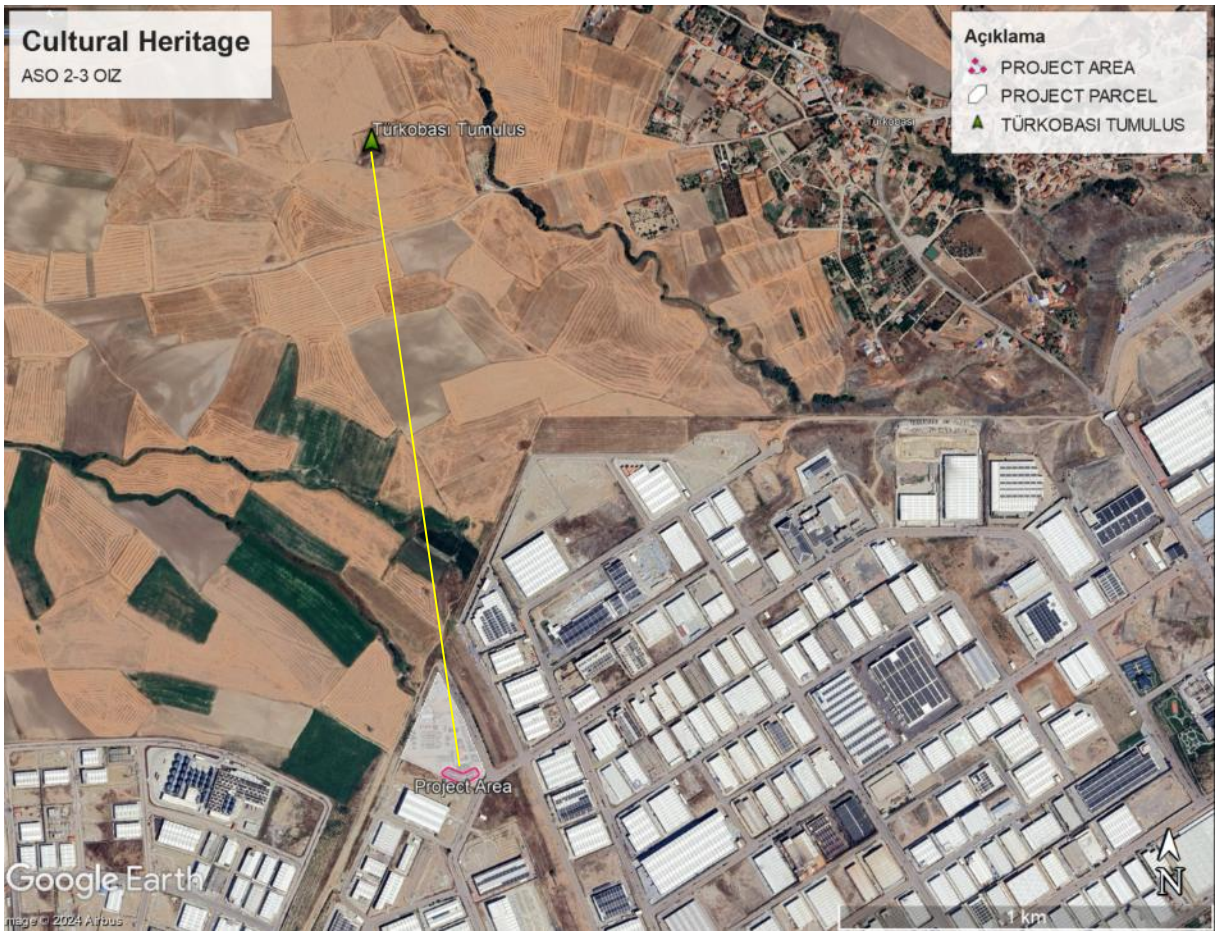


Figure 16 Closest Archaeological Site to the Project Area

There is no known adjacent cultural heritage site and cultural resources in the project area or near the project site. Therefore, the Project will not cause alteration, damage or removal of any known cultural heritage assets and constrain community access to cultural sites. In case of chance findings, chance find procedures will be applied.

6.3 Livelihood and Employment

Socio-Economic Development Index studies allow for determining the development index and trends of districts, provinces and regions as well as benchmarking. According to the Socio-Economic Development List of Provinces and Regions Study (2017), Ankara is listed as the 2nd most developed province out of 81 provinces and located within the 1st degree-developed level (Acar, et al., 2019).

According to Provincial Gross Domestic Product (2021) data (TurkStat, 2023b), the industry sector has the largest share (17.60%) in Ankara. The industry sector is followed by services (16.91%) and production (14.49%).

According to the Socio-Economic Development Index of Districts Study (2022), Sincan district is listed as the 8th most developed district of Ankara (125 out of 973 districts of Türkiye) and located within the 2nd-degree development level (Acar, et al., 2022).

Agriculture and animal husbandry activities have an important place in Türkobası and Malıköy neighborhoods. Products such as barley, wheat, onion and beet are mostly grown in the neighborhoods. In the Alcı Neighborhood, agricultural activities are carried out less and the people of the neighborhood generally earn their living through salaried work.

6.3.1 Major Economic Activities in Settlements Located in the Project AoI

Mukhtars of settlements in the Project AoI were interviewed. Information on the major economic activities in the Project AoI was obtained from the neighborhood mukhtars. The main economic activities in the settlements are given in Table 16.

Table 16 Major Economic Activities in the Settlement Located in the Project AoI

Settlement	Primary Economic Activity	Secondary Economic Activity	Tertiary Economic Activity
Türkobası	Agriculture	Animal Husbandry	Pension
Alcı	Agriculture	Animal Husbandry	Pension
Malıköy	Paid employment	Agriculture	Pension

According to information provided by ASO 2-3 OIZ management, ASO 2-3 OIZ efforts to allocate employment opportunities to the local settlements.

6.4 Education and Health Services

There is no school in Türkobası neighborhood.Students go to nearby neighborhoods. Alcı Neighborhood has a preschool, primary school, middle school and high school. There is a vocational high school in Malıköy neighborhood.

It has been determined that there is no health service institution in Türkobası, Malıköy and Alcı Neighborhoods and the residents of the neighborhood go to other nearby neighborhoods.

Education centres at the social AoI are shown in Annex-2 Figure 33.

6.5 Vulnerable Groups and Social Equity

Vulnerable groups refer to people who may be more affected by the potential negative impacts of the project or are less able to access information or get their voices heard and concerns raised. The characteristics of persons belonging to vulnerable groups are as follows:

- Individuals over 65 years of age living alone,
- Physically or mentally handicapped,
- Those who have a chronic illness or are bedridden,
- Women-headed households,
- Poor people who live on state or association aid,
- Refugees,
- Ethnic minority groups,
- Nomads.

According to the information provided by the mukhtar of the neighbourhoods, information about vulnerable/disadvantaged individuals/groups is presented in Table 17.

Table 17 Vulnerable Groups at AoI

Settlement	Individuals over 65 years of age living alone	Poor families*	Physically / Mentally disabled
Türkobası	15	17	7
Alcı	20	70	7
Malıköy	20	0	3

* Households, which are depended on social and economic support are defined as Poor Families by headmen.

6.6 Infrastructure Services

The following table presents the infrastructure services in the neighbourhoods in the AoI.

Table 18 Infrastructure Services of the neighbourhoods in the social AoI

Settlement	Water Resource	Irrigation Resource	Sewerage System	Domestic Waste Management	Mass Transportation Vehicle
Türkobası	Municipal water	Ankara Stream	Sewage system	Collected by the municipality	Municipality buses and private cars
Alcı	Municipal water	-	Sewage system	Collected by the municipality	Municipality buses and private cars
Malıköy	Municipal water	-	Sewage system	Collected by the municipality	Municipality buses and private cars

According to the information provided by the mukhtar of Malıköy neighborhood, due to the lack of irrigation water in the neighborhoods, the diversity of agricultural products grown is decreasing and some of the agricultural products planted are inefficient.

6.7 Traffic and Transportation

The Project will not cause any transportation/traffic problems. Transportation to the construction site will be made via the existing road in the existing WWTP area (parcel), which belongs to the OIZ. A low level of impact is expected from the traffic that will occur during the construction phase of the Project.

The road leading to the Project area is a road within the OIZ. As stated in the screening form, the road leading to Alcı neighbourhood occasionally shows traffic caused by vehicles coming to the OIZ. It was learned that this occasional traffic causes problems for some farmers in the settlement to reach their fields during planting and harvesting periods. In Türkobası neighborhood, it was learned that livestock activities in the settlement were interruptedby traffic because the road to the neighborhood and the service route of the OIZ are the same. It has been learned that traffic occurs on the road due to the use of the road in the region by people living in both the OIZ and the surrounding settlements. It is known that this traffic can occur both during the transportation of agricultural tools to the fields and during the grazing of animals, and that it is especially intense during the hours that coincide with the worker shuttles during the planting and harvest periods. The road planned for the Project is not expected to cause problems for accessing the surrounding settlements.

The project area is located within ASO 2-3 OIZ. It is possible to access ASO 2-3 OIZ via E90 motorways and Sincan-Temelli Road.

According to the state highways traffic volume map for the year 2022 of the 4th Regional Directorate of Highways published by the General Directorate of Highways, the annual average daily traffic on the Ankara-Polatlı section of the E90 Motorway passing south of the OIZ is 38,735 vehicles. Of these vehicles, 28,613 are cars, 2,703 are medium-duty vehicles, 888 are buses, 2,483 are trucks and 4,048 are articulated trucks (KGM, 2023).

7 ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS OF THE PROJECT

7.1 Environmental Risks and Impacts of the Project

The main purpose of an Environmental and Social Management Plan (ESMP) is to identify and assess the potential positive and adverse impacts/risks that may be caused by the Project activities on the natural environment and on the socio-economic well-being and conditions of the population (community and workforce) at local and regional level. The following assessment is based on the Project characteristics and activities and the baseline conditions in the Project area.

As a result of this assessment, relevant mitigation measures were developed to avoid, minimize, mitigate and off-set significant adverse impacts and enhance beneficial impacts. Furthermore, the significance of Project-induced residual adverse effects on the environment and community after implementation of the mitigation measures are assessed. And finally, planned monitoring activities for checking effectiveness of the proposed mitigation measures are identified. In Table 20, identification of the level of environmental and social impacts for three Project phases (pre-construction, construction and operation phases) is presented. The area of influence map of the project is presented in Annex-2, Figure 34.

Determining the significance of impacts is a crucial step in assessing the environmental and social aspects of a project. The process typically involves a systematic evaluation of various factors to gauge the magnitude and importance of potential impacts. Populating the impact significance matrix is done by utilizing the collected data (baseline studies), assessments (determination of impact criteria, identification and categorization of potential impacts, quantitataive and qualitative assessments), and stakeholder input (stakeholder consultations). Before populating the matrix, all impacts are evaluated by factors like severity, duration, reversibility, and cumulative effects to determine their significance.

The anticipated impacts for each phase of the project are presented in this section. The project will overall comply with WBG ESF with the most relevant ESS for each environmental and social topic that is provided in the Table 19.

Table 19 ESS List Concerning the Project

Physical and Biological Environment	Relevant ESS
7.1.1 Land Use	ESS1, ESS3
7.1.2 Geology	ESS1, ESS3
7.1.3 Hydrogeology	ESS1, ESS3
7.1.4 Climate and Vegetation	ESS1, ESS3
7.1.5 Soil Quality	ESS1, ESS3
7.1.6 Air Quality and Odor	ESS1, ESS3
7.1.7 Noise	ESS1, ESS3
7.1.8 Water Resources and Use	ESS1, ESS3
7.1.9 Wastewater Management	ESS1, ESS3
7.1.10 Waste Management	ESS1, ESS3
7.1.11 Pesticide Use and Management	ESS1, ESS3
7.1.12 Natural Disaster Potential	ESS 1
7.1.13 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
7.2.4 Vulnerable/Disadvantaged Groups	ESS1
7.2.5 Land Requirement	ESS1,
7.2.6 Working Conditions and Labor Management	ESS1, ESS2
7.2.7 Community Health and Safety	ESS1, ESS4
7.2.8 Traffic and Transportation	ESS1
7.2.9 Occupational Health and Safety	ESS1, ESS2

Table 20 Environmental and Social Attributes Impact Levels Identification Matrix

No	Environmental and Social Attributes	Impact																		
		Nature		Type			Extent/area				Duration				Likelihood of Occurrence			Sensitivity of the Receptor	Magnitude of the Impact	Impact Significance without mitigation measures	Impact Significance with mitigation measures
		Positive (+)	Negative (-)	Direct	Indirect	Cumulative	On-site/ Project footprint	Local	Regional	National	Short term	Mid-term	Long term	Permanent	Very likely/ certain	Likely	Unlikely	High	High	High	High
																		Medium	Medium	Medium	Medium
																		Low	Low	Low	Low
																		Negligible/ None	Negligible/ None	Negligible/ None	Negligible/ None
A. PRE-CONSTRUCTION PHASE																					
1. Air Quality																					
1	Increase in dust concentration		✓	✓			✓				✓				✓			**Medium**	**Low**	**Low**	**Negligible/ None**
2	Exhaust emissions (SO_2 PM, NO_x)		✓	✓			✓				✓				✓			**Medium**	**Low**	**Low**	**Negligible/ None**
3	GHG emissions (CO_2, CH_4, N_2O)		✓	✓					✓		✓				✓			**Medium**	**Low**	**Low**	**Negligible/ None**
2.Soils and Contaminated Lands																					
1	Loss of topsoil at the project site		✓	✓			✓							✓		✓		**Medium**	**Low**	**Low**	**Negligible/ None**
2	Erosion potential		✓	✓			✓						✓			✓		**Low**	**Low**	**Low**	**Negligible/ None**
3	Contamination of soil		✓	✓			✓						✓			✓		**Medium**	**Low**	**Low**	**Low**
4	Pesticide Use		✓	✓			✓						✓				✓	**Medium**	**Low**	**Low**	**Negligible/ None**
3. Water Resources																					
1	Change in surface water quality		✓	✓				✓			✓						✓	**Medium**	**Low**	**Low**	**Low**
2	Change in groundwater quality		✓	✓			✓				✓						✓	**Medium**	**Low**	**Low**	**Low**
4. Noise and Vibration																					
1	Increase in noise level		✓	✓				✓			✓				✓			**Medium**	**Low**	**Low**	**Low**
2	Increase in vibration level		✓	✓			✓				✓				✓			**Medium**	**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 mitigation measures	Impact Significance with mitigation measures
		Positive (+)	Negative (-)	Direct	Indirect	Cumulative	On-site/ Project footprint	Local	Regional	National	Short term	Mid-term	Long term	Permanent	Very likely/ certain	Likely	Unlikely	High	High	High	High
																		Medium	Medium	Medium	Medium
																		Low	Low	Low	Low
																		Negligible/ None	Negligible/ None	Negligible/ None	Negligible/ None
5. Resources and Waste																					
1	Resources used during works		✓	✓				✓			✓				✓			**Low**	**Low**	**Low**	**Negligible/ None**
2	Improper waste management		✓	✓				✓			✓					✓		**Medium**	**Low**	**Low**	**Low**
6. Landscape and Visual (Aesthetics)																					
1	Impairment of quality of life due to the overall presence of annoying construction works and activities and altered landscape		✓	✓				✓			✓				✓			**Low**	**Low**	**Low**	**Negligible/ None**
7. Biological Environment																					
1	Damage or loss of terrestrial habitats and flora species		✓	✓				✓			✓					✓		**Low**	**Low**	**Low**	**Negligible/ None**
2	Disturbing/harming of terrestrial fauna species		✓		✓			✓			✓					✓		**Low**	**Low**	**Low**	**Negligible/ None**
3	Damage or loss of aquatic habitat and/or aquatic species		✓		✓			✓			✓					✓		**Low**	**Low**	**Low**	**Negligible/ None**
8. Socioeconomic Environment																					
1	Infrastructure damage		✓	✓				✓			✓					✓		**Low**	**Low**	**Low**	**Negligible/ None**
9. Community Health and Safety and Security																					
1	Trespassing and community encroachment		✓	✓			✓				✓						✓	**High**	**Low**	**Medium**	**Low**

No	Environmental and Social Attributes	Impact																		
		Nature		Type			Extent/area				Duration				Likelihood of Occurrence			Sensitivity of the Receptor	Magnitude of the Impact	Impact Significance without mitigation measures	Impact Significance with mitigation measures
		Positive (+)	Negative (-)	Direct	Indirect	Cumulative	On-site/ Project footprint	Local	Regional	National	Short term	Mid-term	Long term	Permanent	Very likely/ certain	Likely	Unlikely	High	High	High	High
																		Medium	Medium	Medium	Medium
																		Low	Low	Low	Low
																		Negligible/ None	Negligible/ None	Negligible/ None	Negligible/ None
2	Gender Based Violence (GBV), Sexual Exploitation Abuse / Sexual Harassment (SEA/SH)		✓	✓				✓					✓			✓		**High**	**Low**	**Medium**	**Low**
10. Labor Force and Working Conditions																					
1	Working conditions and protecting the workforce		✓	✓			✓				✓				✓			**High**	**Low**	**Medium**	**Low**
2	Workers' exposure to work-related occupational health and safety (OHS) risks		✓	✓			✓				✓				✓			**High**	**Low**	**Medium**	**Low**
3	Workers Engaged by Third Parties and the Supply Chain		✓	✓			✓				✓				✓			**High**	**Low**	**Medium**	**Low**
B. CONSTRUCTION PHASE																					
1. Air Quality																					
1	Increase in dust concentration		✓	✓			✓				✓				✓			**Medium**	**Low**	**Low**	**Negligible/ None**
2	Exhaust emissions (SO_2 PM, NO_x)		✓	✓			✓				✓				✓			**Medium**	**Low**	**Low**	**Negligible/ None**
3	GHG emissions (CO_2, CH_4, N_2O)		✓	✓					✓		✓				✓			**Medium**	**Low**	**Low**	**Negligible/ None**
2. Soils and Contaminated Land																					
1	Loss of topsoil due to storage		✓	✓			✓							✓		✓		**Medium**	**Low**	**Low**	**Negligible/ None**
2	Erosion potential		✓	✓			✓						✓			✓		**Low**	**Low**	**Low**	**Negligible/ None**
3	Contamination of soil		✓	✓			✓						✓			✓		**Medium**	**Low**	**Low**	**Low**

No	Environmental and Social Attributes	Impact																	
		Nature		Type			Extent/area				Duration				Likelihood of Occurrence			Sensitivity of the Receptor	Magnitude of the Impact	Impact Significance without mitigation measures	Impact Significance with mitigation measures
		Positive (+)	Negative (-)	Direct	Indirect	Cumulative	On-site/ Project footprint	Local	Regional	National	Short term	Mid-term	Long term	Permanent	Very likely/ certain	Likely	Unlikely	High	High	High	High
																		Medium	Medium	Medium	Medium
																		Low	Low	Low	Low
																		Negligible/ None	Negligible/ None	Negligible/ None	Negligible/ None
4	Pesticide Use		✓	✓			✓						✓			✓		**Medium**	**Low**	**Low**	**Negligible/ None**
3. Water Resources																					
1	Change in surface water quality		✓	✓					✓		✓						✓	**Medium**	**Low**	**Low**	**Low**
2	Change in groundwater quality		✓	✓				✓			✓						✓	**Medium**	**Low**	**Low**	**Low**
4. Noise and Vibration																					
1	Increase in noise level		✓	✓				✓			✓				✓			**Medium**	**Low**	**Low**	**Low**
2	Increase in vibration 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**	**Low**
6. Landscape and Visual (Aesthetics)																					
1	Impairment of quality of life due to the overall presence of annoying construction works and activities and altered landscape		✓	✓			✓				✓				✓			**Low**	**Low**	**Low**	**Negligible/ None**
7. Biological Environment																					
1	Damage or loss of terrestrial habitats and flora species		✓		✓			✓			✓					✓		**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 mitigation measures	Impact Significance with mitigation measures
		Positive (+)	Negative (-)	Direct	Indirect	Cumulative	On-site/ Project footprint	Local	Regional	National	Short term	Mid-term	Long term	Permanent	Very likely/ certain	Likely	Unlikely	High	High	High	High
																		Medium	Medium	Medium	Medium
																		Low	Low	Low	Low
																		Negligible/ None	Negligible/ None	Negligible/ None	Negligible/ None
2	Disturbing/harming of terrestrial fauna species		✓		✓			✓			✓					✓		**Low**	**Low**	**Low**	**Negligible/ None**
3	Damage or loss of aquatic habitat and/or aquatic species		✓		✓			✓			✓					✓		**Low**	**Low**	**Low**	**Negligible/ None**
8. Socioeconomic Environment																					
1	Infrastructure damage		✓	✓			✓				✓					✓		**Low**	**Low**	**Low**	**Negligible/ None**
9. Community Health and Safety and Security																					
1	Trespassing and community encroachment		✓	✓				✓			✓					✓		**High**	**Low**	**Medium**	**Low**
2	Gender Based Violence (GBV), Sexual Exploitation Abuse / Sexual Harassment (SEA/SH)		✓	✓				✓			✓					✓		**High**	**Low**	**Medium**	**Low**
10. Labor Force and Working Conditions																					
1	Working conditions and protecting the workforce			✓			✓				✓					✓		**High**	**Low**	**Medium**	**Low**
2	Workers' exposure to work-related occupational health and safety (OHS) risks		✓	✓			✓				✓					✓		**High**	**Low**	**Medium**	**Low**
3	Workers Engaged by Third Parties and the Supply Chain		✓	✓				✓			✓					✓		**High**	**Low**	**Medium**	**Low**
C. OPERATION PHASE																					
1. Air Quality and Odor																					

No	Environmental and Social Attributes	Impact																			
		Nature		Type			Extent/area				Duration				Likelihood of Occurrence			Sensitivity of the Receptor	Magnitude of the Impact	Impact Significance without mitigation measures	Impact Significance with mitigation measures
		Positive (+)	Negative (-)	Direct	Indirect	Cumulative	On-site/ Project footprint	Local	Regional	National	Short term	Mid-term	Long term	Permanent	Very likely/ certain	Likely	Unlikely	High	High	High	High
																		Medium	Medium	Medium	Medium
																		Low	Low	Low	Low
																		Negligible/ None	Negligible/ None	Negligible/ None	Negligible/ None
1	Odorous gas emission		✓	✓			✓						✓			✓		**Medium**	**Low**	**Low**	**Low**
2	Exhaust emissions (SO_2 PM, NO_x)		✓	✓			✓						✓			✓		**Medium**	**Low**	**Low**	**Low**
3	GHG emissions (CO_2, CH_4, N_2O)	✓			✓				✓				✓		✓			**Positive**			
2. Geology, Soils and Contaminated Land																					
1	Contamination of Soil		✓		✓		✓					✓					✓	**Low**	**Low**	**Low**	**Negligible/ None**
3. Water Resources																					
1	Change in overall physicochemical water quality of Ankara Creek		✓		✓				✓				✓				✓	**Medium**	**Low**	**Low**	**Negligible/ None**
2	Change in groundwater quality		✓		✓			✓			✓						✓	**Medium**	**Low**	**Low**	**Negligible/ None**
3	Amount of water utilization	✓		✓					✓					✓	✓			**Positive**			
4. Noise and Vibration																					
1	Increase in Noise Levels		✓	✓			✓							✓		✓		**Low**	**Low**	**Low**	**Negligible/ None**
5. Resources and Waste																					
1	Resources used for operation	✓		✓				✓					✓		✓			**Positive**			
2	Amount of solid waste generated	✓		✓				✓					✓		✓			**Positive**			
6. Landscape and Visual (Aesthetics)																					
1	The existence of the Advanced Environmental Laboratory		✓	✓				✓						✓		✓		**Low**	**Low**	**Low**	**Low**

No	Environmental and Social Attributes	Impact																		
		Nature		Type			Extent/area				Duration				Likelihood of Occurrence			Sensitivity of the Receptor	Magnitude of the Impact	Impact Significance without mitigation measures	Impact Significance with mitigation measures
		Positive (+)	Negative (-)	Direct	Indirect	Cumulative	On-site/ Project footprint	Local	Regional	National	Short term	Mid-term	Long term	Permanent	Very likely/ certain	Likely	Unlikely	High	High	High	High
																		Medium	Medium	Medium	Medium
																		Low	Low	Low	Low
																		Negligible/ None	Negligible/ None	Negligible/ None	Negligible/ None
7. Biological Environment																					
1	Damage or loss terrestrial habitats and flora-fauna species		✓		✓			✓			✓					✓		**Low**	**Low**	**Low**	**Negligible/ None**
2	Damage or loss of aquatic habitat and/or aquatic species		✓		✓			✓			✓					✓		**Low**	**Low**	**Low**	**Negligible/ None**
8. Socioeconomic Environment																					
1	Infrastructure damage		✓	✓				✓			✓						✓	**Low**	**Low**	**Low**	**Negligible/ None**
9. Community Health and Safety																					
1	Trespassing and community encroachment		✓	✓			✓										✓	**Low**	**Medium**	**Low**	**None/ Negligible**
2	Community's exposure to disease due to improper operation of the laboratory		✓	✓				✓			✓						✓	**Low**	**Medium**	**Low**	**Negligible/ None**
3	Failure of operation		✓	✓					✓		✓					✓		**Medium**	**Medium**	**Medium**	**Low**
10. Labor Force and Working Conditions																					
1	Working conditions and protecting the workforce		✓	✓			✓				✓				✓			**Medium**	**Low**	**Low**	**Low**
2	Gender Based Violence (GBV), Sexual Exploitation Abuse / Sexual Harassment (SEA/SH)		✓	✓				✓					✓			✓		**Medium**	**Low**	**Low**	**Low**
3	Workers' exposure to work-related occupational health and safety (OHS) risks		✓	✓			✓				✓				✓			**High**	**Low**	**Medium**	**Low**
4	Workers Engaged by Third		✓	✓			✓				✓				✓			**Medium**	**Low**	**Low**	**Low**

No	Environmental and Social Attributes	Impact																		
		Nature		Type			Extent/area				Duration				Likelihood of Occurrence			Sensitivity of the Receptor	Magnitude of the Impact	Impact Significance without mitigation measures	Impact Significance with mitigation measures
		Positive (+)	Negative (-)	Direct	Indirect	Cumulative	On-site/ Project footprint	Local	Regional	National	Short term	Mid-term	Long term	Permanent	Very likely/ certain	Likely	Unlikely	High	High	High	High
																		Medium	Medium	Medium	Medium
																		Low	Low	Low	Low
																		Negligible/ None	Negligible/ None	Negligible/ None	Negligible/ None
	Parties and the Supply Chain																				

7.1.1 Land Use

The Project area consists of a single parcel, which is Parcel No. 2 of Block 100500, and it has an area of 2,366.65 m^2 within 34,482.79 square metre parcel area. The laboratory building will consist of 3 floors in total: partial basement, ground floor, first floor and roof floor, with a total indoor area of 1,973.49 m^2 and building footprint of 1,109.95 m^2 after deducting the technical areas. The Project area will be within the existing WWTP parcel inside the existing OIZ borders and ownership is clearly documented in the title deed provided in Annex 1.

Changes in land use happen often and on a variety of sizes, and they can have distinct and cumulative effects on air and water quality, watershed function, waste production, extent and quality of wildlife habitat, climate, and human health (*Land use | U.S. Environmental Protection Agency* 2021).

Land use activities are classified into two categories based on their potential environmental and health impacts: land development and agricultural uses. Because the assigned area is in an organized industrial zone and hence has no significance or value for wildlife or agricultural usage, this report will exclusively cover land development.

For this Project, the impacts related to land development are due to the advanced laboratory building to be constructed within the scope of the Project. Three possible impacts for this Project are as follows:

- contributing to non-point source water pollution by limiting the soil's capacity to filter water flow, resulting in the accumulation of rainwater and the release of more pollutants into water bodies,
- blocking of the groundwater aquifers' ability to renew, and
- disruption of soil structure by excavation and levelling, leading to erosion and loss of soil fertility

The next subsections for the pre-construction, construction, and operation stages of the Project evaluate legal requirements governing land use in addition to the potential implications already mentioned. They also evaluate the aesthetic effects of landscaping.

7.1.1.1 Pre-Construction Phase

To minimise risks associated with land use during activities prior to construction of the Advanced Environmental Laboratory, proper planning, monitoring and compliance with environmental and safety regulations are critical.

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.

The land where Advanced Environmental laboratory will be established has grasses and scrubs, and the soil condition was not modified (See Figure 2). The number of trees to be cut or affected due to Project activities is limited. The Project area is covered with steppe vegetation, although there are occasional gaps. It is estimated that a minimum of 30 cm of topsoil stripping will be carried out out in the 2,500 m^2 area where the Advanced Environmental laboratory is planned.

The topsoil stripped during the pre-construction phase of the project will be used primarily in the landscaping works of the Project and then in the landscaping areas within the borders of ASO 2-3 OIZ.

During the pre-construction phase, only topsoil stripping will be carried out, therefore no impacts related to land use are expected during this phase. As a result, impacts related to land use for pre-construction phase are short term, direct, and low severity thus assessed as *negligible* in significance.

7.1.1.2 Construction Phase

The materials to be used during the construction phase of the Project (concrete, steel, polycarbonate, etc.) are expected to form impermeable surfaces in the Project area. However, ASO 2-3 OIZ has an existing storm water collection line. After the completion of the construction phase, the impact of impermeable areas will be minimized by connecting the storm water collection channels of the Project facility, units, and roads to the existing ASO 2-3 OIZ storm water collection line.

Construction often involves the conversion of natural land, agricultural land or undeveloped areas into built environments. This conversion can lead to the loss of natural habitats, affecting local flora and fauna. No such impact is expected as the Project area is within the boundaries of the OIZ. Construction activities can compact soil, reducing its permeability and increasing the risk of erosion. Erosion can lead to sedimentation in nearby water bodies, impacting aquatic ecosystems.

In addition to this operation of construction machinery and equipment may disturb the landscape of the Project area. The use of tower cranes etc. may cause landscape and visual impacts. As a result, impacts related to land use for construction phase are short term, direct, and low severity thus assessed as *negligible* in significance.

7.1.1.3 Operation Phase

The laboratory site requires regular maintenance, including landscaping, infrastructure upkeep, and waste management, which can affect the surrounding environment and land use practices. However, during maintenance works, the work area will be determined and limited to that area to minimize impacts on the landscape.

The operation of a laboratory typically requires robust infrastructure, including energy, water supply, sewage, and waste disposal systems. This can lead to further development of utility infrastructure on or around the site, influencing land use patterns. Infrastructure description and calculation report has been prepared for the operation phase of the Project. This report includes hydraulic calculations of sewerage and stormwater lines

If the laboratory emphasizes environmental sustainability, it could lead to broader adoption of sustainable land use practices in the region, such as green building standards, renewable energy projects, and conservation efforts.

Since ASO 2-3 OIZ has an existing storm water 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.

Landscape implementation project has been prepared for the operation phase of the Project.

7.1.2 Geology

7.1.2.1 Pre-Construction Phase

Ground liquefaction should be mitigated to the extent possible. The flats would be built according to the Building Earthquake Regulations. The project's geological impacts for the pre-construction phase are minimal, hence they are classified as negligible.

7.1.2.2 Construction Phase

Necessary measures should 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 phase are minimal thus assessed as *negligible* in significance.

Reinforced concrete application project and calculation report were prepared within the scope of the Project.

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

7.1.2.3 Operation Phase

The entire project area is located on the Alcı Formation. Alcı Formation is mainly composed of volcanoclastic rocks. These are sedimentary rocks consisting of volcanic materials such as ash, pumice and volcanic rock fragments transported and deposited by volcanic and sedimentary processes. Volcanoclastic rocks are materials that should be carefully evaluated in terms of soil liquefaction. They are at risk of liquefaction especially when they become saturated with water and under dynamic loads such as earthquakes. In order to reduce the risk of soil liquefaction, it is important to keep the groundwater level under control. This can be achieved by installing drainage systems or lowering the groundwater level.

The risk of ground liquefaction should be mitigated. The project's geological impacts for the operation phase are minimal, hence they are considered *negligible* in significance.

7.1.3 Hydrogeology

7.1.3.1 Pre-Construction Phase

Leakage and spill of fuels, and oils to be used for the construction machinery and equipment may create soil contamination risk. All chemical storage containers, including diesel fuel and hazardous liquid waste drums/containers, should be located to minimize the risk of soil, surface water, and groundwater contamination during construction. On the other hand, there are no discharges into groundwater resources. As a result, impacts related to hydrogeology for pre-construction phase are short term, indirect, and low severity thus assessed as negligible in significance. Construction Phase

Construction often involves large-scale excavation and levelling operations that can alter the natural flow patterns of groundwater. By altering the topography and permeability of the ground, these activities can redirect groundwater flow and potentially lead to changes in water availability for wells, springs and surface water bodies. The depth of excavation for the Project is not expected to result in such a change.

Implementing sustainable construction practices such as minimising impervious surfaces, using permeable pavements and managing stormwater effectively can reduce many of the negative impacts on hydrogeology.

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, should be located to minimize the risk of soil, surface water, and groundwater contamination during construction. On the other hand, there are no discharges into groundwater resources. As a result, impacts related to hydrogeology for construction phase are short term, indirect, and low severity thus assessed as *negligible* in significance.

7.1.3.2 Operation Phase

Environmental laboratories often work with various chemicals, including hazardous substances. Improper handling, storage, or disposal of these chemicals can lead to leaks or spills, potentially contaminating local groundwater sources. All chemical storage containers, including diesel fuel and hazardous liquid waste drums/containers, should be located to minimize the risk of soil, surface water and groundwater contamination.

Laboratories generate wastewater that may contain pollutants. If not properly treated before disposal, this wastewater can infiltrate the soil and contaminate groundwater. There is no discharge to groundwater resources within the scope of the Project. As a result, impacts related to hydrogeology for operation phase are long term, direct, and low severity thus assessed as *negligible* in significance.

7.1.4 Climate and Climate Change

The development of new technologies for reducing emissions, conserving water, and protecting ecosystems can have positive ripple effects beyond the laboratory, helping to mitigate climate impacts and promote healthy vegetation.

The operations of an advanced environmental laboratory can have significant impacts on both climate and vegetation. These impacts include contributions to greenhouse gas emissions, alteration of local climates, changes in water resources, and effects on local vegetation. However, through sustainable practices, effective management, and innovative research, these impacts can be mitigated, turning the laboratory into a model for environmental stewardship and sustainability. In the green building concept, it is estimated that water consumption will be reduced to 225 m^3/year and the amount of waste generated to 1.15 tons/year. In addition, considering that under normal conditions, the building will use approximately 27,000 kwh/year of electricity and 15,000 m^3/year of natural gas, it is estimated that the green building will save approximately 6,500 kwh/year in electricity and approximately 4,000 m^3/year in natural gas. The use of green building concept presents a sustainable approach with significant positive impacts on climate and vegetation. Moreover, the Project area is a confined area that is located within the organized industrial zone limiting the negative impacts on the vegetation; thus, no significant long-term negative impacts on vegetation are expected.

Assessments on the Project's impacts on climate change and vegetation during the pre-construction, construction and operation phases is given in the following sub-sections.

7.1.4.1 Pre-Construction Phase

Land clearing for construction typically involves the removal of vegetation, which can result in the loss of plant species and habitat disruption for local wildlife. The elimination of vegetation exposes the soil to erosion, as plants help to stabilize it. Erosion transports waste and sediments (soil, pebbles, etc.) to surrounding water bodies, potentially harming aquatic ecosystems.

The energy consumption (fuel for construction machinery and generators, electricity for utilities, equipment, and heating, and LPG for construction machinery and heating) and resource consumption for the Project, which will increase greenhouse gas (CO_2, CH_4, and N_2O) emissions, are the main causes of the Project's pre-construction impacts on climate change. The Project's contribution to climate change through GHG emissions during pre-construction phase is assessed as a negative, short term and direct impact while impacts on vegetation is assessed as negative, short term and direct.

7.1.4.2 Construction Phase

During the construction phase, the Project's energy consumption (fuel for generators and construction machinery, electricity for utilities, equipment, and heating, and LPG for heating and machinery) and resource consumption will increase greenhouse gas (CO_2, CH_4, and N_2O) emissions. Also, construction generates dust and other airborne pollutants, which can settle on nearby vegetation, reducing photosynthesis and damaging plant tissues. Prolonged exposure to dust can lead to stunted growth and increased plant mortality. These factors will have an impact on climate change. However, these impacts can be mitigated through sustainable construction practices, vegetation conservation efforts, and effective environmental management strategies.

Incorporating green building practices, such as energy-efficient designs, renewable energy systems, and sustainable landscaping, can reduce the overall environmental impact of the laboratory and contribute to climate resilience.

The Project's contribution to climate change through GHG emissions during construction phase is assessed as a negative, short term and direct impact while impacts on vegetation is assessed as negative, short term and direct. The significance of the impact on climate change and vegetation during the construction phase of the Project is assessed as *negligible*.

7.1.4.3 Operation Phase

Green building practices have a positive impact on both climate and vegetation. By reducing greenhouse gas emissions, mitigating the urban heat island effect, and enhancing energy and water efficiency, green buildings help combat climate change. Simultaneously, these practices support vegetation by preserving natural habitats, promoting biodiversity, improving soil health, and integrating green spaces into urban environments.

Green buildings are designed to use less energy through high-efficiency HVAC systems, insulation, energy-efficient windows, and appliances. Reducing energy consumption lowers the demand for energy production, particularly from fossil fuels, which in turn reduces greenhouse gas (GHG) emissions that contribute to climate change.

Under normal conditions, the building is expected to consume approximately 27,000 kWh of electricity and 15,000 m³ of natural gas annually. However, thanks to green building design, it is expected to save approximately 6,500 kWh in electricity consumption and approximately 4,000 m³ in natural gas consumption. By implementing green building design, both environmental sustainability and economic savings will be achieved.

Upon the commissioning of the Project, it is estimated that the following savings will be realized;

- 24-30% reduction in energy consumption,
- 33-39% Reduction in carbon dioxide emissions,
- 30-50% Reduction in water consumption,
- 70% Reduction in the amount of solid waste,
- 10-15% Reduction in maintenance costs.

The contribution of the Project to climate change through GHG emissions during the operational phase is assessed as a positive, perminant and direct impact, while the significance of the impact on vegetation is assessed as *negligible*.

7.1.5 Soil Quality

Construction projects can have a variety of effects on the soil environment, including disruptions to the natural soil structure caused by operations such as soil stripping, levelling, and excavation. Common problems include soil layer mixing, contamination threats from construction machinery fuels and materials, potential soil pollution due to waste mismanagement, and incorrect soil restoration.

The possible impacts mentioned above are assessed in the following sub-sections for the pre-construction, construction and operation phases.

7.1.5.1 Pre-Construction Phase

The removal of topsoil during excavation for foundations and other construction activities can strip the soil of its most fertile layer, which contains the majority of organic matter and nutrients essential for plant growth. This can lead to long-term soil degradation if the topsoil is not properly managed or restored after construction.

Topsoil will be collected separately from the subsoil during excavation. Depending on its depth and structure, it will be excavated and piled in an area to be determined for reuse. The place where the topsoil will be stored should not have a slope of more than 5 %. Losses that may occur during the storage process of the topsoil will be prevented and the quality of the soil will be protected. If the topsoil will be left in the open for a long time, it will be ensured that its surface is covered with fast growing plants. Separately collected topsoil can be reused in parks, gardens, green areas, agriculture and related works.

The impacts on the soil environment are restricted to the construction site. These impacts that could occur on the soil environment during pre-construction phase are listed below:

- Construction activities may disrupt natural soil and land structure, including stripping, levelling, excavation, and filling.
- Excavation may cause soil layers to mix.
- Construction machinery and equipment may leak and spill fuels, paints, and oils, posing a soil contamination risk.
- Uncontrolled storage or disposal of solid and liquid wastes can lead to soil pollution.
- Soil was not properly replaced in its original position.

There is a temporary storage area for hazardous wastes in OIZ. Wastes accumulated in non-hazardous waste storage areas are sent to various licensed facilities and the facilities to which the waste will be sent are specified in the Industrial Waste Management Plan in Annex-13. Hazardous and non-hazardous wastes may be generated due to the project. These impacts can be easily managed and mitigated to *negligible* from *low* in significance with the implementation of the mitigation measures presented in Chapter 8.

7.1.5.2 Construction Phase

The impacts on the soil environment are restricted to the construction site. These impacts that could occur on the soil environment during construction phase are listed below:

- Construction activities increases the risk of erosion by wind and water, which can wash away the topsoil, reducing soil fertility and leading to sedimentation in nearby water bodies.
- Refill actions may cause soil layer mixing.
- Construction machinery and equipment may leak and spill fuels, paints, and oils, posing a soil contamination risk.
- The Project may cause soil pollution due to uncontrolled storage or disposal of solid and liquid waste.

However, these negative impacts can be mitigated through careful planning, the use of erosion control measures, topsoil management, pollution prevention strategies, and post-construction soil restoration practices. These impacts can be easily managed and mitigated to *negligible* in significance with the implementation of the mitigation measures presented in in Chapter 8.

7.1.5.3 Operation Phase

The activities during the Project's operating phase will have limited physical interaction with the soil environment. Under typical operating conditions, no more substantial direct impacts on topography, soil, or land usage are expected during the Project's operation period. Environmental laboratories often work with a wide range of chemicals, including solvents, reagents, and samples that may contain hazardous substances. Accidental spills or leaks during the handling, storage, or disposal of these chemicals can lead to soil contamination. Contaminants may include heavy metals, organic pollutants, or acidic substances that can degrade soil quality and harm local ecosystems.

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 careful planning, strict adherence to environmental safety protocols, and the implementation of sustainable practices, the residual impacts will be *negligible* in significance. The defined mitigation measures are presented in Chapter 8.

7.1.6 Air Quality and Odor

7.1.6.1 Pre-Construction Phase

In the pre-construction phase 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-7 of this report.

Table 21 Air Quality Project Standards and Calculated Emission Values in Annex 7 (in Pre-Construction Phase)

Parameter	Unit	Emission from machinery and equipment	Emissions from topsoil stripping activities (PM10)		Project Standard
			Uncontrolled	Controlled	
CO	kg/h	0.0245	-	-	10.000 µg/m^3
SO_2	kg/h	0.0005	-	-	60 µg/m^3
NOx	kg/h	0.15	-	-	-
PM_{10}	kg/h	0.006	1,432	0,716	50 µg/m^3
$PM_{2.5}$	kg/h	0.0042	1,002	0,501	25 µg/m^3

These emission rates are estimated under the worst-case scenario. The emission flow rate for controlled and uncontrolled activities exceeds 1 kg/hour, which is the limit value set in the Industrial Air Pollution Control Regulation (IAPCR) for non-stack sources, while the emission flow rate for machinery and equipment activities is below the limit values. When the calculated CO, SO_2, NO_x, PM_{10} and $PM_{2.5}$ values are analyzed, they are likewise found to be less than the limit value established for non-stack sources in IAPCR. Consequently, the impacts of particulate matter emissions will be mitigated by the implementation of the mitigation measures summarised in Chapter 8.

Detailed air quality calculations are described in Annex-7. These impacts can be easily managed and mitigated to *negligible* in significance with the implementation of the mitigation measures presented in Chapter 8.

7.1.6.2 Construction Phase

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 above the limit value defined for non-stack sources in IAPCR, which is 1 kg/hour. When the calculated CO, SO_2, NO_x, PM_{10} and $PM_{2.5}$ 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 *negligible* 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.

Detailed air quality calculations are presented in Annex-7, and these impacts can be easily managed and mitigated to *low* in significance with the implementation of the mitigation measures presented in Chapter 8.

Table 22 Air Quality Project Standards and Calculated Emission Values in Annex 7 (in Construction Phase)

Parameter	Unit	Emission from machinery and equipment	Emissions from topsoil stripping activities (PM_{10})		Emissions from topsoil stripping activities (PM_{10})
			Uncontrolled	Controlled	
CO	kg/h	0.1117	-	-	10.000 µg/m^3
SO_2	kg/h	0.0023	-	-	60 µg/m^3
NOx	kg/h	0.6840	-	-	-
PM_{10}	kg/h	0.0274	2,331	1,166	50 µg/m^3
$PM_{2.5}$	kg/h	0.0192	1,6317	0,8162	25 µg/m^3

7.1.6.3 Operation Phase

The operation of an advanced environmental laboratory can impact air quality through the emission of VOCs, particulates, toxic gases, and other pollutants. Laboratories often use chemicals that emit VOCs, such as solvents, reagents, and cleaning agents. These compounds can evaporate into the air during use or storage, contributing to indoor air pollution. Some laboratory processes may produce odorous compounds that can affect indoor air quality and cause discomfort for staff. If not properly ventilated, these odors can spread to other areas of the building or even to the outside environment. Laboratories may work with or produce toxic gases, such as chlorine, ammonia, or sulfur compounds, during certain experiments or processes. These gases, if not properly contained and ventilated, can be harmful to human health and the environment. The laboratory's exhaust ventilation system is critical for maintaining air quality. However, if the system is not adequately maintained or if filters are not properly managed, it can release harmful gases and particulates into the outdoor air, affecting local air quality.

Installing and maintaining high-efficiency particulate air (HEPA) filters and carbon filters in ventilation systems can significantly reduce the emission of particulate matter and harmful gases. Properly designed exhaust systems can prevent the release of pollutants into the environment. Regular maintenance of HVAC and ventilation systems is crucial to ensure they operate effectively and do not contribute to air pollution. This includes cleaning ducts, replacing filters, and ensuring that fume hoods and other equipment are functioning correctly. Implementing strict protocols for the storage and handling of chemicals can minimize the release of harmful substances into the air. This includes using properly sealed containers, reducing the use of volatile substances, and ensuring proper labeling and storage conditions.

During the operation phase of the Project, the impacts on air quality will be direct and negative with short term duration and *low* in significance. Operation phase of the project will meet ESS1 and ESS3 in terms of air quality and odor.

Green buildings are designed with high-quality insulation and energy-efficient windows that reduce the need for heating and cooling, which are significant sources of GHG emissions. Heating, ventilation, and air conditioning (HVAC) systems in green buildings are optimized for energy efficiency, using less electricity and fossil fuels, thus lowering emissions. The use of LED lighting and automated lighting systems reduces electricity consumption, leading to lower emissions from power plants. It is stated that carbon dioxide emissions will decrease between 33-39% due to the green building concept of the project. It is considered that there will be a *positive impact* as greenhouse gas emissions will decrease during the operation phase of the project.

7.1.7 Noise

Construction projects may generate noise, affecting both the surrounding environment and nearby communities. Heavy machinery and construction equipment, as well as activities like drilling and hammering, are common noise sources. The loudness might cause disturbances, compromising the health of neighboring humans and wildlife. Potential consequences include increased stress, sleep difficulties, and disruptions to daily routines.

The next subsections for the pre-construction, construction, and operating phases evaluate the aforementioned potential effects. Values showing noise calculations are presented in the Annex-8 of this report.

7.1.7.1 Pre-Construction Phase

During pre-construction phase of the Project, the noise would be potentially generated by vehicles and machinery to be used during land preparation activities. Since the planned Advanced Environmental laboratory is in an industrial area, there are no sensitive receptors such as health centers, schools, mosques in the immediate vicinity of the Project Area (see Figure 33).

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

Therefore, in the pre-construction phase of the Project, the noise impacts will be direct and negative with short term duration and *low* in significance. These impacts will be mitigated by the implementation of the mitigation measures presented in Chapter 8.

The noise level arising from the machinery/equipment and reaching a certain distance has been calculated as specified in Annex-8. Assuming that all machines will operate at the same time and at the same point, the noise level from machinery and equipment in the pre-construction phase meets the Project standard of 55 dBA at a distance of 100-200 metres from these sources. Considering that all machines will not operate at the same time and at the same point, it can be said that the Project Standard can be achieved at lower distances.

7.1.7.2 Construction Phase

The Project activities within the construction phase are associated with a range of activities that generate noise. The noise would be potentially generated by transportation vehicles, machinery and outdoor equipment to be used for the preparation of the site and the construction activities. Since the planned Advanced Environmental laboratory is in an industrial area, there are no sensitive receptors such as health centers, schools, mosques in the immediate vicinity of the Project Area.

Excavators, trucks and concrete mixers are essential for site preparation, excavation, and earthmoving activities. They generate considerable noise, often reaching levels that can be disruptive to nearby residents and workers. The constant operation of engines, moving parts, and impact noises (e.g., from breaking rocks or compacting soil) contribute significantly to noise pollution. Pile driving, which involves driving large steel or concrete supports into the ground, is particularly noisy. The repetitive hammering sound can be heard over long distances and can cause both noise pollution and vibrations that may affect nearby structures. Concrete pouring and the operation of cement mixers produce a steady stream of noise, especially during large pours. The whirring of mixers and the pumping of concrete can be disturbing, particularly if the work continues for extended periods.

The noise generated during the construction of environmental laboratory is temporary and usually lasts for a few months to a couple of years, depending on the size of the installation. Drilling can generate noise levels of 70-90 decibels (dB), which is similar to the noise produced by a household vacuum cleaner or a power drill. Cutting tools such as saws can produce noise levels of 80-100 dB, comparable to a lawnmower or chainsaw. Hammering and screwing typically produce noise levels around 60-80 dB, similar to the noise level of a normal conversation or a busy street. In order to minimise noise disturbance to the employees of the existing environmental laboratory and WWTP, they will be informed in advance about the construction programme and possible noise emissions. Modern, quieter vehicles and equipment designed to reduce noise levels will be used. Efficient installation techniques will be utilised to minimise the duration of noisy activities

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

Therefore, in the construction phase of the Project, the noise impacts will be direct and negative with short - term duration and *low* in significance. The noise level of the equipment and machinery will be kept at a minimum with proper mitigation measures such as the use of silencers and with regular maintenance which is presented in Chapter 8.

The noise level arising from the machinery/equipment and reaching a certain distance has been calculated as specified in Annex-8. Assuming that all machines will operate at the same time and at the same point, the noise level from machinery and equipment in the construction phase meets the Project standard of 55 dBA at a distance of 400-500 metres from these sources. Considering that all machines will not operate at the same time and at the same point, it can be said that the Project Standard can be achieved at lower distances.

7.1.7.3 Operation Phase

The operation of an advanced environmental laboratory can also generate noise, although typically less intense than during the construction phase. Noise during operation can arise from various sources related to the day-to-day activities within the laboratory, and its impacts can affect both the internal environment and the surrounding community.

Heating, ventilation, and air conditioning (HVAC) systems are necessary for maintaining controlled environments within the laboratory. These systems, particularly large industrial units, can produce continuous background noise. The noise comes from the operation of fans, compressors, and air handling units, and can vary in intensity depending on the size and type of equipment. High-precision instruments such as centrifuges, vacuum pumps, and mass spectrometers generate noise during operation. While typically localized, the cumulative noise from multiple pieces of equipment can contribute to an overall increase in ambient noise levels within the laboratory. Environmental laboratories often use refrigeration units to store samples and chemicals. These units can generate low-frequency humming or buzzing sounds that contribute to the overall noise environment.

Mechanical rooms housing boilers, emergency generators, and other utility equipment can be significant sources of noise. Generators, in particular, are noisy when in use, especially during routine testing or power outages. The noise can be disruptive, particularly if the mechanical rooms are not well soundproofed. Equipment like water pumps, air compressors, and vacuum pumps used in laboratory processes also generate noise. These are often housed in dedicated utility areas but can still impact adjacent spaces if not properly isolated or soundproofed.

Fume hoods are essential for maintaining air quality by venting hazardous fumes and vapors out of the laboratory. The fans and ductwork associated with these systems can produce noticeable noise, particularly if the fans are large or operate continuously. This noise can contribute to the overall sound levels in the laboratory.

During the operation phase of the Project, the noise will be generated from laboratory equipment such as heating, air conditioning and ventilation system, boilers, emergency generators, fans and ductwork. 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. So, no significant noise is expected to be generated during the operation of the advanced environmental laboratory.

The sound levels listed in the technical specifications or data sheet will be taken into consideration as good practices when purchasing machinery and equipment. Relevant national legal requirements, their limit values, the WBG General EHS Guidelines, and the Sectoral Guidelines will all be followed in all works performed during the operation.

These impacts will be considered to *negligible* impact significance by the implementation of the mitigation measures presented in Chapter 8.

7.1.8 Water Resources and Use

During the pre-construction and construction phases, employees' needs water supply. The utility water used will be supplied by obtaining a construction site subscription from the network of ASO 2-3 OIZ by the Contractor. OIZ utilizes groundwater as process water and has a groundwater usage permit, obtained from the Ministry of Agriculture and Forestry, DSİ 5th Regional Directorate (see Annex 12). The domestic water supplied from underground wells is stored in 4 water tanks with a total capacity of 10,000 m^3 and distributed through approximately 36 km water pipeline within the OIZ.

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 242 L/cap/day for Ankara (TurkStat, 2023).

The calculations regarding water usage mentioned above are given in the following sub-sections for the pre-construction, construction and operation phases.

7.1.8.1 Pre-Construction Phase

The average number of personnel required for the pre-construction phase is determined as 5. Therefore, the daily water requirement of employees during the pre-construction phase will be;

5 employees x 0.242 m^3/cap/day= 1.21 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 shall be in compliance with the Regulation Concerning the Water Intended for Human Consumption together with the internationally accepted standards, such as WHO and WBG's General EHS Guidelines.

The needs of employees will determine the water supply requirements during the pre-construction phase. The employees' drinking water requirements will be satisfied by bottled water that they will buy at a nearby retailer.

These impacts are considered to be of *low* impact significance by the implementation of the mitigation measures presented in Chapter 8.

7.1.8.2 Construction Phase

During the construction phase, the construction site needs dust suppression and therefore water. Water to be used for domestic water will be supplied by obtaining a construction site subscription. There will be no accommodation on site and water use will be limited to the working hours of the employees. The required number of personnel is determined as 50. Therefore, the daily water requirement of the employees during the construction phase will be as follows;

50 employees x 0.242 m^3/cap/day= 12.1 m^3/day

Within the scope of the advanced environmental laboratory, concrete will be poured for the impermeable floor and then the construction will be carried out with steel construction. There will be no dust suppression as no dust generating activities will be carried out. Since ready-mixed concrete will be used in construction, no additional water is needed for concrete preparation.

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

During the construction phase, employees' needs water. The employees' drinking water requirements will be supplied by the contractor with bottled water purchased from a nearby retailer.

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

By implementing adequate measures for preventing spills and chemical leaks, it will be ensured that groundwater quality remains unaffected. These impacts will be considered to *low* impact significance by the implementation of the mitigation measures presented in Chapter 8.

7.1.8.3 Operation Phase

During the operation phase of the Project, part of the water supply requirement will arise due to employee needs. The number of personnel required is determined as 1. Therefore, the daily water requirement of employees during the construction phase will be;

15 employees x 0.242 m^3/cap/day = 3.63 m^3/day

Green building practices significantly reduce water consumption by incorporating efficient fixtures, recycling systems, smart irrigation, and water-conscious building designs. These strategies not only conserve water but also lower operational costs and contribute to the sustainability of the built environment. An explanation of how using green building techniques lowers water consumption is shown below:

- Installing low-flow faucets and showerheads reduces the amount of water used per minute. These fixtures are designed to maintain water pressure while using less water, thus reducing overall water consumption without compromising user experience.
- Dual-flush toilets offer two flushing options—one for liquid waste and a more powerful one for solid waste. This allows users to choose the appropriate flush, reducing water use by up to 67% compared to traditional toilets.
- Modern, energy-efficient dishwashers and washing machines are designed to use less water per cycle. They often have settings that optimize water use based on the load size, further minimizing water waste.
- On-demand (or tankless) water heaters provide hot water only when needed, reducing the amount of water wasted while waiting for hot water to reach the tap.
- Green buildings often incorporate rainwater harvesting systems that collect and store rainwater for non-potable uses such as landscape irrigation, cooling systems, or even toilet flushing. This reduces reliance on municipal water supplies. The collected rainwater is typically stored in tanks and filtered to remove debris, ensuring it is safe for its intended use.
- Landscaping with native or drought-resistant plants reduces the need for irrigation, as these plants are adapted to local climate conditions and require less water to thrive.
- Green roofs are covered with vegetation that can help absorb rainwater, reducing runoff and the need for additional irrigation. They also provide insulation, reducing the building's energy and water needs for cooling. Green roofs also can retain a significant amount of rainwater, which can be reused for irrigation or slowly released into the drainage system, reducing the burden on municipal water infrastructure.
- Regular water audits track water use within the building, identifying areas where consumption can be reduced. These audits help in optimizing water usage and ensuring that all systems are functioning efficiently.

It is stated in the Pre-Feasibility Report that a 30-50% reduction in water consumption is expected if this green design is realised.

During the operating phase, the impact on groundwater may be noticed as a result of accidentally oil leaks in regions where Project equipment is being maintained, as well as incorrect waste disposal. This may have an impact on groundwater quality in the Project Area; if necessary, mitigation measures will be implemented. However, it is possible to assume that the impacts will be minimal provided mitigation measures and good engineering practices are implemented.

Consequently, the impacts of the Project on water resources may be negative without the above-mentioned practices. These impacts will be considered to *low* impact significance by the implementation of the mitigation measures presented in Chapter 8.

Considering that the Project will be in green building concept and will provide 30-50% reduction in water consumption, during the operation phase, the impact will be direct, perminant and positive in terms of the amount of water utilization.

7.1.9 Wastewater Management

Domestic and industrial wastewater originating from factories and facilities in the OIZ is treated in a wastewater treatment plant with a capacity of 4,900 m^3/day and an electro-flocculation process and discharged to the receiving environment (Ankara Creek).

Wastewater will be generated in all phases of the Project. Domestic wastewater resulting from workers will be generated from facilities where the needs of employees are met, such as eating areas, toilets. During the pre-construction, construction and operation phases of the Project, the toilets used by the existing workers working at the WWTP will be used.

According to 2022 TurkStat data, the Ankara Municipality's Daily Wastewater Amount is 0.211 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 the requirements of ESS1 and ESS3 in terms of wastewater management.

7.1.9.1 Pre-Construction Phase

The average number of personnel required for the pre-construction phase is determined as 4. Therefore, the daily wastewater generation of employees during the pre-construction phase will be;

5 employees* 0.211 m^3/day = 1.055 m^3/day

As the number of employees is low, the additional wastewater load will not have a significant impact.

It is estimated that a maximum of 5 m^3 of water will be used daily for dust suppression operations during the pre-construction phase of the Project.

As a result, the Project may have an adverse impact in terms of wastewater management during the pre-construction phase due to use of resources. These impacts will be assessed as *negligible* impact significance with the implementation of mitigation measures presented in Chapter 8.

7.1.9.2 Construction Phase

The average number of personnel required for the construction phase is determined as 50. Therefore, the daily wastewater generation of employees during the construction phase will be;

50 employees* 0.211 m^3/day = 10.55 m^3/day

As the number of employees is low, the additional wastewater load will not have a significant impact.

It is estimated that a maximum of 5 m^3 of water will be used daily for dust suppression operations during the pre-construction phase of the Project.

As a result, the Project may have an adverse impact in terms of wastewater management during the pre-construction phase due to use of resources. These impacts will be assessed as *negligible* impact significance with the implementation of mitigation measures presented in Chapter 8.

7.1.9.3 Operation Phase

During the operation phase of the Project, generated domestic wastewater will be treated and discharged in the existing plant. The number of personnel required for the operation phase is determined as 15. Therefore, the daily wastewater generation of employees during the operation phase will be;

15 employees * 0.211 m^3/day = 3.165 m^3/day

Wastewater from an advanced environmental laboratory contains a variety of contaminants, including chemicals, biological agents, and other hazardous substances, requiring specialized treatment and handling processes. To prevent cross-contamination, wastewater from different sources (e.g., chemical, biological, sanitary) is often collected and treated separately. Laboratories typically have multiple

drainage systems to ensure that different types of wastewater are managed according to their specific needs. Highly hazardous waste, such as water contaminated with dangerous chemicals or pathogens, is often transported through dedicated waste lines to specialized treatment systems.

In the scada system of ASO 2 WWTP, pH values at the inlet of the WWTP is measured instantaneously. When it is detected that wastewater that may cause high pH changes will enter the system, the wastewater is directed to the equalization pool. Although the wastewater flow from the advanced environmental laboratory operation (approximately 1 m^3/day) is very low compared to the capacity of the WWTP), the efficiency of the WWTP is not expected to decrease thanks to the equalization pool. The existing laboratory discharge is already treated in the WWTP.

For wastewater containing acids or bases, neutralization tanks can be installed at the point of discharge to balance pH levels before the wastewater enters the main drainage system, if a equalization pool is insufficient. It is recommended to install simple filtration systems at sinks or other discharge points to capture solids or large pollutants before they enter the wastewater stream.

Effluent management in advanced environmental laboratories is critical for protecting water quality, ensuring regulatory compliance, and minimizing environmental impacts. The following is a thorough method for handling the wastewater from these laboratories and is provided as a recommendation.

- Effluent should be analysed regularly to determine the types and concentrations of existing pollutants such as chemicals, heavy metals, biological agents and emerging pollutants.
- Acidic or alkaline effluents should be made safer for further treatment or discharge by applying chemical neutralisation techniques to adjust the pH.
- Chemicals should be used to precipitate heavy metals or other toxic substances from wastewater and they should be removed as solid waste.
- Disinfection methods such as UV treatment, chlorination or ozonation should be used to eliminate pathogens in biological wastewater.
- If required, advanced treatment technologies such as membrane filtration, biological treatment and advanced oxidation processes can be used.
- Laboratory discharges should be co-operated with wastewater treatment plants to ensure that the wastewater meets the intake criteria of the plant and is compatible with the treatment processes.

Effective wastewater management in an advanced environmental laboratory involves a combination of treatment technologies, waste segregation, real-time monitoring, and sustainable practices. By implementing these strategies, laboratories can minimize their environmental impact, ensure regulatory compliance, and contribute to water conservation efforts. In terms of quantity and pollution load, advanced environmental laboratory wastewater will not affect the capacity of the existing WWTP. If the inlet and outlet wastewater measurements of the WWTP prove the existence of impacts exceeding the discharge limits originating from the advanced environmental laboratory, the above measures should be implemented. Due to amount of water utilization, the Project will *not have an adverse impact* on wastewater management provided that mitigation measures given in Chapter 8 are implemented.

7.1.10 Waste Management

Waste is anticipated to be generated during the land preparation including topsoil stripping and land levelling, during the construction of the facility and during the operation activities for the Advanced Environmental laboratory. The types of waste that can be produced are scraps, cardboard, recyclable packaging materials, contaminated containers, contaminated rags and domestic solid wastes. Since the land levelling will be limited and there will be no excavation, excess excavated material that need to be disposed of is not expected.

To prevent negative effects on nearby water resources, soils, and flora and fauna, all waste produced during the Project's pre-construction, construction, and operation phases must be appropriately managed in accordance with national waste management laws and international good practices. This chapter evaluates the effects of waste generation and identifies the waste that will be produced in this situation.

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

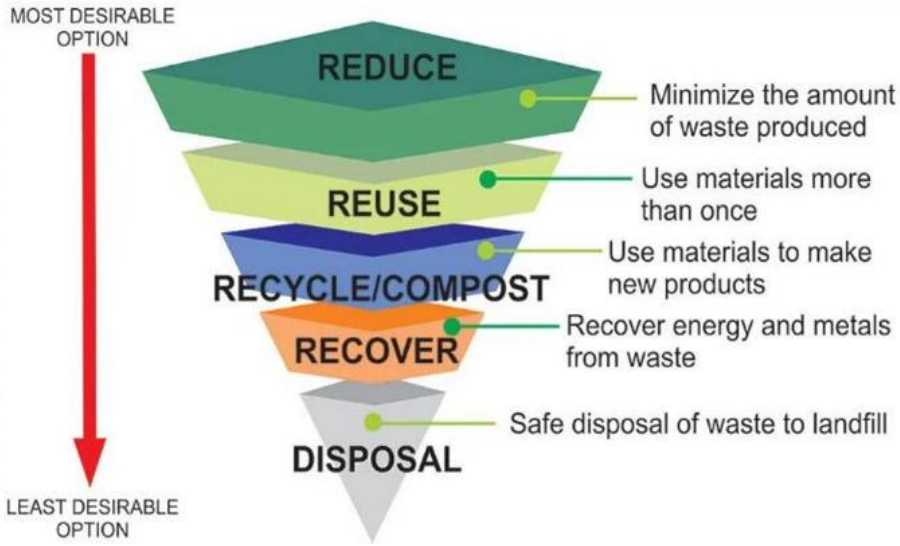


Figure 17 Waste Management Hierarchy[11]

7.1.10.1 Pre-Construction Phase

As in the current situation, the OIZ's Environmental Engineer will be responsible for waste management during all phases of the project. Waste will be managed according to the waste hierarchy. Waste generation in the pre-construction phase is often associated with planning, site preparation, and early material deliveries. Common sources of waste during this phase are:

- Packaging Waste
- Demolition or Deconstruction Waste
- Unused or Surplus Materials
- Hazardous Waste
- Municipal Solid Waste

Efforts to minimize waste during the pre-construction phase 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.

Topsoil stripped during the pre-construction phase of the project will be used in green areas within the boundaries of the ASO 2-3 OIZ.

The construction machinery may require oil changes during the pre-construction phase of the Project, since the oil needs to be replaced at least once in every two-months. Oil changes of the construction

[11] World Bank Group, Approach Paper, An Evaluation of the World Bank Group's Support to Municipal Solid Waste Management, 2010–20, June 29, 2020

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. In addition, since there is an infirmary at the project site and in case of any incident during the activities, the existing infirmary will be used primarily for possible medical interventions, and then hospitals / health centres in Sincan District will be used if necessary. Within the scope of the Project, there will be no significant amount of medical waste generation at the site. Medical waste is sent to the ITC Sincan branch and disposed of by incineration.

In order to determine the amount of municipal waste to be generated at site, the average daily municipal waste per person in Ankara is taken as 0.93 kg according to the municipal waste statistics of TurkStat in year 2022. The estimated amount of municipal waste to be generated during the pre-construction phase and construction phase of the Project, based on the number of people working, is given below. This amount includes also separately collected fractions such as paper, cardboard, glass, metal, plastic, etc. together with biodegradable wastes.

For pre-construction phase:

5 people x 0.93 kg/person/day = 4.65 kg/day

No significant impact resulting from waste generation is expected due to the nature and scale of the Project, as explained above. Therefore, the impact is assessed as direct and negative with short term duration, local and *low* significance. However, mitigation measures proposed in Chapter 8.2 in order to prevent and/or minimize likely impacts will be implemented.

7.1.10.2 Construction Phase

To reduce negative environmental effects, it is critical to use environmentally friendly construction methods, follow environmental rules, and continuously analyze and improve procedures throughout the project's lifecycle. Environmental impact assessments and extensive planning during the pre-construction phase are critical in striking a balance between construction needs and environmental preservation.

Hazardous waste will be stored in special compartments in the Waste Collection Centre allocated for this purpose, in containers, separated from the non-hazardous waste as indicated in Waste Management Regulation. This area will have an impermeable base/ground and will be protected from the surface flows and rain. Additionally, necessary drainage for the area will be provided. Hazardous wastes will be collected and disposed of by licensed companies. ASO 2-3 OIZ will be responsible for selecting a company licensed by the MoEUCC to transfer hazardous wastes.

Table 23 lists the types of waste that can be generated during the pre-construction phase and construction phase of the Project and their waste codes according to the waste lists given in the annexes of the Waste Management Regulation

Table 23 List of Possible Waste Types to be generated during Pre-construction and Construction Phase of the Project

Waste Code	Definition of Waste Code
13	**Oil Wastes and Liquid Fuel Waste (Excluding Edible Oils, 05 and 12)**
13 02	Waste Engine, Transmission and Lubrication Oils
15	**Waste Packages, Unspecified Absorbents, Wipes, Filter Materials and Protective Clothing**
15 01	Packaging Waste (Including Packaging Waste Separately Collected by the Municipality)
15 02	Absorbents, Filter Materials, Cleaning Cloths and Protective Clothing

Waste Code	Definition of Waste Code
16	**Waste Not Specified Otherwise in the List**
16 06	Batteries and Accumulators
17	**Construction and Demolition Waste (Including Excavations from Contaminated Sites)**
17 01	Concrete, Brick, Tile and Ceramic
17 02	Wood, Glass and Plastic
17 04	Metals (Including Alloys)
17 05	Soil (Including Excavations from Contaminated Sites), Stones and Dredging Sludge
17 09	Other Construction and Demolition Waste
20	**Municipal Waste Including Separately Collected Fractions (Domestic and Similar Commercial, Industrial and Institutional Waste)**
20 01	Separately Collected Fractions (Except 15 01)
20 03	Other Municipal Waste

Municipal waste within the scope of the Waste Management Regulation is referred to as domestic waste or commercial, industrial and institutional waste similar to domestic waste in terms of its content or structure, which are defined with waste code of 20, in the Waste List given in Annex-4 of the Regulation and of whose management responsibility belongs to the Municipality. Therefore, these types of waste will be stored separately from hazardous waste and recyclable waste and will be collected regularly by the municipality. Solid waste generated in the Industrial Zone is collected by Industrial Zone personnel (8 staff) and vehicles (3 garbage trucks, 1 van) and transported to the disposal facility. Domestic waste is sent to the ITC Sincan branch. The waste is disposed of through either biometanization or incineration processes. Medical waste is sent to the ITC Sincan branch and disposed of by incineration. Mixed packaging waste is sent to Mert Oğulları Recycling Company.

In order to determine the amount of municipal waste to be generated at site, the average daily municipal waste per person in Ankara is taken as 0.93 kg according to the municipal waste statistics of TurkStat in year 2022. The estimated amount of municipal waste to be generated during the construction phase of the Project, based on the number of people working, is given below. This amount includes also separately collected fractions such as paper, cardboard, glass, metal, plastic, etc. together with biodegradable wastes:

50 people x 0.93 kg/person/day= 46.5 kg/day

There will be no cafeteria at the site of the construction. As a result, no food preparation-related waste is envisaged. The catering will be outsourced by the construction contractor.

Waste Declaration of ASO 2-3 OIZ for 2023 is given in Annex-14. The waste load that the Project will generate during the construction phase will be negligible compared to the amount of waste generated throughout the OIZ.

Waste vegetable oil will not be generated at the site during the construction activities as meals for the staff will be provided by catering companies. End-of-life tire generation and storage will not take place due to the fact that the tire changes of the construction machines and other vehicles to be used at this stage will be carried out at the facilities in the region providing service for this purpose. In addition, since there is an infirmary at the project site and in case of any incident during the activities, the existing infirmary will be used primarily for possible medical interventions, and then hospitals / health centres in Sincan District will be used if necessary. Within the scope of the Project, there will be no significant amount of medical waste generation at the site.

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

The annual amount of waste battery per person in Türkiye is 4-5 and this value corresponds to 135 grams (TAP, 2016). According to this, the annual waste battery production of 50 people to be employed during the construction phase of the Project is calculated as: 3.125 kg (1 year x 135 gram/year-person x 50 person = 6.750 kg).

The excavation to be generated during the construction of the Advanced Environmental Laboratory will be disposed of in the areas determined by both the Metropolitan Municipality and the District Municipality as specified in the "Regulation on the Control of Excavation Soil, Construction and Demolition Wastes". The construction contractor will take the excavation to the excavation dumping site of the Municipality (Sincan Polatlar Neighbourhood) and dispose of it.

No significant impact resulting from waste generation is expected due to the nature and scale of the Project, as explained above. Therefore, the impact is assessed as direct and negative with short term duration, local and *low* significance. However, mitigation measures proposed in Chapter 8.2 in order to prevent and/or minimize likely impacts will be implemented.

7.1.10.3 Operation Phase

In environmental laboratories, different wastes are generated according to the analyses performed and the analysis methods used. The majority of these wastes are chemical and biological wastes.

Biological wastes generated in environmental laboratories can be thrown away after sterilisation. Devices and batteries in the other waste group are collected and recycled separately. Therefore, it is more important that the collection, storage and disposal of chemical, especially hazardous chemical wastes generated in environmental laboratories are carried out properly.

Hazardous chemical wastes generated in environmental laboratories can be divided into two groups as wastes from experiments and other wastes. Wastes generated as a result of experiments include solutions prepared and not used for experiments and wastes generated as a result of analysis. Experiments other than conventional parameters (COD, sulphate, metals, total phosphorus, ammonia/total kjeldahl nitrogen) are mostly carried out for special research. When different experiments are carried out in research laboratories, it should be considered whether they contain hazardous substances.

Acids and bases contaminated in the laboratory, expired and hazardous chemicals, improperly prepared or standardized chemical solutions, all kinds of materials (gloves, masks, aprons, cleaning cloths, etc.) contaminated with hazardous chemicals or biologically contaminated can be counted in this class. In addition, wastes contaminated with hazardous substances such as chemical packaging, waste oils, empty pressure vessels, filters, activated carbon and silica gel can also be included in this group.

Biological liquid and solid wastes should be collected in containers suitable for autoclaving (e.g. autoclave bag). At the end of the work, it should be sterilised in the autoclave without waiting for it to fill up. Sharps must be collected in containers marked "biohazard" and disposed of after sterilisation. If sterilisation is not possible, they should be disinfected using 1/10 bleach. In biotechnology laboratories, if the ethidium bromide content in electrophoresis gels for microorganism species determination is >0.1%, it should be collected in sealed containers marked as hazardous waste. Ethidium bromide solutions should be kept in closed bottles and the filter matrix should be disposed of if it is separated from the solution.

Chemical wastes consist of either contaminated or expired chemicals and liquid wastes. Since liquid wastes will be exposed to expansion due to extreme heat or cold, the containers should not be filled completely. Care should be taken to ensure that the containers to be used in the collection of laboratory waste are suitable for the type of waste. The container used for liquid wastes must be leak-proof, unbreakable and capped. Chemical resistant containers should be preferred for chemical wastes. These containers should be stored in a well-ventilated place, taking into account the reactions that may occur

over time. If liquids are to be stored in a glass bottle, they should be 5 L; if they are to be stored in an unbreakable container, they should have a maximum volume of 10 L.

The container(s) in which hazardous chemical wastes are collected must be sealed, kept closed (no filling funnel should be left at the inlet opening of the container) and a secondary container must be used. The information on the label must be kept up to date. Under no circumstances should radioactive waste be mixed with chemical waste. Waste containers should be kept closed. For this purpose, containers with lids should be preferred. If this is not possible, it should be closed using parafilm etc.

If the broken glass is clean, it should be collected in a sturdy box and recycled. It should not be left in the rubbish bin in the office or laboratory so that the collecting personnel are not harmed by broken glass. If the broken glass is contaminated with chemicals, it should be treated and managed as hazardous waste.

Non-hazardous inorganic chemicals such as sulphates, phosphates, carbonates, oxides and borates can be diluted in accordance with the standards and discharged into the sewerage system. Neutralisation by pH adjustment before discharge to the sewerage system may be beneficial for the nature of the waste and the sewerage system. For example, some acid wastes can be neutralised if they do not contain organic or metal-based hazardous wastes.

Containers used for toxic hazardous waste should not be rinsed with water and should be managed as hazardous waste. Other containers should be disposed of by shaking with water 3 times. Wastes with unknown properties should be treated as hazardous waste. If a suitable class cannot be determined according to the waste collection scheme, the relevant waste should be collected in a separate container and the necessary information should be written.

If a suitable class cannot be determined according to the waste collection scheme, the relevant waste should be collected in a separate container provided that it is suitable and the necessary information should be written. In addition, it is important to consider the information in Table 24 and Table 25 when determining the container where the waste will be collected in order to minimise/prevent the risks that may occur.

Table 24 Chemical Wastes

Chemicals	Do not mix with
Activated Carbon	Calcium Hypochlorite, oxidizing agents
Alkali Metals	Water, carbon tetrachloride, halogenoalkanes, carbon dioxide, halogens
Ammonia	Mercury, chlorine, iodine, bromine, calcium hypochlorite, hydrofluoric acid
Ammonium nitrate	Metals in powder form, flammable liquids, sulfur, chlorates, all acids, nitrates, fine grained organic or flammable substances
Aniline	Hydrogen peroxide, nitric acid
Acetic acid	Chromic acid, nitric acid, hydroxyl compounds, ethylene glycol, perchloric acid, peroxides, permanganates
Acetylene	Fluorine, chlorine, bromine, copper, mercury, silver
Acetone	Concentrated nitric acid, concentrated sulfuric acid
Azide	Acids
Copper	Acetylene, hydrogen peroxide
Bromine	Ammonia, acetylene, butane and other petroleum gases, turpentine, benzene
Mercury	Acetylene, ammonia, fulminic acid
Fluorine	All substances
Phosphor (white)	Air, oxygen, reducing agents, alkalis
Silver	Acetylene, oxalic acid, tartaric acid, ammonium compounds, fulminic acid
Hydrofluoric Acid	Ammonia
Hydrogen peroxide	Copper, chromium, iron, metal and metal salts, flammable liquids, aniline, nitromethane, alcohols, acetone, organic compounds
Hydrogen sulfide	Nitric acid, oxidizing agents
Hydrocarbons	Fluorine, chlorine, bromine, chromic acid, sodium peroxide
Hydrocyanic Acid	Nitric acid, alkalis
İodine	Acetylene, ammonia, hydrogen
Calcium Oxide	Water
Chlorine	Ammonia, acetylene, butane and other petroleum gases, turpentine
Chlorates	Ammonium salts, acids, metal powders, sulfur, fine grained organic or flammable substances

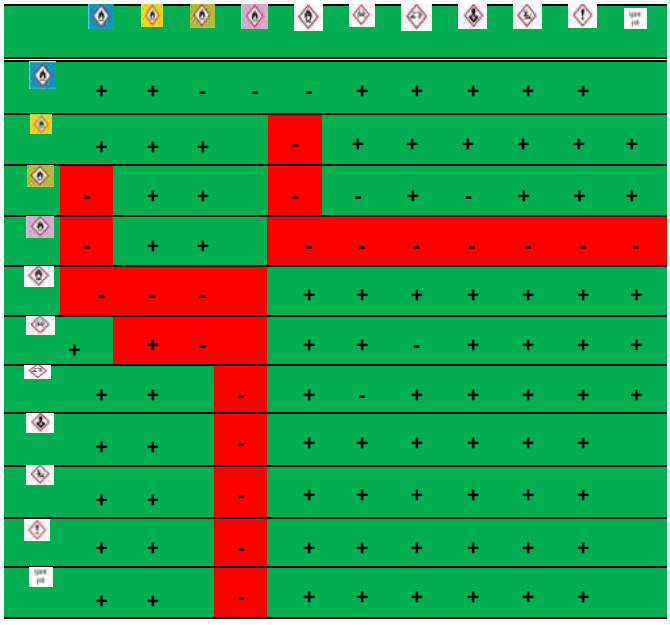
Chemicals	Do not mix with
Chromic Acid and Chromium	Acetic acid, naphthalene, camphor, glycerin/glycerol, alcohols, flammable liquids, petroleum benzene
Hydrogen Sulfide	Nitric acid, oxidant gases
Nitrates	Sulfuric acid
Nitric Acid	Acetic acid, aniline, chromic acid, hydrocyanic acid, hydrogen sulfide, flammable liquids and gases, copper, heavy metals
Oxygen	Oils, grease, hydrogen, flammable liquids, flammable solids and gases
Oxalic Acid	Silver, mercury
Perchloric Acid	Acetic anhydrite, bismuth and bismuth components, alcohols, paper, wood, oil
Peroxides	Acids
Potassium	Carbon tetrachloride, carbon dioxide, water
Potassium Permanganate	Glycerin, ethylene glycol, benzaldehyde, sulfuric acid
Selenides	Reducing agents
Sodium Peroxide	Ethyl and methyl alcohol, glacial acetic acid, acetic anhydride, benzaldehyde, carbon disulfide, glycerin, ethylene glycol, ethylene acetate, methyl acetate, furfural
Sodium Nitrate	Ammonium nitrate, other ammonium salts
Sulfuric Acid	Chlorates, perchlorates, permanganates
Flammable liquids	Ammonium nitrate, chromic acid, hydrogen peroxide, nitric acid, halogens, sodium peroxide, other oxidizing agents

Compatible and incompatible chemicals/wastes can be determined according to 4 parameters:

1. State of Substance: Should be classified as solid and liquid. They should not be mixed in the storage of wastes. Storing according to the state of the substance reduces the risk of danger in case of leakage or spillage.
2. Chemical Structure: Consideration of chemical structure is important in the storage of corrosive and oxidising chemicals. Organics and inorganics should be stored separately.
3. pH Value: It can be analysed in 3 groups as pH<4, pH 4-10, pH>10.
4. Hazard Classification: Hazard class can be determined by looking at the chemical's safety data sheet (MSDS). If it falls into more than one hazard class, then it is included in the prominent hazard class in the chemical's safety data sheet (MSDS).

The chemical storage matrix given in Table 25 can be applied for wastes.

Table 25 Matrix of Storage of Chemicals/Waste



- flammable liquids and aerosols (Class 3);

flammable solids and self-reactive substances (Class 4.1);

- substances liable to spontaneous combustion (Class 4.2);
- substances emitting flammable gases on contact with water (Class 4.3);
- may be stored together;
- may not be stored together.

The area used for temporary storage must be equipped with a hazard warning sign at the entrance and safety precautions such as locked, sealed floor, proper ventilation, fire precautions, etc. Maximum 200 litres should be stored temporarily and stored for a maximum of 6 months. Containers should be checked weekly for leaks. Glass bottles containing hazardous waste and waste containing strong acids and

bases should be kept on shelves close to the floor due to the risk of falling. In addition, collected waste should be recorded to ensure planned management.

The best strategy in laboratory waste management is to take these objectives into account in the purchasing process to ensure maximum safety and minimise environmental impacts. For this, laboratory personnel should be familiar with the physical and chemical properties of chemicals. It is the responsibility of laboratory personnel to determine the hazard level of the waste, the correct waste classification, and the appropriate management, minimisation and disposal strategies.

In the operation phase, 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 waste generation. Vehicles and employees of the Industrial Zone gather and deliver solid waste produced there to the disposal facility. The ITC Sincan branch receives domestic garbage. Incineration or biometanization are the methods used to get rid of the trash. The ITC Sincan branch receives medical waste, which is then burned for disposal. Waste containing mixed packaging is delivered to Mert Oğulları Recycling Company.

During the operation phase of the project, 15 people are expected to work in the laboratory. Therefore, municipal waste generation will be

15 people x 0.93 kg/person/day= 13.95 kg/day

During the operation phase of the Project, a limited amount of waste oil will be generated during the maintenance and repair of laboratory equipment.

Table 26 lists the waste types and waste codes that may occur during the operational phase of the project, according to the waste lists given in the Waste Management Regulation's Annex. The wastes generated during the operation phase will be stored in a temporary waste storage area.

Table 26 List of Possible Hazardous Waste Types to be generated during Operation Phase

Waste code	Waste code Description	Activity Area	Formed waste
08 03 17	Waste printing toners containing hazardous substances	Administrative Building/Office	Toner boxes, cartridges
15 01 10	Packages containing residues of hazardous substances or contaminated with hazardous substances	Process	Contaminated packaging
15 02 02	Absorbents contaminated with hazardous substances, filter materials (oil filters if not otherwise specified), cleaning cloths, protective clothing	Infirmary	Gloves, protective clothing, oil filters, etc.
16 05 06	Laboratory chemicals consisting of or containing hazardous substances, including mixtures of laboratory chemicals	Lab	Lab chemicals
18 01 03	Wastes whose collection and disposal are subject to special treatment in order to prevent infection	Infirmary	Cotton, plaster, band-aid, tongue stick etc. waste
19 08 10	Oil mixtures and grease from oil and water separation other than 19 08 09	WWTP	Oil mixes and grease
19 08 11	Sludges containing hazardous substances resulting from biological treatment of industrial wastewater	WWTP	Waste Sludge
19 08 13	Sludges containing hazardous substances resulting from the treatment of industrial wastewater by other methods	WWTP	Waste Sludge
20 01 21	Fluorescent lamps and other mercury-containing waste	Administrative Building /Office	Waste fluorescent
20 01 33	(batteries and accumulators under 16 06 01, 16 06 02 or 16 06 03 and unclassified mixed batteries and accumulators containing these batteries)	Administrative Building /Office	Waste battery

Table 27 List of Possible Non-Hazardous Waste Types to be generated during Operation Phase

Waste code	Waste code Description	Activity Area	Formed waste
15 01 06	Mixed Packaging	Administrative Building /Office-WWTP	Mixed Packaging
20 01 40	Metals	Maintenance/Repair	Metal scrap
19 08 01	Sieve above substances	WWTP	Domestic waste
19 08 02	Sand separation waste resulting from the process	WWTP	Sand waste

The green building concept of the project will provide benefits such as 24-30% reduction in energy consumption and 70% reduction in solid waste. Therefore, the impact is assessed as direct, long-term, local and *positive in terms of resource utilisation and the amount of solid waste generated*. However, mitigation measures recommended in Chapter 8 will be implemented to avoid and/or minimise potential negative impacts.

7.1.11 Pesticide Use and Management

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

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

In addition, for any project involving significant pest management issues or any project contemplating activities that may lead to significant pest and pesticide management issues. All phases of the project will meet ESS1 and ESS3 in terms of pesticide use and management.

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

7.1.11.1 Pre-Construction and Construction Phases:

There will be soil removal and relocation during the land preparation and construction phases. Therefore, pesticide control during these phases on formerly agricultural land involves management and mitigation requirement for environmental and health risks if there is a historical pesticide use because pesticides will not be used in these phases. Pesticide-free construction practices are adopted to prevent the introduction of new pesticides, accompanied by worker training on safety and proper handling. Ongoing monitoring 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.

In case pesticides are used, the impact will be negative, direct, on-site and long term. 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. Therefore, the occurrence of an effect is unlikely.

7.1.11.2 Operation Phase:

If there are any green spaces or landscaping in an industrial location, pest control measures, such as the use of pesticides, may be required. Stormwater runoff from the industrial zone may carry pesticides into nearby aquatic bodies. By using effective stormwater management techniques, this risk can be reduced. The maintenance of utilities, roads, and other infrastructure may require the use of herbicides to control vegetation. Pesticide spills during transit could happen if they are utilized for landscaping or other objectives.

Pesticide use in an advanced environmental laboratory requires stringent safety measures, effective waste management, and adherence to regulatory standards. By implementing proper handling, storage, and disposal practices, laboratories can mitigate the risks associated with pesticide use and ensure the safety of their personnel and the environment. The following safety and handling procedure should be followed in case of use:

- Lab personnel must wear appropriate PPE, including gloves, lab coats, safety glasses, and, when necessary, respirators to protect against exposure to pesticides.
- For handling highly toxic pesticides, additional PPE such as chemical-resistant suits or full-face respirators may be required.
- Pesticides should be stored in a secure, designated area, such as a locked cabinet or a chemical storage room, away from food, drink, and incompatible chemicals.
- All pesticide containers must be clearly labeled with the name of the pesticide, active ingredients, hazard warnings, and the date of receipt or preparation.
- Pesticides, especially volatile or hazardous types, should be handled in a fume hood or under similar ventilation to prevent inhalation exposure.
- Only the minimum necessary amount of pesticide should be handled at any one time to reduce the risk of spills or accidental exposure.
- Immediate and proper spill cleanup procedures should be in place, including the use of spill kits specifically designed for chemical or pesticide spills.
- Labs where pesticides are used should be equipped with adequate ventilation systems to prevent the accumulation of pesticide vapors and ensure a safe working environment.
- Local exhaust systems, such as fume hoods or snorkels, should be used when handling pesticides that emit fumes or fine particulates.
- Experiments involving pesticides should be conducted in closed systems or containment units to prevent the release of pesticides into the laboratory environment.
- Work surfaces where pesticides are handled should have secondary containment (e.g., trays or liners) to catch any spills or leaks.

It is considered to have *negligible* impact significance with the implementation of the mitigation measures given above.

7.1.12 Natural Disaster Potential

7.1.12.1 Pre-Construction Phase

Ankara province is located in an area with low earthquake risk. Still, the construction of the laboratory will be carried out in accordance with the Building Earthquake Regulations. Considering the project's scale, the project's impacts alone are not sufficiently affecting its environment to trigger or significantly contribute to another trigger of any natural disaster, therefore assessed as *negligible* in significance on natural disasters. Pre-construction phase of the project will meet ESS1 in term of natural disaster potential.

7.1.12.2 Construction Phase

Ankara province is located in an area with low earthquake risk. Still, the construction of the laboratory will be carried out in accordance with the Building Earthquake Regulations. Considering the project's scale, the project's impacts alone are not sufficiently affecting its environment to trigger or significantly contribute to another trigger of any natural disaster, therefore assessed as negligible in significance on natural disasters. Construction phase of the project will meet ESS1 in term of natural disaster potential.

7.1.12.3 Operation Phase

Ankara province is located in an area with low earthquake risk. Still, the construction of the laboratory will be carried out in accordance with the Building Earthquake Regulations. Considering the project's scale, the project's impacts alone are not sufficiently affecting its environment to trigger or significantly contribute to another trigger of any natural disaster, therefore assessed as negligible in significance on natural disasters. Operation phase of the project will meet ESS1 in term of natural disaster potential.

7.1.13 Biodiversity and Protected Areas

In this section, the sensitivity of terrestrial and aquatic ecosystems, as well as the identified flora and fauna species within the project and impact areas will be assessed, followed by a magnitude impact on biodiversity and impact assessment. All phases of the project will meet ESS6 requirements in terms of biodiversity and protected areas.

The Project areas will not be located within any internationally recognized areas of high biodiversity value (such as World Heritage Natural Sites, Biosphere Reserves, Ramsar Wetlands of International Importance, Key Biodiversity Areas, Important Bird Areas, and Alliance for Zero Extinction Sites. The nearest internationally recognised site is Lake Mogan, 25 kilometres away. Lake Mogan is designated as an Important Bird Areas (IBA).

Critical Habitat

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

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

The level of sensitivity of species and habitats are determined according to Table 28, and for the evaluation of the significance of the impacts on biodiversity of pre-construction, construction and operation phases of the project, the categorization matrix given in Chapter 4 is used.

Determining the ecological sensitivity criteria, the criteria used in defining critical habitat in WB ESS6 Guidance Note are considered. Accordingly, if a biodiversity component meets the critical habitat criteria; its sensitivity is evaluated as "High". Habitats and species that are globally widespread but locally or nationally protected species are assessed as "Medium" sensitivity. Natural habitats that do not meet the criteria for either medium or high sensitivity are assessed as low sensitivity. The criteria are also explained in Table 28.

Table 28 Criteria for Sensitivity/Value of Resource/Receptor (Ecology and Biodiversity)

Ecosystem Component	Sensitivity/Value Level		
	High (3)	**Medium (2)**	**Low (1)**
Designated Areas	• Areas that meet the criteria of the IUCN's Protected Area Categories Ia, Ib and II. • Key Biodiversity Areas (KBAs), which encompass Important Bird and Biodiversity Areas (IBAs). • UNESCO Natural and Mixed World Heritage Sites. • Sites that fit the designation criteria of the Alliance for Zero Extinction (AZE).	Nationally designated areas	N/A
Habitats	• Habitats that trigger critical habitat under the (d) and (e) criteria. • Habitats that support species of High sensitivity.	Areas of habitat that represent >1% distribution within Türkiye or are threatened at a national	Natural habitats that do not meet the criteria for either medium or high sensitivity.

Ecosystem Component	Sensitivity/Value Level		
	High (3)	Medium (2)	Low (1)
		level. Habitats that support species of Medium sensitivity.	Habitats that support species of Low sensitivity.
Species	• Species populations that trigger critical habitat under the (a), (b) and (c) criteria	Nationally/ regionally important concentrations of a Vulnerable (VU) species, or locally important concentrations of Critically Endangered (CR) and/or Endangered (EN) species. Locally important populations of endemic / rangerestricted species. Populations of migratory species that represent >1 % of the national population.	Locally important populations of Near Threatened (NT) or Vulnerable (VU) species, or locally important populations of species listed on Annexes to the Bern Convention.

The sensitivity/value assessment of the resources/receptors in the Project area revealed that

(i) project area is not located within any designated protected areas,

(ii) there are habitats that do not meet the criteria for medium or high sensitivity and support species with low sensitivity, and

(iii) there are locally important populations of Near Threatened (NT) or Vulnerable (VU) species or locally important populations of species listed in the Annexes of the Bern Convention.

Consequently, considering the 3 different ecosystem components given in Table 28, it can be said that the ecological receptors in the project area have low sensitivity/value.

ASO 2-3 OIZ will avoid adverse impacts on biodiversity and habitats. When avoidance of adverse impacts is not possible, ASO 2-3 OIZ will implement measures to minimize adverse impacts and restore biodiversity in accordance with the mitigation hierarchy provided in ESS1 and with the requirements of ESS6. When necessary, ASO 2-3 OIZ will ensure that competent biodiversity expertise is utilized to conduct the environmental and social assessment and the verification of the effectiveness and feasibility of mitigation measures. Where significant risks and adverse impacts on biodiversity have been identified, a Biodiversity Management Plan will be developed and implemented.

7.1.13.1 As a result, in assessment according to Table 28, terrestrial and aquatic habitats and flora and fauna species determined in the Project Area are considered not sensitive. Pre-Construction Phase

The primary impact of the Project on terrestrial habitats and flora species will be in the pre-construction period. Topsoil stripping will be carried out during the pre-construction phase, and this will cause the populations and habitats of the flora species 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 in the previous title, the habitat and flora species identified in the Project Area are not considered sensitive. As a result, the Project's impact on terrestrial flora species and habitats during the pre-construction phase is considered *low.*

Terrestrial fauna species in the Project Area and its vicinity will be affected by disturbance from pre-construction activities because of topsoil stripping and habitat loss. The fauna species that depend partly or totally on the habitats to be lost are the ones that will be mainly affected by the Project. The fauna

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

The impacts of pre-construction activities on fauna can be considered as follows: First is the direct impacts because of the degradation and loss of habitats due to pre-construction activities. Indirect impacts are disturbances from noise, dust and human activity in the pre-construction area. Secondly, impact of the pre-construction phase will be the vehicle traffic. The fauna species which have limited mobility will be prone to fauna mortality. All these effects can be eliminated by taking appropriate measures (see Chapter 8).

Most fauna species will leave the construction sites due to pre-construction impacts and move towards similar habitats in the immediate vicinity. As a result, the Project's impact on terrestrial fauna species during the pre-construction phase is considered *negligible*.

7.1.13.2 Construction Phase

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 phase is considered *low*.

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 *negligible.*

7.1.13.3 Operation Phase

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.*

7.2 Social Impacts of the Project

7.2.1 Population/Demography

7.2.1.1 Construction Phase

It is foreseen that the Project will create temporary employment. It is planned to employ fifty (50) personnel during the construction phase of the project. The construction of the advanced environmental laboratory is planned to take twelve (12) months from the date of project approval.

As the construction activities of the Project will be carried out in ASO 2-3 OIZ which is about 5.5 km from Sincan City centre, it is anticipated by ASO 2-3 OIZ that no accommodation facilities will be constructed for the workers within the scope of the Project. Rental accommodation residences in the city centre will be considered. No negative impact is expected from the Project in terms of population level in the settlements expected to be affected during the construction phase of the Project.

However, containers can be placed in the Project area for those who will work on the Project to rest, eat and for sanitary facilities.

Labour influx as a result of construction is not expected during the project. The construction activities do not require additional/skilled labour from outside the locality. To avoid any negative impact on the

local community due to the presence of workers during the construction phase and their potential interaction with the local community, contractors will be responsible for providing code of conduct training to each worker. The contractor will inform all workers orally and in writing about the code of conduct during the recruitment phase and the code of conduct document will be signed. The ASO 2-3 OIZ will ensure that the contractors establish the code of conduct and check that the workers have received training on communication with the public before starting work. In order to avoid the negative impacts of any workforce influx, ASO 2-3 OIZ will take care to ensure that recruitment is from local people as much as possible, and this will be added to the terms of the contracts of the Contractor and possible subcontractors to ensure this.

As a result, no change in the population is expected due to the project.

7.2.1.2 Operation Phase

In the operation phase, 6 personnel are expected to be employed by ASO 2-3 OIZ. ASO 2-3 OIZ plans to employ all the required personnel locally. As a result, no change in the population is expected due to the project.

7.2.2 Cultural Heritage

The project area is within the boundaries of ASO 2-3 OIZ. Necessary evaluations were made by the authorized institutions and organizations related to Cultural Assets during the selection of the OIZ location. Therefore, the project will not cause alteration, damage or removal of any known cultural heritage assets and constrain access to cultural sites for the communities.

If any cultural property is found during construction (excavation) works ("chance find"), the Chance Find Procedure will be implemented, and any findings will be reported to the local authorities. Chance Find Procedure is given in Annex 9. In such cases, construction works will be stopped immediately, the area will be taken under protection, and the Ankara Cultural Heritage Conservation Regional Board Directorate will be notified. The construction works will not resume unless permitted by the relevant authority.

7.2.3 Economy/Employment

7.2.3.1 Construction Phase

It is foreseen that the Project will create temporary employment. The construction activities do not require additional/skilled labour from outside the locality. During the construction phase, it is planned to employ 50 (fifty) people. ASO 2-3 OIZ plans to employ all of the required personnel locally.

Regarding procurements of goods and services, priority will be given to contributing to the local economy through the use of local materials during the construction period and paying attention to procuring various goods and services locally.

Work permits of the workers to be employed within the operational scope of the Project will be monitored by ASO 2-3 OIZ and recruitment will be carried out within the framework of legal practices and in accordance with the Labour Management Procedures (LMP). Legal work permits will be checked, and recruitment will be carried out in accordance with the working conditions detailed in Chapter 7.2.6 during construction and operation phases. Unregistered, child or forced labour will not be allowed. Child labour and forced labour is prohibited according to Turkish law and the LMP.

7.2.3.2 Operation Phase

In the operation phase, 6 personnel are expected to be employed by ASO 2-3 OIZ. It is expected that the jobs that will be employed not directly in the facility but in the factories that will benefit from the facility will create economic development in the region. Installing the Development Project of the Advanced Environmental Laboratory Project will increase the interest in the OIZ and attract new investments.

The project will provide benefits for local communities through new employment opportunities during the construction phase and, to a lesser extent, at the operating phase, and opportunities for local businesses.

7.2.4 Vulnerable/Disadvantaged Groups

Vulnerable groups according to the information provided by the headman of neighbourhoods are presented in Chapter 6.5. Construction works for the Project will have a short-term and temporary impact. The Project does not require any relocation or land acquisition.

The project does not involve access restriction, resettlement, or physical displacement of any persons. No damage to livelihood income for the vulnerable groups is foreseen. Therefore, vulnerable/disadvantaged groups within the Project impact area are not expected to be adversely affected by the Project. Considering the social benefits (e.g. increased employment opportunities, prevention of environmental pollution) of the Project, the Project has the potential to benefit vulnerable/disadvantaged groups.

7.2.5 Land Requirement

The Project has no impact on housing and other assets and will be built on the existing OIZ area. Consensual purchase and expropriation procedures were completed in 2001. The 1/1000 scale parceling plan of the zone was approved by the Ministry of Science, Industry and Technology on 14.10.2009 and following the registration of the parceling plan in the land registry, the legal construction started in ASO 2-3 OIZ as of the beginning of 2010. On the other hand, the site selection of ASO 2nd Organised Industrial Zone Additional Area was approved by the Ministry of Science, Industry and Technology on 03.08.2012 and became final and the 1/5000 and 1/1000 scale zoning plans were approved by the Ministry of Science, Industry and Technology on 21.07.2015 and entered into force. The land where the Project area is planned is land belonging to the OIZ in 2001. No impact on resource use is expected. The Project area was included in the OIZ land 23 years ago. There are no legacy issues such outstanding title deed transfer, compensation payment, property disputes. There are no complaints/unresolved cases related to previously acquired land.

7.2.6 Working Conditions and Labour Management

Labor Management Procedures (LMP) have been prepared for Türkiye Organized Industrial Zones Project. It aims to protect workers' rights and ensure the management and control of activities that may pose labour-related risks. It describes how MoIT will comply with the requirements of World Bank Environmental and Social Standard 2 (ESS 2), "Labor and Working Conditions", and with Turkish labour, employment and occupational health and safety laws. LMP will form the basis for Contractor's Labour Management Plan(s).

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

ASO 2-3 OIZ will be responsible for human resources during the construction and operation phases. The Project will comply with national labour, social security and occupational health and safety laws and the principles and standards. The Project will comply with national labour, social security and occupational health and safety laws and the principles and standards of the International Labour Organization convention. The Project Owner is responsible for providing minimum legal labour standards as per International Labor Organization (ILO) regulations (child/forced labour, no discrimination, working hours, minimum wages). Full compliance with all Turkish Laws and International Labor Organization Conventions regarding child labour, forced labour, discrimination, freedom of association, collective bargaining, working hours and minimum wages.

ASO 2-3 OIZ will be responsible for the followings:

- Not use or employ children during the construction phase under 18 years of age,
- Not use or employ forced labour and ensure a Human Resources Policy in compliance with the European Convention on Human Rights and the Turkish Constitution,
- Elimination of discrimination based on language, race, sex, political opinion, philosophical belief, and religion in labour relations,
- Ensuring workers' access to the right to collective bargaining (Law No. 6356 on Trade Unions and 4857 Labour Law on Collective Bargaining),
- Ensure access to an effectively functioning Project grievance mechanism.
- Ensure workers are provided with written contracts containing i.a. job description, working hours, information about their rights and duties, code of conduct and information of workers' GM.
- In order to reduce the possible impacts on the neighbourhoods, facilities such as food, sanitary facilities and resting areas will be provided within the Project Area in accordance with the use of the employees.
- Review and approve the contractor's labour management plans that should be in line with the LMP prior to the construction phase,
- Review and approve the contractor's OHS plan prior to the construction phase,
- Monitor that contractors/subcontractors fulfil their obligations to contracted workers as set out in relevant procurement documents in accordance with ESS2, LMP, national labour and OHS laws, andthat workers' have access to a grievance mechanism
- Keeping records of recruitment and employment processes of direct reports,
- Monitor compliance with the prohibition of child labour, forced labour and serious safety issues in relation to primary support workers,
- Monitor the training of relevant project staff,
- Ensure that a grievance mechanism for project workers is established and implemented and that workers are informed about it,
- Monitor the training of employees on Code of Conduct and to monitor their compliance,
- Monitor that occupational health and safety standards are met in workplaces in line with national occupational health and safety legislation, ESS2 OHS requirements, occupational health and safety plan,
- Monitoring employees' compliance with work behaviour rules,
- Establish and implement a procedure for documenting specific project-related incidents such as occupational accidents, illnesses and time-loss accidents.
- In cases of severe, fatal and mass accidents, informing law enforcement, Labor Inspectorate and MoIT.

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

- Employ or engage qualified social, labour and occupational safety experts to implement the project-specific labour management plan, occupational health and safety plans and manage the performance of subcontractors,
- Develop a labour management plan for review and approval of ASO 2-3 OIZ,
- Develop an OHS plan for review and approval of ASO 2-3 OIZ,
- Ensure labour management plan and OHS plan are in place and applied by all contract and subcontracted workers,
- Supervise subcontractors' adherence to the labour management procedure and OHS plans,
- Keeping records of the recruitment and employment processes of contracted employees,
- Follow up the employment process of subcontracted workers to ensure that it is carried out in accordance with this labour management procedure and national labour law,
- Developing and implementing a grievance mechanism for employees, evaluating complaints from contracted and subcontracted workers,
- Provide written contracts to the contracted workers with job descriptions, wages, working hours, rights and duties fully described,

- Provide regular induction training to employees, including but not limited to OHS, social familiarization, Code of Conduct, Sexual Harassment/Sexual Abuse prevention training,
- Ensure that all contractor and subcontractor employees understand and sign the Code of Conduct before starting work,
- Establish and implement a procedure for recording/ documenting specific project-related incidents such as occupational accidents, illnesses and time-loss accidents,
- Notify law enforcement, Labor Inspectorate and OIZ in case of severe, fatal and mass accidents.

7.2.6.1 Construction Phase

Personnel will be employed by the Contractor during the construction phase of the Project. During the project construction, it is anticipated that 50 workers will be mobilized. Where possible, options for employment of local labour will be considered. Child labour and forced labour shall be prohibited. All Turkish Laws and International Labor Organization (ILO) Conventions on child labour, forced labour, discrimination, freedom of association and the right to collective bargaining will be complied with.

Labour flow is a risk arising from the prolonged stay of workers during construction. A labour force of fifty personnel shall be required during the construction phase of the project. However, since the number of personnel to work on the project is limited, no labour flow is expected. To the extent possible, labour and other employees shall be recruited locally. However, there may be employees who are experts in their fields and come from outside the city, and they will require accommodation. Rental accommodation residences in the city centre will be considered.

7.2.6.2 Operation Phase

A labour force of 6 personnel shall be required during the operation phase of the project. However, since the number of personnel to work on the project is limited, no labour flow is expected. ASO 2-3 OIZ plans to employ all of the required personnel locally. Child labour and forced labour shall be prohibited. All Turkish Laws and International Labor Organization (ILO) Conventions on child labour, forced labour, discrimination, freedom of association and the right to collective bargaining will be complied with.

7.2.6.3 Training

On-the-job and OHS training of all employees will be given and recorded within the scope of 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.

According to LMP, project workers will receive OHS training at the beginning of their employment, as induction, and regularly thereafter, to cover legislative requirements. Training will cover the relevant aspects of OHS associated with daily work, including the ability to stop work without imminent danger and respond to emergencies.

The consultant will also provide training to the personnel about environmental and social standards of the project, ESMP and SEP. The Contractor shall inform its personnel, subject to the supervision of the ASO 2-3 OIZ, on the implementation of all measures to prevent and/or minimize environmental and social impacts during construction.

Training on the code of conduct will be provided to workers. The scope of the Code of Conduct will be:

- General conditions
- Human rights and labour rights
- International humanitarian law
- Protection of the environment
- Anti-corruption
- Prevention of Gender-Based Violence (GBV), Sexual Harassment, Sexual Exploitation and Abuse (SH/SEA)

- Grievance Mechanism

The contractor will also provide prevention of GBV, SEA/SH and GM trainings to the employees. The scope of this training will be:

- Gender-Based Violence (GBV), Sexual Harassment, Sexual Exploitation and Abuse
- Grievance Mechanism.

Training will be repeated at regular intervals, taking into account the changing and emerging new risks specified in the Regulation on the Procedures and Principles of Occupational Health and Safety Trainings of Employees. Information and training activities will be carried out not only for employees but also on measures to be taken for public health and safety.

Measurement and evaluation should be carried out at the end of the training. According to the results of the evaluation, it can be determined whether the training is effective or not and if necessary, changes can be made in the training programme or trainers, or the training can be repeated.

Training records will be kept on file. These records will include a description of the training, the number of hours of training provided, training attendance records, and results of evaluations.

7.2.7 Community Health and Safety

Community Health and Safety is covered under the WB ESF ESS4. ESS4 addresses the health, safety, and security risks and impacts on project-affected communities and the corresponding responsibility of Borrowers to avoid or minimize such risks and impacts, with particular attention to people who, because of their particular circumstances, may be vulnerable.

7.2.7.1 Construction Phase

Public health and safety issues are associated with risk factors that may arise from the construction and operation periods of the Project. The following potential impacts were identified during the construction phase of the Project.

- Increased traffic and road traffic accidents and injuries,
- Impact of the project area on accessibility for the community
- Damage to existing infrastructure, increased demand on existing infrastructure and disruption of services,
- Noise and vibration,
- Threat to community culture, safety and security linked to the presence of construction workers and business opportunists
- Risk of infectious diseases such as sexually transmitted diseases due to labour flows and interaction of temporary workers with host communities,

The project area has many alternative routes for transportation. The most important transportation routes to the region are E90 motorways, Sincan-Temelli Road and OIZ internal roads. Local roads that are used to access settlements will not be used. Therefore, negative impacts related to transportation and traffic will not be caused.

The project does not involve access restriction; therefore, the project will not have an impact on accessibility for the community. The project area is within the OIZ and the OIZ has infrastructure, there is no situation that will disrupt public services in the project area.

The Project activities within the construction phase are associated with a range of activities that generate noise. Since the planned advanced environmental laboratory is in an industrial area, the closest settlements to the construction site are Alcı and Türkobası Neighbourhood, each 1.6 km away. There

exist industries in the neighbouring parcels. There are no sensitive receptors such as health centres, schools, or mosques near the Project Area.

There will be no impact on community culture and safety as there will be no interaction with society and no impact on community transportation and sensitive groups is expected. As the Project area is located within the OIZ and the OIZ is currently surrounded by fences, warning signs and additional security measures will be implemented so that access and negative impacts on public health will be prevented.

As mentioned above, the contractor will also provide prevention of GBV, SEA/SH and GM trainings to the employees. Besides awareness-raising activities will be organized for workers and security personnel to prevent cultural problems due to rude behaviour of workers and/or security personnel towards the population of the area related to gender-based violence (GBV) and sexual exploitation and abuse and sexual harassment and attitudes that disrupt the environment such as noise.

7.2.7.2 Operation Phase

Laboratories that use solvents or other volatile chemicals may release VOCs, which can contribute to air pollution and negatively impact respiratory health in the surrounding community. If not properly filtered, exhaust from fume hoods can release harmful chemicals into the environment. This can affect air quality and potentially lead to chronic health issues among nearby residents.

Spills of hazardous chemicals can seep into the ground, contaminating local water sources and posing risks to drinking water safety. Chemical spills can also contaminate soil, leading to long-term environmental damage and posing risks to food safety if local agriculture is affected.

Improper disposal of biological waste can lead to contamination of the environment with harmful pathogens, impacting both human and animal health in the community. Inadequate disposal of hazardous waste, including chemical, biological, and radiological materials, can lead to environmental contamination and pose significant health risks to the community.

Laboratories may generate wastewater containing hazardous substances. If not properly treated, these contaminants can enter local water bodies, impacting aquatic life and human health. An influx of laboratory waste into the sewage system could overwhelm local wastewater treatment facilities, leading to the release of untreated or partially treated wastewater.

During the operation phase of the project, there will be no potential impact. Entry to the project area will be prevented except for authorized persons. Wire fences for this purpose will be checked. Thus, the negative effects that may occur due to uncontrolled entry will be prevented.

Regular monitoring of air, water, and soil quality around the laboratory can help detect and address any potential contamination early, reducing risks to community health. Community health surveillance programs can help track any potential impacts on public health and provide data for continuous improvement of safety practices. Consulting community stakeholders regarding the future operation of the advanced laboratory, especially those that might impact public health and safety, can foster collaboration and trust. Implementing green chemistry principles and pollution prevention strategies can minimize the generation of hazardous substances and reduce the overall impact on the community. Regular emergency drills, involving both laboratory personnel and local emergency services, can ensure preparedness for potential incidents and improve response times.

- Regular risk assessments should be carried out to identify potential hazards and assess the risks these hazards pose to the community.
- Advanced pollution control technologies should be implemented to minimise the release of harmful substances into the environment.
- Advanced treatment systems should be used to ensure that all effluents and emissions are treated to meet or exceed environmental and health safety standards before release.
- Safe storage facilities for hazardous chemicals should be designed and maintained, with appropriate containment measures to prevent leaks or spills.
- Comprehensive emergency response plans should be developed to cover potential incidents such as chemical spills, fires and accidental releases.

- Health surveillance programmes should be implemented to monitor potential health impacts on the community and collaborate with public health agencies to address concerns.
- Noise reduction technologies should be installed to minimise noise pollution and noisy activities should be scheduled during daylight hours.
- Regularly train staff on health and safety protocols, including emergency response and community engagement practices.
- Regular safety audits should be carried out to identify potential gaps in health and safety practices and take corrective action where necessary.

With the implementation of the mitigation measures presented above and in Chapter 8, Project impacts on community health and safety will be direct and adverse, short-term and of low significance.

7.2.8 Traffic and Transportation

The project area has many alternative routes for transportation. The most important transportation routes to the region are E90 motorways, Sincan-Temelli Road and OIZ internal roads. Local roads that are used to access settlements will not be used.

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.

However general measures such as driver training, speed limits, limiting unnecessary use of noisy equipment, etc. will be implemented.

7.2.8.1 Construction Phase

The transportation of the construction materials to and from construction sites, vehicle movement during the construction activities and need to relocate services/utilities (and therefore dig up roads and access ways) will create temporary traffic disruptions, disturbances for the local community and pose a risk to pedestrians.

Local roads used to access settlements will not be used. Therefore, negative impacts related to transportation and traffic will not be caused. However general measures such as driver training, speed limits, limiting unnecessary use of noisy equipment, etc. will be implemented. Maintenance of the construction machinery will be followed and contractor will install all signs, barriers and control devices needed to ensure the safe use of the road by traffic and pedestrians.

7.2.8.2 Operation Phase

The Project will not cause any transportation/traffic problems. Transportation to the project site will be made via the existing road in the existing WWTP parcel and existing environmental laboratory, which belongs to the OIZ.

It is expected that 15 people will be employed by ASO 2-3 OIZ in the advanced environmental laboratory during the operation phase. No traffic impact is expected during the operation phase of the Project.

7.2.9 Occupational Health and Safety

During the construction of the Project, the general OHS risks will be working at height, moving objects, slips, trips and falls, noise, material & manual handling, collapse, electricity, etc. One of the most common hazards on construction sites is the risk of falls from heights. Electrical hazards are also a concern, as workers may come into contact with exposed wiring or electrical equipment, resulting in electric shocks or burns. Heavy machinery is another major risk on construction sites, as workers can be struck by or caught in machinery, leading to serious injury or even death. To reduce these risks, employers should provide proper training and safety equipment, such as reflective clothing and hard hats, and enforce strict safety protocols. Dust and other airborne pollutants are also a concern on

construction sites, as they can cause respiratory issues for workers and nearby residents. Respiratory protection such as dust masks or respirators should be provided to reduce these risks and exposure to these pollutants should be limited.

For the construction period, emergency plans and procedures will be implemented by the Contractor according to the national legislation. The OIZ will prepare its emergency plans to support the establishments for the operation phase.

National laws/ regulations and international conventions/ standards related with Occupational Health and Safety are;

- Law on Occupational Health and Safety (No. 6331, Published on Official Gazette dated: 30.06.2012),
- Labor Law (No. 4857, Published on Official Gazette dated: 10.06.2003),
- Law of Obligations (No. 6098, Published on Official Gazette dated: 04.02.2011)
- General Health Law (No. 1590, on Official Gazette dated: 06.05.1930)
- Social Insurance and General Health Insurance Law (No. 5510, Published on Official Gazette dated: 16.06.2006)
- Regulation on Occupational Safety and Health Services (No: 28512, Published on Official Gazette dated: 29.12.2012)
- Regulation on Duties, Rights and Responsibilities of OSEs (No: 28512, Published on Official Gazette dated: 29.12.2012),
- Regulation on Occupational Health and Safety in Construction Works (No: 28786, Published on Official Gazette dated: 05.10.2013),
- Regulation on the Use of Personal Protection Equipment at Workplaces (No: 28695 Published on Official Gazette dated: 02.07.2013),
- Regulation on Emergency Situations in Workplaces (No: 28681, Published on Official Gazette dated: 18.06.2013),
- Regulation on the Procedures and Principles of Occupational Health and Safety Training of Employees (No: 18371, Published on Official Gazette dated: 15.05.2013),
- Regulation on Health and Safety Precautions Regarding Working with Chemicals (No: 28733, Published on Official Gazette dated: 12.08.2013),
- Regulation on the Protection of Workers from Noise Related Risks (No: 28721, Published on Official Gazette dated: 28.07.2013),
- Regulation on the Protection of Workers from Vibration Related Risks (No: 28743, Published on Official Gazette dated: 22.08.2013),
- Regulation on Protection of Workers from Explosive Hazards (Published on Official Gazette dated: 30.04.2013, numbered: 28633)
- Regulation on Management of Dust (Published on Official Gazette dated: 05.11.2013, numbered: 28812),
- Regulation on Health and Safety Signs (Published on Official Gazette dated: 11.09.2013, numbered: 28762),
- Regulation on the Occupational Health and Safety for Temporary or Fixed Term Jobs (Published on Official Gazette dated: 23.08.2013, numbered: 28744),
- First Aid Regulation (Published on Official Gazette dated: 29.07.2015, numbered: 29429),
- Regulation on Personal Protection Equipment (Published on Official Gazette dated: 01.05.2019, numbered: 30761),
- Manual Handling Operations Regulation (Published on Official Gazette dated: 24.07.2013, numbered: 28717),

- Regulation on the Procedures and Principles of Employment of Children and Young Workers (Published on Official Gazette dated: 06.04.2004, numbered: 25425),
- Regulation on Risk Assessment for Occupational Health and Safety (Published on Official Gazette dated: 29.12.2012, numbered: 28512),
- Regulation on Health and Safety Conditions Regarding Use of Work Equipment (Published on Official Gazette dated: 25.04.2013, numbered: 28628),
- Communiqué on Occupational Health and Safety Hazard Classes List (Published on Official Gazette dated: 26.12.2012, numbered: 28509),
- ILO Conventions including Occupational Safety and Health Convention (No. 155), Occupational Health Services Convention (No. 161), and Safety and Health in Construction Convention (No. 167),
- WB ESS2,
- WB EHS Guidelines for Water and Sanitation,
- WB EHS Guidelines for Waste Management Facilities,
- Türkiye Organized Industrial Zones Project Labor Management Procedure.

7.2.9.1 Pre-Construction Phase

During the pre-construction phase (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(s) 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 including but not limited to:

- 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 shall 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 should 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),
- Golden rules[12] 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
- Monitoring and supervision
- Reporting
- Accident investigation .

The Occupational Health and Safety Management Plan shall 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, an Emergency Preparedness and Response Plan shall be prepared by the contractor, emergency teams shall be established, and drills and trainings shall 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.

[12] Golden rules usually address issues such as work at heights, work in confined spaces, excavation work, personal protective equipment (PPE), system of work permits, lifting, working on powered systems, traffic, work in high-risk situations, etc. Employers should define their Golden rules in accordance with the nature of work.

7.2.9.2 Construction Phase

As defined in previous section, OHS Plan that is prepared in pre-construction stage will be implemented by contractor. As a general approach, main OHS risks are summarized as follows:

7.2.9.2.1 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.

7.2.9.2.2 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.

7.2.9.2.3 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.

7.2.9.2.4 Noise

During the construction phase, noise will be generated due to excavation and construction works. This impact can be mitigated with general measures such as arranging the working hours during which the noisy activities will be carried out and providing the necessary information to the enterprise. Besides, the measures (e.g., regular maintenance of the equipment, selection of low noise machines, use of personnel protective equipment etc.) will be taken to reduce the noise to acceptable limits (below the (LEX, 8 hour) = 87 dB(A)) for the health and safety of the workers in accordance with the Regulation on Protection of the Workers from the Noise Risks (28.07.2013/28721).

These impacts will be mitigated by the implementation of the mitigation measures presented in Chapter 8.

7.2.9.2.5 Vibration

Workers will be exposed to vibration when using grinders, polishers, strimmers, chainsaws, power drills, breakers, crashers and concrete vibrators. Vibration can lead to permanent injury of the hands and arms. The vibration effect will be low for the workers.

In all applications limits mentioned in Regulation on the Protection of Workers from Vibration Related Risks will be complied with. Daily exposure action value for an eight-hour working period (the value that, if exceeded, requires controlling the risks that may arise from the employee's exposure to vibration) 2.5 m/s^2 for hand-arm vibration; 0.5 m/s^2 for whole body vibration. The daily exposure limit value for an eight-hour working period (the value to which employees should never be exposed to vibration above this value) is 5 m/s^2 for hand-arm vibration; 1.15 m/s^2 for whole body vibration.

7.2.9.3 Operation Phase

Prior to start operation, Occupational Health and Safety Management Plan will be prepared. This Plan will include the assessment of below topics as applicable:

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

As a general approach, main OHS risks are summarized as follows:

7.2.9.3.1 Chemical Hazards

Laboratory workers may be exposed to toxic chemicals through inhalation, skin contact, ingestion, or eye contact. Exposure can lead to acute or chronic health effects, including respiratory issues, skin irritation, or long-term conditions such as cancer. Use appropriate personal protective equipment (PPE) such as gloves, lab coats, safety goggles, and respirators. Ensure proper ventilation, including the use of fume hoods when handling volatile or harmful chemicals. Provide regular training on chemical safety and proper handling procedures.

Spills or accidental releases of chemicals can lead to immediate safety hazards, including fires, explosions, or toxic exposures. Implement spill containment measures, such as spill kits and absorbent materials. Train personnel in emergency response procedures, including evacuation plans and the use of eyewash stations and safety showers. Ensure that all chemicals are properly labeled and stored according to their hazard classification.

7.2.9.3.2 Biological Hazards

Laboratories working with biological agents, including bacteria, viruses, and genetically modified organisms (GMOs), pose a risk of infection or illness to workers. Utilize biological safety cabinets (BSCs) when handling infectious agents. Follow biosafety level (BSL) protocols appropriate to the agents being used. Ensure proper sterilization and disinfection of work areas and equipment. Train personnel in proper aseptic techniques and the use of PPE, such as gloves and face shields.

Workers may develop allergic reactions to certain biological agents, animal dander, or chemicals used in the laboratory. Identify and label allergens in the laboratory. Implement measures to reduce exposure, such as using closed systems or substituting less allergenic materials. Provide medical monitoring and access to antihistamines or other allergy treatments as needed.

7.2.9.3.3 Physical Hazards

Laboratory work often involves repetitive motions, awkward postures, or prolonged periods of standing, which can lead to musculoskeletal disorders (MSDs). Provide ergonomic workstations with adjustable chairs, footrests, and equipment at appropriate heights. Encourage regular breaks and stretching exercises. Train workers on proper lifting techniques and the importance of maintaining good posture.

The use of electrical equipment such as centrifuges, incubators, and microscopes poses a risk of electrical shocks or fires. Ensure all electrical equipment is regularly inspected and maintained. Use equipment with appropriate safety features, such as ground-fault circuit interrupters (GFCIs). Train personnel on safe electrical practices, including the proper use of extension cords and power strips.

High noise levels from equipment like centrifuges, autoclaves, or ventilation systems can lead to hearing loss or increased stress. Install soundproofing or noise barriers around loud equipment. Provide hearing protection, such as earplugs or earmuffs, for workers exposed to high noise levels. Monitor noise levels and ensure they remain within safe limits.

7.2.9.3.4 Radiological Hazards

Laboratories using radioactive materials for research or diagnostic purposes face risks of radiation exposure, which can lead to serious health effects such as cancer or radiation sickness. Use appropriate shielding, such as lead barriers or containers, to minimize radiation exposure. Monitor radiation levels regularly and provide personal dosimeters to workers. Ensure strict adherence to radiation safety protocols, including proper storage, handling, and disposal of radioactive materials.

7.2.9.3.5 Fire and Explosion Risks

The presence of flammable chemicals, gases, and solvents increases the risk of fires or explosions in the laboratory. Store flammable materials in approved safety cabinets and away from ignition sources. Use explosion-proof equipment in areas where flammable vapors may be present. Implement strict no-smoking policies and provide fire extinguishers and other firefighting equipment.

The use of compressed gas cylinders, such as those containing oxygen, nitrogen, or carbon dioxide, can pose risks of explosion or asphyxiation if not handled correctly. Secure gas cylinders properly to prevent tipping and damage. Use regulators and safety valves appropriate for the gas type. Train workers on the safe handling, storage, and transport of gas cylinders.

7.2.9.3.6 Psychosocial Hazards

The high-pressure environment of an advanced laboratory, coupled with long hours and complex tasks, can lead to stress, burnout, and other mental health issues. Promote a healthy work-life balance by encouraging regular breaks, flexible working hours, and time off. Provide access to mental health resources, such as counseling or stress management programs. Foster a supportive workplace culture where employees feel comfortable discussing mental health concerns.

7.2.9.3.7 Waste Management Risks

Improper handling, storage, or disposal of hazardous waste, including chemical, biological, and radiological materials, can lead to environmental contamination and health risks. Implement strict waste management protocols, including proper segregation, labeling, and storage of hazardous waste. Train personnel in safe waste handling procedures and ensure compliance with local regulations. Provide adequate facilities for waste treatment and disposal, such as autoclaves for biological waste.

7.2.9.3.8 Emergency Preparedness

Inadequate emergency response planning can lead to confusion, injury, or fatalities in the event of an accident, such as a chemical spill, fire, or biological agent release. Develop and regularly update comprehensive emergency response plans, including evacuation procedures, communication protocols, and emergency contacts. Conduct regular drills and training sessions to ensure all personnel are familiar with emergency procedures. Maintain easily accessible emergency equipment, such as first aid kits, eyewash stations, and fire extinguishers. 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

This chapter presents cost effective and feasible measures to reduce adverse environmental and social impacts to acceptable level. Mitigation measures listed within the scope of the this ESMP are presented in Table 29, Table 30 and Table 31. During the implementation of the mitigation plan, Project Standards as described in Chapter 3 will be complied with.

The mitigation measures foreseen to be applied as a minimum for the project are as follows[13]:

[13] *These measures are from driven from Environmental and Social Code of Practices of WBG. ESCOPs are pre-prepared environmental and social risks management measures for standard construction, livelihood or household support activities. To manage and mitigate potential negative environmental impacts, the project applies Environmental Codes of Practice (ESCOPs); outlined in this document. The ESCOPs contain specific, detailed and tangible measures that would mitigate the potential impacts of each type of eligible subproject activity under the project. They are marked as relevant for the pre-construction phase, the construction phase, or the operation phase of activities. They are intended to be simple risk mitigation and management measures, readily usable to the Borrower and contractors.*

8.1 Mitigation Plan for the Pre-Construction Phase

Table 29 Mitigations for the Pre-construction Phase

Issue	Potential Impact	Impact Significance Before Mitigation	Mitigation Measure	Impact Significance After Mitigation	Cost of Mitigation *(if substantial)*	Responsible Party/Parties
Physical Environment						
Air Quality: Dust Emissions	Reducing air quality surrounding the Project Area, Temporarily reduced line of sight on nearby roads and highways, Possible health hazards due to extended exposure to high dust emissions in the Project Area. Possibility of erosion with strong winds.	Low	• ASO 2-3 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; • The drop height of potentially dust generating materials will be kept as low as possible; • Dust suppression methods will be applied at construction sites to mitigate Project-related dust emissions. In this respect, the upper layers of the work sites/materials will be kept at a humidity level of about 10%. Watering will be applied at any time necessary including night time, weekends or off-days by using pressurized distribution or spraying systems that would ensure even distribution of water; • If there is traffic flow on the existing roads near the work sites, dust suppression measures will be continuously applied to ensure traffic safety. If there is no traffic existing in the local roads, dust suppression measures will be applied only at local residential areas; • All vehicles to be used in transportation activities will obey the speed limits set out in the Regulation on Highway Traffic. Vehicle speeds are proposed to be limited to 30 km/h on unpaved surfaces; • 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, • 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 project standards. • Compliance with the air emission limit values stipulated in national legislation and WB Compliance with the air emission limit values stipulated in national legislation and WB	Negligible/ None	Included in pre-construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)

Issue	Potential Impact	Impact Significance Before Mitigation	Mitigation Measure	Impact Significance After Mitigation	Cost of Mitigation *(if substantial)*	Responsible Party/Parties
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 SO_2, PM, NO_x emissions. Increase in GHG emissions (CO_2, CH_4, N_2O)	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; • 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.	Negligible/ None	Included in pre-construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)
Soil Environment: Preserving Topsoil	Loss of topsoil, Possibility of increased risk of erosion	Low	• ASO 2-3 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); • Stripping of topsoil will not be conducted earlier than required to prevent the erosion of soil (wind and water); • At the end of the land preparing phase, the stored at the project site topsoil will be used for landscaping; • The stripped topsoil will not be used for agribusiness.	Negligible/ None	Included in pre-construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)
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; • 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.	Negligible/ None	Included in pre-construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)

Issue	Potential Impact	Impact Significance Before Mitigation	Mitigation Measure	Impact Significance After Mitigation	Cost of Mitigation *(if substantial)*	Responsible Party/Parties
Soil Environment: Soil Contamination	Contamination of soil, Possibility of contamination of underground waters close to the surface, Scatter/dispersion of contaminated soil due to improper handling, transferring and disposal of the contaminated soil, Improper reuse of contaminated soil as landscaping,	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; • 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, ASO 2-3 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 ASO 2-3 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: ○ Vehicles containing any stripped soil will be suitably covered to limit potential dust emissions and truck bodies and tailgates will be sealed to prevent any discharge during transport; ○ Only licensed waste haulers will be used to collect and transport contaminated soil to an appropriate treatment/disposal site and illegal disposal of the soil will be prohibited; ○ Speed control for the trucks carrying contaminated soil will be enforced; • The use of contaminated soil for landscaping will be prohibited.	Low	Included in pre-construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)
Water Resources: Quality Change in Water Bodies (surface water and groundwater)	Possibility of leakage of generated municipal wastewater that may cause to degradation in surface water and groundwater qualities, Increased possibility of surface runoff occurrence, Deterioration of quality in nearby water bodies due to wastes carried by surface runoff, erosion, waste dispersion or improper waste storage, handling and transfer.	Low	• ASO 2-3 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 use in equipment. All chemical storage containers, including diesel fuel and hazardous liquid waste drums/containers will be placed in secondary containment in temporary storage area so as to minimize the risk of soil, surface water and groundwater contamination during the construction; • For a case of possible breakdown and natural disaster situation, ASO 2-3 OIZ will ensure that that contractor will prepare, implement and monitor an Emergency Preparedness Plan and the employees 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 should 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.	Low	Included in pre-construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)

Issue	Potential Impact	Impact Significance Before Mitigation	Mitigation Measure	Impact Significance After Mitigation	Cost of Mitigation *(if substantial)*	Responsible Party/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	• ASO 2-3 OIZ will ensure that the contractor will prepare and implement a Noise and Vibration 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 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. If construction work will be carried out on the weekend by the contractor, construction permit will be obtained from the OIZ for weekend work. 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.	Low	Included in pre-construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)
Resource Management	Resources used/consumed during works	Low	• ASO 2-3 OIZ will supervise the construction contractor via construction supervision consultant to select the most appropriate raw materials and resources by evaluating clean production options.	Negligible/ None	Included in pre-construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)

Issue	Potential Impact	Impact Significance Before Mitigation	Mitigation Measure	Impact Significance After Mitigation	Cost of Mitigation *(if substantial)*	Responsible Party/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, underground water and air quality, and/or soil contamination due to improper storage, handling and transfer of hazardous wastes, Possibility of air and/or soil pollution risk due to unauthorized burial and burning of waste on the site.	Low	• ASO 2-3 OIZ will ensure that the contractor will prepare and implement a Waste Management Plan that is in line with the WB ESS1 and WBG EHS Guidelines (both general and sector specific). The Waste Management Plan will be prepared by the Constructor 30 days prior to the commencement of the works and the employees will be trained on the plan. This condition will be included within Contractor's contract. • Waste to be generated within the scope of the Project will be managed in accordance with the waste management hierarchy; • Waste will be separated (i.e., hazardous / non-hazardous, recyclable / non-recyclable) and stored in designated temporary storage areas; • All kinds of implementations that may threaten personnel or public health will be avoided in all activities involving collection, temporary storage, transport and disposal of waste throughout the Project; • Waste recycling, transport and disposal will be carried out by means of licensed companies' vehicles; • Incineration or burying of waste by any means at site and/or dumping of waste to nearby roads or water resources will not be allowed; • Waste to be temporarily stored on site will be delivered to licensed transport vehicles appropriate to the type of waste for disposal. Information related to the operations in this context will be recorded and the records will be kept in the administrative building; • Waste oils originating from machinery and vehicles will be stored in impervious tanks and containers that would be situated on impervious foundation in accordance with the "Regulation on Control of Waste Oils". Tanks and containers will be equipped with apparatus that would prevent over filling and will be filled till the designated level mark. Tanks and containers will have a red color and will be labeled as "waste oil". Disposal of waste oils will be controlled by the ASO 2-3 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". Accordingly, used batteries will be collected separately (from municipal wastes) and transferred to the TAP battery collection center; • All other hazardous materials will be disposed of in accordance with the Waste Management Regulation; • Hazardous waste to be temporarily stored on site will be delivered to licensed transport vehicles appropriate to the type of waste for disposal. Information related to the operations in this context will be recorded and the records will be kept in the administrative building; • Hazardous or non-hazardous inscription, waste code, stored waste amount and storage date will be indicated/labelled on waste temporarily stored by classifying according to their properties. The reaction of waste with each other will be prevented by the measures taken in the Temporary Storage Area, which will have impermeable ground, proper drainage for accidental leaks/spills, top cover and designated rooms for different types of waste, etc. The permit for the temporary Waste Storage Area will be taken from the Provincial Directorate of Environment, Urbanization and Climate Change. • 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. • Workers will be trained in the proper transfer and handling of fuels and other materials and will require the use of gloves, boots, aprons, goggles and other protective equipment for protection when handling highly hazardous materials. • After each construction site is decommissioned, all debris and waste shall be cleared.	Low	Included in pre-construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)
Biological Environment						

Issue	Potential Impact	Impact Significance Before Mitigation	Mitigation Measure	Impact Significance After Mitigation	Cost of Mitigation *(if substantial)*	Responsible Party/Parties
Pesticide Use	Pesticides can run off into water bodies, contaminating rivers, lakes, and groundwater. This can harm aquatic life and affect water quality. Pesticides may reduce soil fertility by killing beneficial microorganisms, leading to long-term soil health issues. Non-target organisms such as bees, birds, and other wildlife can be affected, leading to a decline in biodiversity.	Low	• Pesticide control during these phases on formerly agricultural land involves management and mitigation requirement for environmental and health risks if there is a historical pesticide use because pesticides will not be used in this phase. • Pesticide-free construction practices are adopted to prevent the introduction of new pesticides, accompanied by worker training on safety and proper handling. • Ongoing monitoring 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.	Negligible/ None	Included in pre-construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)
Terrestrial habitats and flora species	Damage or loss of terrestrial habitats and flora species	Low	• Relocate trees where possible before cutting them down. • Plant trees in the project area or within the boundaries of the OIZ, provided that it is not less than the number of trees cut down • Conduct cutting in dormant seasons to minimize impacts on flora. • Identify and tag significant or protected trees, especially those serving as habitats for rare or endangered species. • Minimize land clearing and vegetation removal to preserve as much natural habitat as possible for flora. • After construction, implement revegetation programs using native species to restore habitats and promote biodiversity. • Use dust suppression techniques to reduce air pollution that could harm flora.	Negligible/ None	Included in pre-construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)
Terrestrial fauna species	Disturbing/harming of terrestrial fauna species	Low	• Determine the ecological value of trees, such as nesting, feeding, or roosting sites. • Avoid clear-cutting; stagger tree removal to allow wildlife to relocate naturally. • Safely capture and relocate animals found in or around trees scheduled for removal. • Implement a species relocation plan to move Testudo graeca to suitable nearby habitats if found within the construction zone. • Mark sensitive areas where vulnerable species are located to prevent accidental disturbance. • Limit habitat disturbance by minimizing land clearing to preserve existing habitats for fauna. • Establish buffer zones around areas where Testudo graeca and other sensitive species are present, restricting access to construction activities. • Avoid heavy machinery use outside designated areas to prevent soil compaction that could impact burrowing species. • Schedule construction to avoid critical breeding or nesting seasons for Testudo graeca and other wildlife. • Install temporary fencing around construction zones to prevent animals from entering dangerous areas. • Enforce strict speed limits for vehicles to avoid collisions with wildlife.	Negligible/ None	Included in pre-construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)
Socio-economic Environment						
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 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	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 included in the SEP dated 1st March 2021 included in the Project Documents and the SEP will be 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 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	Low	Included in pre-construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)

Issue	Potential Impact	Impact Significance Before Mitigation	Mitigation Measure	Impact Significance After Mitigation	Cost of Mitigation *(if substantial)*	Responsible Party/Parties
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 occupational health and safety regulations and other legal and contractual requirements GBV and SEA/SH related incidents	High	• 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 Plan (including Worker Code of Conduct) in line with the LMP o Grievance Mechanism Procedure including Grievance Register o Accident investigation and root cause analyze • GM, GBV, SEA/SH trainings will be given to whole personnel before the construction.	Low	Included in pre-construction cost	Contractor (implementation) ASO 2-3 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.	Low	• Preparation and implementation of the Community Health and Safety Plan such as o Informing community about the risks o Installing warning signs, fence/curtain for the perimeter of the construction area, etc. o Functioning Grievance mechansim	Low	Included in pre-construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)

8.2 Mitigation Plan for the Construction Phase

Table 30 Additional mitigations for the Construction Phase

Issue	Potential Impact	Impact Significance Before Mitigation	Mitigation Measure	Impact Significance After Mitigation	Cost of Mitigation *(if substantial)*	Responsible Party/Parties
Physical Environment						
Air Quality: Dust Emissions	Reducing air quality surrounding the Project Area, Temporarily reduced line of sight on nearby roads and highways, Possible health hazards due to extended exposure to high dust emissions in the Project Area. Possibility of erosion with strong winds.	Low	• ASO 2-3 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 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 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 national legislation and WB;	Negligible/ None	Included in construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)

Issue	Potential Impact	Impact Significance Before Mitigation	Mitigation Measure	Impact Significance After Mitigation	Cost of Mitigation *(if substantial)*	Responsible Party/Parties
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 SO_2, PM, NO_x emissions. Increase in GHG emissions (CO_2, CH_4, N_2O)	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; • 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.	Negligible/ None	Included in construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)
Soil Environment: Erosion Potential	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; • 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.	Negligible/ None	Included in construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)

Issue	Potential Impact	Impact Significance Before Mitigation	Mitigation Measure	Impact Significance After Mitigation	Cost of Mitigation *(if substantial)*	Responsible Party/Parties
Soil Environment: Soil Contamination	Contamination of soil, Possibility of contamination of underground waters close to the surface, Scatter/dispersion of contaminated soil due to improper handling, transferring and disposal of the contaminated soil, Improper reuse of contaminated soil as landscaping,	Low	• ASO 2-3 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 (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, ASO 2-3 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 ASO 2-3 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.	Low	Included in construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)

Issue	Potential Impact	Impact Significance Before Mitigation	Mitigation Measure	Impact Significance After Mitigation	Cost of Mitigation *(if substantial)*	Responsible Party/Parties
Water Resources: Quality Change in Water Bodies	Possibility of leakage of generated municipal wastewater that may cause to degradation in surface water and groundwater qualities, Increased possibility of surface runoff occurrence, Deterioration of quality in nearby water bodies due to wastes carried by surface runoff, erosion, waste dispersion or improper waste storage, handling and transfer.	Low	• ASO 2-3 OIZ will ensure that the Contractor will continue to comply with the Water Resources 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 Water Resources Management Plan and renew the training if necessary. 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; • The water to be used for dust suppression will be monitored and recorded in m^3; • Discharge of wastewater, residues or other waste into groundwater or into surface water will be avoided. Portable toilets will be supplied for the workers at the construction sites. The limited amount of domestic wastewater generated at the construction site will be stored on impermeable tanks and will be collected with septic trucks to be sent to the existing OIZ's sewage system. • The units of the Project that are in touch with water, wastewater and chemicals will be constructed using concrete with appropriate cement ratio and durability in order to provide basement impermeability. Thus, no leakages to soil and groundwater will occur during the operation phase of the Project; • Construction activities may pose the potential for accidental release/leakages of petroleum-based products, such as lubricants, hydraulic fluids, or fuels during their storage, transfer, or use in equipment. All chemical storage containers, including diesel fuel and hazardous liquid waste drums/containers will be placed in secondary containment in temporary storage area so as to minimize the risk of soil, surface water and groundwater contamination during the construction; • For a case of possible breakdown and natural disaster situation, ASO 2-3 OIZ will ensure that that contractor will prepare, implement and monitor an Emergency Preparedness Plan and the employees will be trained on the plan. • It will be ensured that the facility is designed and constructed to be resistant to natural disasters. • Activities should 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. • 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.	Low	Included in construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)

Issue	Potential Impact	Impact Significance Before Mitigation	Mitigation Measure	Impact Significance After Mitigation	Cost of Mitigation *(if substantial)*	Responsible Party/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	• ASO 2-3 OIZ will ensure that the contractor will prepare and implement a Noise and Vibration Management Plan that is in line with the WB ESS1 and WBG EHS Guidelines (both general and sector specific) prior to the construction works and the employees will be trained on the Plan. • The machinery and equipment to be used during the construction phase will not be operated at the same point/location but homogeneously distributed in the site if possible; • During vehicle and equipment procuring/leasing process for the Project, item with lower noise levels than equivalent ones will be preferred, if feasible; • The maintenance of the construction machinery and equipment will be carried out regularly and periodically. Daily maintenance will be carried out in each shift; and the working time of each vehicle will be registered by the operator in order to follow the total working hours for periodic maintenance. Periodic maintenance will be conducted at every 50, 250, 500, 1000, 2000 working hours. Maintenance forms will be filled out regularly; • All vehicles to be used in transportation activities will obey the speed limits set out in the Regulation on Highway Traffic; • Noise measurements will be conducted by an authorized environmental laboratory in case of any grievance and mitigation measures will be enhanced in this respect such as use of noise barriers; • Construction works will be performed between 07:00 - 19:00 hours. If construction work will be carried out on the weekend by the contractor, construction permit will be obtained from the OIZ for weekend work. Unless absolutely necessary, no construction activities will be done at night; • 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.	Low	Included in construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)
Resource Management	Resources used/consumed during works	Low	• ASO 2-3 OIZ will supervise the construction contractor via supervision consultant to select the most appropriate raw materials and resources by evaluating clean production options.	Negligible/ None	Included in construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)

Issue	Potential Impact	Impact Significance Before Mitigation	Mitigation Measure	Impact Significance After Mitigation	Cost of Mitigation *(if substantial)*	Responsible Party/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, underground water and air quality, and/or soil contamination due to improper storage, handling and transfer of hazardous wastes, Possibility of air and/or soil pollution risk due to unauthorized burial and burning of waste on the site.	Low	• ASO 2-3 OIZ will ensure that the Contractor will continue to comply with the Waste 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 Waste Management Plan and renew the training if necessary; • Waste to be generated within the scope of the Project will be managed in accordance with the waste management hierarchy; • Waste will be separated (i.e., hazardous / non-hazardous, recyclable / non-recyclable) and stored in designated temporary storage areas; • All kinds of implementations that may threaten personnel or public health will be avoided in all activities involving collection, temporary storage, transport and disposal of waste throughout the Project; • Waste recycling, transport and disposal will be carried out by means of licensed companies and/or relevant municipality's vehicles; • Incineration or burying of waste by any means at site and/or dumping of waste to nearby roads or water resources will not be allowed; • Waste to be temporarily stored on site will be delivered to licensed transport vehicles appropriate to the type of waste for disposal. Information related to the operations in this context will be recorded and the records will be kept in the administrative building; • Removal of the excavated material, which will not be used for backfilling, from the site will be performed at regular intervals without waiting. These materials will be transferred to the nearest licensed landfill facility by licensed transportation companies; • Waste oils originating from machinery and vehicles will be stored in impervious tanks and containers that would be situated on impervious foundation in accordance with the "Regulation on Control of Waste Oils". Tanks and containers will be equipped with apparatus that would prevent over filling and will be filled till the designated level mark. Tanks and containers will have a red color and will be labeled as "waste oil". Disposal of waste oils will be controlled by the ASO 2-3 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". Accordingly, used batteries will be collected separately (from municipal wastes) and transferred to the TAP battery collection center; • All other hazardous materials will be disposed of in accordance with the Waste Management Regulation; • Hazardous waste to be temporarily stored on site will be delivered to licensed transport vehicles appropriate to the type of waste for disposal. Information related to the operations in this context will be recorded and the records will be kept in the administrative building; • Hazardous or non-hazardous inscription, waste code, stored waste amount and storage date will be indicated/labelled on waste temporarily stored by classifying according to their properties. The reaction of waste with each other will be prevented by the measures taken in the Temporary Storage Area, which will have impermeable ground, proper drainage for accidental leaks/spills, top cover and designated rooms for different types of waste, etc. The permit for the temporary Waste Storage Area will be taken from the Provincial Directorate of Environment, Urbanization and Climate Change. • Removal of the excavated material, which will not be used for backfilling, from the site will be performed at regular intervals without waiting. • 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.	Low	Included in construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)
Landscape and Visual (Aesthetics) Concerns	Creation of visual pollution. Impairment of quality of life due to the overall presence of annoying construction works and activities and altered landscape	Low	• 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; • The construction schedule will be disclosed to the public via website of ASO 2-3 OIZ.	Negligible/ None	Included in construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)

Issue	Potential Impact	Impact Significance Before Mitigation	Mitigation Measure	Impact Significance After Mitigation	Cost of Mitigation *(if substantial)*	Responsible Party/Parties
Biological Environment						
Pesticide Use	Pesticides can run off into water bodies, contaminating rivers, lakes, and groundwater. This can harm aquatic life and affect water quality. Pesticides may reduce soil fertility by killing beneficial microorganisms, leading to long-term soil health issues. Non-target organisms such as bees, birds, and other wildlife can be affected, leading to a decline in biodiversity.	Low	• Pesticide control during these phases on formerly agricultural land involves management and mitigation requirement for environmental and health risks if there is a historical pesticide use because pesticides will not be used in this phase. • Pesticide-free construction practices are adopted to prevent the introduction of new pesticides, accompanied by worker training on safety and proper handling. • Ongoing monitoring 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.	Negligible/ None	Included in pre-construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)
Terrestrial habitats and flora species	Damage or loss of terrestrial habitats and flora species	Low	• Limit the Project activities with the boundaries of the construction area, including traffic routes to avoid impact on the adjacent vegetation. • Select the location of the topsoil stockpiles with consideration of environmental safeguards	Negligible/ None	Included in pre-construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)
Terrestrial fauna species	Disturbing/harming of terrestrial fauna species	Low	• On-site vehicle speed limits will be implemented to avoid potential road-kills. • Limit habitat disturbance by minimizing land clearing to preserve existing habitats for fauna. • Establish buffer zones around areas where Testudo graeca and other sensitive species are present, restricting access to construction activities. • Schedule construction to avoid critical breeding or nesting seasons for Testudo graeca and other wildlife. • During the construction phase, any animals found should be removed and released to a safe refugia.	Negligible/ None	Included in pre-construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)
Socio-economic Environment						
Cultural Heritage	Loss of cultural heritage	Low	• Any cultural asset found during the construction works will be indicated and recorded as “chance finds”. A “Chance Find Procedure” has been prepared for the steps to be followed and implemented after the chance finding. Annex 9 shows Chance Find Procedure. • The Cultural and Natural Assets Conservation Boards will be informed about the chance finds and the approval of the Conservation Board, which is responsible for the area where the construction site is located, will be required. No demolition/construction work will be carried out when awaiting the said approval.	Negligible/ None	Included in construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)
Community Health and Safety	Potential Community Disturbance Access from outside and accidents that may occur due to lack of security in the project area	Low	• The OIZ will ensure that contractors establish the code of conduct and will check that workers will be given training, especially on communication with local people of foreign nationality public before starting work, so that local people of foreign nationality will not be adversely affected by external workers. • 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. • Functioning grievance mechanism	Negligible/ None	Included in construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)

Issue	Potential Impact	Impact Significance Before Mitigation	Mitigation Measure	Impact Significance After Mitigation	Cost of Mitigation *(if substantial)*	Responsible Party/Parties
Labour and Working Conditions	Improper Working Conditions, Child labour, forced labour and unregistered employment	Low	• Implementing LMP, • Workers will be informed about and have access to the Grievance mechanism and will be required to be aware of this Mechanism. • All workers will be given training on prevention of discrimination and codes of conduct. The training given to the employees will be explanatory about the concepts of sexual harassment and abuse, sexual exploitation, gender-based violence, 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.	Low	Included in construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)
Labour and Working Conditions	Work suspension due to legal noncompliance in Human Resources and Workforce Management	Medium	• 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 • Keeping personnel data files including contracts, training records, signed codes of conduct, health reports • Functioning grievance mechanism for workers	Low	Included in construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)
Occupational Health and Safety (OHS)	Inadequate workers' health and safety conditions	Medium	• The contractor and construction supervision consultant will include a full time A or B Class (preferably A Class) OHS expert. • The PMU will include an OHS expert with a A or B Class (preferably A Class) specialization certificate who will take part full-time and effectively control the implementation of the Project. She/he shall 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 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.). • Specific smoking areas will be allocated as the construction site will be completely non-smoking. • 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.	Low	Included in construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)

Occupational Health and Safety	Work suspension due to work accident (lack of appropriate OHS measures/ unsafe work environment)	Medium	• Implementing OHS Plan, Emergency Preparedness and Response Plan, Accident/incident Investigation and Reporting and Root Cause Analysis Procedure, and Non-Conformity / Non-Compliance and Corrective / Preventive Action Procedure. • Placing safety barriers and warning signs around work areas. • Conducting occupational safety meetings/toolbox talks with workers before starting work every day. • Legal periodic inspection of work equipment 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 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. • 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 phase. 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. • Noise measurement will be carried out at the nearest noise-sensitive receptors in accordance with the international standard, in case of any complaints. • Functioning grievance mechanism for workers • All workers will be trained on the proper handling and storage of hazardous chemicals, ensuring compliance with OHS regulations.	Low	Included in construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)

Issue	Potential Impact	Impact Significance Before Mitigation	Mitigation Measure	Impact Significance After Mitigation	Cost of Mitigation *(if substantial)*	Responsible Party/Parties
			• Material Safety Data Sheets (MSDS) will be readily available on-site for all chemicals, and workers will be trained in understanding the risks and first aid measures. • Chemicals will be stored in secure, clearly marked areas with secondary containment to prevent leaks or spills. • Flammable and reactive chemicals will be stored separately according to OHS guidelines to avoid accidental reactions.			
Traffic and Pedestrian Safety	Direct and indirect threats posed by construction activities against traffic and pedestrians	Low	• 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 headman's offices, hospitals, health centres, mosques, coffee houses and marketplaces. • 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. • SEP activities to surrounding communities during construction phase	Low	Included in construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)

Stakeholder Engagement	Lack of communication with the stakeholders.
	Insufficient stakeholder engagement activities and public consultation.
		Low	• 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.
				Low	Included in construction cost	Contractor (implementation)
						ASO 2-3 OIZ (performance control and management
						Construction Supervision Consultant (supervision/monitoring)

Grievance mechanism	Grievance Issues. Insufficient and/or ineffective grievance mechanism for the internal and external stakeholders.	Low	• Efficient Grievance mechanisms will be initiated to allow potentially affected individuals to voice their concerns on the Project in accordance with LMP and SEP of the main project .tAll grievances (from stakeholders and workers) 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. • Contractor will be required to establish an effective grievance mechanism working in coordination with the Project Owner.	Low	Included in construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)

8.3 Mitigation Plan for the Operation Phase

Table 31 Additional mitigations for the Operation Phase

Issue	Potential Impact	Impact Significance Before Mitigation	Mitigation Measure	Impact Significance After Mitigation	Cost of Mitigation *(if substantial)*	Responsible Party/Parties
Physical Environment						
Air Quality: Emission of VOCs, particulates, toxic gases, and other pollutants	Reducing indoor air quality Discomfort for staff	Positive	• Installing and maintaining high-efficiency particulate air (HEPA) filters and carbon filters in ventilation systems can significantly reduce the emission of particulate matter and harmful gases. • Properly designed exhaust systems can prevent the release of pollutants into the environment. Regular maintenance of HVAC and ventilation systems is crucial to ensure they operate effectively and do not contribute to air pollution. • This includes cleaning ducts, replacing filters, and ensuring that fume hoods and other equipment are functioning correctly. • Implementing strict protocols for the storage and handling of chemicals can minimize the release of harmful substances into the air. This includes using properly sealed containers, reducing the use of volatile substances, and ensuring proper labeling and storage conditions.	Positive	Included in operation cost	ASO 2-3 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 SO_2, PM, NO_x emissions Increase in GHG emissions (CO_2, CH_4, N_2O)	Positive	• Well and adequately maintained vehicles will be used. Regular maintenance of machinery and equipment will be ensured; • Exhaust systems of the vehicles will be controlled regularly (daily and periodically); • All vehicles to be used in transportation activities will be issued an emission control stamp; • Operation phase vehicles will not be permitted to keep engines running while waiting or standing by for duty. • Relevant provisions of the Regulation on Air Pollution Control Sourced from Industry, the Regulation on Exhaust Gas Emission Control and Regulation on the Assessment and Management of Air Quality will be complied with to minimize air emissions sourced from machinery, equipment, and vehicles that are used in operation phase; • Speed restrictions will be adopted by operation phase vehicles and optimal use of operation phase equipment to optimize fuel efficiency; • Regular maintenance of operation phase vehicles and equipment will be applied; • Energy uses associated with operation phase vehicles and equipment will be monitored; • Regular maintenance of the advance environmental laboratory machinery, and equipment will be applied; • Energy uses associated with the advance environmental laboratory units and utility facilities will be monitored; • Training will be performed for project personnel regarding energy efficiency.	Positive	Included in operation cost	ASO 2-3 OIZ
Soil Environment: Soil Contamination	Contamination of soil, Possibility of contamination of underground waters close to the surface, Scatter/dispersion of contaminated soil due to improper handling, transferring and disposal of the contaminated soil, Improper reuse of contaminated soil as landscaping,	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; • The provisions of the Regulation on Soil Pollution Control and Point Source Contaminated Sites will be followed.	Negligible/ None	Included in operation cost	ASO 2-3 OIZ

Issue	Potential Impact	Impact Significance Before Mitigation	Mitigation Measure	Impact Significance After Mitigation	Cost of Mitigation *(if substantial)*	Responsible Party/Parties
Water Resources: Green building practices (Quality/Quantity Change in Water Bodies)	Reduction in water consumption	Positive	• Installing low-flow faucets and showerheads reduces the amount of water used per minute. These fixtures are designed to maintain water pressure while using less water, thus reducing overall water consumption without compromising user experience. • Dual-flush toilets offer two flushing options—one for liquid waste and a more powerful one for solid waste. This allows users to choose the appropriate flush, reducing water use by up to 67% compared to traditional toilets. • Modern, energy-efficient dishwashers and washing machines are designed to use less water per cycle. They often have settings that optimize water use based on the load size, further minimizing water waste. • On-demand (or tankless) water heaters provide hot water only when needed, reducing the amount of water wasted while waiting for hot water to reach the tap. • Green buildings often incorporate rainwater harvesting systems that collect and store rainwater for non-potable uses such as landscape irrigation, cooling systems, or even toilet flushing. This reduces reliance on municipal water supplies. The collected rainwater is typically stored in tanks and filtered to remove debris, ensuring it is safe for its intended use. • Landscaping with native or drought-resistant plants reduces the need for irrigation, as these plants are adapted to local climate conditions and require less water to thrive. • Green roofs are covered with vegetation that can help absorb rainwater, reducing runoff and the need for additional irrigation. They also provide insulation, reducing the building's energy and water needs for cooling. Green roofs also can retain a significant amount of rainwater, which can be reused for irrigation or slowly released into the drainage system, reducing the burden on municipal water infrastructure. • Regular water audits track water use within the building, identifying areas where consumption can be reduced. These audits help in optimizing water usage and ensuring that all systems are functioning efficiently.	Positive	Included in operation cost	ASO 2-3 OIZ
Noise Control	Increase in background noise.	Low	• During the procurement of equipment and machinery, sound levels given in the technical specifications/data sheet will be taken into consideration; • Relevant provisions and limit values of Regulation on the Environmental Noise Emissions Caused by Equipment Used Outdoors and Regulation on Environmental Noise Control (RENC) and WBG General EHS Guidelines and Sectorial Guidelines will be complied with during the operation phase; • If necessary nosie-control methods such as fences, barriers or deflectors will be used Equipment generating noise during the operation of the plant will be located in isolated closed buildings, if necessary. A grievance mechanism will be established to manage noise related grievances as well. • The work schedule will be adjusted by communicating with sensitive receptors.	Negligible/ None	Included in operation cost	ASO 2-3 OIZ

Resource Management	Resources used/consumed during works	Positive	• Starting from the operation phase, ASO 2-3 OIZ will seek assistance from technical consultants to reduce energy consumption and related costs through optimization of the following:
			  ○ Energy conservation,
			  ○ Process efficiency,
			  ○ Aeration devices and oxygen transfer,
			  ○ Process flow configuration,
			  ○ Biogas quantities,
			  ○ Biogas utilization,
			  ○ Time of day consumption of energy.
				Positive	Included in operation cost	ASO 2-3 OIZ

Waste and Wastewater Management: Waste Generation	Waste generation in the Advanced Environmental Laboratory, Inadequate disposal of hazardous waste, including chemical, biological, and radiological materials Possibility of increased public health hazard risks, deterioration of surface water, underground water and air quality, and/or soil contamination due to improper storage, handling and transfer of hazardous wastes, Possibility of air and/or soil pollution risk due to unauthorized burial and burning of waste on the site.	Low	• Waste Management Plan will be updated by ASO 2-3 OIZ to reflect the operation phase conditions before commencement of the operation phase. Relevant measures defined for the construction phase also apply also to the operation phase. The updated plan will provide procedures for the management of waste other than sludge; • Waste to be generated within the scope of the Project will be managed in accordance with the waste management hierarchy; • Waste recycling, transport and disposal will be carried out by means of licensed companies and/or Ankara Metopolitan Municipality; • Domestic waste will be collected and sent to ITC Sincan branch. Other wastes generated will be given to licensed organizations within the framework of the legislation. • Medical waste is sent to the ITC Sincan branch and disposed of by incineration. • Incineration or burying of waste by any means on site and/or dumping of waste to nearby roads or water resources will absolutely not be in question; • All kinds of implementations that may threaten personnel or public health will be avoided in all activities involving collection, temporary storage, transport and disposal of waste throughout the Project; • Waste to be temporarily stored on site will be delivered to licensed transport vehicles appropriate to the type of waste for disposal. Information related to the operations in this context will be recorded and the records will be kept in the administrative building; • Waste will be separated (i.e., hazardous / non-hazardous, recyclable / non-recyclable) and stored in designated temporary storage areas; • Temporary storage of waste will be labelled with an indication of hazardous or non-hazardous inscription, waste code, stored waste amount and storage date and classification according to their properties. The reaction of wastes with each other will be prevented by the measures taken in the Temporary Storage Area; and • Hazardous wastes will be stored in designated impermeable waste storage areas. • Impermeability will be provided on the floors of the Temporary Storage Area and a suitable drainage system will be installed. Spill kits will be available at the Temporary Storage Area and necessary precautions will be taken against possible fires such as provision of appropriate firefighting equipment. • When different experiments are carried out in research laboratories, it should be considered whether they contain hazardous substances. • Biological liquid and solid wastes should be collected in containers suitable for autoclaving (e.g. autoclave bag). At the end of the work, it should be sterilised in the autoclave without waiting for it to fill up. Sharps must be collected in containers marked "biohazard" and disposed of after sterilisation. If sterilisation is not possible, they should be disinfected using 1/10 bleach. In biotechnology laboratories, if the ethidium bromide content in electrophoresis gels for microorganism species determination is >0.1%, it should be collected in sealed containers marked as hazardous waste. Ethidium bromide solutions should be kept in closed bottles and the filter matrix should be disposed of if it is separated from the solution. • Chemical wastes consist of either contaminated or expired chemicals and liquid wastes. Since liquid wastes will be exposed to expansion due to extreme heat or cold, the containers should not be filled completely. Care should be taken to ensure that the containers to be used in the collection of laboratory waste are suitable for the type of waste. The container used for liquid wastes must be leak-proof, unbreakable and capped. Chemical resistant containers should be preferred for chemical wastes. These containers should be stored in a well-ventilated place, taking into account the reactions that may occur over time. If liquids are to be stored in a glass bottle, they should be 5 L; if they are to be stored in an unbreakable container, they should have a maximum volume of 10 L. • The container(s) in which hazardous chemical wastes are collected must be sealed, kept closed (no filling funnel should be left at the inlet opening of the container) and a secondary container must be used. The information on the label must be kept up to date. Under no circumstances should radioactive waste be mixed with chemical waste. Waste containers should be kept closed. For this purpose, containers with lids should be preferred. If this is not possible, it should be closed using parafilm etc. • If the broken glass is clean, it should be collected in a sturdy box and recycled. It should not be left in the rubbish bin in the office or laboratory so that the collecting personnel are not harmed by broken glass. If the broken glass is contaminated with chemicals, it should be treated and managed as hazardous waste. • Non-hazardous inorganic chemicals such as sulphates, phosphates, carbonates, oxides and borates can be diluted in accordance with the standards and discharged into the sewerage system. Neutralisation by pH adjustment before discharge to the sewerage system may be beneficial for the nature of the waste and the sewerage system. For example, some acid wastes can be neutralised if they do not contain organic or metal-based hazardous wastes.	Negligible/ None	Included in operation cost	ASO 2-3 OIZ

Issue	Potential Impact	Impact Significance Before Mitigation	Mitigation Measure	Impact Significance After Mitigation	Cost of Mitigation *(if substantial)*	Responsible Party/Parties
			• Containers used for toxic hazardous waste should not be rinsed with water and should be managed as hazardous waste. Other containers should be disposed of by shaking with water 3 times. Wastes with unknown properties should be treated as hazardous waste. If a suitable class cannot be determined according to the waste collection scheme, the relevant waste should be collected in a separate container and the necessary information should be written. • If a suitable class cannot be determined according to the waste collection scheme, the relevant waste should be collected in a separate container provided that it is suitable and the necessary information should be written. • The area used for temporary storage must be equipped with a hazard warning sign at the entrance and safety precautions such as locked, sealed floor, proper ventilation, fire precautions, etc. Maximum 200 litres should be stored temporarily and stored for a maximum of 6 months. Containers should be checked weekly for leaks. Glass bottles containing hazardous waste and waste containing strong acids and bases should be kept on shelves close to the floor due to the risk of falling. In addition, collected waste should be recorded to ensure planned management.			

Waste and Wastewater Management:
Wastewater Generation
	Wastewater generation in the Advanced Environmental Laboratory,
	Deterioration of quality in nearby water bodies due to wastewaters carried by dispersion or improper solid waste storage, handling and transfer.
		Low	• ASO 2-3 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) should be prepared and the employees will be trained on the plan, prior to the operation phase to ensure that:
			• The effluent water quality of the Advanced Environmental Laboratory will be consistent with Water Pollution Control Regulation and Urban Wastewater Treatment Regulation requirements or internationally accepted standards;
			• Since laboratory discharges will be treated by the wastewater treatment plant,
			  ○ Regular inspection and maintenance should be conducted;
			  ○ A leak detection and repair program should be implemented (including records of past leaks and unaccounted-for water to identify potential problem areas);
			  ○ System overflows will be prevented as much as possible by using level-meters;
			  ○ Mains having a greater potential for leaks because of their location, pressure stresses, and other risk factors should be replaced.
			• Machinery and equipment will be checked regularly for leaking oil and fuel; to prevent contamination of near surface water and groundwater resources during operation and maintenance activities.
			• Establish safe delivery/storage/handling procedures in accordance with material safety data sheets (MSDSs),
			• Immediately contain and cleanup any spilled material.
			• Final sludge will be stored in special containers designated for this purpose only;
			• Dried sludge will be sent to nearest appropriate licensed company (after determining its waste class status by an accredited laboratory) with licensed trucks.
				Low	Included in operation cost	ASO 2-3 OIZ

Landscape and Visual (Aesthetics) Concerns	Creation of visual pollution.	Low	• The approved architectural and landscape projects shall be strictly followed. • Trees will be planted at the borders of the Advanced Environmental Laboratory; • ASO 2-3 OIZ should paint the visible buildings to colors suitable to the background.	Negligible/ None	Included in operation cost	ASO 2-3 OIZ
Biological Environment						

Issue	Potential Impact	Impact Significance Before Mitigation	Mitigation Measure	Impact Significance After Mitigation	Cost of Mitigation *(if substantial)*	Responsible Party/Parties
Pesticide Use	Soil, Water and Air Pollution, Biodiversity loss	Low	• Lab personnel must wear appropriate PPE, including gloves, lab coats, safety glasses, and, when necessary, respirators to protect against exposure to pesticides. • For handling highly toxic pesticides, additional PPE such as chemical-resistant suits or full-face respirators may be required. • Pesticides should be stored in a secure, designated area, such as a locked cabinet or a chemical storage room, away from food, drink, and incompatible chemicals. • All pesticide containers must be clearly labeled with the name of the pesticide, active ingredients, hazard warnings, and the date of receipt or preparation. • Pesticides, especially volatile or hazardous types, should be handled in a fume hood or under similar ventilation to prevent inhalation exposure. • Only the minimum necessary amount of pesticide should be handled at any one time to reduce the risk of spills or accidental exposure. • Immediate and proper spill cleanup procedures should be in place, including the use of spill kits specifically designed for chemical or pesticide spills. • Labs where pesticides are used should be equipped with adequate ventilation systems to prevent the accumulation of pesticide vapors and ensure a safe working environment. • Local exhaust systems, such as fume hoods or snorkels, should be used when handling pesticides that emit fumes or fine particulates. • Experiments involving pesticides should be conducted in closed systems or containment units to prevent the release of pesticides into the laboratory environment. • Work surfaces where pesticides are handled should have secondary containment (e.g., trays or liners) to catch any spills or leaks.	Negligible/ None	Included in operation cost	ASO 2-3 OIZ
Terrestrial habitats and flora species	Damage or loss of terrestrial habitats and flora species	Low	• Select planting sites near the affected area to provide continuity of habitat. • Encourage the growth of native plants around the Advanced Environmental Laboratory. Native flora supports local wildlife and helps maintain ecosystem health. • Limit maintenance activities that require heavy machinery, and avoid unnecessary land clearing.	Negligible/ None	Included in operation cost	ASO 2-3 OIZ
Terrestrial fauna species	Disturbing/harming of terrestrial fauna species	Low	• Replant trees with native species to restore biodiversity and ecological balance. • Properly manage waste generated during operations to prevent contamination of soil and water, which can adversely affect terrestrial habitats. • Schedule maintenance and operational activities to avoid critical periods for local fauna, such as breeding or nesting seasons.	Negligible/ None	Included in operation cost	ASO 2-3 OIZ
Socio-economic Environment						
Community Health and Safety	Community health and safety risks	Low	• Regular risk assessments should be carried out to identify potential hazards and assess the risks these hazards pose to the community. • Advanced pollution control technologies should be implemented to minimise the release of harmful substances into the environment. • Advanced treatment systems should be used to ensure that all effluents and emissions are treated to meet or exceed environmental and health safety standards before release. • Safe storage facilities for hazardous chemicals should be designed and maintained, with appropriate containment measures to prevent leaks or spills. • Comprehensive emergency response plans should be developed to cover potential incidents such as chemical spills, fires and accidental releases. • Health surveillance programmes should be implemented to monitor potential health impacts on the community and collaborate with public health agencies to address concerns. • Noise reduction technologies should be installed to minimise noise pollution and noisy activities should be scheduled during daylight hours. • Regularly train staff on health and safety protocols, including emergency response and community engagement practices. • Regular safety audits should be carried out to identify potential gaps in health and safety practices and take corrective action where necessary. • 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. • The grievance mechanism officer will be introduced to the local people and 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 headman's office.	Low	Included in operation cost	ASO 2-3 OIZ

Issue	Potential Impact	Impact Significance Before Mitigation	Mitigation Measure	Impact Significance After Mitigation	Cost of Mitigation *(if substantial)*	Responsible Party/Parties
Labour and Working Conditions	Improper Working Conditions Child Labor, forced Labor and unregistered employment, GBV and SEA/SH related incidents	Low	• 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 and have access to 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. • The project will comply with national laws/ regulations and international conventions/ standards in terms of the working conditions, as well as the LMP and OHS Management Plan to be prepared specifically for the project. • Provide ergonomic workstations with adjustable chairs, footrests, and equipment at appropriate heights. • Encourage regular breaks and stretching exercises. Train workers on proper lifting techniques and the importance of maintaining good posture. • Install soundproofing or noise barriers around loud equipment. • Store flammable materials in approved safety cabinets and away from ignition sources. • Maintain easily accessible emergency equipment, such as first aid kits, eyewash stations, and fire extinguishers. • Promote a healthy work-life balance by encouraging regular breaks, flexible working hours, and time off. Provide access to mental health resources, such as counseling or stress management programs. • Foster a supportive workplace culture where employees feel comfortable discussing mental health concerns. • The advanced environmental laboratory should integrate gender perspectives into all policies, procedures, and decision-making processes. This includes ensuring that both men and women have equal opportunities in recruitment, training, and career advancement.	Low	Included in operation cost	ASO 2-3 OIZ

Issue	Potential Impact	Impact Significance Before Mitigation	Mitigation Measure	Impact Significance After Mitigation	Cost of Mitigation *(if substantial)*	Responsible Party/Parties
Occupational Health and Safety	Inadequate workers health and safety conditions	Medium	• Prior to start operation, Occupational Health and Safety Plan will be prepared based on operational OHS risks. • Before starting work, employees will be knowledgeable about job descriptions, responsibilities, relationships with 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 phase 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 phase, 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 shall 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. • Train personnel in emergency response procedures, including evacuation plans and the use of eyewash stations and safety showers. Ensure that all chemicals are properly labeled and stored according to their hazard classification. • Implement measures to reduce exposure, such as using closed systems or substituting less allergenic materials. Provide medical monitoring and access to antihistamines or other allergy treatments as needed. • Train personnel on safe electrical practices, including the proper use of extension cords and power strips. • Provide hearing protection, such as earplugs or earmuffs, for workers exposed to high noise levels. Monitor noise levels and ensure they remain within safe limits. • Use appropriate shielding, such as lead barriers or containers, to minimize radiation exposure. Monitor radiation levels regularly and provide personal dosimeters to workers. • Develop and regularly update comprehensive emergency response plans, including evacuation procedures, communication protocols, and emergency contacts. • Conduct regular drills and training sessions to ensure all personnel are familiar with emergency procedures.	Low	Included in operation cost	ASO 2-3 OIZ
Grievance mechanism	Grievance Issues. Insufficient and/or ineffective grievance mechanism for the internal and external stakeholders.	Low	• An efficient grievance mechanism will be established providing access to potentially affected community members and employees to voice their concerns on the Project.	Low	Included in operation cost	ASO 2-3 OIZ

Issue	Potential Impact	Impact Significance Before Mitigation	Mitigation Measure	Impact Significance After Mitigation	Cost of Mitigation *(if substantial)*	Responsible Party/Parties
Stakeholder Engagement	Lack of communication with the stakeholders. Insufficient stakeholder engagement activities and public consultation.	Low	• Interaction/communication will be established with communities, and adequate timing will be planned for engagement activities as per the SEP of the project throughout the project duration.. Additionally, regular consultations will be carried out with the authorities and communities regarding the project management.	Low	Included in operation cost	ASO 2-3 OIZ

9 ENVIRONMENTAL AND SOCIAL MONITORING PLAN

Monitoring is essential to ensuring the effectiveness and continuity of the put into practice mitigation management measures. Evaluating how well the requirements and mitigation strategies outlined in this ESMP are being implemented is the primary goal of the Monitoring Plan.

Throughout the whole project, management plans can be enhanced with the use of monitoring data. Impact assessments make an effort to identify all relevant potential impacts, as well as to include appropriate responses for these impacts. However, unforeseen impacts can still occur, and these can be managed or mitigated using the information gathered through monitoring before they become a problem. Thus, monitoring will guarantee that the mitigation and management plans are implemented successfully and maximize environmental protection through best practices at every phase of the project.

As a result, monitoring studies will guarantee that effect mitigation strategies are implemented correctly and that environmental protection is optimized throughout the Project by utilizing best practices.

Engineering design studies determine a portion of the monitoring parameters. Monitoring studies will guarantee that effect mitigation strategies, contract requirements, and project standards are followed.

Monitoring activities are submitted in tabular form in Table 32, Table 33 and Table 34 for pre-construction and construction, and operation phases, respectively.

Table 32 Monitoring Plan for the Pre-Construction Phase

Issue	Parameters to be monitored *(What parameter is to be monitored?)*	Target/Threshold Value*	Monitoring location *(Where the parameter is to be monitored?)*	Monitoring Method **(How** *is the parameter to be monitored/ type of monitoring equipment?)*	Timing/Frequency of Monitoring *(When is the parameter to be monitored- frequency of measurement or continuous?)*	Cost of Monitoring *(What is the cost of equipment or contractor charges to perform monitoring?)*	Responsible Party/Parties	Supervision observation and comments *to be filled out during supervision with reference to adequate measuring reports*
Air quality	Settled dust, PM_{10} and $PM_{2.5}$	Below the Project standards 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	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	One monitoring from the start of the pre-construction phase (land preparation, topsoil stripping) Upon grievance	Included in pre-construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)	
	Maintenance and exhaust decal records of all machinery and equipment	Below the Project Standards: CO: 50 kg/h Dust: 1 kg/h NOx: (as NO_2) 4 kg/h SOx: 6 kg/h	Administration office of Contractor for the follow-up of records	Maintenance records	Monthly during the pre-construction phase	Included in pre-construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)	
Storage and usage of topsoil	Amount of stripped and reused topsoil by indicating reuse locations Storage conditions of topsoil (humidity and pile height)	No loss of topsoil	Construction site and storage areas	Visual observation Records	Once in a week starting from the initialization of pre-construction phase	Included in pre-construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)	
Storage and usage of chemicals including fuels	Conditions of the storage area Number of leaks, spills, etc.	No chemical spill incident	Entire Project Area and chemical storage locations	Visual observation Site inspections Environmental incident registry	Once in a week starting from the initialization of pre-construction phase	Included in pre-construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)	

Issue	**Parameters to be monitored** *(What parameter is to be monitored?)*	**Target/Threshold Value***	**Monitoring location** *(Where the parameter is to be monitored?)*	**Monitoring Method** **(How** *is the parameter to be monitored/ type of monitoring equipment?)*	**Timing/Frequency of Monitoring** *(When is the parameter to be monitored- frequency of measurement or continuous?)*	**Cost of Monitoring** *(What is the cost of equipment or contractor charges to perform monitoring?)*	**Responsible Party/Parties**	**Supervision observation and comments** *to be filled out during supervision with reference to adequate measuring reports*
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 (SO_4^{-2}): 1500 mg/L Total Kjeldahl Nitrogen (TKN): 20 mg/L Fish Bioassay (TDF): 10 Color: 280 Pt-Co pH:6-9	At the upstream and downstream of Pirenli Creek At related water resources (wells, fountains, etc.)	Sampling and in situ / laboratory measurements via an authorized environmental laboratory Spill notices/correspondences to authorities in case of major spills	In case of a major spill In case of a leak/spill reaches water bodies	Included in pre-construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)	
Noise	Noise levels	Not exceeding the limit values defined in Project Standards Day time (07:00-19:00): $LA_{eq,\ 5\ min.}$< 65 dB(A) Evening time (19:00-23:00): $LA_{eq,\ 5\ min.}$< 60 dB(A) Night time (23:00-07:00): $LA_{eq,\ 5\ min.}$< 55 dB(A)	In case of a complaint, in the relevant area	At least 24-hr noise measurements via an authorized environmental laboratory	Monthly starting from the initialization of construction phase when the all machineries (scheduled to work that month) are operating Upon grievance	Included in pre-construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)	
	Number of complaints	No noise related grievance received	Administration office of Contractor for the follow-up of records	Grievance Registration	Monthly during the pre-construction phase	Included in pre-construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)	
Waste	Type and amount of waste generated	Adhering to the TurkStat estimation of 0.93 kg/person/day waste generation Minimizing the amount of waste to be sent for disposal and implementing waste management hierarchy	Treatment plant site, storage areas	Visual inspection regarding proper collection and temporary storage of waste and records kept regarding their coordinated recycle / disposal via licensed firms Waste Records Site inspections Disposal truck register	Once in a month starting from the initialization of the pre-construction phase	Included in pre-construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)	

Issue	**Parameters to be monitored** *(What parameter is to be monitored?)*	**Target/Threshold Value***	**Monitoring location** *(Where the parameter is to be monitored?)*	**Monitoring Method** **(How** *is the parameter to be monitored/ type of monitoring equipment?)*	**Timing/Frequency of Monitoring** *(When is the parameter to be monitored- frequency of measurement or continuous?)*	**Cost of Monitoring** *(What is the cost of equipment or contractor charges to perform monitoring?)*	**Responsible Party/Parties**	**Supervision observation and comments** *to be filled out during supervision with reference to adequate measuring reports*
Resources	Types and amounts of materials/resources used	Use of recycled materials whenever possible Reducing energy consumption	Administration office	Material/resource procurement/consumption records	Quarterly during the pre-construction phase	Included in pre-construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)	
Infrastructure Damage	Number and nature of cases and amount of compensation paid	No infrastructure cases	Administration office	Incident records Receipts of compensation payments	Monthly during the pre-construction phase	Included in pre-construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)	
Trespassing	Trespassing cases	No trespassing	Administration office	Security reports Visitor logs	Weekly during the pre-construction phase	Included in pre-construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)	
	Condition of CCTV system			System checks	Daily during the pre-construction phase			
Community Health and Safety	Health and safety signs and traffic signs placed in appropriate locations, Health and Safety Plan prepared, Emergency Action Plan prepared	A limited number of cases occurring and effective response to them within prescribed time	AoI	Visual observation Site inspection	Daily basis Upon grievance	Included in pre-construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)	
Working Conditions	Workers' grievances	A limited number of cases 100 percent of satisfactorily resolved grievances within stipulated time	Project area	Grievance records	Weekly during the pre-construction phase	Included in pre-construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)	
Occupational Health and Safety	Number of incidents	No OHS incidents occurred	Construction site	Incident records Site inspections and OHS audit	Daily basis starting from the initialization of the pre-construction phases Monthly during the pre-construction phase	Included in pre-construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management	

Issue	Parameters to be monitored *(What parameter is to be monitored?)*	Target/Threshold Value*	Monitoring location *(Where the parameter is to be monitored?)*	Monitoring Method **(How** *is the parameter to be monitored/ type of monitoring equipment?)*	Timing/Frequency of Monitoring *(When is the parameter to be monitored- frequency of measurement or continuous?)*	Cost of Monitoring *(What is the cost of equipment or contractor charges to perform monitoring?)*	Responsible Party/Parties	Supervision observation and comments *to be filled out during supervision with reference to adequate measuring reports*
	Incident investigation	No OHS incidents occurred		Incident investigation records Site inspections and OHS audit	Daily basis starting from the initialization of the pre-construction phases Monthly during the pre-construction phase		Construction Supervision Consultant (supervision/monitoring)	
	Period of disease occurrence	No disease cases and response within the prescribed timeframe in case of a case.		Disease follow-up register	Daily basis starting from the initialization of the pre-construction phases			
	Training requirements	100 percentage of prescribed staff duly trained, and with satisfactory result		Annual Environmental, Social Health, and Safety (ESHS) training plan	Annually during the pre-construction phase			
	Adequate OHS organizational structure.	1 fulltime OHS staff throughout the life of the Project		Site implementation Site inspection	Daily basis starting from the initialization of the pre-construction phases (for visual inspections) Monthly during the pre-construction phase			
	Total hours worked by employee	As specified in the LMP		Timesheets, Grievance records	Monthly, yearly			
Protecting the Workforce	Age of candidate employee	No case of child labor	Administration office and Project area	Age verification with National ID	Before each recruitment	Included in pre-construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management 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 pre-construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)	
Gender Based Violence (GBV), Sexual Exploitation Abuse / Sexual Harassment (SEA/SH)	GBV and SEA/SH related incidents GM, GBV, SEA/SH trainings	No GBV and SEA/SH related issues and in case of such issues, prescribed procedure ensuring confidentiality observed	Administration office and Project area	Document review Review of grievance logs Training logs	Quarterly Upon relevant grievances	Included in pre-construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (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.*

Table 33 Monitoring Plan for the Construction Phase

Issue	Parameters to be monitored *(What parameter is to be monitored?)*	Target/Threshold Value*	Monitoring location *(Where the parameter is to be monitored?)*	Monitoring Method *(How is the parameter to be monitored/ type of monitoring equipment?)*	Timing/Frequency of Monitoring *(When is the parameter to be monitored- frequency of measurement or continuous?)*	Cost of Monitoring *(What is the cost of equipment or contractor charges to perform monitoring?)*	Responsible Party/Parties
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	Where sampled during the pre-construction phase 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	Monthly starting from the initialization of construction phase Upon grievance	Included in construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)
	Maintenance and exhaust decal records of all machinery and equipment	Below the Project Standards: CO: 50 kg/h Dust: 1 kg/h NOx: (as NO_2) 4 kg/h SOx: 6 kg/h TOC: 3 kg/h	Administration office of Contractor for the follow-up of records	Maintenance records	Quarterly during the construction phase	Included in construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)
Soil contamination	Amount of contaminated soil	No soil contamination resulting from project activities	Project Area	Visual observation	After each incident	Included in construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)
Storage and usage of chemicals including fuels	Conditions of the storage area Number of leaks, spills, etc.	No chemical spill incident	Entire Project Area and chemical storage locations	Visual observation Site inspections Environmental incident registry	Once in a week starting from the initialization of construction phase	Included in construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)
Storage and use of excavation waste	Amount of refilled, stored and disposed excavation materials	Proper management of excavation wastes	Construction site and storage areas	Visual observation Records	Once in a week starting from the initialization of construction phase	Included in construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)

Issue	Parameters to be monitored *(What parameter is to be monitored?)*	Target/Threshold Value*	Monitoring location *(Where the parameter is to be monitored?)*	Monitoring Method *(How is the parameter to be monitored/ type of monitoring equipment?)*	Timing/Frequency of Monitoring *(When is the parameter to be monitored- frequency of measurement or continuous?)*	Cost of Monitoring *(What is the cost of equipment or contractor charges to perform monitoring?)*	Responsible Party/Parties
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 (SO_4^{-2}): 1500 mg/L Total Kjeldahl Nitrogen (TKN): 20 mg/L Fish Bioassay (TDF): 10 Color: 280 Pt-Co pH:6-9	At the upstream and downstream of Prenli Creek At related water resources (wells, fountains, etc.)	Sampling and in situ / laboratory measurements via an authorized environmental laboratory Spill notices/correspondences to authorities in case of major spills	In case of a major spill In case of a leak/spill reaches water bodies	Included in construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)
Noise	Noise levels	Not exceeding the limit values defined in Project Standards: Receptor: Industrial, commercial: Day time (07:00-19:00): $LA_{eq,\ 5\ min.}$< 65 dB(A) Evening time (19:00-23:00): $LA_{eq,\ 5\ min.}$< 60 dB(A) Nighttime (23:00-07:00): $LA_{eq,\ 5\ min.}$< 55 dB(A)	In case of a complaint, in the relevant area	At least 24-hr noise measurements via an authorized environmental laboratory	Monthly starting from the initialization of construction phase when the all machineries (scheduled to work that month) are operating Upon grievance	Included in construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)
	Number of complaints	No noise related grievance received	Administration office of Contractor for the follow-up of records	Grievance Registration	Quarterly during the construction phase	Included in construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)
Waste	Type and amount of waste generated	Adhering to the TurkStat estimation of 0.93 kg/person/day waste generation Minimizing the amount of waste to be sent for disposal and implementing waste management hierarchy	Treatment plant site, storage areas	Visual inspection regarding proper collection and temporary storage of waste and records kept regarding their coordinated recycle / disposal via licensed firms Waste Records Site inspections Disposal truck register	Once in a month starting from the initialization of the construction phase	Included in construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)

Issue	Parameters to be monitored *(What parameter is to be monitored?)*	Target/Threshold Value*	Monitoring location *(Where the parameter is to be monitored?)*	Monitoring Method *(How is the parameter to be monitored/ type of monitoring equipment?)*	Timing/Frequency of Monitoring *(When is the parameter to be monitored- frequency of measurement or continuous?)*	Cost of Monitoring *(What is the cost of equipment or contractor charges to perform monitoring?)*	Responsible Party/Parties
Resources	Types and amounts of materials/resources used	Use of recycled materials whenever possible Reducing energy consumption	Administration office	Material/resource procurement/consumption records	Quarterly during the construction phase	Included in construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)
Infrastructure Damage	Number and nature of cases and amount of compensation paid	No infrastructure cases	Administration office	Incident records Receipts of compensation payments	Monthly during the construction phase	Included in construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)
Trespassing	Trespassing cases	No trespassing	Administration office	Security reports Visitor logs	Weekly during the construction phase	Included in construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)
	Condition of CCTV system			System checks	Daily during the construction phase		
Community Health and Safety	Health and safety signs and traffic signs placed in appropriate locations Number of Grievances, Number of incidents, Number of accidents	No community health and safety incidents occurred No community health and safety accidents occurred 100 percent of satisfactorily resolved grievances within stipulated time	Project Area	Visual observation Site inspection Grievance logs, Accident investigation and root cause records	Daily basis Upon grievance	Included in construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)
Working Conditions	Workers' grievances Training records Recruitment documentations	All employees will be trained on OHS, GM, GBV, SEA/SH and other E&S issues. All grievances closed-out within the target timeframe.	Administration office	Grievance records Accident/incident records, On-site inspections	Weekly during the construction phase	Included in construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (supervision/monitoring)
Occupational Health and Safety	Number of incidents	No OHS incidents occurred	Construction site	Incident records	Daily basis starting from the initialization of the construction phases	Included in construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management
	Incident investigation	No OHS incidents occurred		Incident investigation records Site inspections and OHS audit	Daily basis starting from the initialization of the construction phases Monthly during the construction phase		

Issue	Parameters to be monitored *(What parameter is to be monitored?)*	Target/Threshold Value*	Monitoring location *(Where the parameter is to be monitored?)*	Monitoring Method *(How is the parameter to be monitored/ type of monitoring equipment?)*	Timing/Frequency of Monitoring *(When is the parameter to be monitored- frequency of measurement or continuous?)*	Cost of Monitoring *(What is the cost of equipment or contractor charges to perform monitoring?)*	Responsible Party/Parties
	Period of disease occurrence	No disease cases and response within the prescribed timeframe in case of a case		Disease follow-up register	Daily basis starting from the initialization of the construction phases		Construction Supervision Consultant (supervision/monitoring)
	Training requirements	100 percentage of prescribed staff duly trained, and with satisfactory result		Annual Environmental, Social Health, and Safety (ESHS) training plan	Annually during the construction phase		
	Adequate OHS organizational structure.	1 fulltime OHS staff to be		Site implementation Site inspection	Monthy during the construction phase		
	Total hours worked by employee	As specified in the LMP		Timesheets, Grievance records	Monthly, yearly		Contractor (implementation) ASO 2-3 OIZ (performance control and management 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	Contractor (implementation) ASO 2-3 OIZ (performance control and management 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	Contractor (implementation) ASO 2-3 OIZ (performance control and management 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 and in case of such issues, prescribed procedure ensuring confidentiality observed Minimum 1 annual refresher training for SEA/SH and GBV	Administration office and Project area	Document review Review of grievance logs Training records	Quarterly Upon relevant grievances Yearly	Included in construction cost	Contractor (implementation) ASO 2-3 OIZ (performance control and management Construction Supervision Consultant (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.*

Table 34 Monitoring Plan for the Operation Phase

Issue	**Parameters to be monitored** *(What parameter is to be monitored?)*	**Target/Threshold Value***	**Monitoring location** *(Where the parameter is to be monitored?)*	**Monitoring Method** *(How is the parameter to be monitored/ type of monitoring equipment?)*	**Timing/Frequency of Monitoring** **(When** *is the parameter to be monitored- frequency of measurement or continuous?)*	**Cost of Monitoring** *(What is the cost of equipment or contractor charges to perform monitoring?)*	**Responsible Party/Parties**
Soil and Contaminated Land	Number of spills/leaks Amount of contaminated soil Soil quality, including heavy metals, petroleum hydrocarbons, organic halogens	No soil contamination resulting from project activities	Entire construction site	Environmental incident reports Sampling and analysis by an authorized environmental laboratory	Monthly during the operation phase After each incident Upon grievance	Included in operation cost	ASO 2-3 OIZ
Water quality of the receiving environment	Water quality analysis parameters including Ammonium, Oil and Grease, Biological Oxygen Demanded BOD, Dissolved Oxygen DO, Conductivity, Chemical Oxygen Demanded COD, Nitrate, pH, Total Phosphorus, TP, Ortophosphate, Total Kjeldahl Nitrogen, TKN, Total Nitrogen, TN, Floride, Manganese, Selenium, Sulphur	Prevention of water quality deterioration compared to current surface water COD: 250 mg/L TSS: 200 mg/L Oil and grease: 20 mg/L Total Phosphorus (P): 2 mg/L Total Chrome: 2 mg/L Chrome (Cr^{+6}): 0.5 mg/L Lead (Pb): 2 mg/L Total Cyanide (CN-): 1 mg/L Cadmium (Cd): 0.1 mg/L Ferrous (Fe): 10 mg/L Fluoride (F-): 15 mg/L Copper (Cu): 3 mg/L Zinc (Zn): 5 mg/L Mercury (Hg): 0.05 mg/L Sulphate (SO_4^{-2}): 1500 mg/L Total Kjeldahl Nitrogen (TKN): 20 mg/L Fish Bioassay (TDF): 10 Color: 280 Pt-Co pH:6-9	Pirenli Creek	In-situ measurements and laboratory measurements and analysis via an authorized environmental laboratory Spill notices/correspondences to authorities in case of major spills	Quarterly during the operation phase	Included in operation cost	ASO 2-3 OIZ
Odor	Odor Level	Limited number of grievances, resolved adequately, fast and to the satisfaction of the complainants.	Location of Grievance	Grievance records Measurement via an authorized environmental laboratory	Upon grievance	Included in operation cost	ASO 2-3 OIZ
Effluent water quality	COD, TSS, Oil and grease, TP, Total Chromium, Chromium (Cr+6), Lead (Pb), Total Cyanide (CN-), Cadmium (Cd), Iron (Fe), Fluoride (F-), Copper (Cu), Zinc (Zn), Mercury (Hg), Sulphate (SO4-2), Total Kjeldahl Nitrogen (TKN), Fish Bioassay (TDF), Colour, pH	Effluent discharge compliant with the discharge standards	Discharge location	Automatic measurement for relevant parameters and laboratory analysis for others via an authorized environmental laboratory	Continuous monitoring for the detectable by automatic measurement devices Twice a month for the others (at minimum 24 samplings in a year)	Included in operation cost	ASO 2-3 OIZ
Noise	Noise level	Not exceeding the limit values defined in Regulation on Environmental Noise Control and WB standards No noise related grievance received	In case of a complaint, in the relevant area	At least 24-hr noise measurements via an authorized environmental laboratory	Once in a year Upon grievance	Included in operation cost	ASO 2-3 OIZ
Waste	Type and amount of waste generated including sludge	Adhering to the TurkStat estimation of 0.93 kg/person/day waste generation Minimizing the amount of waste to be sent for disposal and implement waste management hierarchy	Treatment plant site and storage areas	Visual observation Waste Records Site inspections Disposal truck register	Weekly basis starting from the initialization of the operation phase of the Project	Included in operation cost	ASO 2-3 OIZ
Resources	Types and amounts of materials/resources used	Use of recycled materials whenever possible Reducing energy consumption	Administration office	Material/resource procurement/consumption records	Annually starting from the initialization of operation phase	Included in operation cost	ASO 2-3 OIZ

Issue	Parameters to be monitored *(What parameter is to be monitored?)*	Target/Threshold Value*	Monitoring location *(Where the parameter is to be monitored?)*	Monitoring Method *(How is the parameter to be monitored/ type of monitoring equipment?)*	Timing/Frequency of Monitoring **(When** *is the parameter to be monitored- frequency of measurement or continuous?)*	Cost of Monitoring *(What is the cost of equipment or contractor charges to perform monitoring?)*	Responsible Party/Parties
Infrastructure Damage	Number and nature of cases and amount of compensation paid	No infrastructure cases	Administration office	Incident records Receipts of compensation payments	Monthly during the operation phase	Included in operation cost	ASO 2-3 OIZ
Trespassing	Trespassing cases	No trespassing	Administration office	Security reports Visitor logs	Weekly during the operation phase	Included in operation cost	ASO 2-3 OIZ
	Condition of CCTV system			System checks	Daily during the operation phase		
Community Health and Safety	Health and safety signs and traffic signs placed in appropriate locations	All cases that cause health and safety problems to be prevented	Project Area	Visual observation Site inspection	Daily basis Upon grievance	Included in operation cost	ASO 2-3 OIZ
Working Conditions	Workers' grievances	A limited number of cases Proper management of provisions given in LMP	Administration office	Grievance records	Weekly during the operation phase	Included in operation cost	ASO 2-3 OIZ
Occupational Health and Safety	Number of incidents	No OHS incidents occurred	Administration office	Incident records	Daily basis starting from the initialization of operation phase	Included in operation cost	ASO 2-3 OIZ
	Incident investigation	No OHS incidents occurred		Incident investigation records	Daily basis starting from the initialization of operation phase		
	Period of disease occurrence	No infectious disease is recorded		Disease follow-up register	Daily basis starting from the initialization of operation phase		
	Number of personnel who are infected with an infectious disease	No infectious disease is occurred		Training records	Monthly during the operation phase		
	Training requirements	Every training defined in the Annual ESHS is completed		Annual ESHS training plan	Annually during the operation phase		
	Total hours worked by employee	Total hours worked should be less than 11 hours/worker/day The total of overtime working hours cannot exceed 270 hours in a year.	Administration office	Timesheets, Grievance records	Monthly, yearly		
Protecting the Workforce	Age of candidate employee	No case of child labor	Administration office	Age verification with National ID	Before each recruitment	Included in operation cost	ASO 2-3 OIZ
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 and in case of such issues, prescribed procedure ensuring confidentiality observed Minimum 1 annual refresher training for SEA/SH and GBV	Administration office	Document review Review of grievance logs Training records	Quarterly Upon relevant grievances Yearly	Included in operation cost	ASO 2-3 OIZ

10 INSTITUTIONAL ARRANGEMENT AND TRAINING

The main responsible organization for the implementation of this ESMP is ASO 2-3 OIZ. ASO 2-3 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 consists of the ASO 2-3 OIZ's own staff.

Besides, on different phases of the Project, various parties (contractors, Construction Supervision Team, Ministry of Industry and Technology (MoIT), etc.) will take responsibility for various works in the scope of the ESMP. All mentioned works will be coordinated by the ASO 2-3 OIZ. Mitigation and monitoring tables, which are given in this ESMP, summarize the relevant responsibilities.

In that scope, it is suggested to add below mentioned liabilities to tender documents of any possible contractor(s):

- The full ESMP,
- Environmental, social and occupational health and safety liabilities,
- Other environmental and social issues that can show-up.
- Additional management plans (have been listed Table 2).

10.1 Roles and Responsibilities

The entire Project will be financed by the WB. MoIT is responsible for the coordination of the Project and acting as the contracting authority. ASO 2-3 OIZ is the sub-borrower.

The draft ESMP will be made available to the public in both ASO 2-3 OIZ's and MoIT's web site prior to any activity on site. 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 ASO 2-3 OIZ and document performance, recommendations and any further actions required. He/she will provide guidance to ASO 2-3 OIZ officials on WB procedures, consultation and disclosure requirements. In addition, ASO 2-3 OIZ will inform MoIT and WB on any project changes or unforeseen circumstances in the approved project documents.

ASO 2-3 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, ASO 2-3 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 ASO 2-3 OIZ's own staff.

The parties responsible for the monitoring progress are contractor, supervision consultant and ASO 2-3 OIZ/PIU during the construction phase, while only ASO 2-3 OIZ/PMU is responsible for monitoring progress during the operation phase of the Project. Depending on the monitoring plan, the Contractor will prepare monthly Environmental and Social Monitoring Reports (ESMRs) to be submitted to ASO 2-3 OIZ; whereas ASO 2-3 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.

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.

Project Coordinator

- Overall responsibility for the ESMP implementation,

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.

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 about any contingencies such as labor issues, accidents and incidents. The incident report including root cause analysis, precautions and compensation measures taken, will be shared with MoIT PIU in 30 business days.

Technical Specialist

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

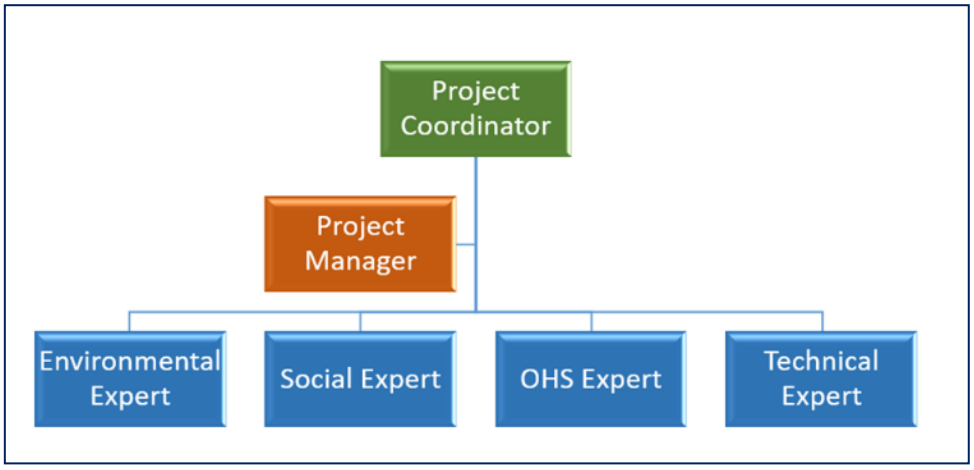


Figure 18 Organizational Chart of Project Management Unit (PMU)

A table defining the responsibilities for the MoIT PIU, OIZ PMU, E&S consultant, construction supervision Consultant and contractor is given below. The roles and responsibilities of the relevant institutions which are involved in the management, monitoring, implementation and finalization of the Project in line with both national and WB ESF requirements are summarized in the table below.

Table 35 Parties Responsible for the Management of the Project in Accordance with World Bank ESF Requirements

Institution	Responsibilities
MoIT Project Implementation Unit (PIU)	• Providing guidance to OIZ and the consultant that is responsible for preparation of this ESMP and SEP considering WB's requirements (standards, guidelines and procedures), • Reviewing the documents related to the environmental and social assessment of the project, provide comments/revisions to the consultant in order to develop (performing overall quality assurance) the E&S documents, • Guiding OIZ and the consultant on stakeholder consultation and announcement requirements within the scope of 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 PMU specialists before the construction activities

Institution	Responsibilities
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 and SEP on site • Sharing the ESMP with the Contractor and Construction Supervision Consultant, • Guiding the Contractor in preparing and approving the sub-management plans, including contractor's Labour Management Plan and GM • 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, • OHS, GM, GBV, SEA/SH and Code of Conduct trainings to the employees and rest of the project personnel by the PMU before the construction, which will be repeated yearly. 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 as per the concerns/opinions of the stakeholders of the Project for the approval of MoIT PIU and WB, • Preparation of draft project SEP for the approval of MoIT and WB • Supporting the PMU to organize and carry out the stakeholder engagement and information 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.

Institution	Responsibilities
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 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 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 in a timely manner if necessary.

Institution	Responsibilities
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 PMU 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 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 (based on Project's LMP) including working conditions, fair treatment, non-discrimination, equal opportunity, vulnerable/disadvantaged workers, GBV, SEA/SH, prevention of child labor and forced labor issues under the project's Labor and Employment Policy for construction phase. • Establishment and implementation of project specific grievance mechanism for the Project construction activities in coordination with OIZ PMU.

10.2 Reporting

Reporting process that should be followed during the implementation phase of the project is an important tool to record and chase project activities in compliance with the national and WB standards. Therefore, the requirements of such processes are presented in Table 36.

Table 36 Requirements of Such Processes

Responsible Party	Roles & Responsibility
MoIT Project Implementation Unit (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. • CoC, GM, GBV, SEA/SH, OHS training will be given to OIZ PMU, Supervision Consultant and Contractor's Environmental and Social Specialists and training records will be kept.

OIZ Project Management Unit (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 • CoC, GM, GBV, SEA/SH, OHS 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 prepared in line with the complaint received and combine it with monthly the Grievance Mechanism Report prepared by the Contractor • CoC, GM, GBV, SEA/SH, OHS 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 • CoC, GM, GBV, SEA/SH, OHS training will be given to employees and training records will be kept.

Regarding the reporting process, workflow is summarized in the chart below.

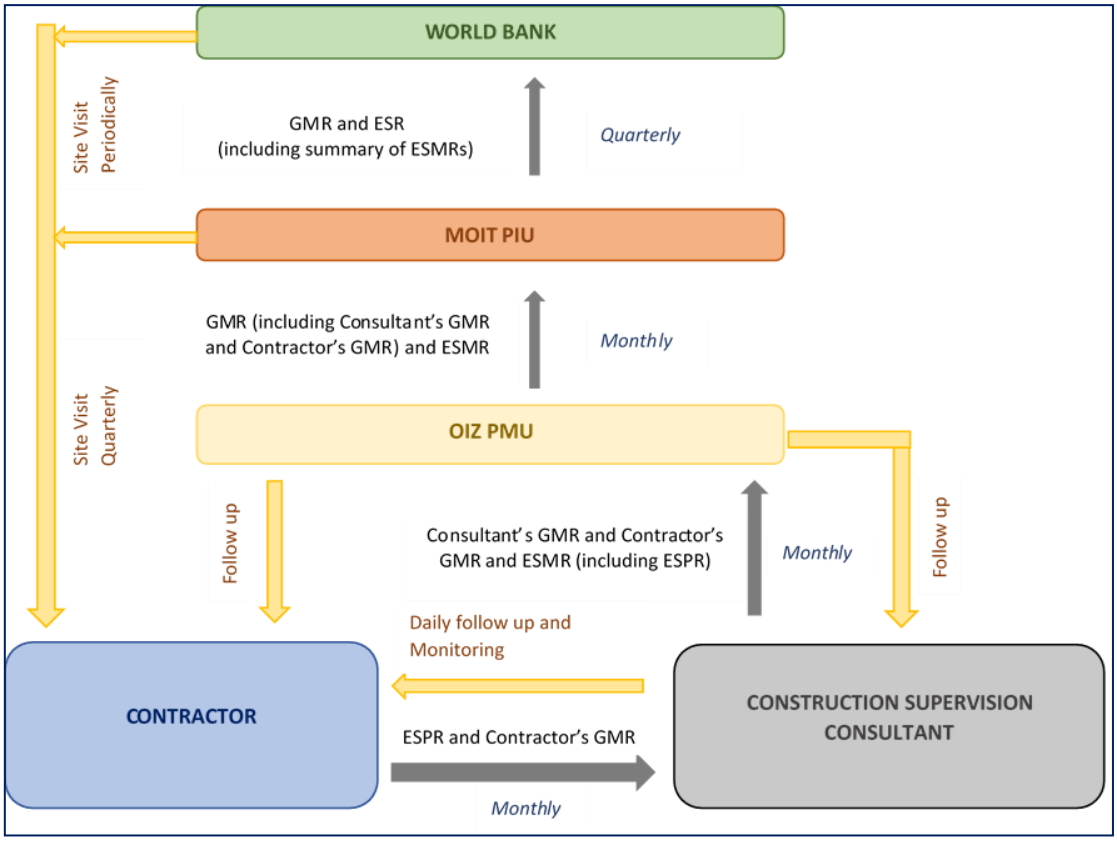


Figure 19 Reporting Process on ESMP Implementation

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 training will also be refreshed during the work period and will be conducted at different 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 and social 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 over a 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

Table 37 provides examples of the basic training for the ESMP implementation. The training programs will be developed annually and delivered by the PIU.

Table 37 Training Program

Training Topics	Responsible Party (Trainer Party)	Target Group	Duration	Time	Cost
• Overview of potential impacts and mitigation measures • Requirements of environmental monitoring • Occupational Health and Safety Training • Role and responsibilities of the contractor • Content and methods of implementation of environmental mitigation measures • Response and risk control • Preparation and submission of report • Risk response and control • Code of conduct training	PMU with support of MoIT PIU Contractor Construction Supervision Consultant	OIZ, 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	-

Training Topics	Responsible Party (Trainer Party)	Target Group	Duration	Time	Cost
• GM training • SEA/SH and GBV training/ awareness • Other areas to be determined					
• 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 • 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	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 DLP.	Soon after the Project effectiveness but at least one (1) month before the construction of the contract. The follow-up training will be scheduled as needed.	-
• Code of Conduct, GM, SEA/SH and GBV training/ awareness	PMU Construction Supervision Consultant, Contractor	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 but at least one (1) month before the construction of the contract and the training will be renewed whenever a need arises. Minimum one (1) annual refresher training to be conducted after first training.	-

In addition, the training program/modules shall address a range of issues, including but not limited to:

- Purpose of ESMP regarding the Project activities,
- Requirements in management plans and monitoring activities to be performed within the scope of this plan,
- Understanding of the sensitive environmental and social receptors within the project area and its vicinity, and
- Awareness-raising about the potential risk and impacts from the project activities,
- Grievance 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 UNDER ESMP

This chapter contains a brief description of stakeholder engagement. As mentioned above, the TOIZP Stakeholder Engagement Plan (SEP) will be used for this sub-project and all project parties (including contractor, construction supervisor, Organized Industrial Zone (OIZ) and Ministry of Industry and Technology (MoIT) PIU) will be responsible for ensuring compliance with the TOIZsP SEP.

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 38 Stakeholders and Relevance to the Project

Stakeholder Group			Relevance of Stakeholders to the Project
Affected Parties	Communities (residents and businesses)	Türkobası Neighbourhood (with a population of 464) (distance to the project area 1.6 km) Alcı (with a population of 3,326) (distance to the project area 1.6 km) Malıköy (with a population of 709) (distance to the project area 4.2 km)	Exposed to potential noise and dust emission during the construction phase
	Business and Employees	Firms in ASO 2-3 OIZ	Exposed to potential noise and dust emission during the construction phase, User/ beneficiary after commissioning
		Employees of Firms: About 9,069 Employees	Exposed to potential noise and dust emission during the construction phase
Other Interested Parties	Central and Local Authorities	Ankara Provincial Governorate	Responsible for public healthcare, environmental and social services
		District Governorate of Sincan	Responsible for public healthcare, environmental and social services
		Ankara Provincial Directorate of Environmental Urbanism and Climate Change	The authority consulted for the project preparation and implementation phases
		Ankara Industry and Technology Provincial Directorate	Project implementing local partner
		Ankara Provincial Directorate of Health	Responsible for public health
		Sincan District Directorate of Health	Responsible for public health
		Ankara Metropolitan Municipality	Responsible for public services
		Sincan Municipality	Responsible for public services
	Non-Governmental Organizations	Organized Industrial Zones Association	NGO responsible to protect and develop the common economic, social rights and interests of OIZs and to provide mutual assistance among them.
		Organized Industrial Zones Supreme Organization	NGO responsible for unity of application and cooperation

Stakeholder Group			Relevance of Stakeholders to the Project
			between OIZs and solving the problems of OIZs.
		Ankara Chamber of Trade and Industry	Responsible to strive for the development of trade and industry in accordance with general interests,
	Media/ Electronic Media	Ankara Gazetesi http://www.ankaragazetesi.com/	Information disclosure
		Başkent Gazetesi https://www.baskentgazete.com.tr/	Information disclosure
		Ankara Anadolu Gazetesi https://www.anadolugazete.com.tr/	Information disclosure

The TOIZsP Stakeholder Engagement Plan (SEP) will be used for this sub-project and all project parties (including the supervision consultant, contractor, Organized Industrial Zone (OIZ) and Ministry of Industry and Technology (MoIT) PIU) will be responsible for ensuring compliance with the TOIZsP SEP.

11.1 Previous Stakeholder Engagement Activities

A site visit was conducted by Infratech on 28.06.2024 and primary data was collected on the communities living around the Project area and potential Project impacts through key informant interviews with the mukhtars of Türkobası, Alcı and Malıköy neighborhoods.

The information obtained from the interviews generally summarizes the current situation of the neighborhood. This information is shared in Chapter 6 of this document.

No stakeholder activities have been held yet for the project.

11.2 Disclosure and Consultation of the ESMP

A Stakeholder Consultation Meeting (SCM) will be conducted following the clearance of this draft ESMP for disclosure and consultation purposes. 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. The ESMP will be further revised to incorporate the outcomes of the consultations and the feedback received from stakeholders. Minutes of the consultations will be prepared and disclosed on the ASO 2-3 OIZ website (https://www.aso2osb.org.tr/) and MoIT PIU website (yesilosb.sanayi.gov.tr).

The ASO 2-3 OIZ will ensure that the final approved ESMP to be disclosed will be available locally at the ASO 2-3 OIZ offices, places easily accessible to affected groups such as headmen's offices and local NGOs and will be published on ASO 2-3 OIZ website (https://www.aso2osb.org.tr/) 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 ASO 2-3 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 phases 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.

11.3 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.

GM at the National Level

Presidency's Communication Center: The Presidency's Communication Centre (CİMER) provides a centralized complaint system for Turkish citizens, legal persons and foreigners. CİMER only allow applications in Turkish.

Through CİMER, applicants can direct their requests directly to the relevant authorities. The requests submitted to CİMER are resolved within 30 days. If the applicants do not receive feedback within this period, they can re-submit their grievance to CİMER or elevate it to the Ombudsman Institution (www.ombudsman.gov.tr).

Webpage:	www.cimer.gov.tr/ www.turkiye.gov.tr/
Call Centre (hotline):	150
Phone number:	+90 312 590 20 00
Fax number:	+90 0312 473 64 94
Official Letter/Petition:	Republic of Türkiye, Directorate of Communications T.C. Cumhurbaşkanlığı Külliyesi 06560 Beştepe/ Ankara
Individual Application:	Community relations desks at governorates, ministries and district governorates.

CİMER will be available to Project stakeholders as an alternative and well-known channel for conveying their Project-related grievances and feedback directly to state authorities.

Foreigners Communication Center: The Foreigners Communication Center (YİMER) provides a centralized complaint system for foreigners. YİMER will be available to Project stakeholders as an alternative and well-known channel for conveying their Project-related grievances and feedback directly to state authorities.

Webpage:	www.yimer.gov.tr
Email:	yimer@goc.gov.tr
Call Centre (hotline):	157
Phone number:	+90 312 515 11 22
Fax number:	+90 312 920 06 09
Official Letter/Petition:	Republic of Türkiye General Directorate of Migration Management, Çamlıca Mahallesi 122. Sokak No: 4 Yenimahalle/ Ankara
Individual Application:	Republic of Türkiye General Directorate of Migration Management

MoIT Level GM: All stakeholders can submit individual applications to the MoIT grievance mechanism established specifically for the Main Project via ways given below.

E-mail	info@sanayi.gov.tr dboneri@sanayi.gov.tr
Website	www.sanayi.gov.tr
Address	Mustafa Kemal Mahallesi Dumlupınar Bulvarı (Eskişehir Yolu 7.km) 2151. Cadde No:154/A 06530 Çankaya/ANKARA
Phone	444 6 100
Fax	+90 (312) 201 58 23

Project Level Grievance Mechanism

On the website[14] of ASO 2-3 OIZ, there is a Contact page which is available in Turkish. The grievances/requests related to ASO 2-3 OIZ's activities can be communicated through this page and the resolution process is followed. The page includes information on email, phone number and Registered Electronic Mail (KEP) address of ASO 2-3 OIZ.

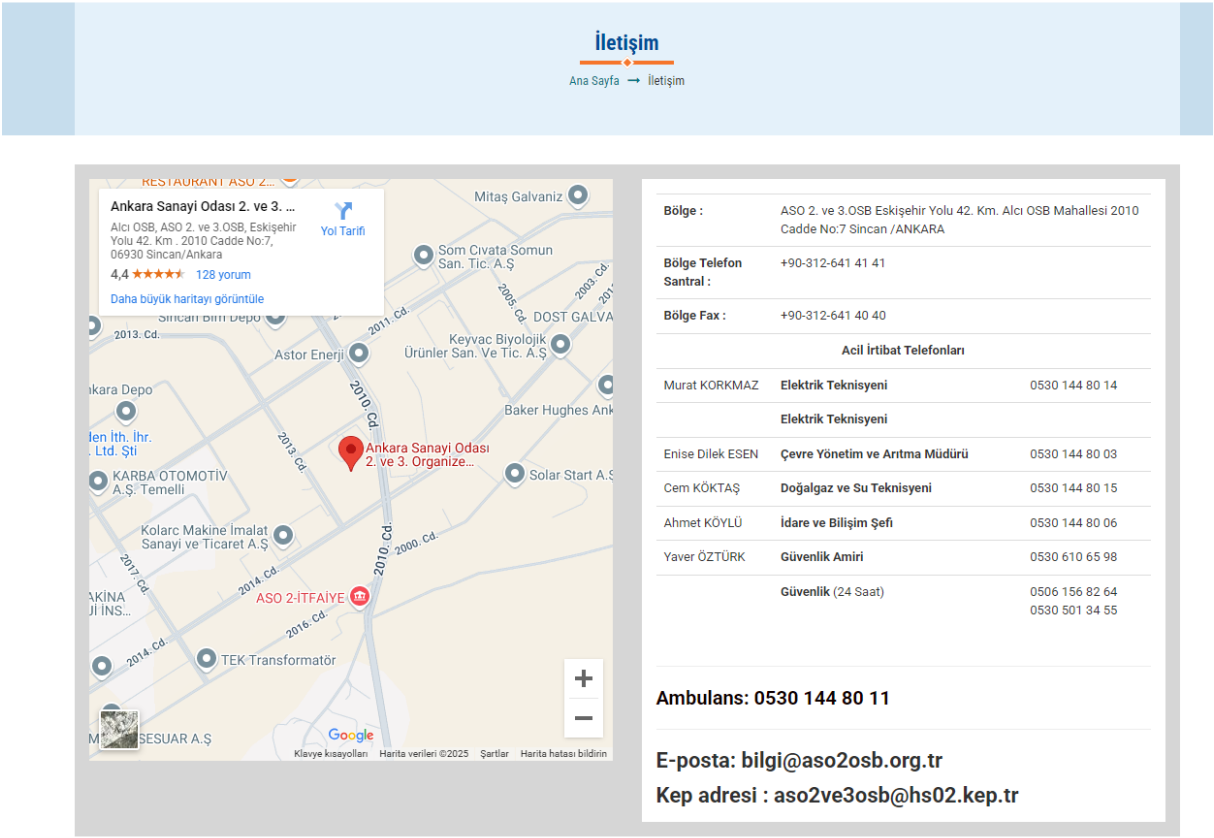


Figure 20 Screenshot of ASO 2-3 OIZ Contact Web Page

The official website of ASO 2-3 OIZ has a section called "Our Documents". There are examples of official documents such as subscription, utility rates, environmental and wastewater management. There is an "External stakeholder needs/expectations questionnaire form" with 17 question boxes with options and/or answers under the "other" tab.

[14] https://www.aso2osb.org.tr/iletisim/

Figure 21 External stakeholder needs/expectations questionnaire form

11.3.1 Procedural Steps of Grievance Mechanism

As per the World Bank's ESS10 requirement, a proper grievance mechanism (GM) will be established for the Project and will be operational before starting construction. For this mechanism to function in a proper and timely manner, a GM focal point who will oversee the entire process has been assigned as a part of the project team of the MoIT. The GM focal point will also be responsible for reporting the grievance process of the project for monitoring purposes. This person will also be responsible for coordinating the grievance mechanism to ensure its smooth functioning within the scope of the project.

As per the GM procedure prepared for the MoIT's project-specific GM, complaints should be reviewed and closed in 15 days. Regardless of general response and resolution timeframes, some complaints may require immediate attention, for example, an urgent safety issue or where it concerns the livelihood of locals.

The Project-based GM is detailed in Chapter 7 of the TOIZP Stakeholder Engagement Plan. The steps that complete the grievance mechanism and the description of this process are summarized in the Table below.

Table 39 Steps of Grievance Mechanism

Step	Description of Process	Time Frame	Responsibility
GM implementation structure	There exist three Grievance Mechanism at the National Level: • Presidency's Communication Center and • Foreigners Communication Center • MoIT level GM Additionally there is also a Project Level GM. Details can be reached from TOIZP SEP[15]	-	Presidency's Communication Center, and Foreigners Communication Center and related authorities MoIT PIU OIZ PMU
Grievance uptake	Grievances can be submitted via telephone, e-mail, letter to Grievance focal points at local facilities, complaint form lodged via any of the above channels(contact information is given in the Annex-19), or walk-ins may register a complaint in a grievance logbook at a facility or suggestion box.	-	Presidency's Communication Center, and Foreigners Communication Center and related authorities MoIT PIU OIZ PMU
Sorting, processing	Complaints are forwarded to PMU, logged in the Grievance Log, and categorized as Level 1, Level 2, or Level 3 complaints[16]. If out of scope, the grievant is notified and an alternative solution is suggested.	-	OIZ PMU
Acknowledgement and follow-up	Receipt of the grievance is acknowledged by PMU/Social Expert or GM focal point within 2 working days through a personal meeting, phone call, or letter. Clarifications are sought if necessary.	2 working days	OIZ PMU/Social Expert or GM focal point
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. If the complaint is the subject to the Workers' GM a worker's representative will be participate in this process	-	Project Manager OIZ PMU Workers' representative

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

[16] Level 1 Complaint: A complaint that is isolated or 'one-off' and essentially local.
Level 2 Complaint: A complaint that is widespread and repeated.
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.

Step	Description of Process	Time Frame	Responsibility
Provision of feedback	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.	Within 15 days	OIZ PMU

In addition to the project's GM for its internal and external stakeholders, ESS 2 requires the establishment of a Workers' Grievance Mechanism (WGM) for the project workers. Worker GRM is defined as complaints from project employees (including both direct and indirect employees). This mechanism is structured to be an effective approach for early identification, assessment, and resolution of grievances throughout the project's lifespan.

The scope of the Worker GRM 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 GRM is same as described in the Table 39.

The World Bank and the Borrower do not tolerate reprisals and retaliation against project stakeholders who share their views about Bank-financed projects.

11.4 Grievances Related GBV/SH/SEA

To properly address SEA/SH risks, the GM 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 survivors 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. These channels are The Presidency's Communication Centre (CİMER), The Foreigners Communication Center (YİMER), MoIT communication channels at National Level and the Contact page on the website of ASO 2-3 OIZ at Project Level. The GM operators and CLO will to be trained in how to collect SEA/SH cases confidentially and empathetically (with no judgement). Details can be reached at the link of TOIZsP SEP[17].

Projects 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.

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

12 DEVIATION FROM SCREENING STUDIES

Environmental and Social Screening of the Project was carried out and the final version dated January 2024 was used in the preparation of this plan. During the preparation of the ESMP, it was concluded that most of the information provided in the screening report and pre-feasibility report reflects the Project. However, it can be said that there are some deviations from the screening forms in the ESMP. These deviations are listed below:

- The location of the project area has changed within the parcel boundaries. The Project area, which was located to the north of the wastewater treatment plant in the screening studies, is currently located to the south.

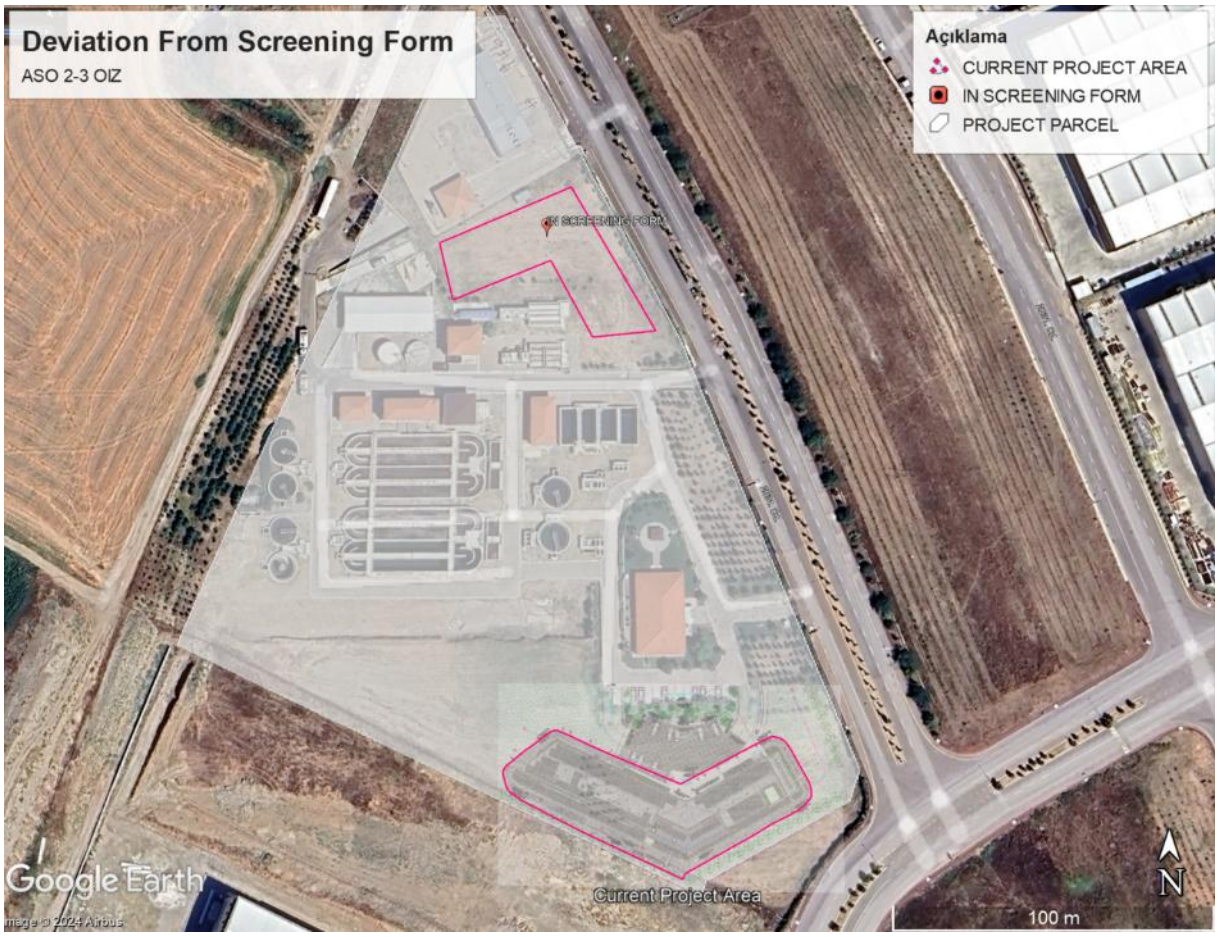


Figure 22 Deviation from Screening Form

- During the screening studies, it was stated that the Project area consists of a single parcel, which is Block 100500, Parcel No. 2, and has an area of 854 m^2. In addition, it is planned that the laboratory building will have a total area of 1,712 m^2 and will consist of 3 floors: basement, ground floor, first floor and roof floor. However, the size of the project area was increased due to the insufficiency of technical areas during the application projects phase. In the current situation, the construction area has been revised as 2,366.65 m^2. According to this revision, the Environmental Laboratory has a indoor area of 1,973.49 m^2 and building footprint of 1,109.95 m^2 after deducting the technical areas.

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ANNEXES

ANNEX-1: LAND REGISTRY

BU BELGE TOPLAM 3 SAYFADAN OLUŞMAKTADIR BİLGİ AMAÇLIDIR.

Tarih: 29-8-2022-16:01

webtapu
Tapunun Kısayolu

Tapu Kaydı (Aktif Malikler için Detaylı - ŞBİ var)

TAPU KAYIT BİLGİSİ

Zemin Tipi:	AnaTasinmaz
Taşınmaz Kimlik No:	116146741
İl/İlçe:	ANKARA/SİNCAN
Kurum Adı:	Sincan
Mahalle/Köy Adı:	TEMELLİ/ALCI Mah.
Mevkii:	-
Cilt/Sayfa No:	48/4686
Kayıt Durum:	Aktif

Ada/Parsel:	100500/2
AT Yüzölçüm(m2):	34482.79
Bağımsız Bölüm Nitelik:	
Bağımsız Bölüm Brüt YüzÖlçümü:	
Bağımsız Bölüm Net YüzÖlçümü:	
Blok/Kat/Giriş/BBNo:	
Arsa Pay/Payda:	
Ana Taşınmaz Nitelik:	TEKNİK ALTYAPI ALANI

TAŞINMAZA AİT ŞERH BEYAN İRTİFAK BİLGİLERİ

Ş/B/İ	Açıklama	Malik/Lehtar	Tesis Kurum Tarih-Yevmiye	Terkin Sebebi-Tarih-Yevmiye
Beyan	İŞ BU TAŞINMAZ ASO 2 VE 3. OSB ADINA OSB AMACINDA KULLANILMAK ÜZERE 4562 SAYILI KANUNUN 4916 SAYILI KANUNLA DEĞİŞİK 4. MADDESİ GEREĞİNCE SATILMIŞTIR SATIŞ AMACI DIŞINDA KULLANILAMAZ(Şablon: Diğer)		Sincan - 01-10-2009 13:37 - 27245	-

MUHDESAT BİLGİLERİ

Sistem No	Tip	Tanım	Tesis Kurum Tarih-	Terkin

1 / 3

THE WORLD BANK
IBRD • IDA | WORLD BANK GROUP

INFRATECH
ENGINEER•SOLVE•PLAN

			Yevmiye	Sebebi-Tarih-Yevmiye
2742631	Diger	MALİYE HAZİNESİ	Sincan - 13-08-2021 15:41 - 41603	-
2742632	Diger	MALİYE HAZİNESİ	Sincan - 13-08-2021 15:41 - 41603	-
2742633	Diger	MALİYE HAZİNESİ	Sincan - 13-08-2021 15:41 - 41603	-

MÜLKİYET BİLGİLERİ

(Hisse) Sistem No	Malik	El Birliği No	Hisse Pay/Payda	Metrekare	Toplam Metrekare	Edinme Sebebi-Tarih-Yevmiye	Terkin Sebebi-Tarih-Yevmiye
600235294	(SN:4888647) ANKARA 2.VE 3.ORGANİZE SANAYİ BÖLGESİ V	-	1/1	34482.79	34482.79	İfraz İşlemi (TSM) NaN-NaN-NaN 41603	-

MÜLKİYETE AİT ŞERH BEYAN İRTİFAK BİLGİLERİ

Ş/B/İ	Açıklama	Kısıtlı Malik (Hisse) Ad Soyad	Malik/Lehtar	Tesis Kurum Tarih-Yevmiye	Terkin Sebebi-Tarih-Yevmiye
Beyan	Bu taşınmaz, devir amacı veya devreden idarenin izni dışında başkaca bir kamusal amaçla kullanılamaz.	ANKARA 2.VE 3.ORGANİZE		Polatlı - 11-11-2008 16:12 - 15245	Sincan - 26-03-2019 16:46

		SANAYİ BÖLGESİ VKN			- 10874

Bu belgeyi akıllı telefonunuzdan karekod tarama programları ile aşağıdaki barkodu taratarak;

veya Web Tapu anasayfasından (**https://webtapu.tkgm.gov.tr** adresinden) **rswnK2Jz0Cv** kodunu Online İşlemler alanına yazarak doğrulayabilirsiniz.

ANNEX-2: MAPS

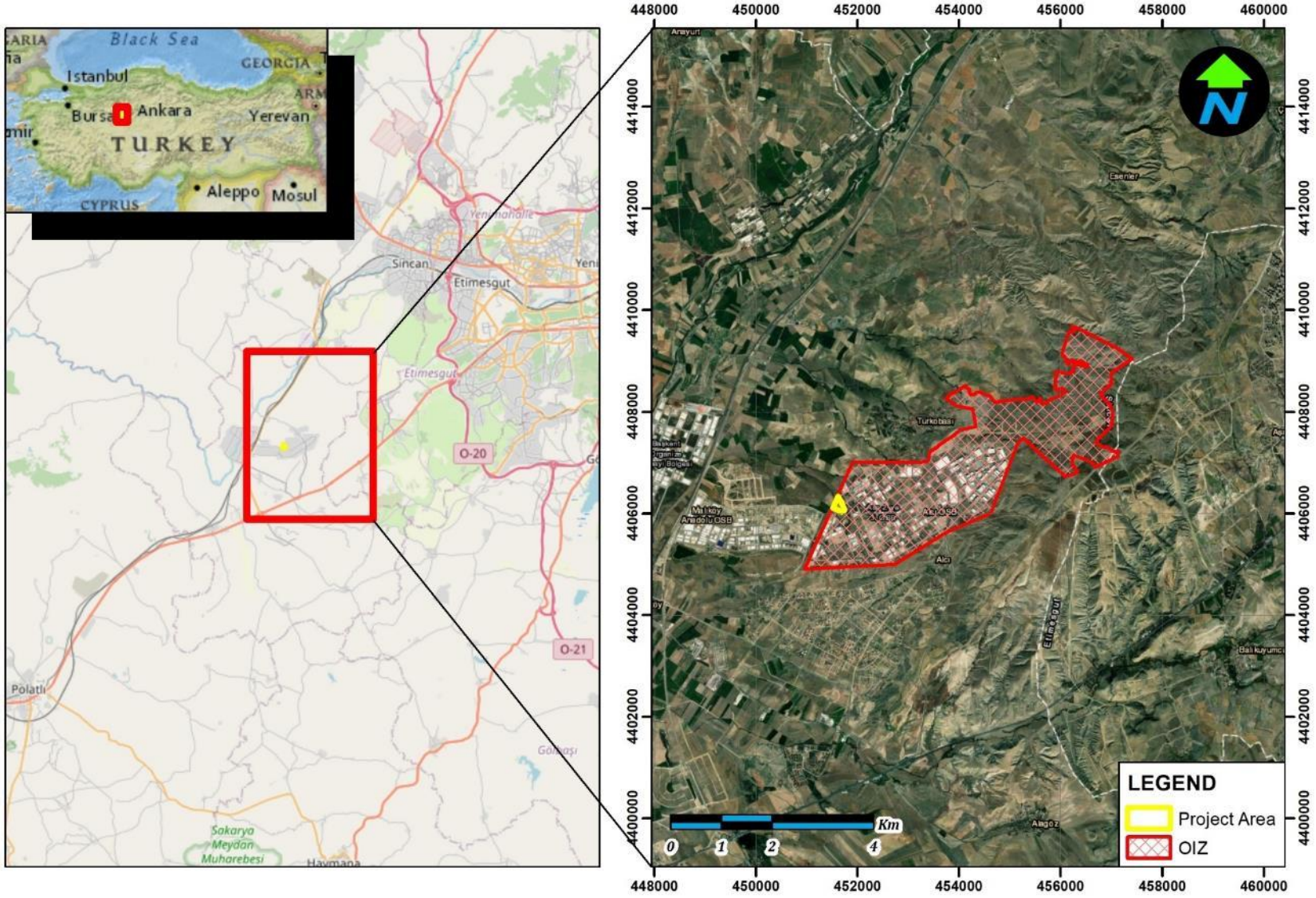


Figure 23 Project Location

THE WORLD BANK
IBRD • IDA | WORLD BANK GROUP

INFRATECH
ENGINEER•SOLVE•PLAN

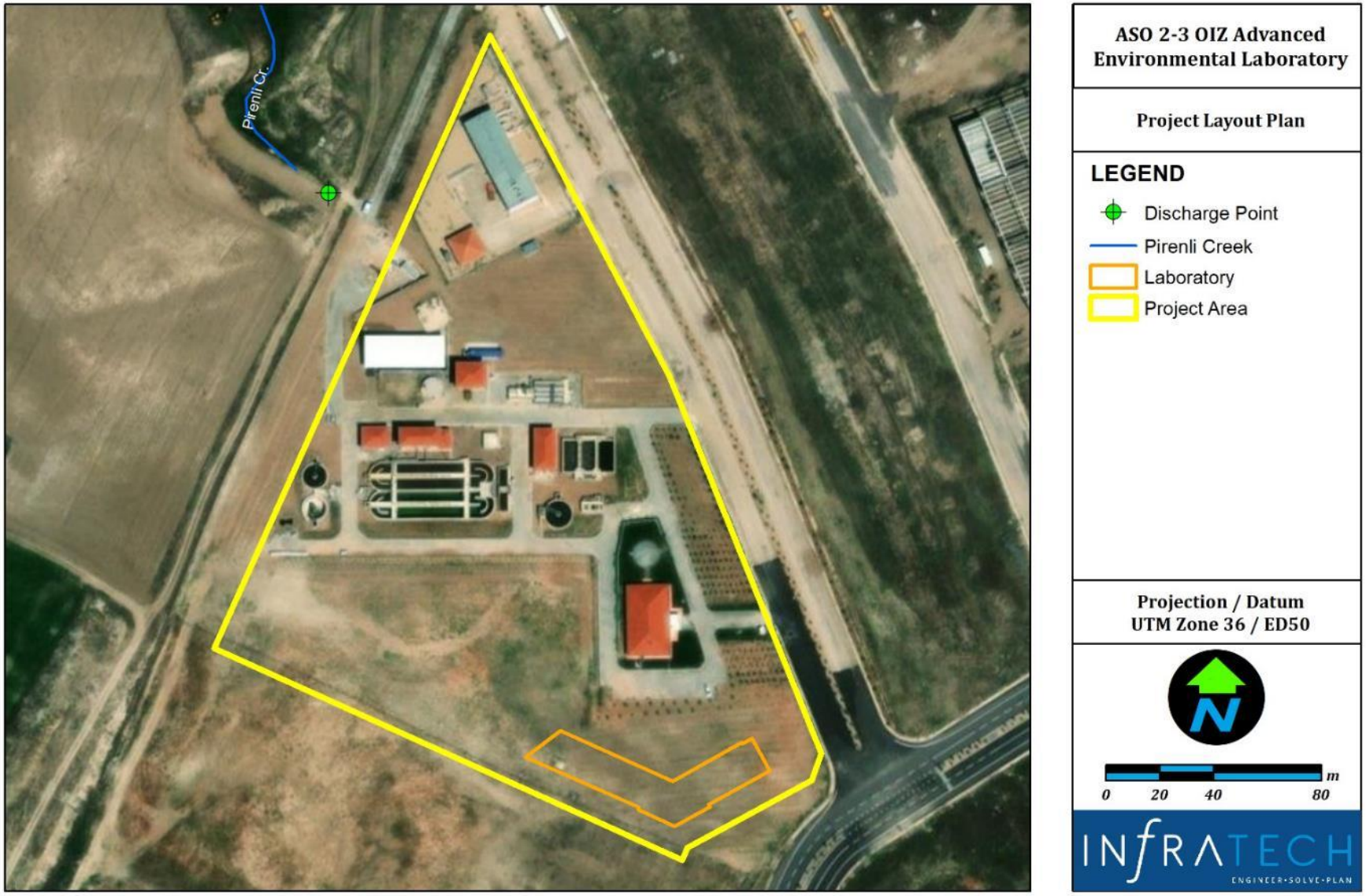


Figure 24 Layout Plan

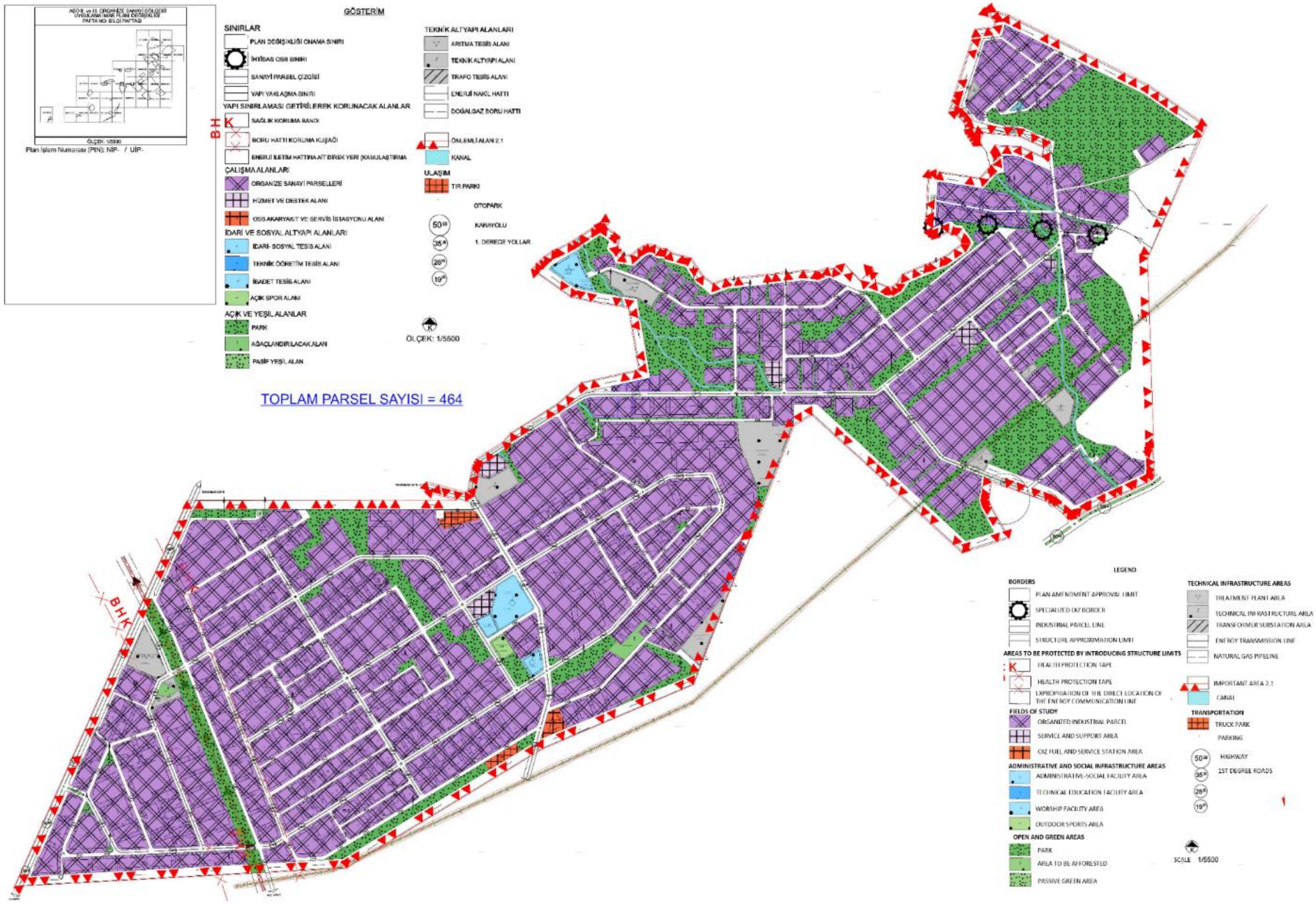


Figure 25 Zoning Plan of the OIZ, including the Proposed Project Location (Source: ASO 2-3 OIZ E&S Screening Report, Annex 4-A2)

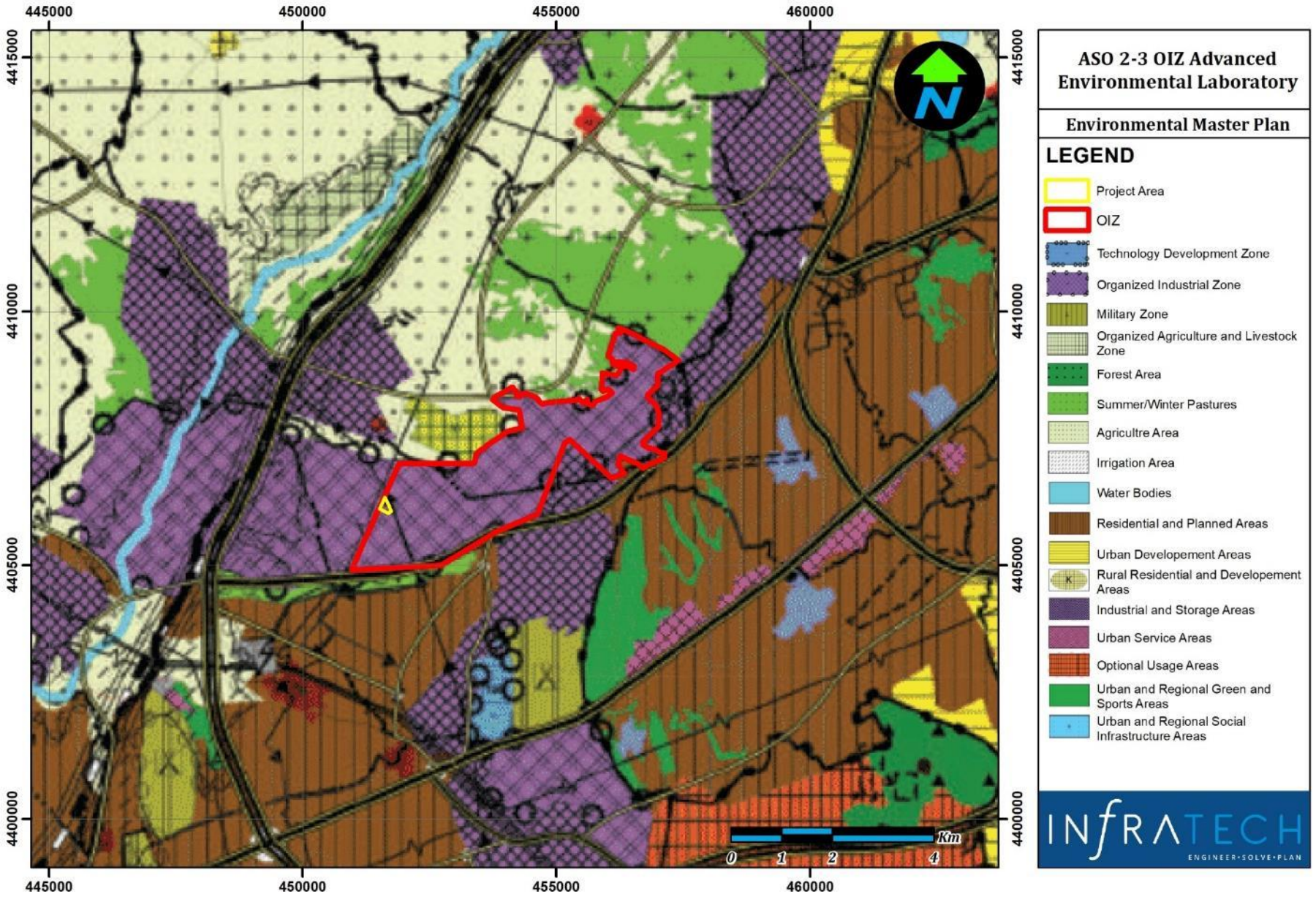


Figure 26 Land Use Map According to Environmental Master Plan

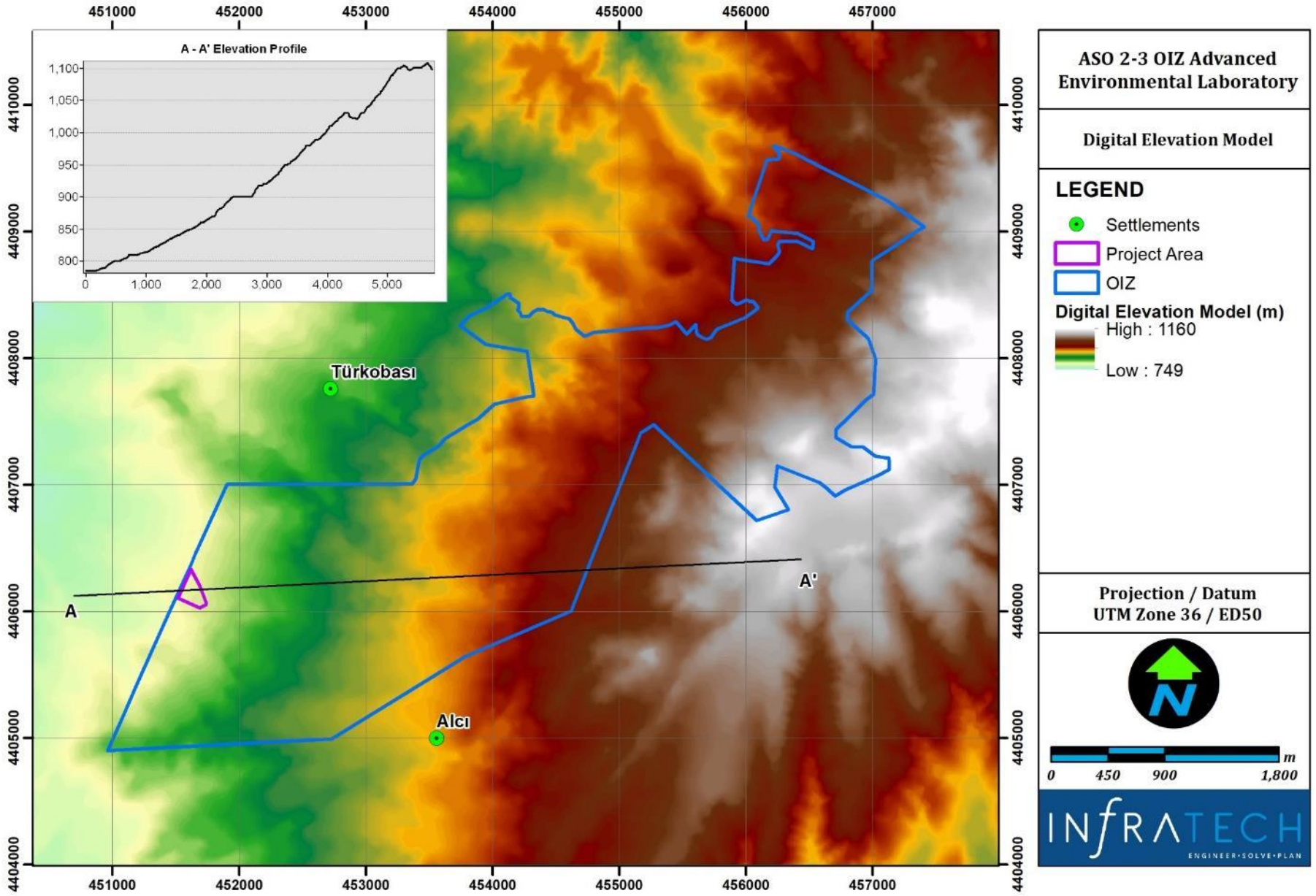


Figure 27 DEM Map of Project Area and Its Vicinity

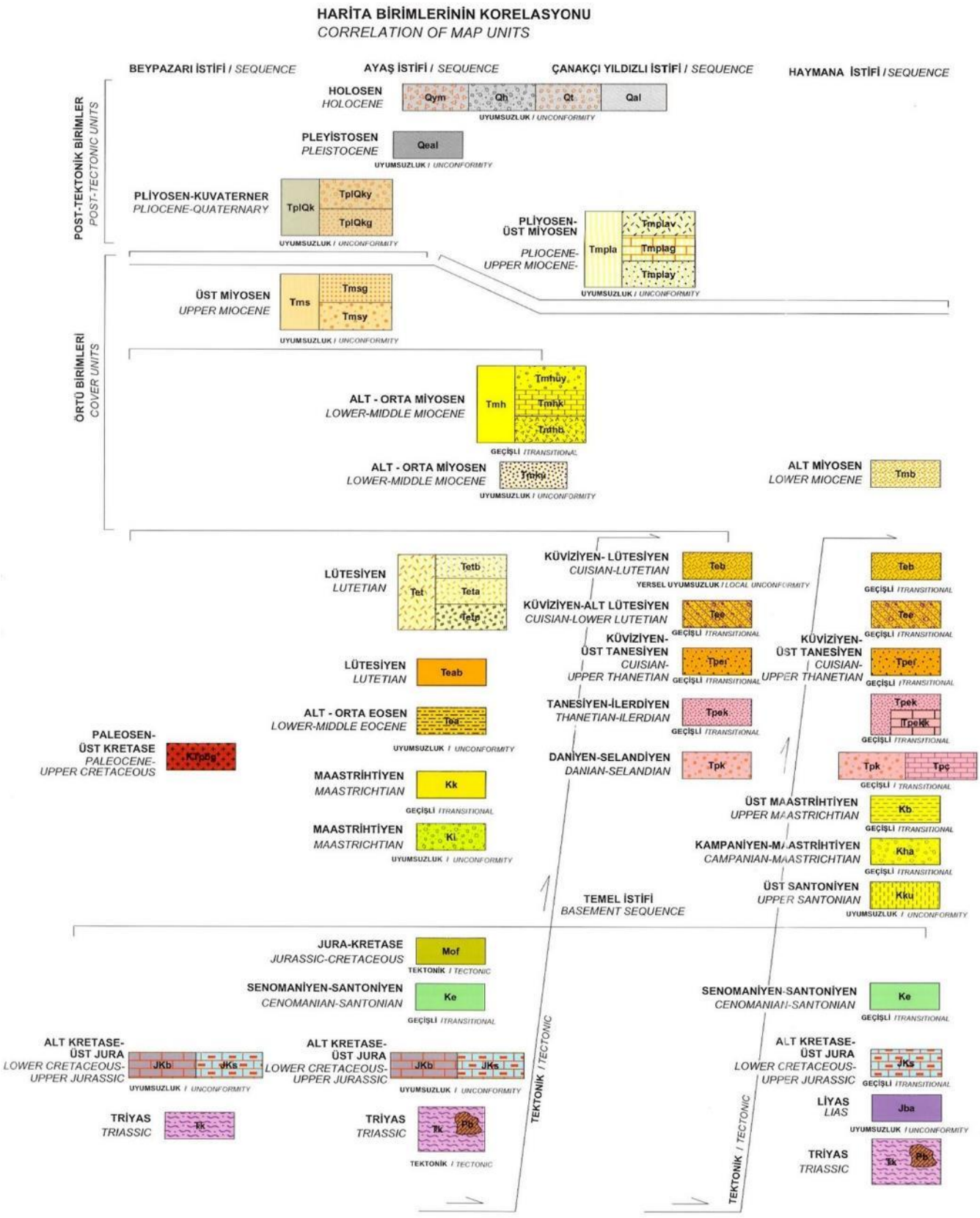


Figure 28 Generalized Stratigraphic Column Section of the Project Area and Its Surroundings

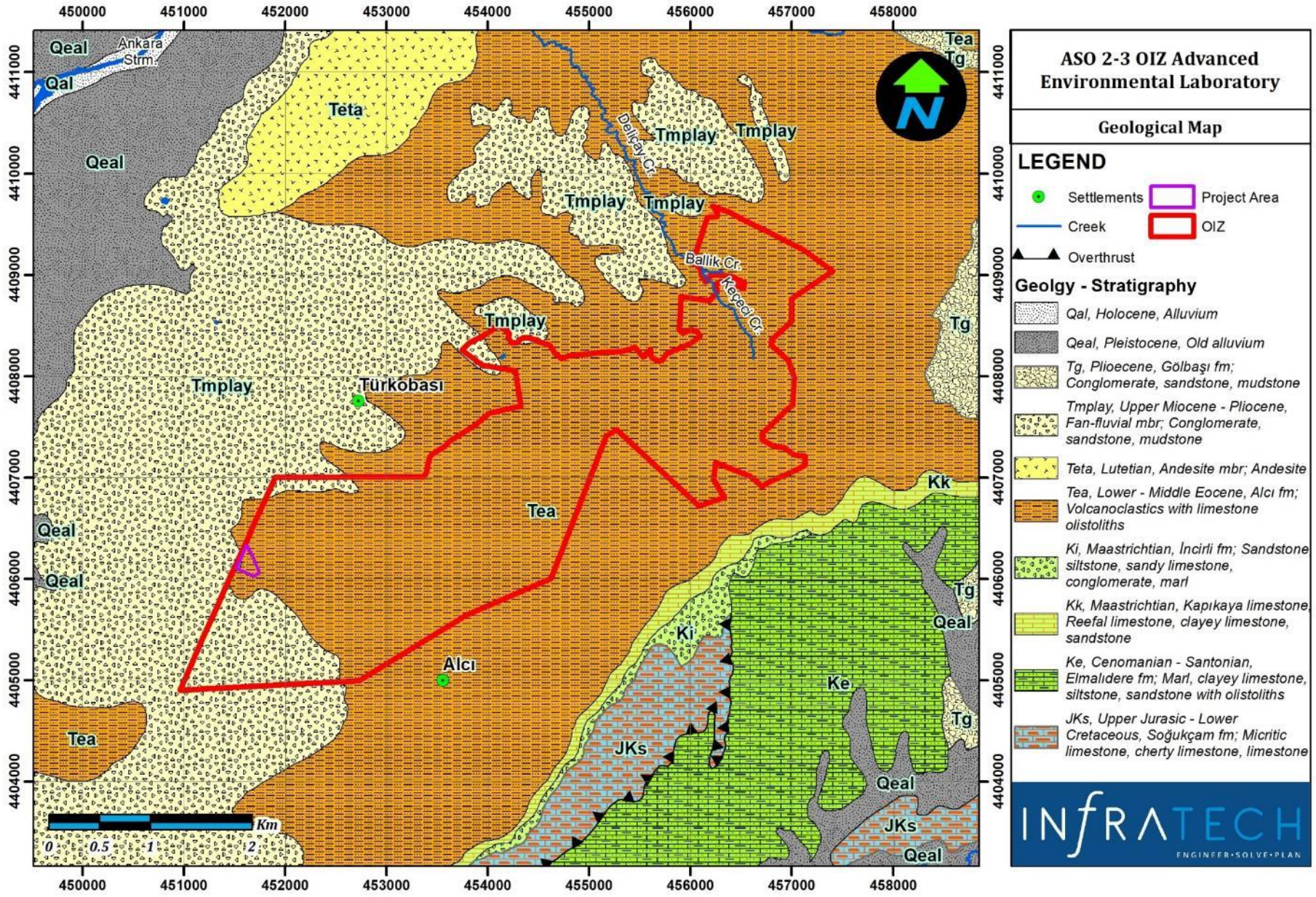


Figure 29 Geology Map of Project Area

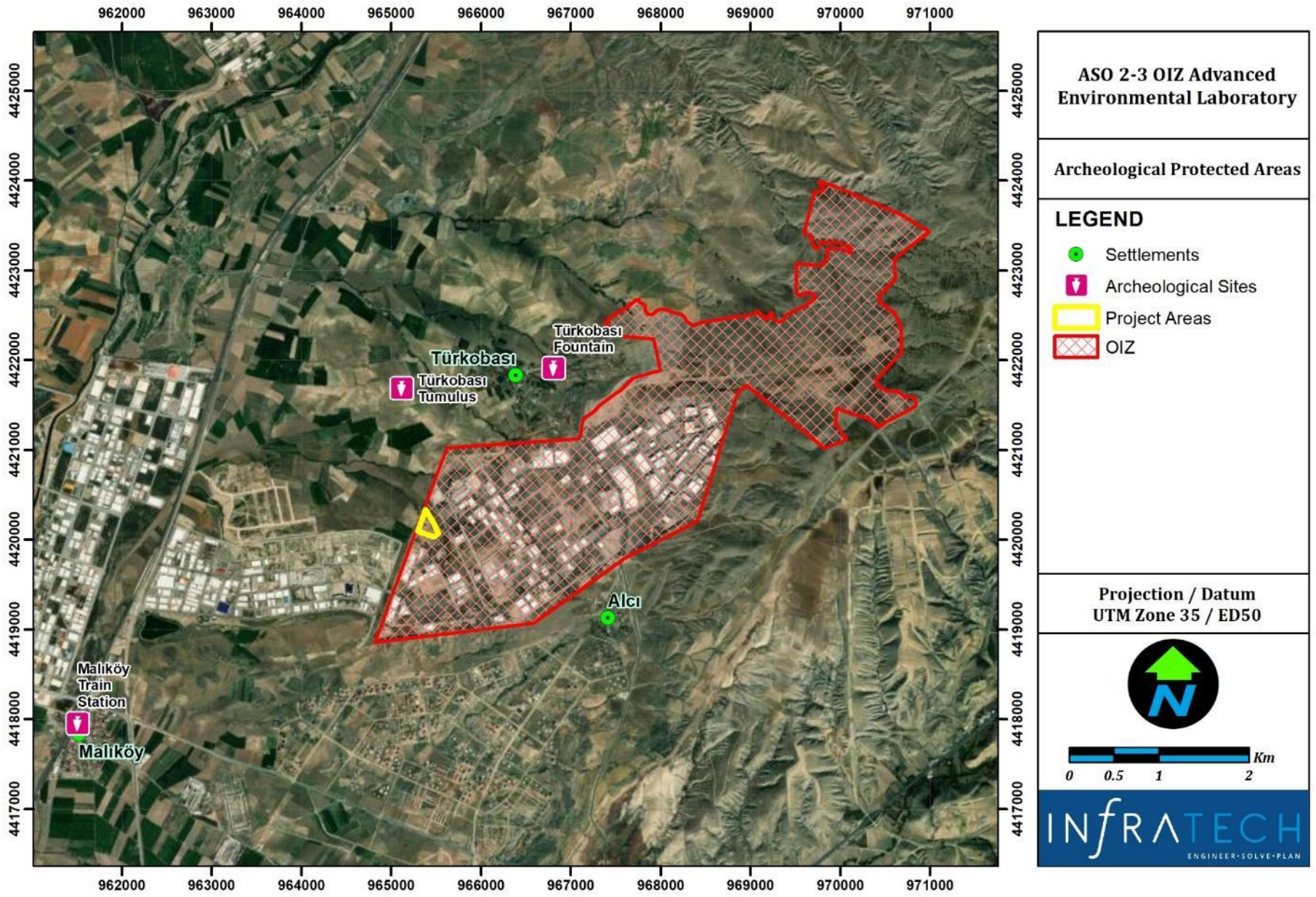


Figure 30 Cultural Heritage Map

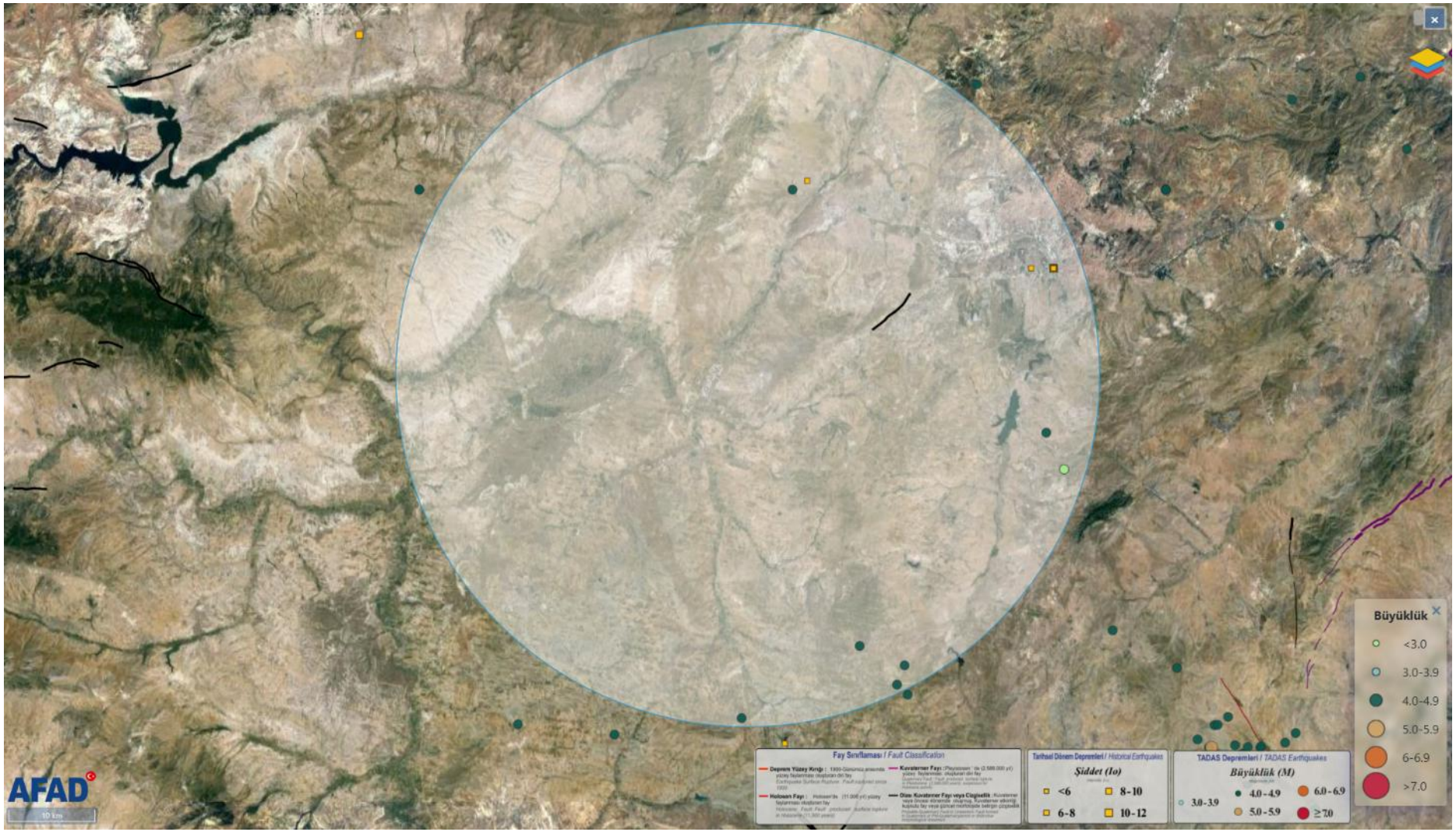


Figure 31 Earthquakes with M>4 with a radius of 50 km and the center point of which is the project area

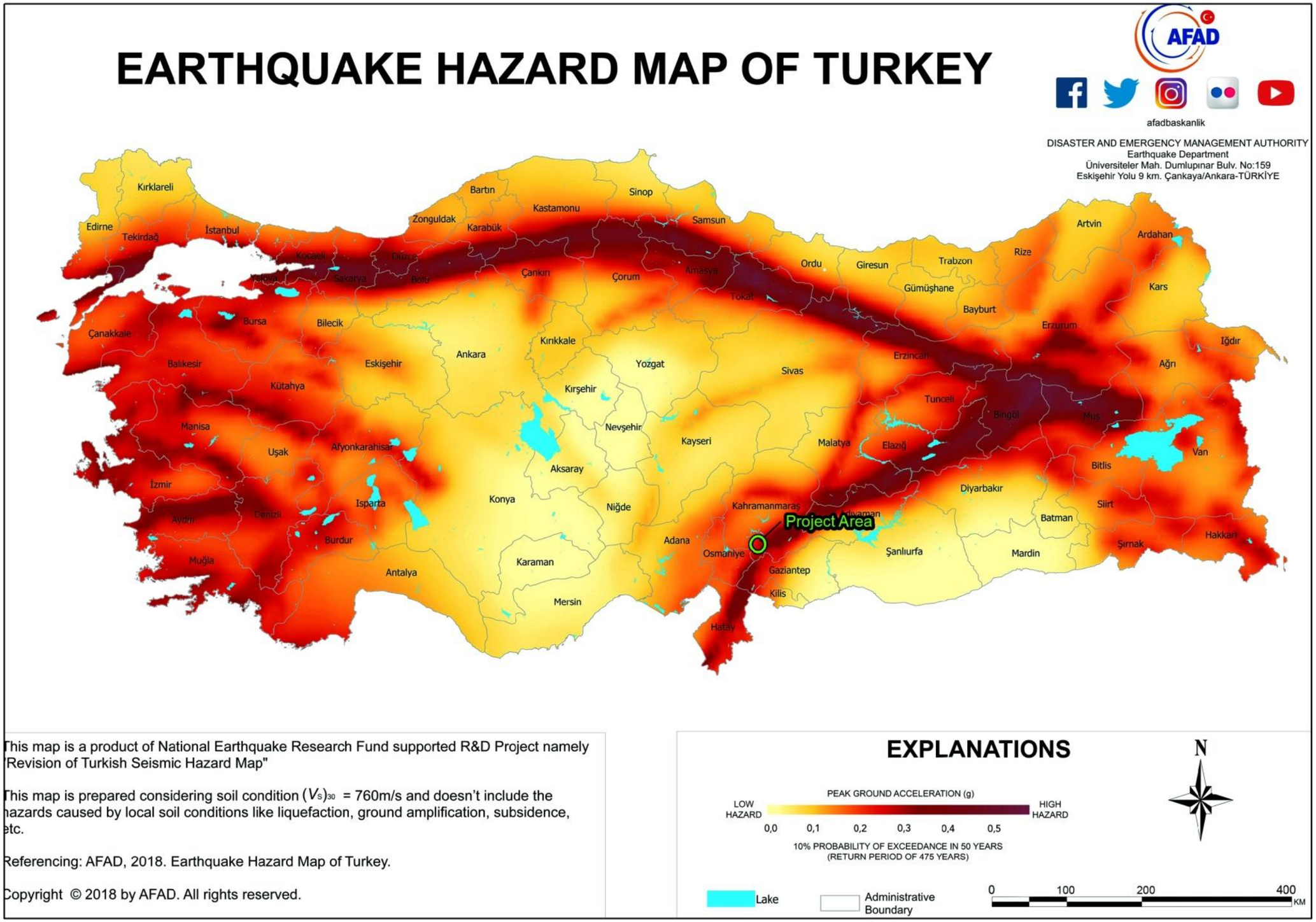


Figure 32 Earthquake Hazard Map of Türkiye

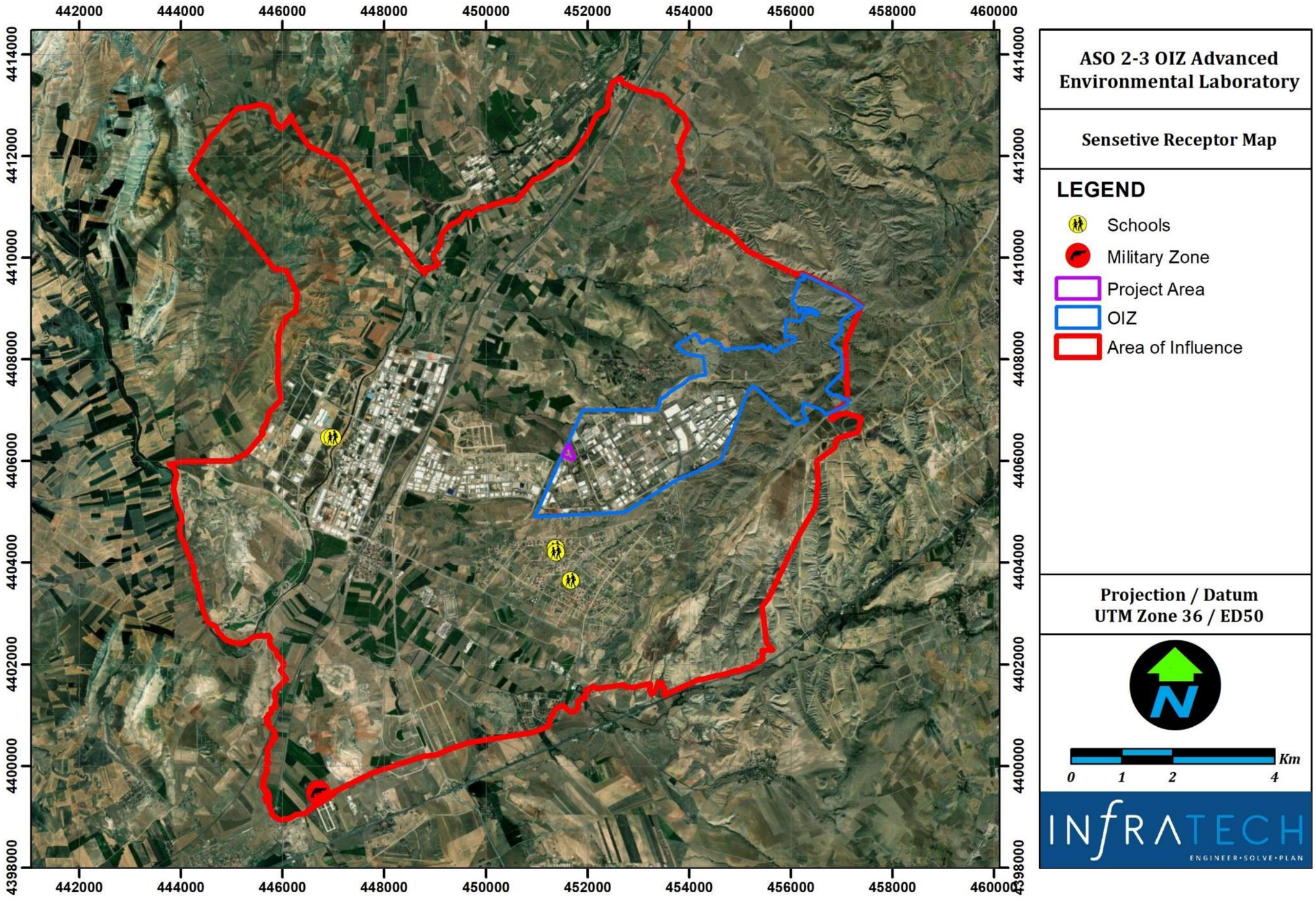


Figure 33 Sensitive Receptors

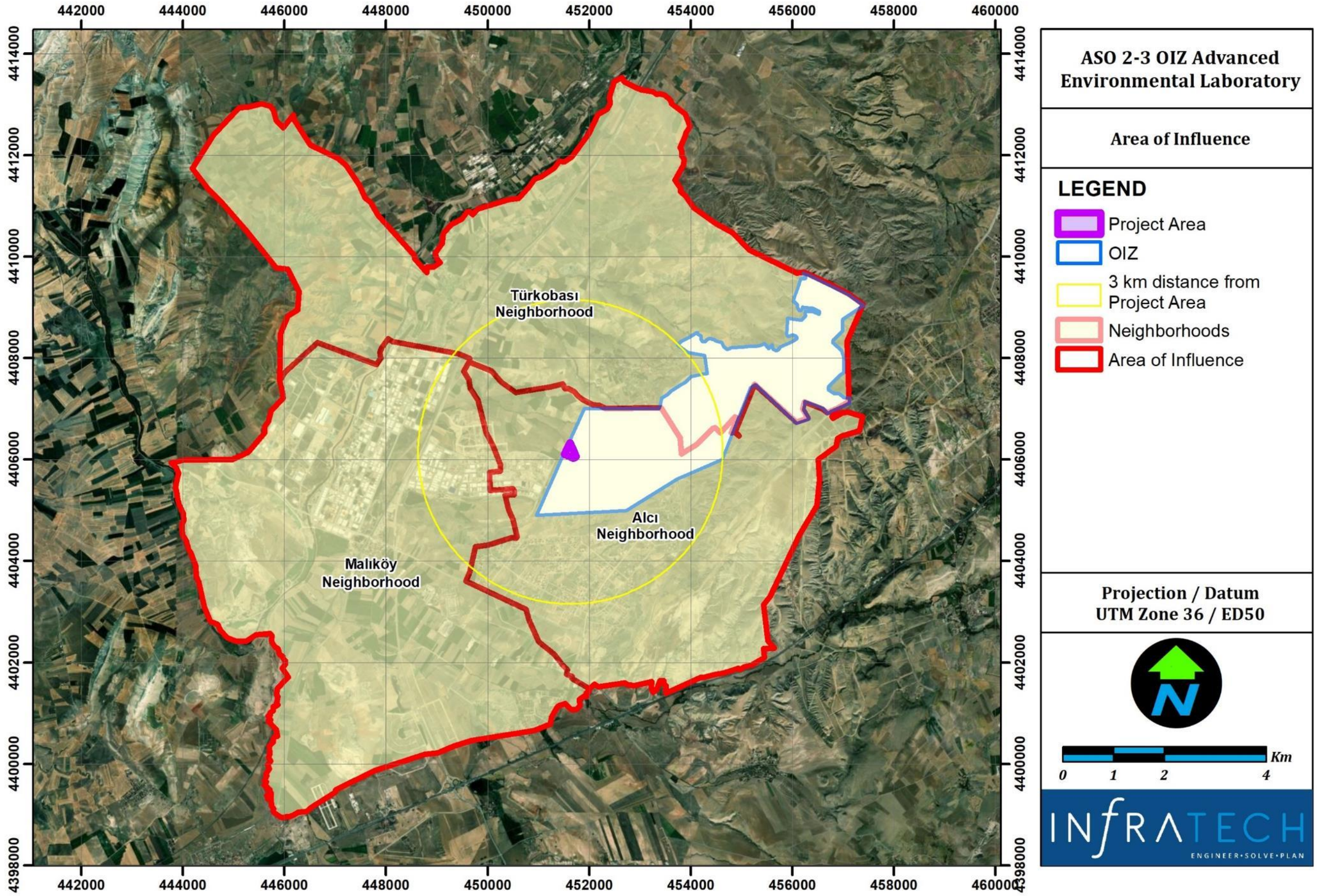


Figure 34 Aol Map

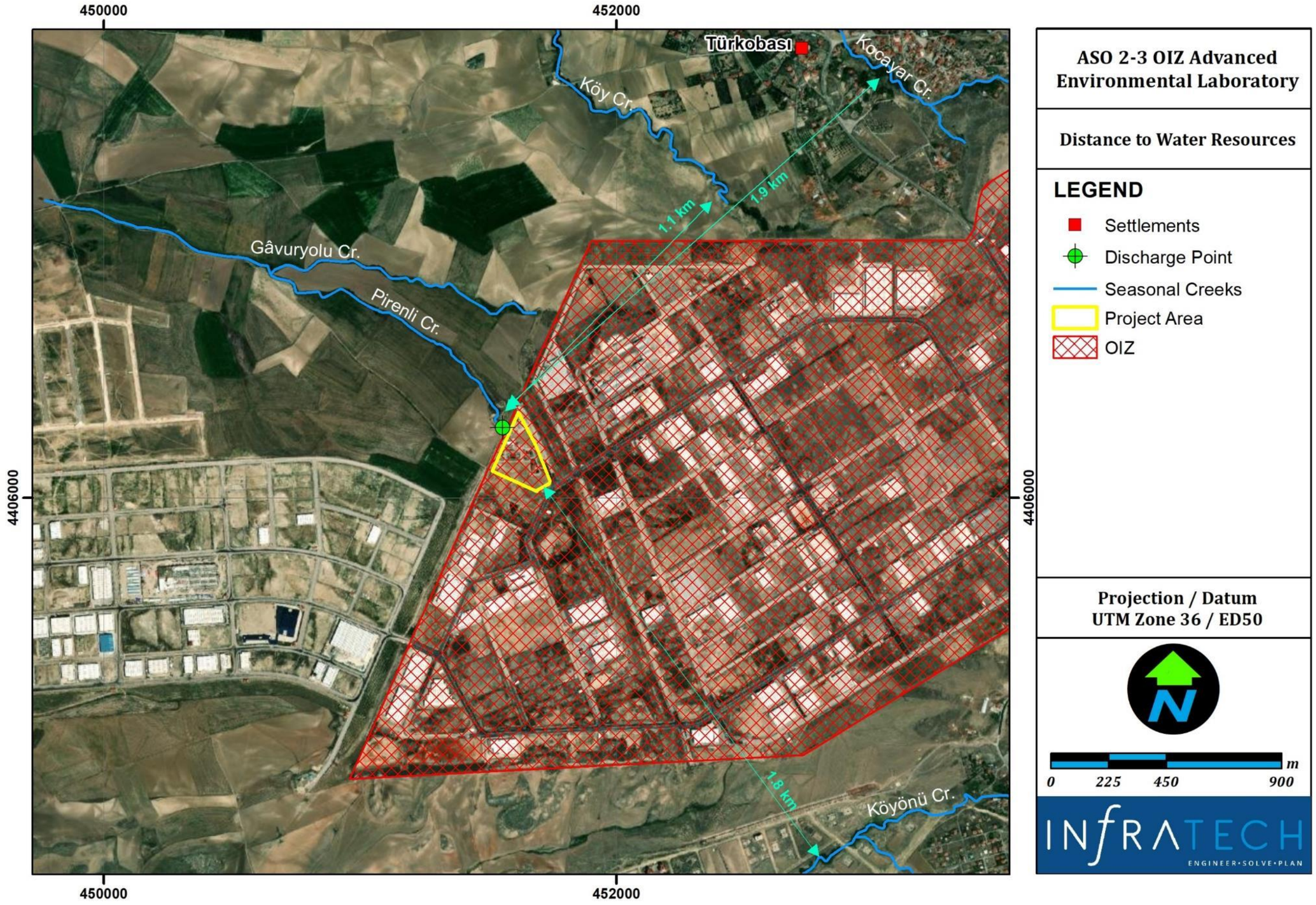


Figure 35 Distance to Water Resources

ANNEX-3: "OUTSIDE THE SCOPE OF THE EIA REGULATION" DECISION

T.C.
ANKARA VALİLİĞİ
Çevre, Şehircilik ve İklim Değişikliği İl Müdürlüğü

Sayı : E-53430385-220.03-6132994 04.04.2023

Konu : ÇED Muafiyet.(ASO 2. ve 3. OSB-
Gelişmiş Çevre Laboratuvarı)

ASO 2 VE 3 ORGANİZE SANAYİ BÖLGESİNE
(Eskişehir Yolu 42.km Alcı-OSB Mah. 2010.Cadde No:7 Temelli-Sincan/ANKARA))

İlimiz, Sincan İlçesi, Alcı OSB Mah. 2034 Cadde No:1 (100500 ada 2 parsel) adresinde Bölge Müdürlüğünüzce yapılması planlanan "Gelişmiş Çevre Laboratuvarı" faaliyetinin ÇED Yönetmeliği kapsamında değerlendirilmesi ilgide kayıtlı yazı ile talep edilmiştir.

İlgi yazı ve eklerinin incelenmesi neticesinde; 100500 ada 1 parsel alan içerisinde yeni bir Laboratuvarı binası ve mevcut Laboratuvarın iş hacminin genişletilmesinin planlandığı anlaşılmış olup, söz konusu "Gelişmiş Çevre Laboratuvarı" faaliyeti 29.07.2022 tarih ve 31907 sayılı Resmi Gazetede yayımlanarak yürürlüğe giren **ÇED Yönetmeliği kapsamında yapılacak herhangi bir işlem bulunmamaktadır.**

Ancak, anılan faaliyet ile ilgili olarak; 2872 sayılı Çevre Kanunu ve bu Kanuna istinaden çıkan yönetmeliklere uyulması ve diğer mer'i mevzuat kapsamında öngörülen gerekli tüm izin/tedbirlerin alınması, ekolojik dengenin bozulmaması, çevrenin korunması ve geliştirilmesine yönelik tedbirlere riayet edilmesi, proses kapsamında değişiklik veya kapasite artışının planlanması durumunda Müdürlüğümüze başvuru yapılması gerekmektedir.

Bilgilerinizi ve gereğini rica ederim.

Adem KARACİF
Müdür a.
İl Müdür Yardımcısı V.

Bu belge, güvenli elektronik imza ile imzalanmıştır.
Doğrulama Kodu: 59D190C7-3665-4BB7-B3CE-C8219B91FB60 Doğrulama Adresi: https://www.turkiye.gov.tr

Necatibey Cad. No:98 Kızılay Çankaya/Ankara
Tel:0.312.219 77 91 (5 Hat) Fax:0.312.219 73 07
KEP: ankaracevrevesehircilik@hs01.kep.tr
KEP Adresi : ankaracevrevesehircilik@hs01.kep.tr
Bilgi için:Zuhal TOKGÖZ
Mühendis

ANNEX-4: ENVIRONMENTAL PERMIT CERTIFICATE

T.C.
ÇEVRE, ŞEHİRCİLİK VE İKLİM DEĞİŞİKLİĞİ BAKANLIĞI
ÇED İzin ve Denetim Genel Müdürlüğü

Sayı : 69415164-150/E.9523 31.03.2023
Konu : Çevre İzin Belgesi

ANKARA SANAYİ ODASI 2. VE 3.ORGANİZE SANAYİ BÖLGESİ
ANKARA,ALCI OSB Mahallesi, 2034 CADDE, No: 1-, SİNCAN,Türkiye

İlgi : a) 22.01.2019 tarihli Çevre İzin Belgesi.
b) 04.11.2022 tarih ve 572532 no'lu başvurunuz.

10/09/2014 tarihli ve 29115 sayılı Resmi Gazete'de yayımlanan Çevre İzin ve Lisans Yönetmeliği kapsamında gerçekleştirilen ilgi (a)' da kayıtlı Geçici Faaliyet Belgesi başvurusu uygun bulunmuş ve bu Yönetmeliğin 8 nci maddesi gereğince ilgi (b) yazımız ile Geçici Faaliyet Belgesi verilmiştir.

Bu Yönetmeliğin 9 ncu maddesi gereğince ilgi (c)' de kayıtlı Çevre İzin Belgesi başvurusu yapılmıştır. Söz konusu başvuru Yönetmeliğin 9 ncu maddesi ve ilgili diğer yönetmelikler kapsamında incelenmiş ve ANKARA,ALCI OSB Mahallesi, 2034 CADDE, No: 1-, SİNCAN,Türkiye adresinde bulunan işletmeniz için 31.03.2028 tarihine kadar geçerli olmak üzere ÇEVRE İZİN ve LİSANS BELGESİ verilmesi uygun bulunmuştur.

ÇEVRE İZİN ve LİSANS BELGESİ süresi içinde ekte yer alan çalışma şartlarına uygun faaliyet gösterilmesi, aksi durumda ise söz konusu belgenin iptal edileceği ve 2872 sayılı Çevre Kanunu'nun ilgili maddeleri uyarınca idari yaptırım uygulanacağı hususunda;

Bilgilerinizi ve gereğini rica ederim.

e-imzalıdır
Mehrali ECER
Bakan a.
Genel Müdür

EKLER:
1) Atık ve DR Kodları
2)Çevre İzin Koşulları

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

TESİSE KABUL EDİLECEK ATIKLAR VE KODLARI

T.C.
ÇEVRE, ŞEHİRCİLİK VE İKLİM DEĞİŞİKLİĞİ BAKANLIĞI
ÇED İzin ve Denetim Genel Müdürlüğü

TESİS İZİN KOŞULLARI

Atıksu Deşarjı

- Çevre Yönetimi Genel Müdürlüğü'nün 06.07.2021 tarih ve 1259382 sayılı yazısında belirtilen hususlara uyulması gerekmektedir.
- Atıksu Arıtma Tesisi Kapasitesi 4900 m3/gün
- 31/12/2004 tarih ve 25687 sayılı Resmi Gazete'de yayımlanan Su Kirliliği Kontrolü Yönetmeliği (SKKY) "İzleme" başlıklı 54 üncü maddesi gereğince işletmeciler tarafından yapılan ölçüm ve analizlerin sonuçları raporların asılları ile birlikte dijital ortamda da en az beş yıl süreyle saklanmak zorundadır.
- SKKY'nin "Haber Verme Yükümlülüğü" başlıklı 52 nci maddesi gereğince arıtma tesisi olmayanlar, arızalananlar, çalıştığı halde standartları sağlayamayanlar, faaliyetinde kapasite artırımına gidenler, faaliyetlerini geçici veya sürekli olarak durduranlar ilgili idareye derhal haber vermekle yükümlüdürler.
- Deşarj standartlarının sağlanması amacıyla, atıksuların yağmur suları, soğutma suları, az kirli yıkama suları ve buna benzer az kirli sularla seyreltilmesi yasaktır.
- İşletmeye ait Atıksu Arıtma Tesinde arıtma çamuru oluşması durumunda ilgili yönetmelikler kapsamında yapılacak olan analiz sonucuna göre belirlenecek uygun bertaraf yöntemiyle bertaraf edilmesi gerekmektedir.
- Debisi 1.001-5.000 (m3/gün) arasında olan arıtma tesislerinin çıkışından iç izlemeye esas onbeş günde bir numune alınmalıdır. **(Çevre ve Şehircilik İl Müdürlüğü tarafından denetime esas asgari üç ayda bir numune alınacaktır.)
- **-Eğer ilk yıl boyunca üç ardışık numune analiz sonuçlarının deşarj standartlarına uyulduğu gösterilebilirse , izleyen yıllarda ilgili sektör tablosunda yer alan pH, KOI, BOI, Yağ-Gres, AKM parametreleri dışındaki diğer parametrelere Çevre ve Şehircilik İl Müdürlüğünü yazıyla bilgilendirmek kaydıyla yılda bir kez bakılması yeterlidir. Eğer parametrelerden biri deşarj standarlarına uymazsa takip eden yıl içerisinde tabloya göre numune alınmalıdır.
- SKKY"deki hüküm ve esaslara uyulması gerekmektedir.
- Atık su debisi 500 m3/gün üzerinde olan işletmelerin atıksu arıtma tesisi çıkış noktasında veya kanalizasyon sistemine atıksu bağlantısının yapıldığı yerde numune alma bacası, otomatik numune alma ve debi ölçme cihazı bulundurması zorunludur.
- Atık su debisi 200-500 m3/gün arasında olan işletmelerin atıksu arıtma tesisi çıkış noktasında numune alma bacası ve otomatik numune alma cihazı bulundurması zorunludur.

T.C.

ÇEVRE, ŞEHİRCİLİK VE İKLİM DEĞİŞİKLİĞİ BAKANLIĞI

ÇED İzin ve Denetim Genel Müdürlüğü

ÇEVRE İZİN BELGESİ

Belge No	:	227047912.0.1
Başlangıç Tarihi	:	31.03.2023
Bitiş Tarihi	:	31.03.2028
Tesis Adı	:	ANKARA SANAYİ ODASI 2. VE 3.ORGANİZE SANAYİ BÖLGESİ
Tesis Adresi	:	ANKARA,ALCI OSB Mahallesi, 2034 CADDE, No: 1-, SİNCAN,Türkiye
İşletme Vergi No	:	690341300
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 31.03.2023 tarihli ve 69415164-150/E.9523 sayılı yazı ile birlikte geçerlidir. Ayrı kullanılmaz.

e-imzalıdır
Mehrali ECER
Bakan a.
Genel Müdür

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

ANNEX-5: LEGAL FRAMEWORK

I. LEGAL FRAMEWORK

This chapter is constructed to elucidate the main aspects of the legal and administrative framework followed in the design of this ESMP. 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.

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

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

I.1. National Legislation

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

I.1.1. National Environmental, Health and Safety Legislation

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

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. However, facilities are subject to preparation of an EIA Report depending on the type of facility, its capacity, or the location of the activity. The activities that are subject to the provisions of the EIA Regulation are listed in Annex I and Annex II of the Regulation. For Annex I activities, a full EIA Report is required and those projects go through the full EIA process. For Annex II activities, a Project Introduction 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.

The Advanced Environmental Laboratory Project planned by ASO 2-3 OIZ were assessed as "outside the scope of EIA regulation" by Ankara Provincial Directorate of Environment, Urbanisation and Climate Change in 4th April, 2023.

The rest of the Turkish Legislation that the Project will comply with is presented in Table 40.

Table 40 Turkish EHS Legislation Related to the Project

Legislation	Official Gazette Date	Official Gazette Number	Implications for the Project Phases
National Environmental, Legal and Political Framework			
Waste Management			
Regulation on the Control of Waste Batteries and Accumulators	August 31, 2004	25569	• This regulation applies on battery and accumulator wastes that may occur as a result of office or vehicle use throughout the lifetime of the Project.
Regulation on the Control of Excavation Soil, Construction and Demolition Waste	March 18, 2004	25406	• This regulation applies to activities that will cause to the generation of excavation soil, construction wastes, especially during the construction phase of the Project.
Regulation on the Control of End-of-Life Tires	November 25, 2006	26357	• This regulation applies on waste management of End-of-Life Tires generated during all phases of the project.
Regulation on the Control of End-of-Life Vehicles	December 30, 2009	27448	• This regulation applies on waste management of End-of-Life Vehicles generated during all phases of the project.
Regulation on Waste Management	April 2, 2015	29314	• This regulation is the main regulation applies on regarding the non-hazardous and hazardous wastes that will be generated as a result of all activities to be carried out throughout the lifetime of the Project.
Regulation on the Control of Waste Vegetable Oil	June 6, 2015	29378	• This regulation applies on waste vegetable oils during especially the operation phase of the Project.
Regulation on the Control of Medical Waste	January 25, 2017	29959	• This regulation applies for medical waste to be generated throughout the life of the Project.
Regulation on Zero Waste	July 12, 2019	30829	• This regulation applies on the establishment of zero-waste management system that aims to protect the environment and human health and all resources regarding the wastes that will be generated as a result of all activities to be carried out throughout operation phase.
Regulation on the Management of Waste Oil	December 21, 2019	30985	• This regulation applies on waste oils that may occur as a result of vehicle/equipment maintenance throughout the lifetime of the Project.
Regulation on the Control of Packaging Waste	June 26, 2021	31523	• This regulation applies on packaging waste that will occur as a result of activities that can be carried out throughout the lifetime of the Project.
Regulation on Management of Waste Electrical and Electronic Equipment	December 26, 2022	32055	• This regulation applies on electrical and electronic equipment waste as a result of activities to be carried out throughout the lifetime of the Project.
Water Quality Control and Management			
Regulation on Control of Water Pollution	December 31, 2004	25687	• This regulation applies on discharge of treated effluent during operation phase, wastewater generated by the site staff during pre-construction and construction phases.
Regulation on the Water Intended for Human Consumption	February 17, 2005	25730	• This regulation applies on the monitoring of the suitability for human consumption of water within the scope of the Project during all phases of the project.
Regulation on the Control of Pollution Caused by Hazardous Substances in and around Water Environment	November 26, 2005	26005	• This regulation applies on the hazardous substance impacts on the water and its surroundings that may occur during the Project lifetime.
Regulation on Urban Wastewater Treatment	January 8, 2006	26047	• This regulation applies on effluent quality and treatment efficiencies to be met by the existing WWTP.
Regulation on the Protection of Groundwater against Pollution and Deterioration	April 7, 2012	28257	• This regulation applies on protection of groundwater sources against pollution during pre-construction, construction and operation phases.
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 phase.

Legislation	Official Gazette Date	Official Gazette Number	Implications for the Project Phases
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 phase and discharge of treated effluent during operation phase.
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 phase.
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 phase 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 phase 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 Advanced Environmental Laboratory 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 phase.
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 should be followed at all phases of the project since the Project is Advanced Environmental Laboratory Project of ASO 2-3 OIZ.
Regulation on Environmental Permits and Licensing	September 10, 2014	29115	• This regulation applies on the required environmental permits and licenses at all phases of the Project.

Legislation	Official Gazette Date	Official Gazette Number	Implications for the Project Phases
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
National Social, Legal and Political Framework			
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 phases of the Project.
Regulation on Traffic Signs	June 19, 1985	18789	• This regulation applies on traffic sign for the purpose of ensuring traffic order and safety during all phases of the Project.
Regulation on Highway Traffic	July 18, 1997	23053	• This regulation applies on ensuring traffic order on the highways during the all phases of the Project.
Preparation, Completion and Cleaning Works Regulation	April 28, 2004	25446	• This regulation applies on the working conditions in the preparation, completion and cleaning works that must be carried out in order for the main work carried out in a workplace to be carried out in an orderly, healthy and safe manner during lifetime of the Project.
Labor and Working Conditions			
Labor Law No: 4857	June 10, 2003	25134	• This main law applies on the rights and responsibilities of the workers employed based on the labor contract with the employers, regarding the working conditions and working environment during the lifetime of the Project.
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 phases.
Occupational Health and Safety Law No. 6331	June 30, 2012	28339	• This law applies on occupational health and safety measures to be taken during lifetime of the Project.
Communiqué on Occupational Health and Safety Hazard Classes List	December 26, 2012	28509	• This Communiqué applies on determination of hazard classes during lifetime of the Project.
Regulation on Risk Assessment for Occupational Health and Safety	December 29, 2012	28512	• This regulation applies on preparation of occupational health and safety risk assessment and all related principles to be followed during lifetime of the Project.
Regulation on Health and Safety Conditions Regarding Use of Work Equipment	April 25, 2013	28628	• This regulation applies on ensuring the health and safety conditions for the use of work equipment to be used during life of the Project.
Manual Handling Operations Regulation	July 24, 2013	28717	• This regulation applies on health and safety measures to be taken during manual handling activities at all phases of the Project.
Regulation on the Use of Personal Protection Equipment at Workplaces	July 2, 2013	28695	• This regulation applies on personal protection equipment to be used at lifetime of the Project.
Regulation on the Protection of Workers Against the Dangers of Explosive Environments	April 30, 2013	28633	• This regulation applies on measures to be taken in case the use of explosive usage during pre-construction and construction phases.

Legislation	Official Gazette Date	Official Gazette Number	Implications for the Project Phases
Regulation on Emergency Situations in Workplaces	June 18, 2013	28681	• This regulation applies on measures to be taken during emergency situations in workplaces during lifetime of the Project.
Regulation on Health and Safety Precautions Regarding Working with Chemicals	August 12, 2013	28733	• This regulation applies on chemical handling and necessary precautions in workplaces during lifetime of the Project.
Regulation on the Methods and Essentials of Occupational Health and Safety Trainings for Workers	May 15, 2013	28648	• This regulation applies on health and safety training to be performed during lifetime of the Project.
Regulation on the Protection of Workers from Noise Related Risks	July 28, 2013	28721	• This regulation applies on health and safety measures to be taken against the noise impacts during lifetime of the Project.
Regulation on the Protection of Workers from Vibration Related Risks	August 22, 2013	28743	• This regulation applies on health and safety measures to be taken against the vibration impacts during lifetime of the Project.
Regulation on Management of Dust	November 5, 2013	28812	• This regulation applies on management of to be generated dust during pre-construction and construction phases.
Regulation on Health and Safety Signs	September 11, 2013	28762	• This regulation applies on health and safety signs to be placed during lifetime of the Project.
Regulation on the Occupational Health and Safety for Temporary or Fixed Term Jobs	August 23, 2013	28744	• This regulation applies on health and safety measures to be taken for temporary workers during lifetime of the Project.
Regulation on the Occupational Health and Safety in Construction	October 5, 2013	28786	• This regulation applies on constructional health and safety measures to be taken during construction phase.
First Aid Regulation	July 29, 2015	29429	• This regulation applies on in case of a first aid requirement during construction and operation phases.
Regulation on Personal Protection Equipment	May 1, 2019	30761	• This regulation applies on personal protection equipment to be used during construction and operation phases.
Management of Chemicals and Other Dangerous Substances			
Regulation on the Classification, Labelling and Packaging of Materials and Mixtures	December 11, 2013	28848	• 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 phases, to evaluate the damages of the substances used, to have information on the registration, evaluation, permission and restriction of those chemicals..
Regulation on the Road Transportation of Hazardous Goods	June 18, 2022	31870	• 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 phase 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 phase of the Project.
Stakeholder Engagement			

Legislation	Official Gazette Date	Official Gazette Number	Implications for the Project Phases
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 shall 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 phases.
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 phases.

*Relevant amendments of the listed legislation will be applicable.

ASO 2-3 OIZ shall 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 above-mentioned laws and regulations. Furthermore, any license and/or permit required for the upcoming stages of the Project will be acquired accordingly.

I.2. International Agreements and Standards

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

I.2.1. International Environmental Conventions that Türkiye is a Contracting Party

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

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

- Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention) (1972),
- Paris Convention on the Protection of the World Cultural and Natural Heritage (1975),
- Barcelona Convention on the Protection of the Mediterranean Sea Against Pollution (1976),
- The Convention for the Protection of Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention) (1981),
- Bern Convention on Protection of Europe's Wild Life and Living Environment (1982),
- Convention on Long Range Transboundary Air Pollution (CLRTAP) (1983),
- Convention on Long-Range Transboundary Air Pollution and the Cooperative Programme for Monitoring and Evaluation of the Long-Range Transmissions of Air Pollutants in Europe (EMEP) (1983),
- Vienna Convention for the Protection of the Ozone Layer (1988),
- Mediterranean Sea Protocol Concerning Specially Protected Areas and Biodiversity (1988), including related protocols,
- Montreal Protocol on Substances Depleting the Ozone Layer (1990),
- Convention on Biological Diversity (Rio Convention) (1992),
- The International Convention on the Established of an International Fund for Compensation for Oil Pollution Damage (FUND 1992),
- International Convention on Civil Liability for Oil Pollution Damage (1992),
- Convention on Wetlands of International Importance, Especially as Waterfowl Habitat (RAMSAR) (1994),
- Basel Convention on the Control of Transboundary Movements of Hazardous Waste and Their Disposal (1994),
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (1996),
- Kyoto Protocol (1997),
- UN Convention to Combat Desertification (CCD) (1998),
- United Nations Europe Economic Commission Convention on Transboundary Effects of Industrial Accidents (2000),
- European Landscape Convention (2001),
- Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (Aarhus Convention) (2001),
- UN Framework Convention on Climate Change (UNFCCC) (2004),

- Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (Rotterdam Convention) (2004),
- Stockholm Convention on Persistent Organic Pollutant (POPs),
- Convention for the Protection of the Black Sea Against Pollution (Bucharest) (1994) and its protocols including the Protocol for the Protection of Biological and Landscape Diversity in the Black Sea (2004),
- International Labor Organization (ILO) Conventions;
    - ILO Convention on Forced Labor (1930),
    - ILO Convention on Freedom of Association and Protection of the Right to Organize (1948),
    - ILO Convention on Right to Organize and Collective Bargaining (1949), ILO Convention on Equal Remuneration (1951),
    - ILO Convention on Abolition of Forced Labor (1957),
    - ILO Convention on Discrimination (Employment and Occupation) (1958),
    - ILO Convention on Minimum Age (1973),
    - ILO Convention on Worst Forms of Child Labor (1999).

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

I.2.1.1. 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 41 with their explanations:

Table 41 Annexes to the Bern Convention

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

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

CITES

CITES stands for the Convention on International Trade in Endangered Species of Wild Flora and Fauna. It is an international agreement that has been ratified by governments of 164 states (including Türkiye), whose aim is to ensure that international trade in specimens of wild animals and plants does not threaten their survival. The principles of CITES are based on sustainability of the trade in order to

safeguard ecological resources (live animals and plants, vast array of wildlife products derived from them, including food products, exotic leather goods, etc.). CITES was signed in 1973 and entered in force on July 1, 1975. Türkiye ratified the Convention in 1996. Categories and species included in CITES are listed in three different appendices based on their protection statuses. These appendices and their explanations are given in Table 42.

Table 42 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 43. 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 43 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

I.2.2. World Bank Environmental and Social Framework (ESF)

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

The Project has been categorized as Category B Project according to the definitions of WB OP/BP 4.01 on Environmental Assessment. In addition, 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.).

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

- Medium scale construction activities and short-term excavation,

- 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 phase, such as noise, OHS concerns, and the generation of waste can be effectively controlled using established management systems,
- No negative impact on surrounding environmental receptors is expected,
- Activities will be carried out within the boundaries of the OIZ and there is no sensitive ecosystem close to OIZ area,
- Waste will be disposed of in line with national regulations and WB Environmental, Health and Safety (EHS) Guidelines.
- Wastewater to be generated by workers during the construction phase will be treated in the existing WWTP and will be discharged to the Ankara Creek after physical treatment.
- Land acquisition and/or resettlement will not be needed,
- No land acquisition has been made in the last 5 years,
- Excessive labour influx will not be generated,
- Livelihoods of the households, vulnerable groups and formal-informal users on land will not be damaged,
- No impact of the Project 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 World Bank Group (WBG) Environmental, Health and Safety (EHS) Guidelines constitutes technical reference resources that include general and sector specific examples of international good sector practices. It includes the information on applicable environmental, the health and safety issues for all industrial sectors. WBG uses the EHS Guidelines as a technical source of information during Project appraisal. EHS Guidelines include performance levels and measurements that can be achieved at newly installed facilities using WBG's available technologies at reasonable cost.

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

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

- Disease Prevention
- Emergency Preparedness and Response

- Construction and Decommissioning
  - Environment
  - Occupational Health and Safety
  - Community Health and Safety

The 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. The World Bank's Environmental and Social Standards included in the ESF are given in Table 44.

Table 44 ESS and Operational Policies (OP)/ Bank Procedures (BP) Relation

Environmental and Social Standards	Building on
ESS1: Assessment and Management of Environmental and Social Risks and Impacts	OP/BP4.01(Environmental Assessment)
ESS2: Labour and Working Conditions	OP/BP4.01 (Environmental Assessment) and EHS Guidelines
ESS3: Resource Efficiency and Pollution Prevention and Management	OP4.09 (Pest Management) and EHS Guidelines
ESS4: Community Health and Safety,	OP/BP4.37 (Safety of Dams) and EHS Guidelines
ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources,	OP/BP4.04 (Natural Habitats) and OP/BP4.36 (Forests)
ESS7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	OP/BP4.10 (Indigenous Peoples)
ESS8: Cultural Heritage	OP/BP4.11 (Physical Cultural Resources)
ESS9: Financial Intermediaries	OP/BP 4.01 (Environmental Assessment)
ESS10: Stakeholder Engagement and Information Disclosure	OP/BP4.01 (Environmental Assessment) and EHS Guidelines

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.

I.2.3. Comparison of Turkish EIA Regulation and WB ESSs

The gap analysis between the WB ESSs triggered by the Project and Turkish EIA Regulation is presented in Table 45.

Table 45 The Relevance of WB ESSs with the Project

ESS	Scope / Aim of the ESS	Gaps between the Turkish EIA Regulation and World Bank's ESF	Environmental and Social Studies conducted/to be conducted to fill the gap
ESS1 Assessment and Management of Environmental and Social Risks and Impacts	This Standard sets out Borrower's responsibilities for assessing, managing and monitoring Environmental and social risks and impacts related with each phase of the project supported by the World Bank through Investment Project Financing (IPF), so as to accomplish environmental and social results consistent with the Environmental and Social Standards (ESSs). The objectives of ESS1 are as follows: • To identify, evaluate, and manage the environment and social risks and impacts of the project in a manner consistent with the ESSs. • To adopt a mitigation hierarchy approach to: (a) Anticipate and avoid risks and impacts; (b) Where avoidance is not possible, minimize or reduce risks and impacts to acceptable levels; (c) Once risks and impacts have been minimized or reduced, mitigate; and (d) Where significant residual impacts remain, compensate for or offset them, where technically and financially feasible. • To adopt differentiated measures so that adverse impacts do not fall disproportionately on the disadvantaged or vulnerable, and they are not disadvantaged in sharing development benefits and opportunities resulting from the project. • To utilize national environmental and social institutions, systems, laws, regulations, and procedures in the assessment, development, and implementation of projects, whenever appropriate. • To promote improved environmental and social performance, in ways which recognize and enhance Borrower capacity.	**Environmental and Social Assessment and Management System (ESMS)** World Bank's ESF The Borrower will carry out an environmental and social assessment of the project to assess the environmental and social risks and impacts of the project throughout the project life cycle. The assessment will be proportionate to the potential risks and impacts of the project, and will assess, in an integrated way, all relevant direct, indirect, and cumulative environmental and social risks and impacts throughout the project life cycle, including those specifically identified in ESSs 2-10. The Borrower will: (a) Conduct an environmental and social assessment of the proposed project, including stakeholder engagement; (b) Undertake stakeholder engagement and disclose appropriate information in accordance with ESS10; (c) Develop an Environmental and Social Commitment Plan (ESCP), and implement all measures and actions set out in the legal agreement including the ESCP; and (d) Conduct monitoring and reporting on the environmental and social performance of the project against the ESSs. Turkish EIA Regulation Environmental risks and impacts of the Project are identified to some extent. However, the range of potential environmental and social impacts has not been identified, for example, there is no social assessment, or assessment of landscape and visual impacts, forestry and in many cases operation of the airport has been omitted in assessing impacts.	Conduct a complete assessment of potential environment and social impacts associated with both Advanced Environmental Laboratory construction and operation. Complete an assessment of potential cumulative impacts. Establish a Project ESMS that describes mitigation and performance improvement measures and actions that address the identified environmental and social risks and impacts of the Project. Where the identified risks and impacts cannot be avoided, the client should identify mitigation and performance measures and establish corresponding actions to ensure the project will be operated in compliance with applicable laws and regulations, and meet the requirements ESSs.
		Organizational Capacity and Competency World Bank's ESF Where the project involves specifically identified physical elements, aspects and facilities that are likely to generate impacts, the ESMS will establish and maintain an emergency preparedness and response system so that the client, in collaboration with appropriate and relevant third parties, will be prepared to respond to	Define project environment and social resources (construction, consortium and operational) in terms of organisation and competency with regard to environment and social issues.

ESS	Scope / Aim of the ESS	Gaps between the Turkish EIA Regulation and World Bank's ESF	Environmental and Social Studies conducted/to be conducted to fill the gap
		accidental and emergency situations associated with the project in a manner appropriate to prevent and mitigate any harm to people and/or the environment. Turkish EIA Regulation Organisational arrangements and the competency of construction personnel have not been incorporated into the EIA.	
		Emergency Preparedness and Response World Bank's ESF Where the project involves specifically identified physical elements, aspects and facilities that are likely to generate impacts, the ESMS will establish and maintain an emergency preparedness and response system so that the client, in collaboration with appropriate and relevant third parties, will be prepared to respond to accidental and emergency situations associated with the project in a manner appropriate to prevent and mitigate any harm to people and/or the environment. This preparation will include the identification of areas where accidents and emergency situations may occur, communities and individuals that may be impacted, response procedures, provision of equipment and resources, designation of responsibilities, communication, including that with potentially Affected Communities and periodic training to ensure effective response. The emergency preparedness and response activities will be periodically reviewed and revised, as necessary, to reflect changing conditions. Turkish EIA Regulation No emergency scenarios, including response mechanisms, have been identified within the EIA.	Prepare and implement an emergency response plan for both construction and operational phases.
		Monitoring and Review World Bank's ESF The project owner should establish procedures to monitor and measure the effectiveness of the management program, as well as compliance with any related legal and/or contractual obligations and regulatory requirements. Where the government or other third party has responsibility for managing specific risks and impacts and associated mitigation measures, the	Once adequate baseline data has been captured and potential environmental and social impacts have been assessed for both construction and operational phases, a monitoring plan should be established to capture data to confirm that the project mitigation plans are delivering the desired results and that no unforeseen impacts are occurring.

ESS	Scope / Aim of the ESS	Gaps between the Turkish EIA Regulation and World Bank's ESF	Environmental and Social Studies conducted/to be conducted to fill the gap
		client will collaborate in establishing and monitoring such mitigation measures. Where appropriate, clients will consider involving representatives from Affected Communities to participate in monitoring activities. The client's monitoring program should be overseen by the appropriate level in the organization. For projects with significant impacts, the client will retain external experts to verify its monitoring information. The extent of monitoring should be commensurate with the project's environmental and social risks and impacts and with compliance requirements. Turkish EIA Regulation Although EIA is more limited in scope, it requires some environmental and social management plans. There is also a monitoring plan that indicates whether the environmental impacts of the project (in terms of air, water quality, noise and vibration) will comply with the Turkish Environmental Law and relevant legislation.	
		External Communications and Grievance Mechanisms World Bank's ESF The project owner should implement and maintain a procedure for external communications that includes methods to (i) receive and register external communications from the public; (ii) screen and assess the issues raised and determine how to address them; (iii) provide, track, and document responses, if any; and (iv) adjust the management program, as appropriate. In addition, clients are encouraged to make publicly available periodic reports on their environmental and social sustainability. Where there are Affected Communities, the client will establish a grievance mechanism to receive and facilitate resolution of Affected Communities' concerns and grievances about the client's environmental and social performance. The grievance mechanism should be scaled to the risks and adverse impacts of the project and have Affected Communities as its primary user. It should seek to resolve concerns promptly, using an understandable and transparent consultative process that is culturally appropriate and readily accessible, and at no cost and without retribution to the party that originated the issue or concern. The mechanism should not impede access	A communications plan and procedure (including identification of Affected Communities) should be prepared that describe mechanisms for external communications on environment and social topics. The plan should define how grievances and concerns can be made to the project and how these will be investigated, responded to and rectified, if appropriate.

ESS	Scope / Aim of the ESS	Gaps between the Turkish EIA Regulation and World Bank's ESF	Environmental and Social Studies conducted/to be conducted to fill the gap
		to judicial or administrative remedies. The client will inform the Affected Communities about the mechanism in the course of the stakeholder engagement process. <u>Turkish EIA Regulation</u> Stakeholder Engagement Plan: It is explained in EIA Regulation as a plan that explains how, what methods and tools will be used to communicate and inform legal/real persons (stakeholders) who may be affected by the project or have an interest in the project, at all stages of the planned project. Regulation does not address the issues of internal, external communication and grievance mechanism.	
		On-going Reporting to Affected Communities <u>World Bank's ESF</u> The project owner should provide periodic reports to the Affected Communities that describe progress with implementation of the project Action Plans on issues that involve on-going risk to or impacts on Affected Communities and on issues that the consultation process or grievance mechanism have identified as a concern to those Communities. If the management program results in material changes in or additions to the mitigation measures or actions described in the Action Plans on issues of concern to the Affected Communities, the updated relevant mitigation measures or actions will be communicated to them. The frequency of these reports will be proportionate to the concerns of Affected Communities but not less than annually. <u>Turkish EIA Regulation</u> The EIA does not define Affected Communities and therefore there is no definition of communication and reporting.	Reporting to Affected Communities should be included within the Communication Plan and Procedure.
ESS2 Labor and Working Conditions	ESS2 recognizes the importance of employment creation and income generation in the pursuit of poverty reduction and inclusive economic growth. Borrowers can promote sound worker management relationships and enhance the development benefits of a project by treating workers in the project fairly and providing safe and healthy working conditions. The objectives of ESS2 are as follows:	<u>World Bank's ESF</u> ESS2 requirements include the documentation and implementation of workforce management procedures applicable to the project. These procedures will specify how project workers will be managed in accordance with the requirements of internal law and this ESS and explain the following; (i) working conditions and management of worker relationship including terms and conditions of employment, non-discrimination and equal	Prepare a Human Resources Policy. Prepare a project handbook that covers working conditions and employment arrangements. Prepare an Equality and Diversity Programme that defines protection of employees, contractors and suppliers. Establish a mechanism to protect workers. Provide a Grievance Mechanism.

ESS	Scope / Aim of the ESS	Gaps between the Turkish EIA Regulation and World Bank's ESF	Environmental and Social Studies conducted/to be conducted to fill the gap
	• To promote safety and health at work. • To promote the fair treatment, non-discrimination, and equal opportunity of project workers. • To protect project workers, including vulnerable workers such as women, persons with disabilities, children (of working age, in accordance with this ESS) and migrant workers, contracted workers, community workers, and primary supply workers, as appropriate. • To prevent the use of all forms of forced labor and child labor. • To support the principles of freedom of association and collective bargaining of project workers in a manner consistent with national law. • To provide project workers with accessible means to raise workplace concerns.	opportunities, worker's organizations, (such as the preparation and implementation of workforce management procedures applicable to the project); (ii) protection of the workforce, including the establishment of a minimum age for workers and the prohibition of child labor and forced labor; (iii) grievance mechanism (for workers); (iv) occupational health and safety (OHS) ; (v) contracted workers; (vi) community workers and (vii) primary supply workers. The Borrower will develop and implement written labor management procedures applicable to the project. These procedures will set out the way in which project workers will be managed, in accordance with the requirements of national law and this ESS. The project owner should adopt and implement human resources policies and procedures appropriate to its size and workforce that set out its approach to managing workers consistent with the requirements of this Performance Standard and national law The project owner should establish a mechanism to maintain, and improve the worker-management relationship and should also promote compliance with national employment and labour laws. The project owner should establish a mechanism to protect workers, including vulnerable categories of workers such as children, migrant workers, forced labour, workers engaged by third parties, and workers in the client's supply chain while it should also provide a tool to promote safe and healthy working conditions, and the health of workers. In countries where national law recognizes workers' rights to form and to join workers' organizations of their choosing without interference and to bargain collectively, the client will comply with national law. Where national law substantially restricts workers' organizations, the client will not restrict workers from developing alternative mechanisms to express their grievances and protect their rights regarding working conditions and terms of employment. The client should not seek to influence or control these mechanisms. The client will provide a grievance mechanism for workers (and their organizations, where they exist) to raise workplace concerns. The client will inform the workers of the grievance mechanism at the time of recruitment and make it easily accessible to them. The	

ESS	Scope / Aim of the ESS	Gaps between the Turkish EIA Regulation and World Bank's ESF	Environmental and Social Studies conducted/to be conducted to fill the gap
		mechanism should involve an appropriate level of management and address concerns promptly, using an understandable and transparent process that provides timely feedback to those concerned, without any retribution. The mechanism should also allow for anonymous complaints to be raised and addressed. The mechanism should not impede access to other judicial or administrative remedies that might be available under the law or through existing arbitration procedures, or substitute for grievance mechanisms provided through collective agreements. <u>Turkish EIA Regulation</u> There is no Human Resources (HR) Policy for the project. There are warnings about how the workers should prevent any harmful effects that may arise during construction and operation phases. However, detailed working conditions or terms of employment are not mentioned in the EIA report The EIA does not address worker employment and therefore, there is no documented or formal policy of non-discrimination, equal opportunity and fair treatment in the EIA.	
ESS3 Resource Efficiency and Pollution Prevention and Management	ESS3 recognizes that economic activity and urbanization often generate pollution to air, water, and land, and consume finite resources that may threaten people, ecosystem services, and the environment at the local, regional, and global levels. The current and projected atmospheric concentration of greenhouse gases (GHG) threatens the welfare of current and future generations. At the same time, more efficient and effective resource use, pollution prevention, and GHG emission avoidance, and mitigation technologies and practices have become more accessible and achievable. This ESS sets out the requirements to address resource efficiency and pollution prevention and management throughout the project life cycle consistent with Good International Industry Practice (GIIP). The objectives of ESS3 are as follows: • To promote the sustainable use of resources, including energy, water, and raw materials.	<u>World Bank's ESF</u> The project owner should implement technically and financially feasible and cost effective measures for improving efficiency in its consumption of energy, water, as well as other resources and material inputs, with a focus on areas that are considered core business activities. Such measures will integrate the principles of cleaner production into product design and production processes with the objective of conserving raw materials, energy, and water. Where benchmarking data are available, the client will make a comparison to establish the relative level of efficiency. The project owner should avoid the release of pollutants or, when avoidance is not feasible, minimize and/or control the intensity and mass flow of their release. This applies to the release of pollutants to air (including GHG emissions), water, and land due to routine, non-routine, and accidental circumstances with the potential for local, regional, and transboundary impacts. Where historical pollution such as land or ground water contamination exists, the project should seek to determine whether it is	Prepare an evaluation of potential resource efficiency during construction and operation. Define potential impacts and develop approaches for avoidance, minimisation and use of alternative materials in order to reduce the project impact on natural and scarce resources. Baseline information must be captured for topics such as potential contaminated land and environmental impacts associated with the soil movement required by the earthworks. All assessments should address current conditions and potential future impacts of project construction and operation

ESS	Scope / Aim of the ESS	Gaps between the Turkish EIA Regulation and World Bank's ESF	Environmental and Social Studies conducted/to be conducted to fill the gap
	• To avoid or minimize adverse impacts on human health and the environment by avoiding or minimizing pollution from project activities. • To avoid or minimize project-related emissions of short- and long-lived climate pollutants. • To avoid or minimize generation of hazardous and nonhazardous waste. • To minimize and manage the risks and impacts associated with pesticide use.	responsible for mitigation measures. It is also important to address potential adverse project impacts on existing ambient conditions, the client will consider relevant factors, including, for example (i) existing ambient conditions; (ii) the finite assimilative capacity of the environment; (iii) existing and future land use; (iv) the project's proximity to areas of importance to biodiversity; and (v) the potential for cumulative impacts with uncertain and/or irreversible consequences. In addition to applying resource efficiency and pollution control measures as required in this Performance Standard, when the project has the potential to constitute a significant source of emissions in an already degraded area, the project should consider additional strategies and adopt measures that avoid or reduce negative effects. These strategies include, but are not limited to, evaluation of project location alternatives and emissions offsets. <u>Turkish EIA Regulation</u> The EIA does not address resource consumption and resource efficiency measures. Baseline information is provided in the EIA on air emissions, wastewater, solid wastes, hazardous wastes and noise. The EIA assessments have focussed on construction phases and have not addressed operational phases for each of these elements. The EIA provides no information regarding the potential contamination of land associated with historical use and does not discuss the environmental and social impacts associated with the volumes of soil movements proposed in the earthworks activities.	
ESS4 Community Health and Safety	ESS4 recognizes that project activities, equipment, and infrastructure can increase community exposure to risks and impacts. In addition, communities that are already subjected to impacts from climate change may also experience an acceleration or intensification of impacts due to project activities. ESS4 addresses the health, safety, and security risks and impacts on project-affected communities and the corresponding responsibility of Borrowers to avoid or minimize such risks and impacts, with particular attention to people who, because of their particular circumstances, may be vulnerable. The objectives of ESS4 are as follows:	<u>World Bank's ESF</u> WB's ESF: The project should anticipate and avoid adverse impacts on the health and safety of the Affected Community and ensure that the safeguarding of personnel and property is carried out in accordance with relevant human rights principles and in a manner that avoids or minimizes risks to the Affected Communities. ESS4 requirements are as follows: (i) community health and safety, including infrastructure and equipment design and safety, safety of services, traffic and road safety, ecosystem services, community exposure to health issues, management and safety of hazardous	Assess the safety and security risks associated with construction and operation of the Advanced Environmental Laboratory on the community and develop a plan to mitigate and manage risks.

ESS	Scope / Aim of the ESS	Gaps between the Turkish EIA Regulation and World Bank's ESF	Environmental and Social Studies conducted/to be conducted to fill the gap
	• To anticipate and avoid adverse impacts on the health and safety of project-affected communities during the project life cycle from both routine and nonroutine circumstances. • To promote quality and safety, and considerations relating to climate change in the design and construction of infrastructure, including dams. • To avoid or minimize community exposure to project-related traffic and road safety risks, diseases, and hazardous materials. • To have in place effective measures to address emergency events. • To ensure that the safeguarding of personnel and property is carried out in a manner that avoids or minimizes risks to the project-affected communities.	materials, and emergency preparedness and response and security; and (ii) security personnel. Turkish EIA Regulation The EIA does not address regarding the environmental and social impacts associated with construction camps and the influx of temporary/migrant labour to support construction activities.	
ESS6 Biodiversity Conservation and Sustainable Management of Living Natural Resources	ESS6 recognizes that protecting and conserving biodiversity and sustainably managing living natural resources are fundamental to sustainable development. Biodiversity is defined as the variability among living organisms from all sources, including inter alia, terrestrial, marine, and other aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between species, and of ecosystems. The objectives of ESS6 are as follows: • To protect and conserve biodiversity and habitats. • To apply the mitigation hierarchy and the precautionary approach in the design and implementation of projects that could have an impact on biodiversity. • To promote the sustainable management of living natural resources. • To support livelihoods of local communities, including Indigenous Peoples, and inclusive economic development, through the adoption of practices that integrate conservation needs and development priorities.	World Bank's ESF The environmental and social assessment as set out in ESS1 will consider direct, indirect, and cumulative project-related impacts on habitats and the biodiversity they support. This assessment will consider threats to biodiversity, for example, habitat loss, degradation and fragmentation, invasive alien species, overexploitation, hydrological changes, nutrient loading, pollution and incidental take, as well as projected climate change impacts. It will determine the significance of biodiversity or habitats based on their vulnerability and irreplaceability at a global, regional, or national level and will also take into account the differing values attached to biodiversity and habitats by project-affected parties and other interested parties. The Borrower will avoid adverse impacts on biodiversity and habitats. When avoidance of adverse impacts is not possible, the Borrower will implement measures to minimize adverse impacts and restore biodiversity in accordance with the mitigation hierarchy provided in ESS1 and with the requirements of this ESS. The Borrower will ensure that competent biodiversity expertise is utilized to conduct the environmental and social assessment and the verification of the effectiveness and feasibility of mitigation measures. Where significant risks and adverse impacts on biodiversity have been identified, the Borrower will develop and implement a Biodiversity Management Plan. Turkish EIA Regulation	Robust sampling methodologies and plans should be prepared to inform surveys for all identified habitats and species to ensure that robust baseline data is obtained to inform the assessment of potential impacts, mitigation and compensation strategies.

ESS	Scope / Aim of the ESS	Gaps between the Turkish EIA Regulation and World Bank's ESF	Environmental and Social Studies conducted/to be conducted to fill the gap
		The EIA has provided inadequate baseline data regarding project biodiversity and natural habitats and the potential impacts associated with the project during construction and operation. The EIA reports that ecological species and habitat evaluations were undertaken through habitat evaluation and literature review.	
ESS10 Stakeholder Engagement and Information Disclosure	This ESS recognizes the importance of open and transparent engagement between the Borrower and project stakeholders as an essential element of good international practice. Effective stakeholder engagement can improve the environmental and social sustainability of projects, enhance project acceptance, and make a significant contribution to successful project design and implementation. The objectives of ESS10 are as follows: • To establish a systematic approach to stakeholder engagement that will help Borrowers identify stakeholders and build and maintain a constructive relationship with them, in particular project affected parties. • To assess the level of stakeholder interest and support for the project and to enable stakeholders' views to be taken into account in project design and environmental and social performance. • To promote and provide means for effective and inclusive engagement with project-affected parties throughout the project life cycle on issues that could potentially affect them. • To ensure that appropriate project information on environmental and social risks and impacts is disclosed to stakeholders in a timely, understandable, accessible, and appropriate manner and format. • To provide project-affected parties with accessible and inclusive means to raise issues and grievances, and allow Borrowers to respond to and manage such grievances.	<u>World Bank's ESF</u> Borrowers will engage with stakeholders throughout the project life cycle, commencing such engagement as early as possible in the project development process and in a time frame that enables meaningful consultations with stakeholders on project design. The nature, scope, and frequency of stakeholder engagement will be proportionate to the nature and scale of the project and its potential risks and impactsThe process of stakeholder engagement will involve the following: (i) stakeholder identification and analysis; (ii) planning how the engagement with stakeholders will take place; (iii) disclosure of information; (iv) consultation with stakeholders; (v) addressing and responding to grievances; and (vi) reporting to stakeholders. For all Category A and B subprojects proposed for WB funding, the borrower will consult and consider the views of the project-affected groups and non-governmental organizations regarding the environmental impacts of the subproject during the EA process. <u>Turkish EIA Regulation</u> The EIA reports that a single, formal, information disclosure exercise has been carried out regarding the project. This occurred at the start of the EIA process. No further information disclosure activities have been undertaken prior to the EIA report being finalized. The EIA does not describe any stakeholder engagement and therefore it is assumed that none has been undertaken. For the projects included in the list of Annex-I, which therefore require the preparation of an EIA Report, the public information and participation meeting, whose place and date is decided by the Provincial Directorate of Environment, Urbanization and Climate Change, is held not later than 10 days prior to the meeting by disclosing it publicly in local and national newspapers.	A stakeholder engagement plan should be prepared to address project start up, construction and operation. This should be a two way process of giving and receiving information. It should involve the local, regional and national communities as applicable to the project.

ESS	Scope / Aim of the ESS	Gaps between the Turkish EIA Regulation and World Bank's ESF	Environmental and Social Studies conducted/to be conducted to fill the gap
		No public information and participation meeting is held for the projects included in the list of Annex-II. <u>Public Information and Participation Meeting:</u> In the Turkish EIA Regulation, public consultation is required for the purpose of "preliminary scope determination" only for projects requiring EIA, and for this purpose, only the environmental assessment must be announced with its justification. However, ESS 10 does not specify how many times and by what method public consultation and public information will be carried out, instead it is requested to adopt a continuous stakeholder participation approach throughout the project life cycle, which will be decided in proportion to the nature, scale and impact size of the project.	

ANNEX-6: ECOLOGY AND BIODIVERSITY

Studies of the biological environment of this Project Area and the potential impact area were carried out on 28th June, 2024. The studies covered terrestrial, including flora and fauna species, vegetation and habitat descriptions.

The distribution of flora and fauna species in the Project Area and their biological activities has been determined through the studies carried out with this ESMP report.

Within the scope of biodiversity baseline detection studies, the Project Area and its immediate surroundings have been researched. Research has been conducted to assess terrestrial flora species and vegetation within the footprint of project components and associated areas (such as parking lots, landscaping areas and transformer zones).

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

Flora

The determination of the floristic structure is based on field observations and a detailed literature study on the floristic and ecological structure of the region. In the flora part of the report, Davis' "Flora of Türkiye and East Aegean Islands" was used for the identification of the plant species collected from the field, a literature study was made from the same work in order to make the flora list complete and complete, and the species were confirmed from the Plants of Türkiye Data Service prepared by TÜBİTAK. In addition, Bizim Bitkiler (Our Plants) website was also used to confirm the species. In addition, floristic studies conducted in the regions close to the area and showing the same ecological characteristics with the area were also utilized in the creation of the flora list.

Türkiye is one of the richest countries of the temperate zone in terms of floristic diversity with nearly 12,000 flowering plant taxa (including subspecies taxa). This diversity is a reflection of climatic, edaphic, topographical, etc. diversity, especially ecosystem diversity.

The flora of Türkiye is related to Central Europe on the one hand and Asia on the other. Considering that there are around 11.000 species in the whole continental Europe from the west of the Urals, it can be said that Türkiye is a continent in terms of floristic diversity. The flora of Türkiye has an important place among other countries with more than 3000 endemic species.

The IUCN endangerment category of the identified plant species was based on the Red Data Book of Turkish Plants (Pteridophyta and Spermatophyta) Ekim, T., Koyuncu, M., Vural, M., Duman, H., Aytaç, Z., Adıgüzel, N. Ankara 2000. In addition, the updates made in the Red List of Plants of Türkiye in 2006 were also taken into consideration. For the Turkish name equivalents of the plant species, the book titled "Güner, A., Aslan, S., Ekim, T., Vural, M. and Babac, M. T. Turkey Plants List Vascular Plants, 1st Edition, Istanbul 2012" was used.

Endemic, Rare and Threatened Plant Species and Threat Categories (IUCN, Bern, CITES)

a) Endemic, Rare or Endangered Plant Species

Türkiye is very rich in endemic and rare plants as it is a country located in the transcontinental transition zone. According to TUBIVES, there are 2.300 plant taxa in Ankara province and 409 of them (approximately 18%) are endemic. Considering that the endemism rate of our country is around 33%, Ankara province is weak in terms of endemism (Figure 36).

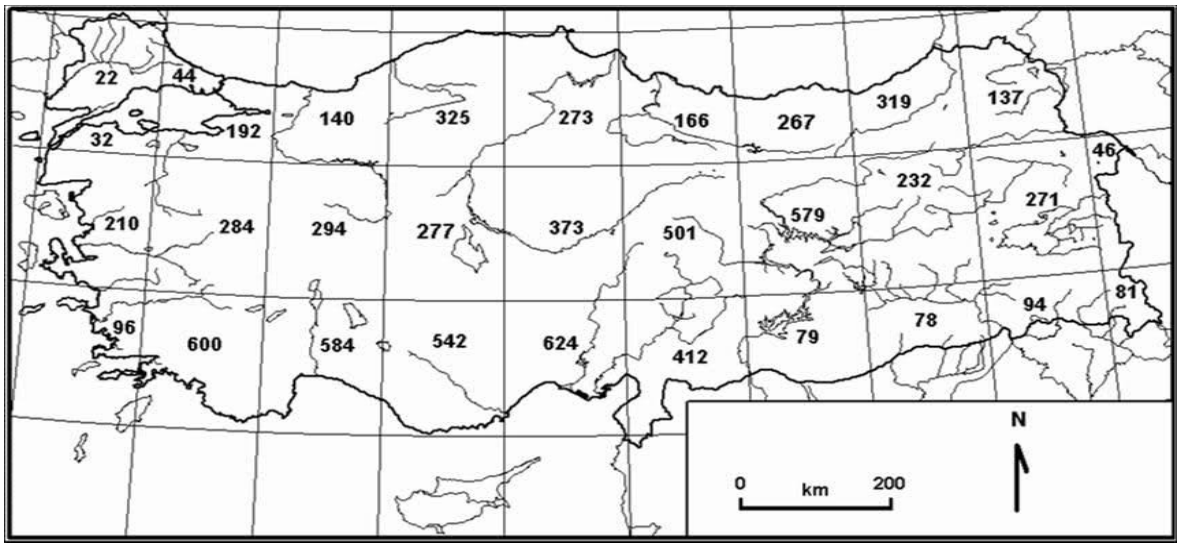


Figure 36 Distribution of endemic plant species according to grid system.

b) IUCN Threat Categories

The IUCN Red Data Book Categories used in the Red Data Book of Plants of Türkiye were used to determine the IUCN categories of the plant species identified in the Project area and impact area. The IUCN Red Data Book Categories used in the Red Book of Plants of Türkiye and their descriptions are given in Table 46.

Table 46 Red Book of Plants of Türkiye IUCN Red Data Book Categories

IUCN CATEGORY	EXPLANATIONS
EX Extinct	This taxon is EX if there is no doubt that the last member has died.
EW Extinct In the Wild	It is placed in this group if the taxon has not been found in the environments where it can be found and in detailed surveys carried out at different times of the year, that is, if it is lost in nature and continues to live only in cultivated form.
CR Critically Endangered (Very Dangerous)	A taxon is placed in this group if it is at risk of extinction in the very near future.
EN Endangered	A taxon is placed in the EN group if it is at very high risk and threatened with extinction in the near future, but not yet in the CR group.
VU Vulnerable	Although they cannot be placed in CR and EN groups; taxa that are under high threat in the medium-term future in nature are placed in this group. In our country, some species known from more than one locality that are thought to be threatened in the medium term have been placed in this category. In addition, some species that are not currently threatened have been placed in this category in order to ensure their protection in the future.
LR Lower Risk (Less Threatened)	Plants with better populations that cannot be placed in any of the above groups are placed in this category. Plants with very good populations and known from at least 5 localities are placed in this category. There are 3 subcategories that can be ranked in terms of threat according to their future status: (cd), (nt) and (lc).
LR/(cd) Conservation Dependent	The taxon will be placed in one of the above categories within 5 years and requires a special conservation status for both species and habitat.
LR/ (nt) Near Threatened	Candidates that cannot be placed in the previous group but are close to being placed in the VU category.
LR/ (lc) Least Concern	Those that do not require any protection and are not threatened.
DD Data Deficient	A taxon is placed in this group if knowledge about its distribution and abundance is insufficient. Even if the biology of a taxon in this category is well known, information on its distribution and abundance is insufficient. Therefore, placing a taxon in the DD category indicates that more information needs to be gathered about it, rather than that it is threatened. Once the information is available, the taxon should be placed in another category appropriate to its status.
NE Not Evaluated	Those that cannot be assessed by any of the above criteria.

Explanatory Information on Some Criteria

Additional criteria accepted for placement in the **CR, EN** and **VU** categories are:

For **CR** Category - Plants that are in danger of disappearing in nature in a very short period of time can be decided according to the following criteria.

A. If the population is declining as a result of the following threats;

80% probability of disappearance in the population within 10 years for the following reasons

a-Change in habitat characteristics and decrease in the degree of closeness of the species;

b - Under the threat of actual and potential collection;

c-Threat of invasion by another taxon, hybridization, disease, seed failure, contamination, competition and parasites;

B. If the total distribution area of the plant is less than 100 km^2 and the single distribution area is less than 10 km^2 , very fragmented or known from a single location.

For **EN** Category - At high risk of the above-mentioned threats; population is expected to decline by 50% in the last 10 years or in 3 generations; distribution area is up to 5000 km^2 or 500 km^2 in a single area; number of individuals is below 2500 or known from at most 5 locations.

For **VU** Category - Species whose population is expected to decrease by 20% in the last 10 years or 3 generations in the face of the threats mentioned above; whose distribution area is not more than 10 locations, whose distribution area is 20.000 km^2 , the number of mature individuals is less than 10.000, or whose population is expected to decrease by 10% in 100 years during field studies.

c) Convention for the Conservation of Wildlife and Habitats in Europe (Bern)

The Bern Convention is a convention to protect wild flora and fauna and their habitats, to ensure that necessary measures are taken for endangered or endangered species, and to ensure the dissemination of wild flora and fauna education. Annex lists and explanations of the Bern Convention are given in Table 47.

Table 47 BERN Convention Annex Lists and Explanations

LIST OF ANNEXES	EXPLANATIONS
ANNEX I	Strictly protected flora species
ANNEX II	Strictly protected fauna species (SPFS- Strictly Protected Fauna Species)
ANNEX III	Protected fauna species (PFS- Protected Fauna Species)

d) Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

The CITES Convention is a convention that binds the import, export, in short, international trade of wild animal and plant species between the countries that are parties to the convention to certain permits and documents. Appendix lists and explanations of the CITES Convention are given in Table 48.

Table 48 CITES Convention Appendix Lists and Explanations

LIST OF ANNEXES	EXPLANATIONS
ANNEX I	It covers all species threatened with extinction that are or may be affected by trade. Trade in specimens of these species must be subject to particularly stringent legislation and only permitted in exceptional circumstances to avoid further jeopardizing their continued extinction.

LIST OF ANNEXES	EXPLANATIONS
ANNEX II	(a) Species that are not currently in imminent danger of extinction but may become extinct unless trade in their specimens is subject to strict regulations to prevent uses incompatible with their continued extinction; and (b) other species that need to be subject to legislation in order to effectively control the trade in specimens of certain species referred to in subparagraph (a).
ANNEX III	It covers all species that any Party indicates are subject to regulation within its jurisdiction for the purpose of preventing or restricting their use and that it needs to cooperate with other Parties in controlling their trade.

Assessment of the Project Area in terms of Plant Geography (Phytogeography)

Due to its geographical location, our country is under the influence of various climates. As a matter of fact, oceanic climatic conditions prevail on the slopes of the North Anatolian and Yıldız (Istranca) Mountains facing north, especially the Black Sea; Mediterranean in the Marmara Sea, Aegean and Mediterranean regions; and continental climatic conditions prevail in Central, Eastern and Southeastern Anatolia. Thus, the north of Anatolia and Thrace is a country where humid temperate climates prevailing in the west of the continents to the east of the oceans, the Aegean and Mediterranean subtropical, and the central and eastern regions of Anatolia are a collection of continental climates prevailing in the interior of the continents. In the high mountainous areas, cold climatic conditions effective in more northern latitudes are observed. Therefore, the existence of different areas and phytogeographical regions in terms of vegetation in Türkiye (Figure 37) is a necessity of natural conditions.

As a general assessment, the north of Türkiye as a whole falls within the Euro-Siberian Flora Region. In the north, the Eastern Black Sea Region, starting from the east of Ordu, falls within the Colchic, while the western parts fall within the Euxine sub-flora or sections of the same flora realm. The northern coasts of the Marmara Sea and the Aegean and Mediterranean regions constitute the Eastern Mediterranean Flora. The Central and Eastern Anatolia regions fall within the Turanian-Eurasian or Irano-Turanian Flora Region, and the steppe areas of Southeastern Anatolia fall within the Irano-Turanian Flora Division. In short, Türkiye is a country where Euro-Siberian, Mediterranean and Iran-Turanian flora regions coexist.

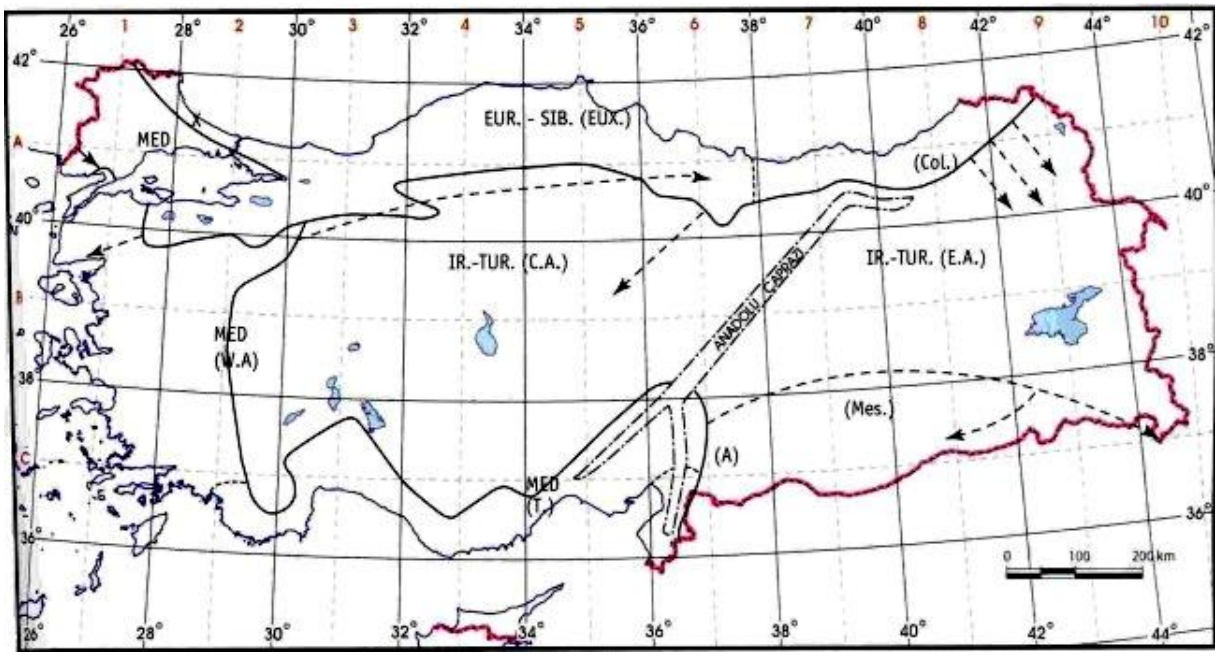


Figure 37 Phytogeographic Regions in Türkiye and the Anatolian Diagonal
(EUR.-SIB: European Siberian Plant Geographic Region, MED: Mediterranean Plant Geography Region, IR.-TUR: Iran Turan Plant Geography Region)

The Project area is located in square B4 according to the Grid Quadrature System (Figure 38).

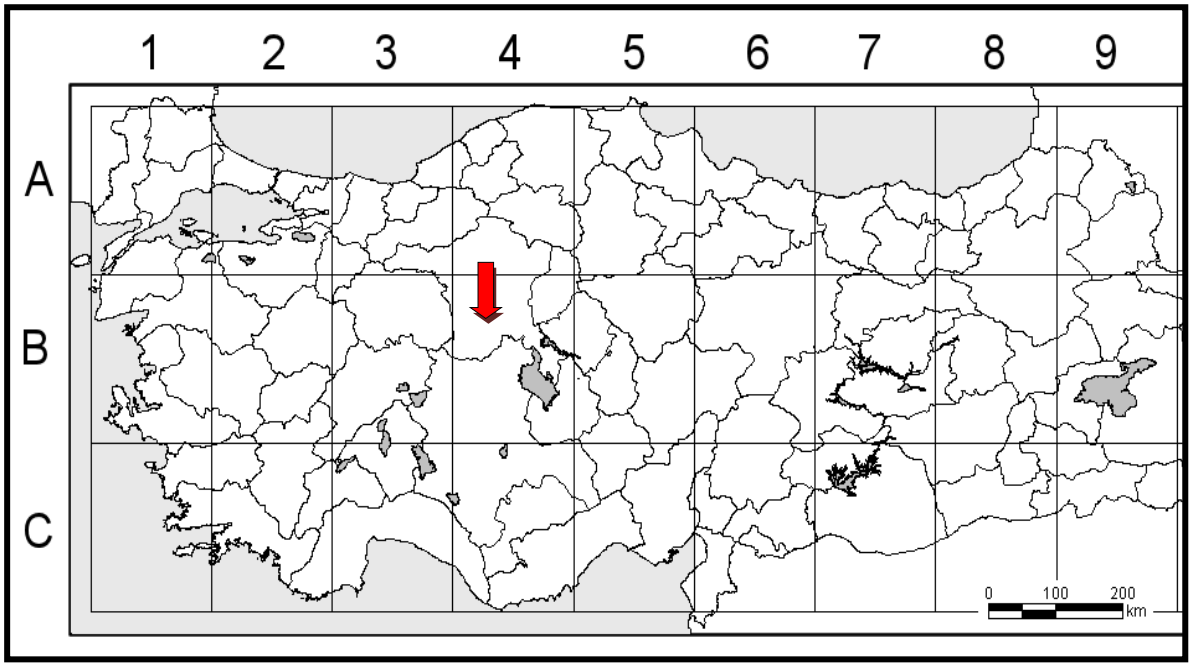


Figure 38 Location of the Project Area in Grid Quadrature System

Floristic Analysis

A total of 95 plant taxa belonging to 35 families have been identified in and around the Project area. There are no endemic species among the plant taxa found and likely to be found in and around the project area. Among the plant taxa identified in the project area, there are no plant taxa included in the Annex Lists of the Bern and CITES Conventions. Information on these taxons is presented in Table 49.

Table 49 Plant Taxons found and likely to be found in the Project Area and its immediate surroundings and their Protection Status

Family	Scientific Name	Endemism	IUCN	CITES	BERN	Phytogeographic Region	Form of Detection
Spermatophyta		-	-	-	-		L
Gymnospermae		-	-	-	-		L
Pınaceae	*Pinus nigra*	-	-	-	-	Plantation	L
	Cedrus libani	-	-	-	-	Plantation	L
Cupressaceae	*Cupressus arizonica*	-	-	-	-	Plantation	L
	Juniperus sabina	-	-	-	-	Plantation	L
Angıospermae		-	-	-	-		L
Dıcotyledones		-	-	-	-		L
Amaranthaceae	*Amaranthus blitoides*	-	-	-	-	Widely distributed	L
	Amaranthus albus	-	-	-	-	Widely distributed	L
Apıaceae	*Torilis leptophylla*	-	-	-	-	Mediterranean	L
	Conium maculatum	-	-	-	-	Widely distributed	L
	Pimpinella kotschyana	-	-	-	-	Iran-Turan	L
	Foeniculum vulgare	-	-	-	-	Widely distributed	L
	Daucus carota	-	-	-	-	Widely distributed	L
Apocynaceae	*Trachomitum venetum*	-	-	-	-	Mediterranean	L
Boragınaceae	*Neatostema apulum*	-	-	-	-	Mediterranean	L
	Echium italicum	-	-	-	-	Mediterranean	L
	Buglossoides arvensis	-	-	-	-	Widely distributed	L

Family	Scientific Name	Endemism	IUCN	CITES	BERN	Phytogeographic Region	Form of Detection
	Heliotropium dolosum	-	-	-	-	Widely distributed	L
Brassıcaceae	*Brassica elongata*	-	-	-	-	Widely distributed	L
	Descurainia sophia	-	-	-	-	Widely distributed	L
	Hirschfeldia incana	-	-	-	-	Widely distributed	L
	Sinapis arvensis	-	-	-	-	Widely distributed	L
	Neslia apiculata	-	-	-	-	Widely distributed	L
	Capsella bursa-pastoris	-	-	-	-	Widely distributed	L
	Raphanus raphanistrum	-	-	-	-	Widely distributed	L
	Sisymbrium officinale	-	-	-	-	Widely distributed	L
	Thlaspi perfoliatum	-	-	-	-	Widely distributed	L
Caryophyllaceae	*Silene vulgaris*	-	-	-	-	Widely distributed	L
Chenopodıaceae	*Chenopodium foliosum*	-	-	-	-	Widely distributed	L
	Chenopodium murale	-	-	-	-	Widely distributed	L
	Chenopodium vulvaria	-	-	-	-	Widely distributed	L
	Atriplex nitens	-	-	-	-	Widely distributed	L
	Atriplex tatarica	-	-	-	-	Widely distributed	L
Composıtae (Asteraceae)	*Lactuca serriola*	-	-	-	-	Europe-Siberia	L
	Acroptilon repens	-	-	-	-	Iran-Turan	L
	Senecio vernalis	-	-	-	-	Widely distributed	L
	Tragopogon longirostris	-	-	-	-	Widely distributed	L
	Cichorium intybus	-	-	-	-	Widely distributed	L
	Carduus pycnocephalus	-	-	-	-	Widely distributed	L
	Carduus nutans	-	-	-	-	Widely distributed	L
	Silybum marianum	-	-	-	-	Widely distributed	L
	Echinops viscosus	-	-	-	-	Iran-Turan	L
	Conyza bonariensis	-	-	-	-	Widely distributed	L
	Logfia arvensis	-	-	-	-	Widely distributed	L
	Chondrilla juncea	-	-	-	-	Widely distributed	L
	Centaurea solstitialis	-	-	-	-	Widely distributed	L
	Sonchus asper	-	-	-	-	Widely distributed	L
	Crepis sancta	-	-	-	-	Widely distributed	L
	Scolymus hispanicus	-	-	-	-	Mediterranean	L
	Picnomon acarna	-	-	-	-	Widely distributed	L
	Xanthium spinosum	-	-	-	-	Widely distributed	L
	Xanthium strumarium	-	-	-	-	Widely distributed	L
Convolvulaceae	*Convolvulus arvensis*	-	-	-	-	Widely distributed	L
Fabaceae	*Medicago sativa*	-	-	-	-	Widely distributed	L
	Melilotus officinalis	-	-	-	-	Widely distributed	L
	Melilotus albus	-	-	-	-	Widely distributed	L
	Medicago x varia	-	-	-	-	Widely distributed	L
	Trifolium resupinatum	-	-	-	-	Widely distributed	L
	Trifolium stellatum	-	-	-	-	Widely distributed	L
	Trifolium arvense	-	-	-	-	Widely distributed	L
Geranıaceae	*Erodium ciconium*	-	-	-	-	Widely distributed	L
Lınaceae	*Linum nodiflorum*	-	-	-	-	Mediterranean	L
Malvaceae	*Malva sylvestris*	-	-	-	-	Widely distributed	L
	Malva neglecta	-	-	-	-	Widely distributed	L
Papaveraceae	*Papaver rhoeas*	-	-	-	-	Widely distributed	L
Plantagınaceae	*Plantago lanceolata*	-	-	-	-	Widely distributed	L
Polygonaceae	*Polygonum arenastrum*	-	-	-	-	Widely distributed	L
	Polygonum billardii	-	-	-	-	Widely distributed	L
Portulacaceae	*Portulaca oleracea*	-	-	-	-	Widely distributed	L
Prımulaceae	*Anagallis arvensis*	-	-	-	-	Widely distributed	L

Family	Scientific Name	Endemism	IUCN	CITES	BERN	Phytogeographic Region	Form of Detection
Ranunculaceae	*Ranunculus arvensis*	-	-	-	-	Widely distributed	L
Rosaceae	*Sanguisorba minor*	-	-	-	-	Widely distributed	L
	Cerasus mahaleb	-	-	-	-	Widely distributed	L
	Rosa canina	-	-	-	-	Widely distributed	L
Rubıaceae	*Galium fissurense*	-	-	-	-	Iran-Turan	L
Scrophularıaceae	*Veronica cymbalaria*	-	-	-	-	Mediterranean	L
	Kickxia lanigera	-	-	-	-	Widely distributed	L
Sımaroubaceae	*Ailanthus altissima*	-	-	-	-	Widely distributed	L
Solanaceae	*Datura stramonium*	-	-	-	-	Widely distributed	L
Tamarıcaceae	*Tamarix smyrnensis*	-	-	-	-	Widely distributed	L
Urtıcaceae	*Urtica dioica*	-	-	-	-	Europe-Siberia	L
Zygophyllaceae	*Tribulus terrestris*	-	-	-	-	Widely distributed	L
Monocotyledones		-	-	-	-		L
Gramıneae (Poaceae)	*Hordeum murinum*	-	-	-	-	Widely distributed	L
	Elymus repens	-	-	-	-	Widely distributed	L
	Phragmites australis	-	-	-	-	Europe-Siberia	L
	Bromus arvensis	-	-	-	-	Widely distributed	L
	Bromus tectorum	-	-	-	-	Widely distributed	L
	Lolium perenne	-	-	-	-	Widely distributed	L
	Deschampsia caespitosa	-	-	-	-	Widely distributed	L
	Cynodon dactylon	-	-	-	-	Widely distributed	L
	Avena sativa	-	-	-	-	Widely distributed	L
	Trachynia distachya	-	-	-	-	Mediterranean	L
Thyphaceae	*Thypha domingensis*	-	-	-	-	Widely distributed	L

Abbreviations LD: Unlisted, L: Literature, F: Field.

Fauna

Since fauna species show seasonal changes and it may take several years to determine the fauna inventory of an area, the species given in the fauna lists were prepared by taking into consideration the detailed literature study, observations and hearsay of local people, biotope characteristics of the region, current distribution areas and current biogeography rules.

In the field studies carried out within the scope of the identification of fauna elements (bivalves, reptiles, birds and mammals), areas close to the water source, under stones and rocks, rock crevices, tree hollows, etc. within the project area and impact area were checked. No traps were set in order not to harm the fauna. After the collected specimens were photographed, they were released back into the nature in order not to harm the ecological balance. Fauna data were collected by utilizing literature studies, especially articles and scientific reports on faunistic researches conducted in the areas close to these areas.

Endemic, Rare and Threatened Fauna Species and Threat Categories

a) Endemic, Rare or Endangered Fauna Species

Amphibian, reptile, bird and mammal species, which were determined to be distributed in the project area and impact area as a result of field, literature and survey studies, were evaluated in their own sections.

b) IUCN Threat Categories

The IUCN "Red List of Species in Danger of Extinction" ("IUCN Red List") is the most comprehensive Global Conservation status inventory of plant and animal species in the world. The IUCN Red List is maintained by the International Union for Conservation of Wildlife and Natural Resources.

The categories were classified into 9 groups (Table 50 and Figure 39). In this classification, extinction rate, population size, geographical distribution areas, population and distribution degree criteria were taken into consideration.

Table 50 IUCN Categories and their meanings

IUCN Categories	Meanings
Evaluated	Under evaluation
Not Evaluated (NE)	Not evaluated
Adequate data	Sufficient data available
Data Deficient (DD)	Not enough data available (data missing)
Extinct (EX)	Completely extinct, extinct species
Extinct in the Wild (EW)	Extinct species in the wild
Critically Endangered (CR)	Species in significant danger of extinction
Endangered (EN)	Species in danger of extinction
Vulnerable (VU)	Species in danger of future extinction unless conservation measures are taken
Near Threatened (NT)	Almost threatened
Least Concern (LC)	Least worried species

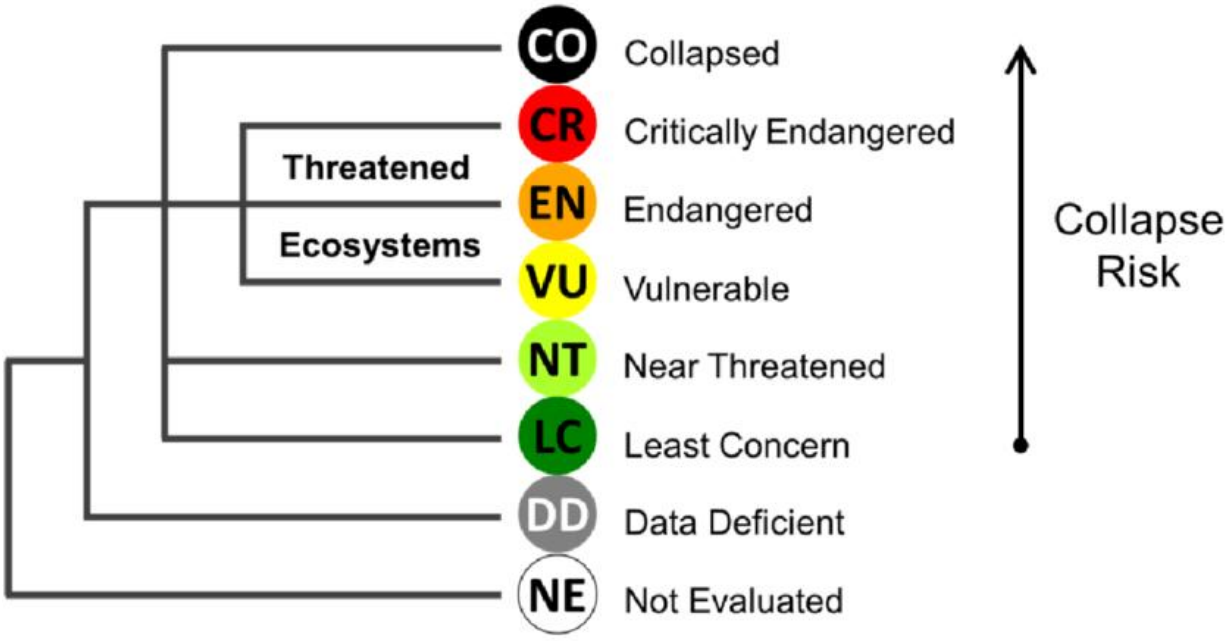


Figure 39 IUCN Risk Classes

c) Convention for the Conservation of Wildlife and Habitats in Europe (Bern)

The Bern Convention is a convention to protect wild flora and fauna and their habitats, to ensure that necessary measures are taken for endangered or endangered species, and to ensure the dissemination of wild flora and fauna education. Annex lists and explanations of the Bern Convention are given in Table 51.

Table 51 BERN Convention Annex Lists and Explanations

LIST OF ANNEXES	EXPLANATIONS
ANNEX I	Strictly protected flora species
ANNEX II	Strictly protected fauna species (SPFS- Strictly Protected Fauna Species)
ANNEX III	Protected fauna species (PFS- Protected Fauna Species)

d) Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

The CITES Convention is a convention that binds the import, export, in short, international trade of wild animal and plant species between the countries that are parties to the convention to certain permits and documents. Appendix lists and explanations of the CITES Convention are given in Table 52.

Table 52 CITES Convention Appendix Lists and Explanations

LIST OF ANNEXES	EXPLANATIONS
ANNEX I	It covers all species threatened with extinction that are or may be affected by trade. Trade in specimens of these species must be subject to particularly stringent legislation and only permitted in exceptional circumstances to avoid further jeopardizing their continued extinction.
ANNEX II	(a) species that are not currently threatened with absolute extinction, but may become extinct unless trade in specimens is subject to strict regulations to prevent uses incompatible with their continued extinction; and (b) other species that need to be subject to legislation in order to effectively control trade in specimens of certain species referred to in subparagraph (a).
ANNEX III	It covers all species that any Party indicates are subject to regulation within its jurisdiction for the purpose of preventing or restricting their use and that it needs to cooperate with other Parties in controlling their trade.

e) 2023-2024 Central Hunting Commission Decision (MAKK)

In addition; "2023-2024 Central Hunting Commission Decisions" entered into force by the Republic of Türkiye Ministry of Agriculture and Forestry General Directorate of Nature Conservation and National Parks have been included in the relevant lists.

The Central Hunting Commission convenes every year within the framework of the authority it receives from the Land Hunting Law No. 4915 and determines the game animals to be protected throughout the country in that hunting period, the game animals to be allowed to be hunted and their hunting periods, times and days, hunting amounts, prohibited hunting tools and equipment, hunting areas to be prohibited, hunting principles and procedures for combat purposes *(*www.milliparklar.gov.tr). Central Hunting Commission Decisions and Explanations are given below (Table 53).

Table 53 Central Hunting Commission Decisions and Explanations

MAK LISTS	EXPLANATIONS
ANNEX 1	Game Animals Protected by the Central Hunting Commission
ANNEX 2	Game Animals Permitted to Hunt by the Central Hunting Commission for Specified Periods

f) Red Data Book Categories and Descriptions Used for Ornithofauna

The Red Data Book categories determined by Prof. Dr. İlhami Kiziroğlu for bird species are given below. The explanation of the symbols used for the conservation status and status of the bird species in the table is as follows.

A.1.0= Species that have disappeared beyond any doubt and are no longer seen in their natural habitat.

A.1.1= Domesticated, domesticated species whose natural populations are now extinct or have not been seen in their natural habitat for at least the last fifteen to twenty-five years, but continue to live in voles, cages and other artificial conditions.

A.1.2= Populations of these species are very low throughout Türkiye. They are represented by **1 individual - 10 pairs** (=1- 20 individuals) in the regions where they are monitored.

A.2= The numbers of these species range between **11-25 pairs** (22-50 individuals) in the areas where they are observed. They are significantly threatened with extinction.

A.3= Populations of these species in Türkiye generally range between (52- 500) individuals in the regions where they are observed. These species are also vulnerable to extinction and have a high risk of extinction in the wild.

A.3.1= Populations of these species are declining in the areas where they are observed. The population of these species also varies between **251- 500 pairs** (502- 1000 individuals).

A.4= The densities of these species according to IUCN and ATS criteria are not yet threatened with extinction in the regions where they are observed, but there is a local decrease in their populations and they are candidates to become threatened with extinction in time. Populations of these species range between **501- 5000 pairs** (=1002- 10 000 individuals) in the regions where they are observed.

A.5= The observed populations of these species are not yet threatened with decline or extinction.

A.6= Includes species that have not been adequately researched and for which there is no reliable data. Since they are based on one or at most two observations only as **"incidental species= RT", there** is currently no chance of a reliable assessment and they need to be researched

A.7= It is not possible to make an assessment of these species at this time because the records of these species in Türkiye are not complete and reliable. Species categorized as **NE: (not evaluated)** according to IUCN criteria are included in this group. These include species whose compliance with the above criteria has not been fully evaluated so far. they are marked with "*" in the relevant tables.

Species in group **"B"** are either winter visitors or transit migrants. These species are significantly threatened with extinction and will be subject to the same assessment as in group "A". Therefore, the criteria in steps B.1.0 - B.7 will also be used for the species in group "B":

B1.0= There are no examples of species in this status that were previously recorded as wintering in Türkiye but are now extinct.

B.1.1= These species use Türkiye as a wintering or transit area, but their populations are threatened with significant extinction. The natural populations of birds in their wintering grounds are now extinct: they are domesticated species that survive in voliers, cages and other artificial conditions. These species have no chance of surviving in the wild. If they are released into the wild, it is no longer possible for them to adapt to natural living conditions.

B.1.2= The populations of these species are very low throughout Türkiye and are represented by **1 individual - 10 pairs** (1- 20 individuals) in the regions where they are monitored. Since these species are under great threat of extinction, they must be protected throughout Türkiye.

B.2= The numbers of these species range from **11 to 25 pairs** (22 to 50 individuals) in the areas where they are observed. These species are significantly threatened with extinction.

B.3= Populations of these species in Türkiye generally range between **26-50 pairs** (52-500 individuals) in the regions where they are observed. Species in great danger of extinction in the wild. These species are also vulnerable to extinction and in great danger of extinction in the wild.

B.3.1= Populations of these species are declining in the areas where they are observed. Their population also ranges between **251- 500 pairs** (502- 1000 individuals). It includes species that tend to decline in the areas where they are observed, according to previous records.

B.4= Population densities of these species are not yet threatened with extinction in the areas where they are observed, but there is a localized decline in their populations. These species are candidates to be threatened with extinction in time. Populations of these species range between **501- 5000 pairs** (1002- 10 000 individuals) in the areas where they are observed.

B.5= The observed populations of these species are not yet in decline or threatened with extinction.

B.6= Includes under-researched and poorly recorded species. Since they are based on fewer than two observations as **"chance species= RT"** only, there is currently no chance for a reliable assessment and need to be investigated.

B.7= It is not possible to make an assessment of these species at this time because their records are few, uncertain and unreliable.

K: Winter visitors These species are mostly of western origin and come to spend the winter in warmer regions of Türkiye, mainly the Lake District and wetlands further south.

T: Transit migrants These species use Anatolia during their spring and fall migrations.

R: Random species These are characterized by irregular records and very low numbers of individuals.

N: Rare species are species that do not fall under the above statuses and for which there is no reliable, sufficient and healthy data.

Faunistic Analysis

a. Bivalves (Amphibia)

The name amphibians, or bivalves, means those with a double life. This is because many amphibian species spend their lives partly in water and partly on land. Amphibians have no scales, plates, bristles, etc. on their skin. In other words, their skin is bare and contains plenty of glands that keep it moist. They usually undergo metamorphosis and turn into a juvenile individual with an adult appearance. Adults are carnivorous. They generally cannot tolerate drought and salinity. There are 3 types of amphibians that are quite different from each other in terms of appearance; Tailless Frogs (Anura), Tailed Frogs (Salamanders) (Urodela) and Legless Frogs (Apoda), which look like snakes or worms at first glance.

It has been determined that 4 amphibian species are distributed in the project vicinity and in areas close to the project vicinity. There are no endemic species among these amphibian species and 3 species is in the "LC" and 1 species is in the "DD" category according to the IUCN red list. None of these species are included in the additional lists of the CITES Convention. According to the Bern Convention; 3 species distributed in and around the project area are included in the Annex-III list and 1 species distributed in and around the project area are included in the Annex-II list. According to the Central Hunting Commission Decisions (MAK); none of these species are included in the additional lists of the Central Hunting Commission Decisions. Information on the amphibian species found and likely to be found in the area after the studies carried out within the scope of the Project is given in Table 54.

Table 54 Species of Bivalves Found and Likely to be Found in the Project Area and its Near Environment and Their Conservation Status

Family	Scientific Name	Endemism	IUCN	CITES	BERN	MAKK	Form of Detection
Bufonidae	*Bufo bufo*	-	LC	U	ANNEX III	U	L
Bufonidae	*Bufotes variabilis*	-	DD	U	ANNEX III	U	L
Hyalidae	*Hyalidae Hyla arborea*	-	LC	U	ANNEX II	U	L
Hyalidae	*Pelophylax ridibundus*	-	LC	U	ANNEX III	U	L

Abbreviations U: Unlisted, L: Literature, F: Field.

b. Reptilia (Reptiles)

The class of reptiles (Reptilia) is composed of six groups, namely the calachians (Rhynchocephalia), turtles (Chelonia, Testudinata), crocodiles (Crocodilia), lizards (Sauria), blind lizards (Amphisbaenia) and snakes (Ophidia, Serpentes). Three of these, lizards, blind lizards and snakes, form the order Squamata. Reptiles are included in the Tetrapoda or "land vertebrates" group of vertebrates, but snakes and some lizards lack feet. Reptiles reproduce by laying eggs, although some are viviparous. Some lizards and snakes also reproduce parthenogenetically.

It has been determined that 16 reptile species are distributed in the project vicinity and in areas close to the project vicinity. According to the IUCN red list, 1 species is in the "NE", 1 species is in the "VU", 1 species “NT” and 13 species are in the "LC" category. According to the Bern Convention; 11 species distributed throughout the province are listed in Annex-II and 4 species in Annex-III. There are 2 reptile species listed in Appendix-II of the CITES Convention. According to the Central Hunting Commission Decisions (MAK); 16 species are not included in the additional lists of the Central Hunting Commission Decisions. Information on the reptile species found and likely to be found in the area after the studies carried out within the scope of the Project is given in Table 55.

Table 55 Reptile Species Found and Likely to be Found in the Project Area and its Vicinity and Their Conservation Status

Family	Scientific Name	Endemism	IUCN	CITES	BERN	MAKK	Form of Detection
Boidae	*Eryx jaculus*	-	LC	II	ANNEX III	U	L
Colubridae	*Dolichophis caspius*	-	LC	U	ANNEX II	U	L
Colubridae	*Zamenis situla*	-	LC	U	ANNEX II	U	L
Colubridae	*Elaphe sauromates*	-	LC	U	-	U	L
Colubridae	*Natrix natrix*	-	LC	U	ANNEX III	U	L
Colubridae	*Natrix tasellata*	-	LC	U	ANNEX II	U	L
Colubridae	*Telescopus fallax*	-	LC	U	ANNEX II	U	L
Emydidae	*Emys orbicularis*	-	NT	U	ANNEX II	U	L
Gekkonidae	*Mediodactylus kotschyi*	-	LC	U	ANNEX II	U	L
Lacertidae	*Lacerta trilineata*	-	LC	U	ANNEX II	U	L
Lacertidae	*Ophisops elegans*	-	NE	U	ANNEX II	U	L
Lacertidae	*Parvilacerta parva*	-	LC	U	ANNEX II	U	L
Scincidae	*Ablepharus kitaibelii*	-	LC	U	ANNEX II	U	L
Scincidae	*Trachylepis aurata*	-	LC	U	ANNEX III	U	L
Testudinidae	*Testudo graeca*	-	VU[18]	II	ANNEX II	U	L
Typholophidae	*Typhlops vermicularis*	-	LC	U	ANNEX III	U	L

Abbreviations U: Unlisted, L: Literature, F: Field.

[18] Even though tortoise (Testudo graece) categorized as ‘VU’ according to IUCN, it is a widely spread reptile species found in every region except the Eastern Black Sea region in Türkiye. It is generally found in dry, stony and sandy terrains.

c. Birds (Aves)

Birds belong to the class of vertebrates between reptiles and mammals. Their most characteristic feature is that their front limbs are transformed into wings for flight. They are also warm-blooded (constant temperature) and their bodies are covered with feathers. They have a light skeletal structure because their bones are hollow.

Although the number of bird species in our country varies according to different sources, it is 474 according to Kuşbank records and 484 according to the updated Türkiye's Anonymous Birds (Trakuş) 2015 October records. With the latest updates, this number has increased to 513 (Kiziroğlu, 2015).

It has been determined that 109 bird species belonging to 34 families are distributed in the project vicinity and in the areas close to the project vicinity. There are no endemic species among these bird species and according to the IUCN red list, 1 species is in the "EN" category, 2 species is in the "VU" category and 105 species are in the "LC" category. According to the Bern Convention; 63 species distributed throughout the province are listed in Annex-II and 38 species in Annex-III. There are11 bird species listed in Annex II of the CITES Convention. According to the Central Hunting Commission Decisions (MAK); 16 species are on the Annex-I list and 14 species are on the Annex-II list. Information on the bird species found and likely to be found in the area after the studies carried out within the scope of the project is given in Table 56.

Table 56 Bird Species Found and Likely to be Found in the Project Area and its Vicinity and Their Protection Status

Family Name	Scientific Name	IUCN	BERN	CITES	MAK	T-RDB	Form of Detection
Podicipedidae	*Tachybaptus ruficollis*	LC	ANNEX II		-	A.3.1	L
Phalacrocoracidae	*Phalacrocorax carbo*	LC	ANNEX III		-	A.3	L
Ardeidae	*Botaurus stellaris*	LC	ANNEX II		-	A.2	L
Ardeidae	*Ixobrychus minutus*	LC	ANNEX II		-	A.2	L
Ardeidae	*Nycticorax nycticorax*	LC	ANNEX II		-	A.3.1	L
Ardeidae	*Ardeola ralloides*	LC	ANNEX II		-	A.3	L
Ardeidae	*Bubulcus ibis*	LC	ANNEX II		-	A.2	L
Ardeidae	*Egretta garzetta*	LC	ANNEX II		-	A.3.1	L
Ardeidae	*Ardea alba*	LC	ANNEX II		-	A.3	L
Ardeidae	*Ardea cinerea*	LC	ANNEX III		ANNEX 1	A.3.1	L
Ciconiidae	*Ciconia nigra*	LC	ANNEX II	APPENDIX- 2	-	A.3	L
Ciconiidae	*Ciconia ciconia*	LC	ANNEX II		-	A.3.1	L
Anatidae	*Tadorna ferruginea*	LC	ANNEX II		-	A.4	L
Anatidae	*Anas platyrhynchos*	LC	ANNEX III		ANNEX- 2	A.5	L
Accipitridae	*Pernis apivorus*	LC	ANNEX III	APPENDIX- 2	-	A.3	L
Accipitridae	*Milvus migrans*	LC	ANNEX III	APPENDIX- 2	-	A.3	L
Accipitridae	*Haliaeetus albicilla*	LC	ANNEX III	APPENDIX-1/r	-	A.1.2	L
Accipitridae	*Neophron percnopterus*	EN	ANNEX III	APPENDIX- 2	-	A.3	L
Accipitridae	*Aegypius monachus*	NT	ANNEX III	APPENDIX- 2	-	A.2	L
Accipitridae	*Circaetus gallicus*	LC	ANNEX III	APPENDIX- 2	-	A.4	L
Accipitridae	*Circus aeruginosus*	LC	ANNEX III	APPENDIX- 2	-	A.3	L
Accipitridae	*Circus cyaneus*	LC	ANNEX III	APPENDIX- 2	-	A.1.2	L
Accipitridae	*Accipiter nisus*	LC	ANNEX III	APPENDIX- 2	-	A.3	L
Accipitridae	*Buteo buteo*	LC	ANNEX III	APPENDIX- 2	-	A.3	L
Accipitridae	*Buteo rufinus*	LC	ANNEX III	APPENDIX- 2	-	A.3	L
Accipitridae	*Aquila chrysaetos*	LC	ANNEX III	APPENDIX- 2	-	A.1.2	L
Falconidae	*Falco naumanni*	LC	ANNEX II	APPENDIX- 2	-	A.2	L
Falconidae	*Falco tinnunculus*	LC	ANNEX II	APPENDIX- 2	-	A.2	L
Falconidae	*Falco vespertinus*	VU	ANNEX II	APPENDIX- 2	-	B.3	L
Falconidae	*Falco subbuteo*	LC	ANNEX II	APPENDIX- 2	-	A.3.1	L
Falconidae	*Falco peregrinus*	LC	ANNEX II	APPENDIX-1/r	-	A.1.2	L
Phasianidae	*Alectoris chukar*	LC	ANNEX III		ANNEX - 2	A.2	L
Phasianidae	*Perdix perdix*	LC	ANNEX III		ANNEX - 2	A.2	L
Phasianidae	*Coturnix coturnix*	LC	ANNEX III		ANNEX - 2	A.3	L
Rallidae	*Gallinula chloropus*	LC	ANNEX III		ANNEX 1	A.3.1	L

Family Name	Scientific Name	IUCN	BERN	CITES	MAK	T-RDB	Form of Detection
Rallidae	*Fulica atra*	LC	ANNEX III		ANNEX - 2	A.5	L
Scolopacidae	*Actitis hypoleucos*	LC	ANNEX II		-	A.3	L
Laridae	*Larus melanocephalus*	LC	ANNEX II		-	A.3.1	L
Laridae	*Larus michahellis*	LC	ANNEX III		ANNEX 1	A.4	L
Sternidae	*Sterna hirundo*	LC	ANNEX II		-	A.3	L
Columbidae	*Columba livia*	LC	ANNEX III		ANNEX - 2	A.5	L
Columbidae	*Columba palumbus*	LC	-		ANNEX - 2	A.4	L
Columbidae	*Streptopelia decaocto*	LC	ANNEX III		ANNEX 1	A.5	L
Columbidae	*Streptopelia turtur*	VU	ANNEX III		ANNEX - 2	A.3.1	L
Cuculidae	*Cuculus canorus*	LC	ANNEX III		-	A.2	L
Strigidae	*Otus scops*	LC	ANNEX II	APPENDIX- 2	-	A.2	L
Strigidae	*Athene noctua*	LC	ANNEX II	APPENDIX- 2	-	A.2	L
Strigidae	*Asio otus*	LC	ANNEX II	APPENDIX- 2	-	A.2	L
Apodidae	*Apus apus*	LC	ANNEX III		-	A.3.1	L
Apodidae	*Tachymarptis melba*	LC	ANNEX II		-	A.3.1	L
Alcedinidae	*Alcedo atthis*	LC	ANNEX II		-	A.2	L
Meropidae	*Merops apiaster*	LC	ANNEX III		-	A.3.1	L
Coraciidae	*Coracias garrulus*	LC	ANNEX II		-	A.2	L
Upupidae	*Upupa epops*	LC	ANNEX II		-	A.2	L
Picidae	*Dendrocopos syriacus*	LC	ANNEX II		-	A.2	L
Alaudidae	*Melanocorypha calandra*	LC	ANNEX II		-	A.5	L
Alaudidae	*Galerida cristata*	LC	ANNEX III		ANNEX 1	A.3	L
Alaudidae	*Lullula arborea*	LC	ANNEX III		ANNEX 1	A.3	L
Alaudidae	*Alauda arvensis*	LC	ANNEX III		ANNEX 1	A.4	L
Hirundinidae	*Riparia riparia*	LC	ANNEX II		-	A.5	L
Hirundinidae	*Hirundo rupestris*	LC	ANNEX II		-	A.5	L
Hirundinidae	*Hirundo rustica*	LC	ANNEX II		-	A.5	L
Hirundinidae	*Hirundo daurica*	LC	ANNEX II		-	A.3	L
Hirundinidae	*Delichon urbicum*	LC	ANNEX II		-	A.3	L
Motacillidae	*Anthus campestris*	LC	ANNEX II		-	A.2	L
Motacillidae	*Motacilla flava*	LC	ANNEX II		-	A.3.1 A.3	L
Motacillidae	*Motacilla cinerea*	LC	ANNEX II		-	A.2	L
Motacillidae	*Motacilla alba*	LC	ANNEX II		-	A.3.1	L
Troglodytidae	*Troglodytes troglodytes*	LC	ANNEX II		-	A.1.2	L
Turdidae	*Erithacus rubecula*	LC	ANNEX II		-	A.3	L
Turdidae	*Luscinia megarhynchos*	LC	ANNEX II		-	A.2	L
Turdidae	*Luscinia svesica*	LC	ANNEX II		-	A.2	L
Turdidae	*Phoenicurus ochruros*	LC	ANNEX II		-	A.2	L
Turdidae	*Phoenicurus phoenicurus*	LC	ANNEX II		-	A.3	L
Turdidae	*Saxicola rubetra*	LC	ANNEX II		-	A.3	L
Turdidae	*Saxicola torquatus*	LC	ANNEX II		-	A.3	L
Turdidae	*Oenanthe isabellina*	LC	ANNEX II		ANNEX 1	A.3	L
Turdidae	*Oenanthe oenanthe*	LC	ANNEX III		ANNEX 1	A.3	L
Turdidae	*Turdus merula*	LC	ANNEX II		ANNEX - 2	A.3	L
Sylviidae	*Hippolais pallida*	LC	ANNEX II		-	A.3	L
Sylviidae	*Sylvia curruca*	LC	ANNEX II		-	A.2	L
Sylviidae	*Sylvia communis*	LC	ANNEX II		-	A.3	L
Sylviidae	*Sylvia atricapilla*	LC	ANNEX II		-	A.2	L
Sylviidae	*Phylloscopus collybita*	LC	ANNEX II		-	A.3.1	L
Sylviidae	*Phylloscopus trochilus*	LC	ANNEX II		-	A.3.1	L
Paridae	*Parus ater*	LC	ANNEX II		-	A.3	L
Paridae	*Parus caeruleus*	LC	ANNEX II		-	A.2	L
Paridae	*Parus major*	LC	ANNEX II		-	A.3.1	L
Laniidae	*Lanius collurio*	LC	ANNEX III		ANNEX 1	A.2	L
Laniidae	*Lanius minor*	LC	ANNEX III		-	A.3	L
Corvidae	*Garrulus glandarius*	LC	-		ANNEX - 2	A.3.1	L
Corvidae	*Pica pica*	LC	-		ANNEX 2	A.5	L
Corvidae	*Corvus monedula*	LC	-		ANNEX 2	A.5	L
Corvidae	*Corvus frugilegus*	LC	-		ANNEX - 2	A.5	L
Corvidae	*Corvus corone corone*	LC	-		-	A.5	L
Sturnidae	*Sturnus vulgaris*	LC	-		ANNEX 1	A.5	L
Passeridae	*Passer domesticus*	LC	-		ANNEX - 2	A.5	L
Passeridae	*Passer hispaniolensis*	LC	ANNEX III		ANNEX 1	A.3	L
Passeridae	*Passer montanus*	LC	ANNEX III		ANNEX 1	A.3	L
Fringillidae	*Fringilla coelebs*	LC	ANNEX III		ANNEX 1	A.4	L
Fringillidae	*Serinus serinus*	LC	ANNEX II		-	A.3	L
Fringillidae	*Carduelis chloris*	LC	ANNEX II		-	A.3	L

Family Name	Scientific Name	IUCN	BERN	CITES	MAK	T-RDB	Form of Detection
Fringillidae	*Carduelis carduelis*	LC	ANNEX II		-	A.3.1	L
Fringillidae	*Carduelis cannabina*	LC	ANNEX II		-	A.3	L
Emberizidae	*Emberiza cirtrinella*	LC	ANNEX II		-	A.2	L
Emberizidae	*Emberiza hortulana*	LC	ANNEX III		ANNEX 1	A.3	L
Emberizidae	*Emberiza schoeniclus*	LC	ANNEX II		-	A.3	L
Emberizidae	*Emberiza melanocephala*	LC	ANNEX II		-	A.4	L
Emberizidae	*Miliaria calandra*	LC	ANNEX III		ANNEX 1	A.4	L

Abbreviations U: Unlisted, L: Literature, F: Field, T: Transit,

g. Mammals (Mammalia)

It has been determined that 29 mammal species are distributed in the Project vicinity and in areas close to the Project vicinity. There are no endemic species among these mammal species and all of them are in the "LC" category according to the IUCN red list. According to the Bern Convention; 8 species are listed in Annex-II and 6 species in Annex-III. There is 3 mammal species included in the Appendix-3 list of the CITES Convention. According to the Central Hunting Commission Decisions (MAK), 2 species are on the Annex-I list and 5 species are on the Annex-II list. Information on the mammal species found and likely to be found in the area after the studies carried out within the scope of the Project is given in Table 57.

Table 57 Mammal Species Found and Likely to be Found in the Project Area and its Vicinity and Their Conservation Status

Family	Scientific Name	Endemism	IUCN	CITES	BERN	MAKK	Form of Detection
Erinaceidae	*Erinaceus concolor*		LC	-	-	-	L
Soricidae	*Crocidura suaveolens*		LC	-	Annex-II	-	L
Soricidae	*Crocidura leucodon*		LC	-	Annex-III	-	L
Rhinolophidae	*Rhinolophus ferrumequinum*		LC	-	Annex-II	-	L
Rhinolophidae	*Rhinolophus hipposideros*		LC	-	Annex-II	-	L
Vespertilionidae	*Myotis mystacinus*		LC	-	Annex-II	-	L
Vespertilionidae	*Myotis myotis*		LC	-	Annex-II	-	L
Vespertilionidae	*Myotis blythii*		LC	-	Annex-II	-	L
Vespertilionidae	*Pipistrellus pipistrellus*		LC	-	Annex-III	-	L
Vespertilionidae	*Eptesicus serotinus*		LC	-	Annex-II	-	L
Miniopteridae	*Miniopterus schreibersii*		NT	-	Annex-II	-	L
Leporidae	*Lepus europaeus* Pallas		LC	-	-	Annex-2	L
Sciuridae	*Spermophilus xanthophyrmnus*		NT	-	-	-	L
Cricetidae	*Cricetulus migratorius*		LC	-	-	-	L
Cricetidae	*Microtus levis* Miller		LC	-	-	-	L
Cricetidae	*Microtus guentheri*		LC	-	-	-	L
Cricetidae	*Meriones tristrami*		LC	-	-	-	L
Cricetidae	*Nannospalax xanthodon*		DD			-	L
Muridae	*Apodemus flavicollis*		LC	-	-	-	L
Muridae	*Rattus rattus*		LC	-	-	-	L
Muridae	*Rattus norvegicus*		LC	-	-	-	L
Muridae	*Mus macedonicus*		LC			-	L
Muridae	*Mus (musculus) domesticus*		LC	-	-	-	L
Canidae	*Canis aureus*		LC	Appendix-3	-	Annex -2	L
Canidae	*Vulpes vulpes*		LC	Appendix-3	-	Annex -2	L
Mustelidae	*Mustela nivalis*		LC	-	Annex-III	Annex -1	L
Mustelidae	*Martes foina*		LC	Appendix-3	Annex-III	Annex -2	L
Mustelidae	*Meles meles*		LC	-	Annex-III	Annex -1	L
Mustelidae	*Sus scrofa*		LC	-	Annex-III	Annex -2	L

Abbreviations LD: Unlisted, L: Literature, F: Field.

Protected Areas

Nationally Protected Areas

Desktop studies and literature research were conducted utilizing databases from relevant institutions within the scope of the Project to locate and evaluate protected places within the Project Area and its near vicinity.

The Project Area contains no national parks, nature parks, nature monuments, or nature reserve areas as specified in Articles 2 and 3 of the National Parks Law. The Land Hunting Law in the Project Area does not establish Wildlife Protection Areas, Wildlife Development Areas, or Wild Animal Nestling Areas. The nearest protected area to the Project Area is the Sakarya Meydan Muharebesi Historical National Park with a distance of 29 km.

According to the Regulation on the Identification of Sensitive Water Bodies and Areas Affecting These Bodies and the Improvement of Water Quality (Official Gazette dated 23.12.2016 and numbered 29927), the region including the OIZ is defined as a Nitrate Sensitive Area or Zone. In addition, the OIZ area was also defined as an Urban Sensitive Area in the Regulation.

Internationally Recognized Areas

Internationally recognized areas exclusively defined according to WB ESS6 (2012) are UNESCO World Heritage Natural Sites, Biosphere Reserves, Ramsar Wetlands of International Importance, Key Biodiversity Areas (KBA), Important Bird Areas, and Alliance for Zero Extinction Sites.

The Project areas will not be located within any internationally recognized areas of high biodiversity value (such as World Heritage Natural Sites, Biosphere Reserves, Ramsar Wetlands of International Importance, Key Biodiversity Areas, Important Bird Areas, and Alliance for Zero Extinction Sites. The nearest internationally recognised site is Lake Mogan, 25 kilometres away. Lake Mogan is designated as an Important Bird Areas (IBA).

The protected areas map showing the Project area and its immediate surroundings is given in Figure 40.

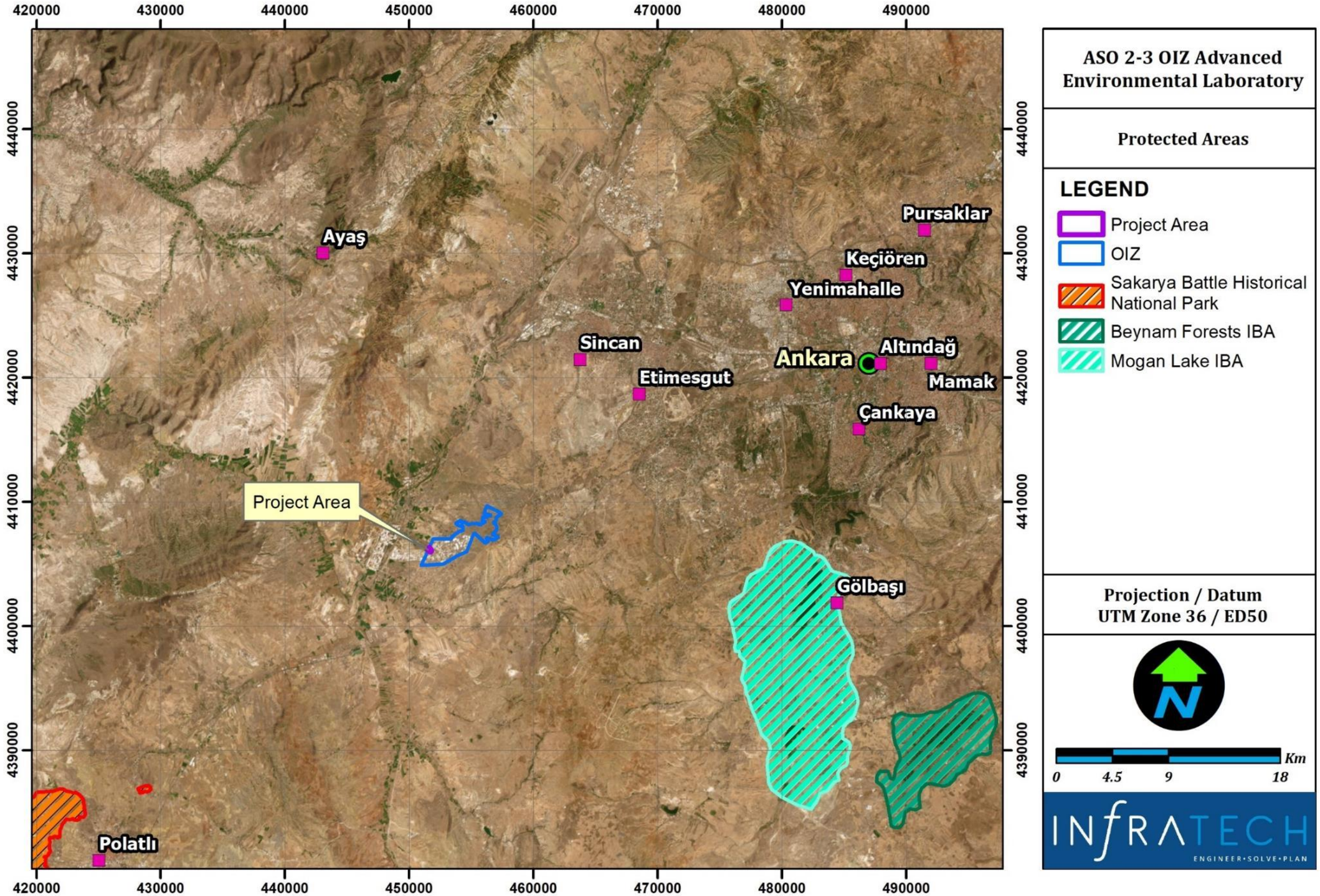


Figure 40 Nationally and Internationally Recognized Areas around the Project Area

ANNEX-7: AIR QUALITY IMPACT CALCULATIONS

Pre-Construction Phase

The Project area is covered with steppe vegetation, although there are occasional gaps. Top-soil stripping will be carried out from an area of approximately 2,500 m^2.[19] It is estimated that a minimum of 30 cm of topsoil stripping will be carried out in the 2,500 m^2 area where the Advanced Environmental laboratory is planned. Table 58 showing the dust emission factors is given below to calculate the dust emissions resulting from the topsoil stripping process.

Table 58 Dust Emission Factor

Sources	Emission Factors		Unit
	Uncontrolled	Controlled	
Dismantling/Excavation	0.025	0.0125	kg/ton
Loading	0.010	0.0050	
Unloading	0.010	0.0050	
Storage	5.800	2.9000	
Transportation (total distance of round trip)	0.700	0.3500	kg/km- vehicle

Source: Industrial Air Pollution Control Regulation, Appendix 12.

- Volume of topsoil to be stripped = Area x Height = Volume
- Selected average depth of topsoil stripped is 0.3 m
  = 2,500 m^2 (area determined based on desk studies) x 0.30 m = 750 m^3
- Density of topsoil: 1.6 ton/m^3 (based on desk studies)
- Amount of topsoil to be stripped: 750 m^3 x 1.6 ton/m^3 = 1,200 ton
- Duration of pre-construction phase of Project (for topsoil stripping) = 5 days
- Daily amount of topsoil to be stripped: 1,200 ton/5 days[20] = 240.0 ton/day
- One working day = 8 hours;
- Hourly amount of topsoil to be stripped: 240.0 ton/day x 1 day/8 hours = 30 ton/hour
- The maximum distance to be transported within the parcel is 100 metres round trip
- The capacity of one vehicle was taken 30 tonnes
- Storage area = Area = Volume / Height
  = 1,200 m^3 / 2,5 m (assumed average storage height) = 480 m^2

Uncontrolled emissions:

Uncontrolled emissions amount of dismantling/excavation works is calculated by multiplying the related dismantling/excavation factor (see Table 58) with working time of topsoil stripping and daily amount of topsoil stripped. Similarly, uncontrolled emissions amount sourced by excavation storage is calculated by multiplying related factor given in Table 58 with the storage area of the excavated material. Storage area is calculated in the previous paragraph by dividing volume of topsoil (also given in previous paragraph) with assumed average height of the stored topsoil (2,5 m).

Amount of PM_{10} emissions (dismantling/excavation):
Dismantling/Excavation emission factor (uncontrolled): 0.025 kg/ton (see Table 58)
Amount of PM_{10} emissions = Hourly excavated material amount x Related factor
= 30 ton/hour * 0.025 kg/ton = **0.75 kg/hour**

[19] Although the project construction area is 2.366,65 m^2, the area was considered as 2.500 m^2 in order to stay on the safe side.
[20] It is assumed that all topsoil will be stripped within 5 days and the emission flow rate is ensured to be high for the worst case scenario.

Amount of PM_{10} emissions (loading):
Loading emission factor (uncontrolled): 0.010 kg/ton (see Table 58)
Amount of PM_{10} emissions = Hourly excavated material amount x Related factor
= 30 ton/hour * 0.010 kg/ton = **0.3 kg/hour**

Amount of PM_{10} emissions (Transportation):
Transportation emission factor (uncontrolled): 0.700 kg/km-vehicle (see Table 58)
Amount of PM_{10} emissions = Hourly excavated material amount x Related factor x Round trip x Capacity of Vehicle
= (30 ton/hour * 0.700 kg/km-vehicle * 0,1 km) / 30 ton/vehicle= **0.07 kg/hour**

Amount of PM_{10} emissions (unloading to storage area):
Unloading emission factor (uncontrolled): 0.010 kg/ton (see Table 58)
Amount of PM_{10} emissions = Hourly excavated material amount x Related factor
= 30 ton/hour * 0.010 kg/ton = **0.3 kg/hour**

Amount of PM_{10} emissions (storage):
Storage emission factor (uncontrolled): 5.8 kg/ha (see Table 58)
Average storage time = 1 day (assumption)
Amount of PM_{10} emissions = Storage area x Related factor x Average storage time
= 0.048 ha x 5.8 kg/ha x 1 day x 1/24 day/hour = **0.012 kg/hour**

Controlled emissions:

Controlled emissions amount of dismantling/excavation works is calculated by multiplying the related dismantling/excavation factor (see Table 58) with working time of topsoil stripping and daily amount of topsoil stripped. Similarly, controlled emissions amount sourced by excavation storage is calculated by multiplying related factor given in (see Table 58) with the storage area of the excavated material. Size of the storage area is same with uncontrolled emissions calculations.

Amount of PM_{10} emissions (dismantling/excavation):
Dismantling/Excavation emission factor (controlled): 0.0125 kg/ton (see Table 58)
Amount of PM_{10} emissions: Hourly excavated material amount x Related factor
= 30 ton/hour * 0.0125 kg/ton = **0.375 kg/hour**

Amount of PM_{10} emissions (loading):
Loading emission factor (controlled): 0.005 kg/ton (see Table 58)
Amount of PM_{10} emissions = Hourly excavated material amount x Related factor
= 30 ton/hour * 0.005 kg/ton = **0.15 kg/hour**

Amount of PM_{10} emissions (Transportation):
Transportation emission factor (controlled): 0.350 kg/km-vehicle (see Table 58)
Amount of PM_{10} emissions = Hourly excavated material amount x Related factor x Round trip x Capacity of Vehicle
= (30 ton/hour * 0.350 kg/km-vehicle * 0,1 km) / 30 ton/vehicle= **0.035 kg/hour**

Amount of PM_{10} emissions (unloading to storage area):
Unloading emission factor (controlled): 0.005 kg/ton (see Table 58)
Amount of PM_{10} emissions = Hourly excavated material amount x Related factor
= 30 ton/hour * 0.005 kg/ton = **0.15 kg/hour**

Amount of PM_{10} emissions (storage):
Storage emission factor (controlled): 2.9 kg/ha (see Table 58)
Average storage time = 1 day (assumption)

Amount of PM_{10} emissions = Storage area x Related factor x Average storage time
= 0.048 ha x 2.9 kg/ha x 1 day x 1/24 hours = **0.006 kg/hour**

Exhaust Emissions

In addition to the dust emissions, there will be exhaust emissions of heavy construction machinery. Primary emissions from exhaust gases of vehicles are CO, SO_2, NO_x, PM_{10} and $PM_{2.5}$. 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 phase is given in Table 59.

Table 59 Equipment List to be Used During Pre-construction Phase

Construction Machinery/Equipment	Number
Truck	1
Loader	1

Dust and gas emission from vehicles are calculated as below. The emission factors for CO, SO_2, NOx, PM_{10} and $PM_{2.5}$ are given in Table 60. The U.S. Environmental Protection Agency (EPA) does not provide a fixed $PM_{2.5}/PM_{10}$ ratio because it can vary depending on location, sources of pollution, and weather conditions[21]. Most studies report that the ratio of $PM_{2.5}$ to PM_{10} varies between 0.5 and 0.7 in urban areas. To stay on the safe side, the $PM_{2.5}$ emission factor is taken to be 70% of PM_{10}.

Table 60 Emission Factors for 1 L Diesel Consumption

Pollutant	Emission Factor (g/L)
CO	0,49
SO_2	0.01
NOx	3.0
PM_{10}	0.12
$PM_{2.5}$	0,084

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 59 is 50 L/hour. The results of calculation by using emission factors and diesel consumption of construction vehicles are as:

CO : 50 L/h x 0.49 g/L = **0.0245 kg/h**
SO_2 : 50 L/h x 0.01 g/L = **0.0005 kg/h**
NO_x : 50 L/h x 3.0 g/L = **0.15 kg/h**
PM_{10} : 50 L/h x 0.12 g/L = **0.006 kg/h**
$PM_{2.5}$: 50 L/h x 0.084 g/L = **0.0042 kg/h**

[21] PM10 and PM10-2.5 Air Quality Analyses, Schmidt and Jenkins Memo - July 22, 2010, Particulate Matter (PM) Air Quality Standards - Documents from Review Completed in 2012, EPA. The EPA has a lot of work on this issue, but has never given a clear ratio.

Construction Phase

During the construction phase of the Project, excavation of the foundation will be carried out. There is no data on the amount of this excavation in the feasibility report of the Project. According to the information obtained from the static projects, a maximum of 3 metres will be excavated.

- Volume of excavation material = Area x Height = Volume
- Average depth of excavation is 3 m
  = 2,500 m^2 (area determined based on desk studies) x 3 m = 7,500 m^3
- Density of excavation: 1.6 ton/m^3 (based on desk studies)
- Amount of excavation: 7,500 m^3 x 2.0 ton/m^3 = 15,000 ton
- Duration of construction phase of Project (for excavation) = 30 days
- Daily amount of topsoil to be stripped: 15,000 ton/30 days[22] = 500.0 ton/day
- One working day = 8 hours;
- Hourly amount of excavation to be extracted: 500.0 ton/day x 1 day/8 hours = 62.5 ton/hour
- The maximum distance to be transported within the parcel is 100 metres round trip
- The capacity of one vehicle was taken 30 tonnes

Uncontrolled emissions:

The controlled emission quantity of excavation works is calculated by multiplying the relevant excavation factor (see Table 58) by the duration of the excavation work and the amount of excavation. Similarly, controlled emissions amount sourced by excavation storage is calculated by multiplying related factor given in (see Table 58) with the storage area of the excavated material. Size of the storage area is same with uncontrolled emissions calculations. After the excavation material is transported within the site, it will be placed on the asphalt road and no emission will occur. It will be taken to the excavation dumping site of the Municipality (Sincan Polatlar Mahallesi) and disposed of it.

Amount of PM_{10} emissions (dismantling/excavation):
Dismantling/Excavation emission factor (uncontrolled): 0.025 kg/ton (see Table 58)
Amount of PM_{10} emissions = Hourly excavated material amount x Related factor
= 62.5 ton/hour * 0.025 kg/ton = **1.56 kg/hour**

Amount of PM_{10} emissions (loading):
Loading emission factor (uncontrolled): 0.010 kg/ton (see Table 58)
Amount of PM_{10} emissions = Hourly excavated material amount x Related factor
= 62.5 ton/hour * 0.010 kg/ton = **0.625 kg/hour**

Amount of PM_{10} emissions (Transportation):
Transportation emission factor (uncontrolled): 0.700 kg/km-vehicle (see Table 58)
Amount of PM_{10} emissions = Hourly excavated material amount x Related factor x Round trip x Capacity of Vehicle
= (62.5 ton/hour * 0.700 kg/km-vehicle * 0,1 km) / 30 ton/vehicle= **0.146 kg/hour**

Amount of PM_{10} emissions (unloading to storage area):
Since there will be no storage in the project site, no emissions will occur from unloading.

Amount of PM_{10} emissions (storage):
Since there will be no storage in the project site, no emissions will occur from storage.

[22] It is ensured that all excavation will be extracted within 30 days and the emission flow rate is high for the worst case scenario.

Controlled emissions:

Controlled emissions amount of excavation works is calculated by multiplying the related excavation factor (see Table 58) with working time of excavation and daily amount of excavation. Similarly, since there will be no storage in the project site, no emissions will occur from unloading and storage.

Amount of PM_{10} emissions (dismantling/excavation):
Dismantling/Excavation emission factor (controlled): 0.0125 kg/ton (see Table 58)
Amount of PM_{10} emissions: Hourly excavated material amount x Related factor
= 62.5 ton/hour * 0.0125 kg/ton = **0.78 kg/hour**

Amount of PM_{10} emissions (loading):
Loading emission factor (controlled): 0.005 kg/ton (see Table 58)
Amount of PM_{10} emissions = Hourly excavated material amount x Related factor
= 62.5 ton/hour * 0.005 kg/ton = **0.313 kg/hour**

Amount of PM_{10} emissions (Transportation):
Transportation emission factor (controlled): 0.350 kg/km-vehicle (see Table 58)
Amount of PM_{10} emissions = Hourly excavated material amount x Related factor x Round trip x Capacity of Vehicle
= (62.5 ton/hour * 0.350 kg/km-vehicle * 0,1 km) / 30 ton/vehicle= **0.07 kg/hour**

Exhaust Emissions

Primary emissions from exhaust gases of vehicles are CO, SO_2, NO_x, PM_{10} and $PM_{2.5}$. 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 construction machinery and equipment list are given in Table 61.

Table 61 Construction Machinery and Equipment List

Construction Machinery/Equipment	Number	Diesel Consumption of a Machine (L/hour)	Diesel Consumption (L/hour)
Excavator	1	30	30
Truck (concrete mixer)	2	25	50
Tower crane	1	25	25
Truck (excavation lorry)	4	25	100
Generator (75 kW)	1	23	23

Dust and gas emission from vehicles are calculated as below. In calculations, the emission factors for CO, SO_2, NO_x, PM_{10} and $PM_{2.5}$ given in Table 60 are used.

Based on the diesel consumption and numbers of each construction vehicle, the total diesel consumption of 9 construction vehicles is calculated as 228 L/hour in Table 61. The results of calculation by using emission factors and diesel consumption of construction vehicles are as:

CO : 228 L/h x 0.49 g/L = **0.1117 kg/h**
SO_2 : 228 L/h x 0.01 g/L = **0.0023 kg/h**
NOx : 228 L/h x 3.0 g/L = **0.6840 kg/h**
PM_{10} : 228 L/h x 0.12 g/L = **0.0274 kg/h**
$PM_{2.5}$: 228 L/h x 0.084 g/L = **0.0192 kg/h**

ANNEX-8: NOISE LEVEL CALCULATIONS

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

$$L_{wT} = 10 \times \log \sum_{i=1}^{n} 10^{\frac{L_{wi}}{10}} \qquad (1)\ (METU, 2023).$$

Where;

N : Number of noise sources
Lwi : Noise level (dBA) of each source
LwT : Total equivalent noise level

The noise level originating from the machine/equipment and reaching a certain distance is calculated by the formula below.

$$L_p = L_{wT} + 10 \times \log \frac{Q}{4\pi r^2} \qquad (2)\ (SRL,1988).$$

Where;

Q: 1
r: Distance (m)
Lp: Noise level (dBA)

Pre-construction Phase

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

Table 62 Noise Levels of Machinery/Equipment

Equipment	Number	Lwi
Excavator	1	104
Truck	1	108

Using the information given in Table 1 and the formula numbered 1, total equivalent noise level is calculated as 109.46 dBA.

In addition, using formula numbered 2, the noise levels depending on distance for pre-constrution phase are calculated and given inTable 63.

Table 63 Noise Levels of Depending on Distance

Distance (m)	Lp (dBA)	Project Standard (dBA)
15	74.94	55
50	64.49	55
100	58.47	55
200	52.44	55
300	48.92	55
400	46.42	55
500	44.49	55
600	42.90	55
700	41.56	55
800	40.40	55
900	39.38	55
1000	38.47	55
1500	34.94	55
2000	32.44	55
2500	30.51	55

Construction Phase

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

Table 64 Noise Levels of Machinery/Equipment

Equipment	Number	Lwi
Excavator	1	104
Truck (concrete mixer)	2	108
Tower crane	1	112
Truck (excavation lorry)	4	108
Generator (75 kW)	1	96

Using the information given in Table 3 and the formula numbered 1, total equivalent noise level is calculated as 117.5 dBA.

In addition, using formula numbered 2, the noise levels depending on distance for constrution phase are calculated and given in Table 65.

Table 65 Noise Levels of Depending on Distance

Distance (m)	Lp (dBA)	Project Standard (dBA)
15	83,02	55
50	83,02	55
100	72,56	55
200	66,54	55
300	60,52	55
400	57,00	55
500	54,50	55
600	52,56	55
700	50,98	55
800	49,64	55
900	48,48	55
1000	47,45	55
1500	46,54	55
2000	43,02	55
2500	40,52	55

ANNEX-9: CHANCE FIND PROCEDURE

1. Introduction

ASO 2-3 OIZ is responsible to avoid or mitigate any potential impacts of the Activities on the physical or cultural resources. It is anticipated that the project sites are selected such that there would not be any overlapping with archaeological and heritage sites/assets within the project impact area. However, there is still a possibility of encountering some unknown archaeological sites and cultural heritage assets as a Chance Find during project activities. A chance find means potential cultural heritage objects, features or sites that are identified outside of a formal site reconnaissance, normally as a result of construction monitoring. Thus, this document aims to outline the procedure and respective responsibilities in relation to the management of Chance Finds during construction works.

2. Roles and Responsibilities

ASO 2-3 OIZ and all the contractors are responsible to comply with the procedure during the project construction activities. In this regard, ASO 2-3 OIZ would be providing training to their and contractors' employees involved in supervision and construction works regarding the procedure. Mainly a chance find could be encountered during the pre-construction and ground disturbance (e.g., excavation and levelling) activities. Thus, the procedure has to be implemented day to day at this stage.

3. Chance Find Process and Procedure

The step by step process and procedure to be followed upon a chance find discovery is provided below. In the case of any chance find, as detailed below, the Contractor will give due consideration and follow the necessary steps.

Step 1 - After the discovery of a chance find:

- All work must cease at the location where discovery is made
- A temporary buffer zone around the chance find will be put in place
- Contractor contacts the ASO 2-3 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 ASO 2-3 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 ASO 2-3 OIZ
- Contractor records the decision on Part B of Chance Find form and sends a copy to the ASO 2-3 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 ASO 2-3 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 <u>minor significance</u>

- Contractor informs the ASO 2-3 OIZ
- Contractor records the decision on Part C of Chance Find form and sends a copy to the ASO 2-3 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 <u>moderate significance</u>

- 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 ASO 2-3 OIZ
- ASO 2-3 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 ASO 2-3 OIZ
- Contractor records the decision on Part C of Chance Find form and sends a copy to the ASO 2-3 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 <u>major significance</u>

- 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 ASO 2-3 OIZ
- ASO 2-3 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 ASO 2-3 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.

4. Monitoring and Reporting

The contractor will monitor all construction or other ground disturbance activities for evidence of presence of cultural heritage items. Chance Finds will be recorded on the Chance Find Report form (see Annex-9.1). All Chance Find Report forms will be kept in hard copy at the site and will also be scanned and saved electronically. Any Chance Find will be recorded in the Chance Find Register (see Annex-9.2).

Annex 9.1 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 ☐ No If not, explain why: Other records ☐ Yes ☐ No Specify (drawings, videos, etc.):		
Description of chance find:			
Description of site/finding and other specifications of site/finding (e.g. surface sediment type, ground surface visibility, etc.):			

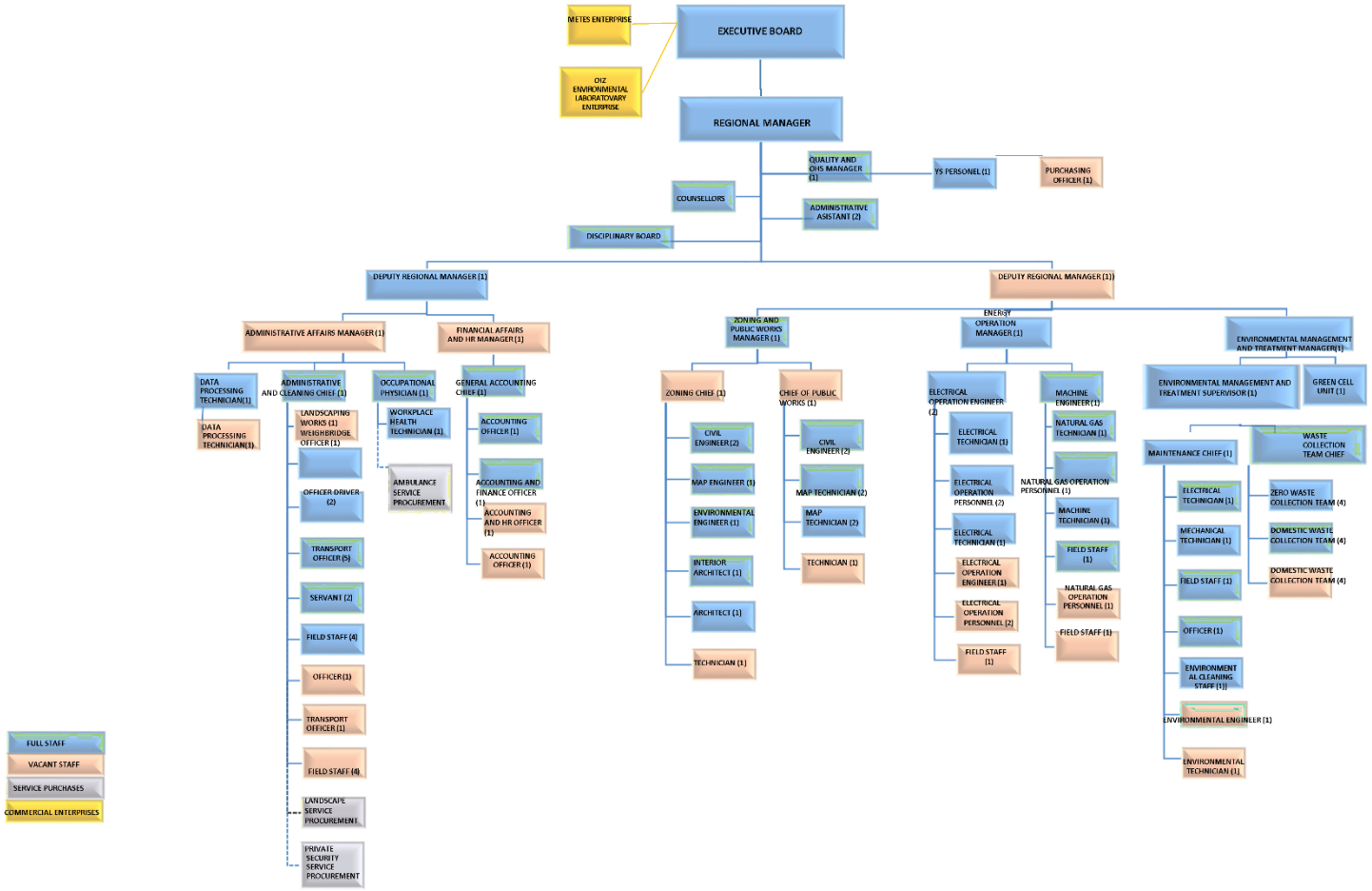
PART B		
NOTIFICATION OF MUSEUM DIRECTORATE		
Contractor contacted museum directorate ☐ Yes ☐ No Date of notification: Name of museum directorate and Name of contact: Contact number of museum directorate representative:		
DECISION OF MUSEUM DIRECTORATE		
Date of site visit:		
☐ Site/Finding of no significance - 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		

Annex 9.2 Chance Find Register

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

ANNEX-10: ORGANISATION CHART OF ASO 2-3 OIZ

	ASO 2ND AND 3RD OSB ORGANISATION CHART FORM	DOCUMENT NO	ASO2.FR.72
		PUBLICATION DATE:	24.01.2022
		REVISION DATE:	20.12.2023
		REVISION NO:	02
	ASO 2ND AND 3RD ORGANISED INDUSTRIAL ZONE	Page 1 / 1	



ANNEX-11: ISO CERTIFICATES

KALİTE YÖNETİM SİSTEMİ BELGESİ

QUALITY MANAGEMENT SYSTEM CERTIFICATE

TÜRK STANDARDLARI ENSTİTÜSÜ
bu belge ile

ANKARA SANAYİ ODASI 2. VE 3. ORGANİZE SANAYİ BÖLGESİ
ESKİŞEHİR YOLU 42. KM. ALCI OSB MAH.
2010. CAD. NO:7 SİNCAN -
ANKARA / TÜRKİYE

kuruluşunun TS EN ISO 9001:2015 şartlarına uygun bir KALİTE YÖNETİM SİSTEMİNE sahip olduğunu onaylar.

Belge kapsamı Ek'te verilmiştir

K - Q
TSE-ISO-EN
9001

TÜRK STANDARDLARI ENSTİTÜSÜ
TURKISH STANDARDS INSTITUTION

Sistem Belgelendirme Grup Başkan V.
Vice Head of System Certification Group
Alper Kara

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Turkish Standards Institution, has been accredited by the Turkish Accreditation Agency TÜRKAK.

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ANKARA / TÜRKİYE

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Scope of the certificate is given in annex

Belge No / Certificate No
KY-0444/23
Belge Tarihi / Date of Certificate
28.02.2023
Geçerlilik Tarihi / Valid Until
08.03.2025
Revizyon Tarihi / Date of Revision
28.02.2023
İlk Belge Tarihi / Initial Certification Date
28.02.2023

This certificate is valid provided that compliance with the certification requirement is maintained.

06280220230300Sİ-029

ÇEVRE YÖNETİM SİSTEMİ BELGESİ

ENVIRONMENTAL MANAGEMENT SYSTEM CERTIFICATE

TÜRK STANDARDLARI ENSTİTÜSÜ
bu belge ile

ANKARA SANAYİ ODASI 2. VE 3. ORGANİZE SANAYİ BÖLGESİ
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2010. CAD. NO:7 SİNCAN -
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kuruluşunun TS EN ISO 14001:2015 şartlarına uygun bir ÇEVRE YÖNETİM SİSTEMİNE sahip olduğunu onaylar.

Belge kapsamı Ek'te verilmiştir

Ç - E
TSE-İSO-EN
14001

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ANKARA / TÜRKİYE

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Scope of the certificate is given in annex

Belge No / Certificate No
ÇY-1194/23
Belge Tarihi / Date of Certificate
01.03.2023
Geçerlilik Tarihi / Valid Until
08.03.2025
Revizyon Tarihi / Date of Revision
01.03.2023
İlk Belge Tarihi / Initial Certification Date
01.03.2023

This certificate is valid provided that compliance with the certification requirement is maintained.

06020320231145000I

İŞ SAĞLIĞI ve GÜVENLİĞİ YÖNETİM SİSTEMİ BELGESİ
OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT SYSTEM CERTIFICATE

TÜRK STANDARDLARI ENSTİTÜSÜ
bu belge ile

ANKARA SANAYİ ODASI 2. VE 3. ORGANİZE
SANAYİ BÖLGESİ
ESKİŞEHİR YOLU 42. KM. ALCI OSB MAH.
2010. CAD. NO:7 SİNCAN -
ANKARA / TÜRKİYE

kuruluşunun TS ISO 45001:2018 şartlarına uygun bir İŞ SAĞLIĞI ve GÜVENLİĞİ YÖNETİM SİSTEMİNE sahip olduğunu onaylar.

Belge kapsamı Ek'te verilmiştir

TSE
TS ISO
45001

TÜRK STANDARDLARI ENSTİTÜSÜ
TURKISH STANDARDS INSTITUTION

Sistem Belgelendirme Grup Başkanı
Head of System Certification Group

Nesrin Duru

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SANAYİ BÖLGESİ
ESKİŞEHİR YOLU 42. KM. ALCI OSB MAH.
2010. CAD. NO:7 SİNCAN -
ANKARA / TÜRKİYE

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Scope of the certificate is given in annex

Belge No / Certificate No
OY-1154/23
Belge Tarihi / Date of Certificate
31.03.2023
Geçerlilik Tarihi / Valid Until
09.03.2025
Revizyon Tarihi / Date of Revision
31.03.2023
İlk Belge Tarihi / Initial Certification Date
31.03.2023

This certificate is valid provided that compliance with the certification requirement is maintained.

Bu belge belgelendirme şartlarına uygunluk sağlandığı sürece geçerlidir.

060304202310230001

TSE

MÜŞTERİ MEMNUNİYETİ YÖNETİM SİSTEMİ BELGESİ
CUSTOMER SATISFACTION MANAGEMENT SYSTEM CERTIFICATE

TÜRK STANDARDLARI ENSTİTÜSÜ
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SANAYİ BÖLGESİ
ESKİŞEHİR YOLU 42. KM. ALCI OSB MAH.
2010. CAD. NO:7 SİNCAN -
ANKARA / TÜRKİYE

kuruluşunun TS ISO 10002:2018 şartlarına uygun bir MÜŞTERİ MEMNUNİYETİ YÖNETİM SİSTEMİ'ne sahip olduğunu onaylar.

Belge kapsamı Ek'te verilmiştir

M - C
TSE - ISO
10002

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TURKISH STANDARDS INSTITUTION

Sistem Belgelendirme Grup Başkan V.
Vice Head of System Certification Group

Alper Kara

Bu belge, Türk Standardları Enstitüsü'nün kuruluşu hakkındaki 132 sayılı kanun uyarınca verilmiştir.
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SANAYİ BÖLGESİ
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2010. CAD. NO:7 SİNCAN -
ANKARA / TÜRKİYE

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Scope of the certificate is given in annex

Belge No / Certificate No
MY-290/23
Belge Tarihi / Date of Certificate
22.09.2023
Geçerlilik Tarihi / Valid Until
24.10.2025
Revizyon Tarihi / Date of Revision
22.09.2023
İlk Belge Tarihi / Initial Certification Date
22.09.2023

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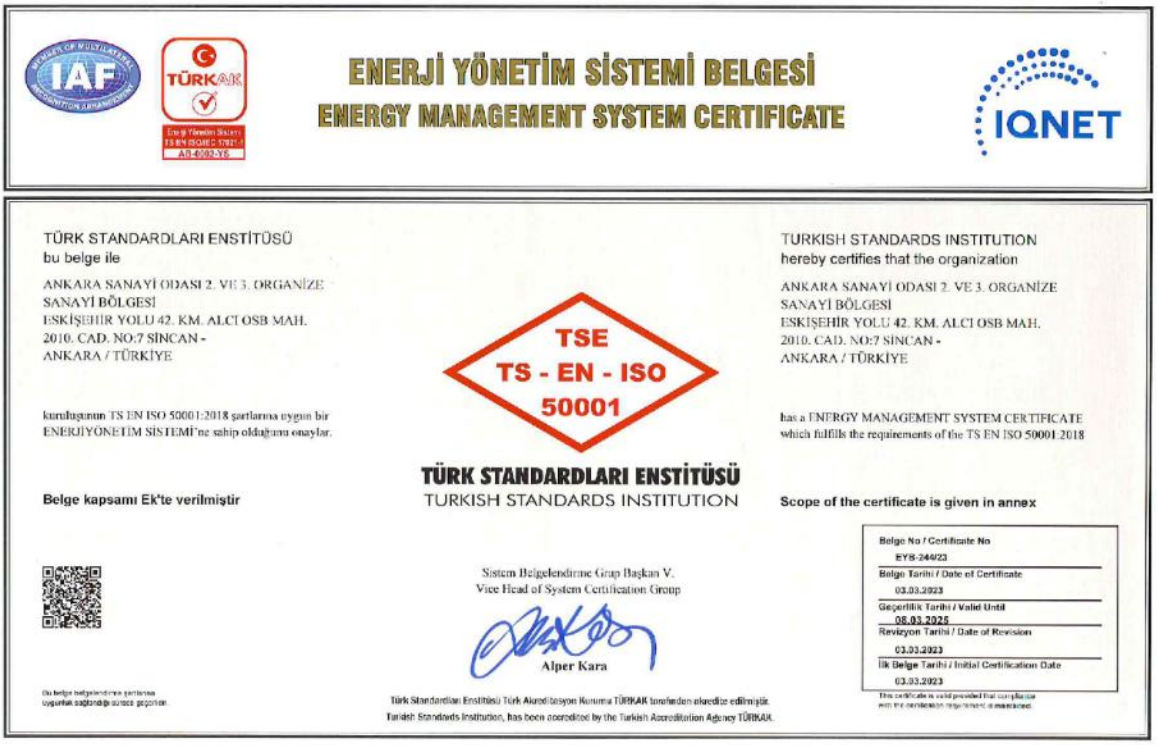
062609202302150001



ENERJİ YÖNETİM SİSTEMİ BELGESİ
ENERGY MANAGEMENT SYSTEM CERTIFICATE

TÜRK STANDARDLARI ENSTİTÜSÜ
bu belge ile

ANKARA SANAYİ ODASI 2. VE 3. ORGANİZE SANAYİ BÖLGESİ
ESKİŞEHİR YOLU 42. KM. ALCI OSB MAH.
2010. CAD. NO:7 SİNCAN -
ANKARA / TÜRKİYE

kuruluşunun TS EN ISO 50001:2018 şartlarına uygun bir ENERJİ YÖNETİM SİSTEMİ'ne sahip olduğunu onaylar.

Belge kapsamı Ek'te verilmiştir

TSE
TS - EN - ISO
50001

TÜRK STANDARDLARI ENSTİTÜSÜ
TURKISH STANDARDS INSTITUTION

Sistem Belgelendirme Grup Başkan V.
Vice Head of System Certification Group

Alper Kara

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2010. CAD. NO:7 SİNCAN -
ANKARA / TÜRKİYE

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Scope of the certificate is given in annex

Belge No / Certificate No
EYS-244/23
Belge Tarihi / Date of Certificate
03.03.2023
Geçerlilik Tarihi / Valid Until
06.03.2026
Revizyon Tarihi / Date of Revision
03.03.2023
İlk Belge Tarihi / Initial Certification Date
03.03.2023

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This certificate is valid provided that compliance with the certification requirement is maintained.

080303202302090001

ANNEX-12: GROUNDWATER UTILISATION CERTIFICATION

T.C.
Orman ve Su İşleri Bakanlığı
DSİ 5. Bölge Müdürlüğü

Form No 2.7.3
Belge No ANK-6430
Belge Tarihi 10.06.2014
Kuyu No : 20

YERALTISUYU KULLANMA BELGESI

1. Belge Sahibi : ANKARA SANAYİ ODASI II.ORG.SAN.BÖLGE MÜDÜRLÜĞÜ
T.C. Kimlik No :
Adresi : ULUS İŞHANI B BLOK KAT:3 NO:310 ULUS/ANKARA

2. Teknik Sorumlu
a) Adı Soyadı : HİDAYET DÖNMEZ
b) Mesleği : JEOLOJİ MÜH
c) Diploma-Oda Sicil No : Ç.B.3003/8553
d) Adresi : ULUS İŞHANI B BLOK KAT:3 NO:310 ULUS/ANKARA

3. Sondör, Kuyucu, Galerici
a) Adı Soyadı
b) Mesleği :
c) Diploma-Oda Sicil No :
d) Adresi :

Kuyu/Galeri Yeri
İli : ANKARA
İlçesi : POLATLI
Beldesi : TEMELLİ
Köy veya Mh. : TÜRKOBASI KÖYÜ
Kuyunun DSİ no.su : ANK-6611
Koordinatı : 449086 4408308
Havza Adı/No :
Ova Adı :

5. Kuyu/Galeri Verimi
Pompajla : 9,00 l/s
Artezyen : l/s
Derinlik (m) 22
Statik Seviye : -5,30 m
Dinamik Sev.(pompaj) : -11,80 m
Çekilecek su miktarı : 650 ton/gün 230.000 ton/yıl
Çekilecek suyu temine yetecek enerji miktarı : 145130 kWh
Sayaç Numarası : 52166331
Kullanma amacı : SANAYİ (PROSES SUYU)

30.01.2014 tarihli dilekçe ile yukarıda yeri belirtilen kuyuyu kullanmak istediğini bildiren ANKARA SANAYİ ODASI II.ORG.SAN.BÖLGE MÜDÜRLÜĞÜ ın müracaatı üzerine yapılan inceleme sonucu, isteğin kanun, tüzük ve yönetmelik hükümlerine uygun olduğu anlaşıldığından, suyun yalnız sulama amacıyla kullanılması şartıyla bu kullanma belgesi verilmiştir.

Bekir YAPAN
Bölge Müdür Yardımcısı

ÖNEMLİ AÇIKLAMA
1-Kuyu, komşu kuyularla münavebeli çalıştırılacaktır.
2-Sanayi amaçlı kuyulara taahhütname alınıp,sayaç takılmadan belge verilmez ve belge sahibi sayacı sürekli çalıştırmak ve korumakla yükümlüdür.
3-Kuyuya ölçüm sistemi kurulması nedeniyle kullanma belgesi yeniden düzenlenmiştir.

GÜVENLİ ELEKTRONİK İMZALI ASLI İLE AYNIDIR
İlknur YILMAZ
Puantör
11.06.2014

T.C.
Orman ve Su İşleri Bakanlığı
DSİ 5. Bölge Müdürlüğü

Form No 2.7.3
Belge No ANK-6424
Belge Tarihi 10.06.2014
Kuyu No : 13

YERALTISUYU KULLANMA BELGESİ

1. Belge Sahibi : ANKARA SANAYİ ODASI II.ORG.SAN.BÖLGE MÜDÜRLÜĞÜ
T.C. Kimlik No :
Adresi : ULUS İŞHANI B BLOK KAT:3 NO:310 ULUS/ANKARA

2. Teknik Sorumlu
a) Adı Soyadı : HİDAYET DÖNMEZ
b) Mesleği : JEOLOJI MUH
c) Diploma-Oda Sicil No : Ç.B.3003/8553
d) Adresi : ULUS İŞHANI B BLOK KAT:3 NO:310 ULUS/ANKARA

3. Sondör, Kuyucu, Galerici
a) Adı Soyadı
b) Mesleği :
c) Diploma-Oda Sicil No :
d) Adresi :

Kuyu/Galeri Yeri
İli : ANKARA
İlçesi : POLATLI
Beldesi : TEMELLİ
Köy veya Mh. : TÜRKOBASI KÖYÜ
Kuyunun DSİ no.su : ANK-6604
Koordinatı : 448873 4408273
Havza Adı/No :
Ova Adı :

5. Kuyu/Galeri Verimi
Pompajla : 15,00 l/s Derinlik (m) 28
Artezyen : l/s
Statik Seviye : -5,10 m
Dinamik Sev.(pompaj) : -9,75 m
Çekilecek su miktarı : 1000 ton/gün 365.000 ton/yıl
Çekilecek suyu temine yetecek enerji miktarı : 250343 kWh
Sayaç Numarası : 52166390
Kullanma amacı : SANAYİ (PROSES SUYU)

30.01.2014 tarihli dilekçe ile yukarıda yeri belirtilen kuyuyu kullanmak istediğini bildiren ANKARA SANAYİ ODASI II.ORG.SAN.BÖLGE MÜDÜRLÜĞÜ'nün müracaatı üzerine yapılan inceleme sonucu, isteğin kanun, tüzük ve yönetmelik hükümlerine uygun olduğu anlaşıldığından, suyun yalnız sulama amacıyla kullanılması şartıyla bu kullanma belgesi verilmiştir.

Bekir YAPAN
Bölge Müdür Yardımcısı

ÖNEMLİ AÇIKLAMA
1-Kuyu, komşu kuyularla münavebeli çalıştırılacaktır.
2-Sanayi amaçlı kuyulara taahhütname alınıp,sayaç takılmadan belge verilmez ve belge sahibi sayacı sürekli çalıştırmak ve korumakla yükümlüdür.
3-Kuyuya ölçüm sistemi kurulması nedeniyle kullanma belgesi yeniden düzenlenmiştir.

T.C.
Orman ve Su İşleri Bakanlığı
DSİ 5. Bölge Müdürlüğü

Belge No ANK-6423
Belge Tarihi 10.06.2014
Kuyu No : 12

YERALTISUYU KULLANMA BELGESI

1. Belge Sahibi : ANKARA SANAYİ ODASI II.ORG.SAN.BÖLGE MÜDÜRLÜĞÜ
T.C. Kimlik No :
Adresi : ULUS İŞHANI B BLOK KAT:3 NO:310 ULUS/ANKARA

2. Teknik Sorumlu
a) Adı Soyadı : HİDAYET DÖNMEZ
b) Mesleği : JEOLOJİ MÜH
c) Diploma-Oda Sicil No : Ç.B.3003/8553
d) Adresi : ULUS İŞHANI B BLOK KAT:3 NO:310 ULUS/ANKARA

3. Sondör, Kuyucu, Galerici
a) Adı Soyadı
b) Mesleği :
c) Diploma-Oda Sicil No :
d) Adresi :

Kuyu/Galeri Yeri
İli : ANKARA
İlçesi : POLATLI
Beldesi : TEMELLİ
Köy veya Mh. : TÜRKOBASI KÖYÜ
Kuyunun DSİ no.su : ANK-6603
Koordinatı : 448915 4408409
Havza Adı/No :
Ova Adı :

5. Kuyu/Galeri Verimi Derinlik (m) 24
Pompajla : 12,00 l/s
Artezyen : l/s
Statik Seviye : -5,20 m
Dinamik Sev.(pompaj) : -12,30 m
Çekilecek su miktarı : 850 ton/gün 300.000 ton/yıl
Çekilecek suyu temine yetecek enerji miktarı : 197531 kWh
Sayaç Numarası : 52166319
Kullanma amacı : SANAYİ (PROSES SUYU)

30.01.2014 tarihli dilekçe ile yukarıda yeri belirtilen kuyuyu kullanmak istediğini bildiren ANKARA SANAYİ ODASI II.ORG.SAN.BÖLGE MÜDÜRLÜĞÜ'nün müracaatı üzerine yapılan inceleme sonucu, isteğin kanun, tüzük ve yönetmelik hükümlerine uygun olduğu anlaşıldığından, suyun yalnız sulama amacıyla kullanılması şartıyla bu kullanma belgesi verilmiştir.

Bekir YAPAN
Bölge Müdür Yardımcısı

ÖNEMLİ AÇIKLAMA
1-Kuyu, komşu kuyularla münavebeli çalıştırılacaktır.
2-Sanayi amaçlı kuyulara taahhütname alınıp,sayaç takılmadan belge verilmez ve belge sahibi sayacı sürekli çalıştırmak ve korumakla yükümlüdür.
3-Kuyuya ölçüm sistemi kurulması nedeniyle kullanma belgesi yeniden düzenlenmiştir.

T.C.
Orman ve Su İşleri Bakanlığı
DSİ 5. Bölge Müdürlüğü

Form No 2.7.3
Belge No ANK-6422
Belge Tarihi 10.06.2014
Kuyu No : 11

YERALTISUYU KULLANMA BELGESİ

1. Belge Sahibi : ANKARA SANAYİ ODASI II.ORG.SAN.BÖLGE MÜDÜRLÜĞÜ
T.C. Kimlik No :
Adresi : ULUS İŞHANI B BLOK KAT:3 NO:310 ULUS/ANKARA

2. Teknik Sorumlu
a) Adı Soyadı : HİDAYET DÖNMEZ
b) Mesleği : JEOLOJİ MÜH
c) Diploma-Oda Sicil No : Ç.B.3003/8553
d) Adresi : ULUS İŞHANI B BLOK KAT:3 NO:310 ULUS/ANKARA

3. Sondör, Kuyucu, Galerici
a) Adı Soyadı
b) Mesleği :
c) Diploma-Oda Sicil No :
d) Adresi :

Kuyu/Galeri Yeri
İli : ANKARA
İlçesi : POLATLI
Beldesi : TEMELLİ
Köy veya Mh. : TÜRKOBASI KÖYÜ
Kuyunun DSİ no.su : ANK-6602
Koordinatı : 449061 4408646
Havza Adı/No :
Ova Adı :

5. Kuyu/Galeri Verimi
Pompajla : 21,00 l/s Derinlik (m) 32
Artezyen : l/s
Statik Seviye : -5,20 m
Dinamik Sev.(pompaj) : -11,80 m
Çekilecek su miktarı : 1400 ton/gün 500.000 ton/yıl
Çekilecek suyu temine yetecek enerji miktarı : 342936 kWh
Sayaç Numarası : 52166317
Kullanma amacı : SANAYİ (PROSES SUYU)

30.01.2014 tarihli dilekçe ile yukarıda yeri belirtilen kuyuyu kullanmak istediğini bildiren ANKARA SANAYİ ODASI II.ORG.SAN.BÖLGE MÜDÜRLÜĞÜ'ün müracaatı üzerine yapılan inceleme sonucu, isteğin kanun, tüzük ve yönetmelik hükümlerine uygun olduğu anlaşıldığından, suyun yalnız sulama amacıyla kullanılması şartıyla bu kullanma belgesi verilmiştir.

Bekir YAPAN
Bölge Müdür Yardımcısı

ÖNEMLİ AÇIKLAMA
1-Kuyu, komşu kuyularla münavebeli çalıştırılacaktır.
2-Sanayi amaçlı kuyulara taahhütname alınıp,sayaç takılmadan belge verilmez ve belge sahibi sayacı sürekli çalıştırmak ve korumakla yükümlüdür.
3-Kuyuya ölçüm sistemi kurulması nedeniyle kullanma belgesi yeniden düzenlenmiştir.

T.C.
Orman ve Su İşleri Bakanlığı
DSİ 5. Bölge Müdürlüğü

Form No 2.7.3
Belge No ANK-6416
Belge Tarihi 10.06.2014
Kuyu No : 5

YERALTISUYU KULLANMA BELGESİ

1. Belge Sahibi : ANKARA SANAYİ ODASI II.ORG.SAN.BÖLGE MÜDÜRLÜĞÜ
T.C. Kimlik No :
Adresi : ULUS İŞHANI B BLOK KAT:3 NO:310 ULUS/ANKARA

2. Teknik Sorumlu
a) Adı Soyadı : HİDAYET DÖNMEZ
b) Mesleği : JEOLOJİ MÜH
c) Diploma-Oda Sicil No : Ç.B.3003/8553
d) Adresi : ULUS İŞHANI B BLOK KAT:3 NO:310 ULUS/ANKARA

3. Sondör, Kuyucu, Galerici
a) Adı Soyadı
b) Mesleği :
c) Diploma-Oda Sicil No :
d) Adresi :

Kuyu/Galeri Yeri
İli : ANKARA
İlçesi : POLATLI
Beldesi : TEMELLİ
Köy veya Mh. : TÜRKOBASI KÖYÜ
Kuyunun DSİ no.su : ANK-6596
Koordinatı : 448936 4408615
Havza Adı/No :
Ova Adı :

5. Kuyu/Galeri Verimi
Pompajla : 25,00 l/s Derinlik (m) 28
Artezyen : l/s
Statik Seviye : -5,10 m
Dinamik Sev.(pompaj) : -9,55 m
Çekilecek su miktarı : 1250 ton/gün 450.000 ton/yıl
Çekilecek suyu temine yetecek enerji miktarı : 296296 kWh
Sayaç Numarası : 52165927
Kullanma amacı : SANAYİ (PROSES SUYU)

30.01.2014 tarihli dilekçe ile yukarıda yeri belirtilen kuyuyu kullanmak istediğini bildiren ANKARA SANAYİ ODASI II.ORG.SAN.BÖLGE MÜDÜRLÜĞÜ in müracaatı üzerine yapılan inceleme sonucu, isteğin kanun, tüzük ve yönetmelik hükümlerine uygun olduğu anlaşıldığından, suyun yalnız sulama amacıyla kullanılması şartıyla bu kullanma belgesi verilmiştir.

Bekir YAPAN
Bölge Müdür Yardımcısı

ÖNEMLİ AÇIKLAMA
1-Kuyu, komşu kuyularla münavebeli çalıştırılacaktır.
2-Sanayi amaçlı kuyulara taahhütname alınıp,sayaç takılmadan belge verilmez ve belge sahibi sayacı sürekli çalıştırmak ve korumakla yükümlüdür.
3-Kuyuya ölçüm sistemi kurulması nedeniyle kullanma belgesi yeniden düzenlenmiştir.

GÜVENLİ ELEKTRONİK İMZALI ASLI İLE AYNIDIR
İlknur YILMAZ
Memur
11/06/2014

GÜVENLİ ELEKTRONİK İMZALI ASLI İLE AYNIDIR

T.C.
Orman ve Su İşleri Bakanlığı
DSİ 5. Bölge Müdürlüğü

Form No 2.7.3
Belge No ANK-6415
Belge Tarihi 10.06.2014
Kuyu No : 4

YERALTISUYU KULLANMA BELGESI

1. Belge Sahibi : ANKARA SANAYİ ODASI II.ORG.SAN.BÖLGE MÜDÜRLÜĞÜ
T.C. Kimlik No :
Adresi : ULUS İŞHANI B BLOK KAT:3 NO:310 ULUS/ANKARA

2. Teknik Sorumlu
a) Adı Soyadı : HİDAYET DÖNMEZ
b) Mesleği : JEOLOJI MÜH
c) Diploma-Oda Sicil No : Ç.B.3003/8553
d) Adresi : ULUS İŞHANI B BLOK KAT:3 NO:310 ULUS/ANKARA

3. Sondör, Kuyucu, Galerici
a) Adı Soyadı
b) Mesleği :
c) Diploma-Oda Sicil No :
d) Adresi :

Kuyu/Galeri Yeri
İli : ANKARA
İlçesi : POLATLI
Beldesi : TEMELLİ
Köy veya Mh. : TÜRKOBASI KÖYÜ
Kuyunun DSİ no.su : ANK-6595
Koordinatı : 448978 4408749
Havza Adı/No :
Ova Adı :

5. Kuyu/Galeri Verimi Derinlik (m) 24
Pompajla : 21,00 l/s
Artezyen : l/s
Statik Seviye : -5,10 m
Dinamik Sev.(pompaj) : -10,25 m
Çekilecek su miktarı : 1300 ton/gün 470.000 ton/yıl
Çekilecek suyu temine yetecek enerji miktarı : 348148 kWh
Sayaç Numarası : 52166384
Kullanma amacı : SANAYİ (PROSES SUYU)

30.01.2014 tarihli dilekçe ile yukarıda yeri belirtilen kuyuyu kullanmak istediğini bildiren ANKARA SANAYİ ODASI II.ORG.SAN.BÖLGE MÜDÜRLÜĞÜ'nün müracaatı üzerine yapılan inceleme sonucu, isteğin kanun, tüzük ve yönetmelik hükümlerine uygun olduğu anlaşıldığından, suyun yalnız sulama amacıyla kullanılması şartıyla bu kullanma belgesi verilmiştir.

Bekir YAPAN
Bölge Müdür Yardımcısı

ÖNEMLİ AÇIKLAMA
1-Kuyu, komşu kuyularla münavebeli çalıştırılacaktır.
2-Sanayi amaçlı kuyulara taahhütname alınıp,sayaç takılmadan belge verilmez ve belge sahibi sayacı sürekli çalıştırmak ve korumakla yükümlüdür.
3-Kuyuya ölçüm sistemi kurulması nedeniyle kullanma belgesi yeniden düzenlenmiştir.

İMZALI
ASLI İLE AYNIDIR
İlknur YILMAZ
Planlama
11.06.2014

T.C.
Orman ve Su İşleri Bakanlığı
DSİ 5. Bölge Müdürlüğü

Form No 2.7.3
Belge No ANK-6429
Belge Tarihi 10.06.2014
Kuyu No : 19

YERALTISUYU KULLANMA BELGESI

1. Belge Sahibi : ANKARA SANAYİ ODASI II.ORG.SAN.BÖLGE MÜDÜRLÜĞÜ
T.C. Kimlik No :
Adresi : ULUS İŞHANI B BLOK KAT:3 NO:310 ULUS/ANKARA

2. Teknik Sorumlu
a) Adı Soyadı : HİDAYET DÖNMEZ
b) Mesleği : JEOLOJİ MÜH
c) Diploma-Oda Sicil No : Ç.B.3003/8553
d) Adresi : ULUS İŞHANI B BLOK KAT:3 NO:310 ULUS/ANKARA

3. Sondör, Kuyucu, Galerici
a) Adı Soyadı
b) Mesleği :
c) Diploma-Oda Sicil No :
d) Adresi :

Kuyu/Galeri Yeri
İli : ANKARA
İlçesi : POLATLI
Beldesi : TEMELLİ
Köy veya Mh. : TÜRKOBASI KÖYÜ
Kuyunun DSİ no.su : ANK-6610
Koordinatı : 449003 4408220
Havza Adı/No :
Ova Adı :

5. Kuyu/Galeri Verimi
Pompajla : 20,00 l/s
Artezyen : l/s
Derinlik (m) 24
Statik Seviye : -5,20 m
Dinamik Sev.(pompaj) : -12,00 m
Çekilecek su miktarı : 1400 ton/gün 500.000 ton/yıl
Çekilecek suyu temine yetecek enerji miktarı : 329218 kWh
Sayaç Numarası : 52166385
Kullanma amacı : SANAYİ (PROSES SUYU)

30.01.2014 tarihli dilekçe ile yukarıda yeri belirtilen kuyuyu kullanmak istediğini bildiren ANKARA SANAYİ ODASI II.ORG.SAN.BÖLGE MÜDÜRLÜĞÜ'nün müracaatı üzerine yapılan inceleme sonucu, isteğin kanun, tüzük ve yönetmelik hükümlerine uygun olduğu anlaşıldığından, suyun yalnız sulama amacıyla kullanılması şartıyla bu kullanma belgesi verilmiştir.

Bekir YAPAN
Bölge Müdür Yardımcısı

ÖNEMLİ AÇIKLAMA
1-Kuyu, komşu kuyularla münavebeli çalıştırılacaktır.
2-Sanayi amaçlı kuyulara taahhütname alınıp,sayaç takılmadan belge verilmez ve belge sahibi sayacı sürekli çalıştırmak ve korumakla yükümlüdür.
3-Kuyuya ölçüm sistemi kurulması nedeniyle kullanma belgesi yeniden düzenlenmiştir.

GÜVENLİ ELEKTRONİK İMZALI
ASLINA AYNIDIR
İlknur YILMAZ
Puantör
12/06/2014

T.C.
Orman ve Su İşleri Bakanlığı
DSİ 5. Bölge Müdürlüğü

Form No 2.7.3
Belge No ANK-6428
Belge Tarihi 10.06.2014
Kuyu No : 18

YERALTISUYU KULLANMA BELGESI

1. Belge Sahibi : ANKARA SANAYİ ODASI II.ORG.SAN.BÖLGE MÜDÜRLÜĞÜ
T.C. Kimlik No :
Adresi : ULUS İŞHANI B BLOK KAT:3 NO:310 ULUS/ANKARA

2. Teknik Sorumlu
a) Adı Soyadı : HİDAYET DÖNMEZ
b) Mesleği : JEOLOJİ MÜH
c) Diploma-Oda Sicil No : Ç.B.3003/8553
d) Adresi : ULUS İŞHANI B BLOK KAT:3 NO:310 ULUS/ANKARA

3. Sondör, Kuyucu, Galerici
a) Adı Soyadı
b) Mesleği :
c) Diploma-Oda Sicil No :
d) Adresi :

Kuyu/Galeri Yeri
İli : ANKARA
İlçesi : POLATLI
Beldesi : TEMELLİ
Köy veya Mh. : TÜRKOBASI KÖYÜ
Kuyunun DSİ no.su : ANK-6609
Koordinatı : 449024 4408502
Havza Adı/No :
Ova Adı :

5. Kuyu/Galeri Verimi
Pompajla : 18,00 l/s Derinlik (m) 30
Artezyen : l/s
Statik Seviye : -5,45 m
Dinamik Sev.(pompaj) : -12,30 m
Çekilecek su miktarı : 1300 ton/gün 470.000 ton/yıl
Çekilecek suyu temine yetecek enerji miktarı : 322359 kWh
Sayaç Numarası : 52166318
Kullanma amacı : SANAYİ (PROSES SUYU)

30.01.2014 tarihli dilekçe ile yukarıda yeri belirtilen kuyuyu kullanmak istediğini bildiren ANKARA SANAYİ ODASI II.ORG.SAN.BÖLGE MÜDÜRLÜĞÜ in müracaatı üzerine yapılan inceleme sonucu, isteğin kanun, tüzük ve yönetmelik hükümlerine uygun olduğu anlaşıldığından, suyun yalnız sulama amacıyla kullanılması şartıyla bu kullanma belgesi verilmiştir.

Bekir YAPAN
Bölge Müdür Yardımcısı

ÖNEMLİ AÇIKLAMA
1-Kuyu, komşu kuyularla münavebeli çalıştırılacaktır.
2-Sanayi amaçlı kuyulara taahhütname alınıp,sayaç takılmadan belge verilmez ve belge sahibi sayacı sürekli çalıştırmak ve korumakla yükümlüdür.
3-Kuyuya ölçüm sistemi kurulması nedeniyle kullanma belgesi yeniden düzenlenmiştir.

T.C.
Orman ve Su İşleri Bakanlığı
DSİ 5. Bölge Müdürlüğü

Form No 2.7.3
Belge No ANK-6427
Belge Tarihi 10.06.2014
Kuyu No : 17

YERALTISUYU KULLANMA BELGESI

1. Belge Sahibi : ANKARA SANAYİ ODASI II.ORG.SAN.BÖLGE MÜDÜRLÜĞÜ
T.C. Kimlik No :
Adresi : ULUS İŞHANI B BLOK KAT:3 NO:310 ULUS/ANKARA

2. Teknik Sorumlu
a) Adı Soyadı : HİDAYET DÖNMEZ
b) Mesleği : JEOLOJİ MÜH
c) Diploma-Oda Sicil No : Ç.B.3003/8553
d) Adresi : ULUS İŞHANI B BLOK KAT:3 NO:310 ULUS/ANKARA

3. Sondör, Kuyucu, Galerici
a) Adı Soyadı
b) Mesleği :
c) Diploma-Oda Sicil No :
d) Adresi :

Kuyu/Galeri Yeri
İli : ANKARA
İlçesi : POLATLI
Beldesi : TEMELLİ
Köy veya Mh. : TÜRKOBASI KÖYÜ
Kuyunun DSİ no.su : ANK-6608
Koordinatı : 449099 4408794
Havza Adı/No :
Ova Adı :

5. Kuyu/Galeri Verimi
Pompajla : 18,00 l/s
Artezyen : l/s
Derinlik (m) 32
Statik Seviye : -5,25 m
Dinamik Sev.(pompaj) : -10,60 m
Çekilecek su miktarı : 1300 ton/gün 470.000 ton/yıl
Çekilecek suyu temine yetecek enerji miktarı : 322359 kWh
Sayaç Numarası : 52163980
Kullanma amacı : SANAYİ (PROSES SUYU)

30.01.2014 tarihli dilekçe ile yukarıda yeri belirtilen kuyuyu kullanmak istediğini bildiren ANKARA SANAYİ ODASI II.ORG.SAN.BÖLGE MÜDÜRLÜĞÜ ın müracaatı üzerine yapılan inceleme sonucu, isteğin kanun, tüzük ve yönetmelik hükümlerine uygun olduğu anlaşıldığından, suyun yalnız sulama amacıyla kullanılması şartıyla bu kullanma belgesi verilmiştir.

Bekir YAPAN
Bölge Müdür Yardımcısı

ÖNEMLİ AÇIKLAMA
1-Kuyu, komşu kuyularla münavebeli çalıştırılacaktır.
2-Sanayi amaçlı kuyulara taahhütname alınıp,sayaç takılmadan belge verilmez ve belge sahibi sayacı sürekli çalıştırmak ve korumakla yükümlüdür.
3-Kuyuya ölçüm sistemi kurulması nedeniyle kullanma belgesi yeniden düzenlenmiştir.

GÜVENLİ ELEKTRONİK İMZALI
ASLI İLE AYNIDIR
İlknur YILMAZ
Planlama
11.06.2014

T.C.
TARIM VE ORMAN BAKANLIĞI
Devlet Su İşleri Genel Müdürlüğü
5. Bölge Müdürlüğü

Sayı : E-92711777-152.02.02-3011724

Konu : Başkent Organize Sanayi Bölgesi SK-20
Yeraltısuyu Kullanma Belgesi

YILDIRIM SONDAJ MÜHENDİSLİK
1314 Cad.1308 Sok. No:14/1 Öveçler/ANKARA

İlgi : Başkent Organize Sanayi Bölgesinin 30.11.2022 tarihli ve 1643728 sayılı başvurusu.

Form No: 2.7.4
Belge No: 05.0607.000.K.492501
Belge Tarihi: 23.12.2022

YERALTISUYU KULLANMA BELGESİ

1. Belge Sahibi : BAŞKENT ORGANİZE SANAYİ BÖLGESİ. SK-20
T.C. Kimlik Numarası (1480149931)
Adresi 1314 Cad 1308 Sok No:14/1 Öveçler Çankaya/Ankara
2. Teknik Sorumlu :
a) Adı Soyadı : AYŞEGÜL YILDIRIM
b) Mesleği : (JEOLOJİ MÜHENDİSİ)
c) Diploma-Oda Sicil No : 12210
d) Adresi : A.Öveçler Mah 1308 Cad 14/1 Çankaya/Ankara
3. Sondör Kuyucu Galerici :
a) Adı Soyadı : M.SAMİ KURT
b) Mesleği : Sondör
c) Diploma-Oda Sicil No : 2R 6398
d) Adresi : A.Öveçler Mah 1308 Cad 14/1 Çankaya/Ankara
4. Kuyu/Galeri Yeri :
İli : Ankara
İlçesi : Sincan
Beldesi, Mahallesi veya Köyü : SİNCAN İLÇESİ
Kuyu'nun DSİ No'su : ANK-23309
Koordinatı : 448712 - 4409497
Havza Adı : 12- Sakarya Havzası
5. Kuyu/Galeri Verimi :
Pompajla : 6,84 lt/sn
Artezyen : lt/sn
Statik Seviye : 6,53 m
Dinamik Seviye (pompajda) : 20 m

Bu belge, güvenli elektronik imza ile imzalanmıştır.
Doğrulama Kodu: DBEC9979-322B-4321-9A27-21371D8C2E8B Doğrulama Adresi: https://www.turkiye.gov.tr/devlet-su-isleri-ebys

Adres: Mustafa Kemal Mah. 2151/1 Cad. A Blok No:24 06520 Çankaya -ANKARA
Telefon No : Belgegeçer No :
KEP Adresi : dsi.gnlmud@hs01.kep.tr
Bilgi için:Mihriban KILIÇ
Memur
Telefon No:(312) 219 77 00-4731

Çekilecek Su Miktarı : 2.500,00 Ton/gün - 912.500,00 Ton/yıl
Çekilecek suyu temineyetecek enerji miktarı : 200258 kWh
Kullanma Amacı : SANAYİ SUYU

30.11.2022 tarihli dilekçe ile yukarıda belirtilen Derin Kuyu kullanmak istediğini belirten BAŞKENT ORGANİZE SANAYİ BÖLGESİ. SK-20 müracaatı üzerine yapılan inceleme sonucu, isteğin kanun, tüzük ve hükümlerine uygun olduğu anlaşıldığından, suyun yalnız SANAYİ SUYU amacıyla kullanılması şartıyla bu kullanma belgesi verilmiştir.

Not :

1- Kullanım Amacı: Zirai Sulama (İçme, kullanma ve farklı amaçlar ile kullanılamaz). Kullanılmada doğacak her türlü olumsuzluktan belge sahibi sorumlu olup, amacı dışında kullanılmasının tespiti halinde 167 sayılı kanunun 18. maddesine göre işlem yapılacaktır.

2-Kuyu komşu kuyularla münavebeli çalıştırılacaktır.

3-Sanayi amaçlı kuyulara taahhütname alınıp, sayaç takılmadan belge verilmez ve belge sahibi sayacı sürekli çalıştırmak ve korumakla yükümlüdür.

4-Kuyu; Ankara-Sincan-Temelli-Türkobası Mah. 107 ada, 20 nolu parselde açılmıştır.

5-Teknik Sorumlusu tarafından sunulan dosyadaki teknik bilgi ve belgelerin eksiksiz ve doğru olmasından dosya içerisinde sunduğu taahhütnamede de belirtildiği üzere dosyanın Fenni Mesulü sorumludur. Aksi bir durumunda doğabilecek olumsuzluklar ve/veya zarar ziyan durumunda idari, mali ve hukuki olarak Kurumumuzun herhangi bir sorumluluğu bulunmamaktadır. Ayrıca kuyunun işletilmesinde sakınca görülürse kuyu kapatılacaktır.

6-Bu Belge, verilen yeraltısuyu kullanma belgesinde yazılı olan şartlara uygun olarak işletilmesi şartı ile verilmiş olup, Yeraltısuyu kullanma belgesinde belirtilen şartlara uyulmasından, suyun kullanma amacına uygun olarak işletilmesinden ve gerekli tedbirlerin alınmasından belge sahibi sorumludur. İşletme şartlarına uyulmaksızın suyun kullanım amacı dışında kullanılması halinde olabilecek her türlü olumsuzluktan (kuyu, kaynak, çeşme ve yapıların olumsuz etkilenmesi vb.) belge sahibi sorumlu olacak olup, ilgili YAS mevzuatı gereğince verilen yeraltısuyu kullanma belgesi iptal edilerek kuyu kapatılacaktır.

7-Bu belge kullanma belgesi başvurusu yapılmadan önce OSOS cihazı takılması koşuluyla verilmiştir.

8-Bu belge sanayi sulama amacıyla verilmiştir.

Murat GÜL
Bölge Müdürü a.
Bölge Müdür Yardımcısı

Ek: Kuyu Kütüğü (1 Sayfa)

Bu belge, güvenli elektronik imza ile imzalanmıştır.
Doğrulama Kodu: DBEC9979-322B-4321-9A27-21371D8C2E8B Doğrulama Adresi: https://www.turkiye.gov.tr/devlet-su-isleri-ebys

Adres: Mustafa Kemal Mah. 2151/1 Cad. A Blok No:24 06520 Çankaya -ANKARA
Telefon No : Belgegeçer No :
KEP Adresi : dsi.gnlmud@hs01.kep.tr
Bilgi için:Mihriban KILIÇ
Memur
Telefon No:(312) 219 77 00-4731

T.C.
TARIM VE ORMAN BAKANLIĞI
Devlet Su İşleri Genel Müdürlüğü
5. Bölge Müdürlüğü

Sayı : E-92711777-152.02.02-3011694

Konu : Başkent Organize Sanayi Bölgesi SK-18
Yeraltısuyu Kullanma Belgesi

YILDIRIM SONDAJ MÜHENDİSLİK
1314 Cad.1308 Sok. No:14/1 Öveçler/ANKARA

İlgi : Başkent Organize Sanayi Bölgesinin 30.11.2022 tarihli ve 1643781 sayılı başvurusu.

Form No: 2.7.4
Belge No: 05.0607.000.K.492878
Belge Tarihi: 23.12.2022

YERALTISUYU KULLANMA BELGESİ

1. Belge Sahibi : BAŞKENT ORGANİZE SANAYİ BÖLGESİ SK-18
T.C. Kimlik Numarası (1480149931)
Adresi 1314 Cad. 1308 Sok. No: 14/1 Öveçler Çankaya/Ankara
2. Teknik Sorumlu :
a) Adı Soyadı : AYŞEGÜL YILDIRIM
b) Mesleği : (JEOLOJİ MÜHENDİSİ)
c) Diploma-Oda Sicil No : 12210
d) Adresi : 1314 Cad. 1308 Sok. No: 14/1 Öveçler Çankaya/Ankara
3. Sondör Kuyucu Galerici :
a) Adı Soyadı : M.SAMİ KURT
b) Mesleği : Sondör
c) Diploma-Oda Sicil No : 2R-6398
d) Adresi : 1314 Cad. 1308 Sok. No: 14/1 Öveçler Çankaya/Ankara
4. Kuyu/Galeri Yeri :
İli : Ankara
İlçesi : Sincan
Beldesi, Mahallesi veya Köyü : SİNCAN İLÇESİ
Kuyu'nun DSİ No'su : ANK-23328
Koordinatı : 448591 - 4409334
Havza Adı : 12- Sakarya Havzası
5. Kuyu/Galeri Verimi :
Pompajla : 14,53 lt/sn
Artezyen : lt/sn
Statik Seviye : 5 m
Dinamik Seviye (pompajda) : 20 m

Adres: Mustafa Kemal Mah. 2151/1 Cad. A Blok No:24 06520 Çankaya -ANKARA
Telefon No : Belgegeçer No :
KEP Adresi : dsi.gnlmud@hs01.kep.tr

Bilgi için:Mihriban KILIÇ
Memur
Telefon No:(312) 219 77 00-4731

Çekilecek Su Miktarı : 2.500,00 Ton/gün - 612.500,00 Ton/yıl
Çekilecek suyu temineyetecek enerji miktarı : 134425 kWh
Kullanma Amacı : SANAYİ SUYU

30.11.2022 tarihli dilekçe ile yukarıda belirtilen Derin Kuyu kullanmak istediğini belirten BAŞKENT ORGANİZE SANAYİ BÖLGESİ SK-18 müracaatı üzerine yapılan inceleme sonucu, isteğin kanun, tüzük ve hükümlerine uygun olduğu anlaşıldığından, suyun yalnız SANAYİ SUYU amacıyla kullanılması şartıyla bu kullanma belgesi verilmiştir.

Not :

1- Kullanım Amacı: Zirai Sulama (İçme, kullanma ve farklı amaçlar ile kullanılamaz). Kullanılmada doğacak her türlü olumsuzluktan belge sahibi sorumlu olup, amacı dışında kullanılmasının tespiti halinde 167 sayılı kanunun 18. maddesine göre işlem yapılacaktır.

2-Kuyu komşu kuyularla münavebeli çalıştırılacaktır.

3-Sanayi amaçlı kuyulara taahhütname alınıp, sayaç takılmadan belge verilmez ve belge sahibi sayacı sürekli çalıştırmak ve korumakla yükümlüdür.

4-Kuyu; Ankara-Sincan-Temelli-Türkobası Mah. 107 ada, 20 nolu parselde açılmıştır.

5-Teknik Sorumlusu tarafından sunulan dosyadaki teknik bilgi ve belgelerin eksiksiz ve doğru olmasından dosya içerisinde sunduğu taahhütnamede de belirtildiği üzere dosyanın Fenni Mesulü sorumludur. Aksi bir durumunda doğabilecek olumsuzluklar ve/veya zarar ziyan durumunda idari, mali ve hukuki olarak Kurumumuzun herhangi bir sorumluluğu bulunmamaktadır. Ayrıca kuyunun işletilmesinde sakınca görülürse kuyu kapatılacaktır.

6-Bu Belge, verilen yeraltısuyu kullanma belgesinde yazılı olan şartlara uygun olarak işletilmesi şartı ile verilmiş olup, Yeraltısuyu kullanma belgesinde belirtilen şartlara uyulmasından, suyun kullanma amacına uygun olarak işletilmesinden ve gerekli tedbirlerin alınmasından belge sahibi sorumludur. İşletme şartlarına uyulmaksızın suyun kullanım amacı dışında kullanılması halinde olabilecek her türlü olumsuzluktan (kuyu, kaynak, çeşme ve yapıların olumsuz etkilenmesi vb.) belge sahibi sorumlu olacak olup, ilgili YAS mevzuatı gereğince verilen yeraltısuyu kullanma belgesi iptal edilerek kuyu kapatılacaktır.

7-Bu belge sanayi sulama amacıyla verilmiştir.

Murat GÜL
Bölge Müdürü a.
Bölge Müdür Yardımcısı

Ek: Kuyu Kütüğü (1 Sayfa)

Adres: Mustafa Kemal Mah. 2151/1 Cad. A Blok No:24 06520 Çankaya -ANKARA
Telefon No : Belgegeçer No :
KEP Adresi : dsi.gnlmud@hs01.kep.tr
Bilgi için:Mihriban KILIÇ
Memur
Telefon No:(312) 219 77 00-4731

T.C.
TARIM VE ORMAN BAKANLIĞI
Devlet Su İşleri Genel Müdürlüğü
5. Bölge Müdürlüğü

Sayı : E-92711777-152.02.02-3011783

Konu : Başkent Organize Sanayi Bölgesi SK-16
Yeraltısuyu Kullanma Belgesi

YILDIRIM SONDAJ MÜHENDİSLİK
1314 Cad.1308 Sok. No:14/1 Öveçler/ANKARA

İlgi : Başkent Organize Sanayi Bölgesinin 30.11.2022 tarihli ve 1643795 sayılı başvurusu.

Form No: 2.7.4
Belge No: 05.0607.000.K.492499
Belge Tarihi: 23.12.2022

YERALTISUYU KULLANMA BELGESİ

1. Belge Sahibi : BAŞKENT ORGANİZE SANAYİ BÖLGESİ. SK-16
T.C. Kimlik Numarası (1480149931)
Adresi 1314 Cad 1308 Sok No:14/1 Öveçler Çankaya/Ankara
2. Teknik Sorumlu :
a) Adı Soyadı : AYŞEGÜL YILDIRIM
b) Mesleği : (JEOLOJİ MÜHENDİSİ)
c) Diploma-Oda Sicil No : 12210
d) Adresi : A.Öveçler Mah 1308 Cad 14/1 Çankaya/Ankara
3. Sondör Kuyucu Galerici :
a) Adı Soyadı : M.SAMİ KURT
b) Mesleği : Sondör
c) Diploma-Oda Sicil No : 2R 6398
d) Adresi : A.Öveçler Mah 1308 Cad 14/1 Çankaya/Ankara
4. Kuyu/Galeri Yeri :
İli : Ankara
İlçesi : Sincan
Beldesi, Mahallesi veya Köyü : SİNCAN İLÇESİ
Kuyu'nun DSİ No'su : ANK-23307
Koordinatı : 448485 - 4409088
Havza Adı : 12- Sakarya Havzası
5. Kuyu/Galeri Verimi :
Pompajla : 21,43 lt/sn
Artezyen : lt/sn
Statik Seviye : 6,51 m
Dinamik Seviye (pompajda) : 20 m

Adres: Mustafa Kemal Mah. 2151/1 Cad. A Blok No:24 06520 Çankaya -ANKARA
Telefon No : Belgegeçer No :
KEP Adresi : dsi.gnlmud@hs01.kep.tr
Bilgi için:Mihriban KILIÇ
Memur
Telefon No:(312) 219 77 00-4731

Çekilecek Su Miktarı : 2.500,00 Ton/gün - 912.500,00 Ton/yıl
Çekilecek suyu temineyetecek enerji miktarı : 200270 kWh
Kullanma Amacı : SANAYİ SUYU

30.11.2022 tarihli dilekçe ile yukarıda belirtilen Derin Kuyu kullanmak istediğini belirten BAŞKENT ORGANİZE SANAYİ BÖLGESİ. SK-16 müracaatı üzerine yapılan inceleme sonucu, isteğin kanun, tüzük ve hükümlerine uygun olduğu anlaşıldığından, suyun yalnız SANAYİ SUYU amacıyla kullanılması şartıyla bu kullanma belgesi verilmiştir.

Not :

1- Kullanım Amacı: Zirai Sulama (İçme, kullanma ve farklı amaçlar ile kullanılamaz). Kullanılmada doğacak her türlü olumsuzluktan belge sahibi sorumlu olup, amacı dışında kullanılmasının tespiti halinde 167 sayılı kanunun 18. maddesine göre işlem yapılacaktır.

2-Kuyu komşu kuyularla münavebeli çalıştırılacaktır.

3-Sanayi amaçlı kuyulara taahhütname alınıp, sayaç takılmadan belge verilmez ve belge sahibi sayacı sürekli çalıştırmak ve korumakla yükümlüdür.

4-Kuyu; Ankara-Sincan-Temelli-Türkobası Mah. 107 ada, 19 nolu parselde açılmıştır.

5-Teknik Sorumlusu tarafından sunulan dosyadaki teknik bilgi ve belgelerin eksiksiz ve doğru olmasından dosya içerisinde sunduğu taahhütnamede de belirtildiği üzere dosyanın Fenni Mesulü sorumludur. Aksi bir durumunda doğabilecek olumsuzluklar ve/veya zarar ziyan durumunda idari, mali ve hukuki olarak Kurumumuzun herhangi bir sorumluluğu bulunmamaktadır. Ayrıca kuyunun işletilmesinde sakınca görülürse kuyu kapatılacaktır.

6-Bu Belge, verilen yeraltısuyu kullanma belgesinde yazılı olan şartlara uygun olarak işletilmesi şartı ile verilmiş olup, Yeraltısuyu kullanma belgesinde belirtilen şartlara uyulmasından, suyun kullanma amacına uygun olarak işletilmesinden ve gerekli tedbirlerin alınmasından belge sahibi sorumludur. İşletme şartlarına uyulmaksızın suyun kullanım amacı dışında kullanılması halinde olabilecek her türlü olumsuzluktan (kuyu, kaynak, çeşme ve yapıların olumsuz etkilenmesi vb.) belge sahibi sorumlu olacak olup, ilgili YAS mevzuatı gereğince verilen yeraltısuyu kullanma belgesi iptal edilerek kuyu kapatılacaktır.

7-Bu belge kullanma belgesi başvurusu yapılmadan önce OSOS cihazı takılması koşuluyla verilmiştir.

8-Bu belge sanayi sulama amacıyla verilmiştir.

Murat GÜL
Bölge Müdürü a.
Bölge Müdür Yardımcısı

Ek: Kuyu Kütüğü (1 Sayfa)

Adres: Mustafa Kemal Mah. 2151/1 Cad. A Blok No:24 06520 Çankaya -ANKARA
Telefon No : Belgegeçer No :
KEP Adresi : dsi.gnlmud@hs01.kep.tr
Bilgi için:Mihriban KILIÇ
Memur
Telefon No:(312) 219 77 00-4731

T.C.
TARIM VE ORMAN BAKANLIĞI
Devlet Su İşleri Genel Müdürlüğü
5. Bölge Müdürlüğü

Sayı : E-92711777-152.02.02-3011704

Konu : Başkent Organize Sanayi Bölgesi
SK-19Yeraltısuyu Kullanma Belgesi

YILDIRIM SONDAJ MÜHENDİSLİK
1314 Cad.1308 Sok. No:14/1 Öveçler/ANKARA

İlgi : Başkent Organize Sanayi Bölgesinin 30.11.2022 tarihli ve 1643744 sayılı başvurusu.

Form No: 2.7.4
Belge No: 05.0607.000.K.492531
Belge Tarihi: 23.12.2022

YERALTISUYU KULLANMA BELGESİ

1. Belge Sahibi : BAŞKENT ORGANİZE SANAYİ BÖLGESİ. SK-19
T.C. Kimlik Numarası (1480149931)
Adresi 1314 Cad 1308 Sok No:14/1 Öveçler Çankaya/Ankara

2. Teknik Sorumlu :
a) Adı Soyadı : AYŞEGÜL YILDIRIM
b) Mesleği : (JEOLOJİ MÜHENDİSİ)
c) Diploma-Oda Sicil No : 12210
d) Adresi : A.Öveçler Mah 1308 Cad 14/1 Çankaya/Ankara

3. Sondör Kuyucu Galerici :
a) Adı Soyadı : M.SAMİ KURT
b) Mesleği : Sondör
c) Diploma-Oda Sicil No : 2R 6398
d) Adresi : A.Öveçler Mah 1308 Cad 14/1 Çankaya/Ankara

4. Kuyu/Galeri Yeri :
İli : Ankara
İlçesi : Sincan
Beldesi, Mahallesi veya Köyü : SİNCAN İLÇESİ
Kuyu'nun DSİ No'su : ANK-23314
Koordinatı : 448653 - 4409417
Havza Adı : 12- Sakarya Havzası

5. Kuyu/Galeri Verimi :
Pompajla : 10,3 lt/sn
Artezyen : lt/sn
Statik Seviye : 7 m
Dinamik Seviye (pompajda) : 20 m

Adres: Mustafa Kemal Mah. 2151/1 Cad. A Blok No:24 06520 Çankaya -ANKARA
Telefon No : Belgegeçer No :
KEP Adresi : dsi.gnlmud@hs01.kep.tr
Bilgi için:Mihriban KILIÇ
Memur
Telefon No:(312) 219 77 00-4731

Çekilecek Su Miktarı : 2.500,00 Ton/gün - 912.500,00 Ton/yıl
Çekilecek suyu temineyetecek enerji miktarı : 200268 kWh
Kullanma Amacı : SANAYİ SUYU

30.11.2022 tarihli dilekçe ile yukarıda belirtilen Derin Kuyu kullanmak istediğini belirten BAŞKENT ORGANİZE SANAYİ BÖLGESİ. SK-19 müracaatı üzerine yapılan inceleme sonucu, isteğin kanun, tüzük ve hükümlerine uygun olduğu anlaşıldığından, suyun yalnız SANAYİ SUYU amacıyla kullanılması şartıyla bu kullanma belgesi verilmiştir.

Not :

1- Kullanım Amacı: Zirai Sulama (İçme, kullanma ve farklı amaçlar ile kullanılamaz). Kullanılmada doğacak her türlü olumsuzluktan belge sahibi sorumlu olup, amacı dışında kullanılmasının tespiti halinde 167 sayılı kanunun 18. maddesine göre işlem yapılacaktır.

2-Kuyu komşu kuyularla münavebeli çalıştırılacaktır.

3-Sanayi amaçlı kuyulara taahhütname alınıp, sayaç takılmadan belge verilmez ve belge sahibi sayacı sürekli çalıştırmak ve korumakla yükümlüdür.

4-Kuyu; Ankara-Sincan-Temelli-Türkobası Mah. 107 ada, 20 nolu parselde açılmıştır.

5-Teknik Sorumlusu tarafından sunulan dosyadaki teknik bilgi ve belgelerin eksiksiz ve doğru olmasından dosya içerisinde sunduğu taahhütnamede de belirtildiği üzere dosyanın Fenni Mesulü sorumludur. Aksi bir durumunda doğabilecek olumsuzluklar ve/veya zarar ziyan durumunda idari, mali ve hukuki olarak Kurumumuzun herhangi bir sorumluluğu bulunmamaktadır. Ayrıca kuyunun işletilmesinde sakınca görülürse kuyu kapatılacaktır.

6-Bu Belge, verilen yeraltısuyu kullanma belgesinde yazılı olan şartlara uygun olarak işletilmesi şartı ile verilmiş olup, Yeraltısuyu kullanma belgesinde belirtilen şartlara uyulmasından, suyun kullanma amacına uygun olarak işletilmesinden ve gerekli tedbirlerin alınmasından belge sahibi sorumludur. İşletme şartlarına uyulmaksızın suyun kullanım amacı dışında kullanılması halinde olabilecek her türlü olumsuzluktan (kuyu, kaynak, çeşme ve yapıların olumsuz etkilenmesi vb.) belge sahibi sorumlu olacak olup, ilgili YAS mevzuatı gereğince verilen yeraltısuyu kullanma belgesi iptal edilerek kuyu kapatılacaktır.

7-Bu belge kullanma belgesi başvurusu yapılmadan önce OSOS cihazı takılması şartıyla verilmiştir.

8-Bu belge sanayi sulama amacıyla verilmiştir.

Murat GÜL
Bölge Müdürü a.
Bölge Müdür Yardımcısı

Ek: Kuyu Kütüğü (1 Sayfa)

Adres: Mustafa Kemal Mah. 2151/1 Cad. A Blok No:24 06520 Çankaya -ANKARA
Telefon No : Belgegeçer No :
KEP Adresi : dsi.gnlmud@hs01.kep.tr
Bilgi için:Mihriban KILIÇ
Memur
Telefon No:(312) 219 77 00-4731

T.C.
TARIM VE ORMAN BAKANLIĞI
Devlet Su İşleri Genel Müdürlüğü
5. Bölge Müdürlüğü

Sayı : E-92711777-152.02.02-3011712

Konu : Başkent Organize Sanayi Bölgesi
Yeraltısuyu Kullanma Belgesi

YILDIRIM SONDAJ MÜHENDİSLİK
1314 Cad.1308 Sok. No:14/1 Öveçler/ANKARA

İlgi : Başkent Organize Sanayi Bölgesinin 30.11.2022 tarihli ve 1643764 sayılı başvurusu.

Form No: 2.7.4
Belge No: 05.0607.000.K.492370
Belge Tarihi: 23.12.2022

YERALTISUYU KULLANMA BELGESİ

1. Belge Sahibi : BAŞKENT ORGANİZE SANAYİ BÖLGESİ
T.C. Kimlik Numarası (1480149931)
Adresi 1314 Cad 1308 Sok No:14/1 Öveçler Çankaya/Ankara
2. Teknik Sorumlu :
a) Adı Soyadı : AYŞEGÜL YILDIRIM
b) Mesleği : (JEOLOJİ MÜHENDİSİ)
c) Diploma-Oda Sicil No : 12210
d) Adresi : A.Öveçler Mah 1308 Cad 14/1 Çankaya/Ankara
3. Sondör Kuyucu Galerici :
a) Adı Soyadı : M.SAMİ KURT
b) Mesleği : Sondör
c) Diploma-Oda Sicil No : 2R 6398
d) Adresi : A.Öveçler Mah 1308 Cad 14/1 Çankaya/Ankara
4. Kuyu/Galeri Yeri :
İli : Ankara
İlçesi : Sincan
Beldesi, Mahallesi veya Köyü : SİNCAN İLÇESİ
Kuyu'nun DSİ No'su : ANK-23286
Koordinatı : 448509 - 4409193
Havza Adı : 12- Sakarya Havzası
5. Kuyu/Galeri Verimi :
Pompajla : 20,17 lt/sn
Artezyen : lt/sn
Statik Seviye : 6,56 m
Dinamik Seviye (pompajda) : 20 m

Adres: Mustafa Kemal Mah. 2151/1 Cad. A Blok No:24 06520 Çankaya -ANKARA
Telefon No : Belgegeçer No :
KEP Adresi : dsi.gnlmud@hs01.kep.tr
Bilgi için:Mihriban KILIÇ
Memur
Telefon No:(312) 219 77 00-4731

Çekilecek Su Miktarı : 2.500,00 Ton/gün - 900,00 Ton/yıl
Çekilecek suyu temineyetecek enerji miktarı : 198 kWh
Kullanma Amacı : SANAYİ SUYU

30.11.2022 tarihli dilekçe ile yukarıda belirtilen Derin Kuyu kullanmak istediğini belirten BAŞKENT ORGANİZE SANAYİ BÖLGESİ müracaatı üzerine yapılan inceleme sonucu, isteğin kanun, tüzük ve hükümlerine uygun olduğu anlaşıldığından, suyun yalnız SANAYİ SUYU amacıyla kullanılması şartıyla bu kullanma belgesi verilmiştir.

Not :

1- Kullanım Amacı: Zirai Sulama (İçme, kullanma ve farklı amaçlar ile kullanılamaz). Kullanılmada doğacak her türlü olumsuzluktan belge sahibi sorumlu olup, amacı dışında kullanılmasının tespiti halinde 167 sayılı kanunun 18. maddesine göre işlem yapılacaktır.

2-Kuyu komşu kuyularla münavebeli çalıştırılacaktır.

3-Sanayi amaçlı kuyulara taahhütname alınıp, sayaç takılmadan belge verilmez ve belge sahibi sayacı sürekli çalıştırmak ve korumakla yükümlüdür.

4-Kuyu; Ankara-Sincan-Temelli-Türkobası Mah. 107 ada, 19 nolu parselde açılmıştır.

5-Teknik Sorumlusu tarafından sunulan dosyadaki teknik bilgi ve belgelerin eksiksiz ve doğru olmasından dosya içerisinde sunduğu taahhütnamede de belirtildiği üzere dosyanın Fenni Mesulü sorumludur. Aksi bir durumunda doğabilecek olumsuzluklar ve/veya zarar ziyan durumunda idari, mali ve hukuki olarak Kurumumuzun herhangi bir sorumluluğu bulunmamaktadır. Ayrıca kuyunun işletilmesinde sakınca görülürse kuyu kapatılacaktır.

6-Bu Belge, verilen yeraltısuyu kullanma belgesinde yazılı olan şartlara uygun olarak işletilmesi şartı ile verilmiş olup, Yeraltısuyu kullanma belgesinde belirtilen şartlara uyulmasından, suyun kullanma amacına uygun olarak işletilmesinden ve gerekli tedbirlerin alınmasından belge sahibi sorumludur. İşletme şartlarına uyulmaksızın suyun kullanım amacı dışında kullanılması halinde olabilecek her türlü olumsuzluktan (kuyu, kaynak, çeşme ve yapıların olumsuz etkilenmesi vb.) belge sahibi sorumlu olacak olup, ilgili YAS mevzuatı gereğince verilen yeraltısuyu kullanma belgesi iptal edilerek kuyu kapatılacaktır.

7-Bu belge sanayi sulama amacıyla verilmiştir.

Murat GÜL
Bölge Müdürü a.
Bölge Müdür Yardımcısı

Ek: Kuyu Kütüğü (1 Sayfa)

Bu belge, güvenli elektronik imza ile imzalanmıştır.
Doğrulama Kodu: DFD85839-83FC-441E-9EFD-5A7022D06C66 Doğrulama Adresi: https://www.turkiye.gov.tr/devlet-su-isleri-ebys

Adres: Mustafa Kemal Mah. 2151/1 Cad. A Blok No:24 06520 Çankaya -ANKARA
Telefon No : Belgegeçer No :
KEP Adresi : dsi.gnlmud@hs01.kep.tr
Bilgi için:Mihriban KILIÇ
Memur
Telefon No:(312) 219 77 00-4731

ANNEX-13- INDUSTRIAL WASTE MANAGEMENT PLAN

T.C.
ANKARA VALİLİĞİ
Çevre, Şehircilik ve İklim Değişikliği İl Müdürlüğü

BAKANLIKLAR-06 21.06.22 21

TÜRKİYE CUMHURİYETİ 0500 Kr POSTA

Sayı : E-24710717-000-3930463 17.06.2022

Konu : Endüstriyel Atık Yönetim Planı Onayı

AES ÇEVRE MÜHENDİSLİK DANIŞMANLIK EĞİTİM BİLİŞİM İNŞAAT SANAYİ VE TİCARET LİMİTED ŞİRKETİNE
(Emek Mah. 22. Sok. No:17/5 Çankaya/ANKARA)

İlgi : Aes Çevre Mühendislik Danışmanlık Eğitim Bilişim İnşaat Sanayi ve Ticaret Limited Şirketi'nin 01.06.2022 tarihli ve 3529256 sayılı yazısı.

İlgi yazı ekinde; İlimiz, Sincan İlçesi, Alcı OSB Mah. 2034. Cad. No:1 adresinde "Atıksu Arıtımı" konusunda faaliyet gösteren Ankara Sanayi Odası 2. ve 3. OSB'ye yönelik olarak hazırlanan 'Atık Yönetim Planı' ilgi yazı ile Müdürlüğümüze sunulmuş olup, 02.04.2015 tarih ve 29314 sayılı Resmi Gazete'de yayımlanarak yürürlüğe giren Atık Yönetimi Yönetmeliği gereğince Valiliğimizce onaylanması talep edilmiştir.

Söz konusu Atık Yönetim Planı dosyasının incelenmesi neticesinde dosyanın Yönetmeliğe uygun olduğu tespit edilmiştir. Bu kapsamda Atık Yönetimi Yönetmeliğinin İl Müdürlüklerinin Görev ve Yetkileri başlıklı 7. maddesinin (j) bendinde yer alan "Sunulan atık yönetim planlarını değerlendirerek onaylamakla ve uygulanmasını sağlamak/sağlattırmakla yükümlüdür" hükmüne istinaden, Ankara Sanayi Odası 2. ve 3. OSB unvanlı firmaya ait tehlikeli ve tehlikesiz atıklarının yönetimine yönelik olarak hazırlanan ve 01.06.2022-01.06.2025 tarihlerini kapsayan atık yönetim planı onaylanmıştır.

Bu kapsamda; planda belirtildiği şekilde atıkların kaynağında ayrı toplanması, geçici depolama alanında uygun şekilde geçici depolanması ve MOTAT sistemi kullanılarak lisanslı araçlarla taşınmak suretiyle lisanslı bertaraf/geri kazanım tesislerine gönderilmesi, atık beyanlarının zamanında yapılması ve Tehlikeli Atık Depolama Alanı Zorunlu Mali Sorumluluk Sigortasının süresi bitiminde yenilenmesi, gerekmektedir.

Ayrıca, onaylanmış olan planınızın bitim tarihinden 3 ay önce güncellenen planın yeniden onaylanmak üzere İl Müdürlüğümüze sunulması gerektiği, geçerlilik süresi içerisinde atık yönelik planında değişiklik yapılmasını gerektirecek bir durumun oluşması halinde yenilenen atık yönetim planının 1 Ay (bir ay) içerisinde İl Müdürlüğümüze sunulması gerektiği, aksi takdirde idari para cezasının uygulanacağının bilinmesi hususunda;

Bilgilerinizi ve gereğini rica ederim.

Türkmen HACIHALİLOĞLU
Vali a.
İl Müdürü

Bu belge, güvenli elektronik imza ile imzalanmıştır.
Doğrulama Kodu: 2BF210B5-047F-4559-A028-C15C7216992B Doğrulama Adresi: https://www.turkiye.gov.tr

Necatibey Cad. No:98 Kızılay Çankaya/Ankara
Tel:0.312.219 77 91 (5 Hat) Fax:0.312.219 73 07
KEP: ankaracevrevesehircilik@hs01.kep.tr
Bilgi için:Onur KARA
Çevre Mühendisi

2022

ANKARA SANAYİ ODASI 2. VE 3. OSB MÜDÜRLÜĞÜ (ATIKSU ARITMA TESİSİ)

ENDÜSTRİYEL ATIK YÖNETİM PLANI

ESKİŞEHİR YOLU 42. KM ALCI-OSB MAH. 2034. CADDE NO:1 SİNCAN ANKARA

HAZIRLAYAN: AES ÇEVRE DANIŞMANLIK ŞİRKETİ.

BELEMİR ÇİFTCİ

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ANKARA SANAYİ ODASI 2. VE 3. OSB MÜDÜRLÜĞÜ (ATIKSU ARITMA TESİSİ)
ENDÜSTRİYEL ATIK YÖNETİM PLANI

1- TESİS İLETİŞİM BİLGİLERİ

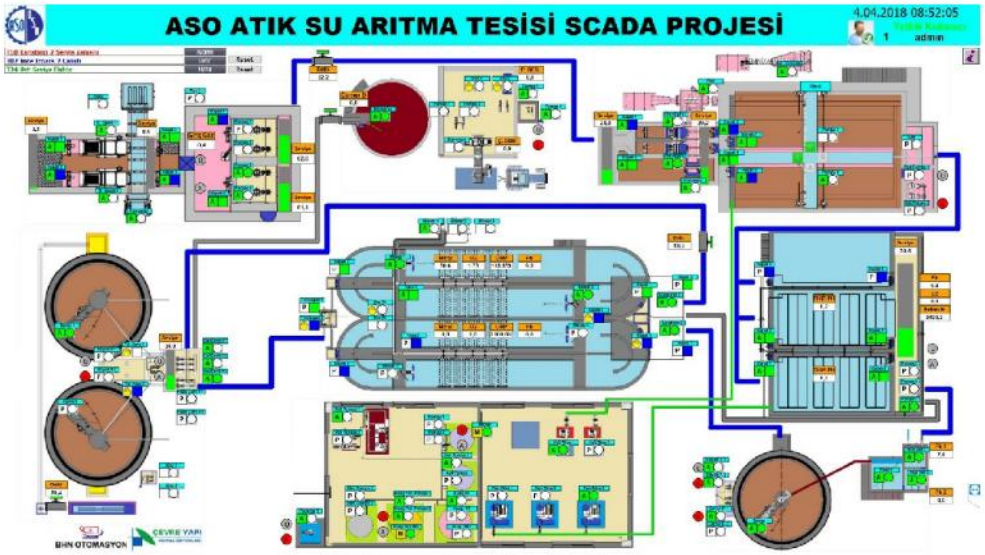
Firma Adı:	ANKARA SANAYİ ODASI 2. VE 3. OSB MÜDÜRLÜĞÜ (ATIKSU ARITMA TESİSİ)
İletişim Bilgileri	
Adres :	ESKİŞEHİR YOLU 42. KM ALCI-OSB MAH. 2034. CADDE NO:1 SİNCAN ANKARA
Telefon:	0 312 641 41 41
Faks :	0 312 641 40 40
Vergi Kimlik Numarası:	POLATLI V.D. / 690341300
Tesis Sahibi:	ENİSE DİLEK ESEN
İletişim Bilgileri	
Telefon:	0 312 641 41 41
Faks :	0 312 641 40 40
E-posta:	dilek.esen@aso2osb.org.tr

2- FİRMADA ATIK YÖNETİMİNDEN SORUMLU KİŞİYE AİT İLETİŞİM BİLGİLERİ

Adı Soyadı:	Ahmet YILDIZ
İletişim Bilgileri	
Adres:	ESKİŞEHİR YOLU 42. KM ALCI-OSB MAH. 2034. CADDE NO:1 SİNCAN ANKARA
Telefon:	0 312 641 41 41
Faks:	0 312 641 40 40
E-posta:	ahmet.yildiz@aso2osb.org.tr

3- ATIKLARIN OLUŞTUĞU PROSES VE FAALİYETE İLİŞKİN BİLGİ

Atıksu Arıtma Tesisi İş Akım Şeması



3.1. Atıksu Arıtma Tesisi İş Akım Şeması

Atıksu Arıtma Tesisi İş Akım Şeması Açıklanması

Fiziksel Arıtma

Izgaralar suda bulunan yüzen veya askıdaki iri maddeleri sudan ayırmak için kullanılan arıtma sistemi ekipmanlarıdır. Izgarada atıksuyla birlikte gelen iri katı maddeler tutulur ve bu maddelerin pompa, vana vb. ekipmanlara zarar vermesi engellenmiş olur.

Izgara üzerinden taranan kaba malzemeler bant konveyör vasıtası ile konteynere aktarılacak ve diğer atıklarla birlikte tesisten uzaklaştırılacaktır. Her bir ızgara kanalında ızgara öncesinde ve sonrasında motorlu kapaklar bulunacak, gerektiğinde atıksu girişi diğer kanallara yönlendirilebilecek, ya da mekanik ızgaraların olduğu bölüm bakım için izole edilebilecektir.

Kaba Izgara sonrası, Giriş Terfi Pompa İstasyonundaki dalgıç pompalar ile atıksu, zemin üzerindeki bir sonraki ünite olan ince ızgara ünitesine aktarılacaktır.

İnce Izgaralarda tutulan atıklar, konveyör ile ızgara atık preslerine ve oradan da ızgara atıkları konteynerine aktarılacaktır.

İnce Izgara sonrası atıksu Havalandırmalı Kum ve Yağ Giderim ünitesine aktarılacaktır.

Kum ve yağ giderim ünitesinin ana amacı organik maddelerden daha büyük çökelme hızına sahip veya daha yüksek özgül ağırlığı olan kum, çakılveya diğer ağır maddeleri gidermektir.

Izgara kanalı sonrasında, atıksu içeriğindeki kum ve yağın giderilmesi amacıyla, üzerinde kum pompası bulunan sıyırıcı köprüsü ile dikdörtgen betonarme havuz olarak tasarlanan Kum ve Yağ Tutucu Ünitesinin hemen yanında Kum Ayırıcı ekipmanı teçhiz edilecektir.

Kum ve Yağ Tutucu ünitesi betonarme olarak inşaa edilecektir ve herbir tank girişte birbirinden ayrılabilir olacaktır. Bir gözün devre dışı kalması durumunda diğer ünite işletmede devam edecek şekilde ekipmanlar teçhiz edilmiştir.

Tankın uygun şekilde boyutlandırılması ile atıksu, kontrol edilebilen belirli bir hızda (pik debide < 0,2 m/s) tanka giriş yapmaktadır. Atıksu tank uzunluğu boyunca doğrusal akış göstermekte ve girişe paralel olarak çıkmaktadır. Tankın tabanında bulunan kum toplama kanalı içinde biriken kum, kum pompası ile önce ünitenin yan tarafındaki kum kanalına, oradan da kum ayırıcı iletilmektedir.

Yağ toplama kanalı ise yağ toplama bölümünün çıkış tarafında yer almakta ve bu kanala sıyırılan yağ ve yüzer maddeler bir şut vasıtası ile doğrudan yağ toplama haznesi içine iletilmektedir. Sıyrılan yağın kanal içinden yağ toplama haznesine kadar aktarımı için, köprünün hareketine bağlı olarak açılıp kapanan mekanik sıyırıcı ile aktarılmakta ve buradanda burgu elek vasıtası ile yağ ayrımı yapılmaktadır.

İki kum tutucu ünite için ortak bir köprü kullanılacak, köprüye asılı bulunan kum pompaları, çöken malzemeyi emerek kum kanalına ve burgulu tip kum ayırıcıya ileteceklerdir.

Aynı köprüye monteli yağ sıyırma kolları da yüzeyden sıyırdığı yağlı suları, ünitenin çıkış tarafına yakın olan yağ toplama kanalına aktaracaklardır. Yağ Toplama kanalı ile toplanan yağlı sular, yağ toplama haznesine iletilmeden önce bir burgulu elekten geçirilerek içerdiği yüzer maddeler ayrılacak ve burgulu eleğin sıkıştırma bölümünde preslenerek bir konteynere alınacak ve ızgara atıkları ile birlikte uzaklaştırılacaktır.

Hava ihtiyacı, Blower kullanımı ile sağlanmaktadır. Hava dağıtım borusu orta perde boyunca uzanmaktadır. Havanın yarattığı eksantrik akımla kum yıkanarak tabanda çökelmektedir. Hareketli köprü ve ona bağlı kum pompası otomatik olarak çalışacaktır.

Dengeleme Havuzu

Kum ve yağ giderme ünitesinden geçirildikten sonra atıksu, dengeleme tankına alınır. Dengeleme tankında atıksular debi ve kirlilik yönünden dengelenecektir. Çökelmenin önlenmesi ve havalı şartların korunabilmesi için blower vasıtasıyla hava temin edilecektir. Üç gözlü olacak dengeleme tankının her bölümünün giriş ve çıkışında yer alacak aktüvatörlü kapaklar ile tankın bakım ihtiyacı için bir bölümün devre dışı bırakılması mümkün olabilecektir. Dengeleme tankından sonra atıksu dengeleme terfi pompaları ile kimyasal arıtmaya verilecektir.

Sistem dizaynı dengeleme sonrasında atıksuyun kirlilik yüküne göre kimyasal arıtmaya girmeden alternatifli olarak çalıştırmaya mümkün dizayn edilmiştir. Böylece kirlilik yükü az olduğu durumlarda Fiziksel arıtmadan sonra biyolojik arıtmaya prosesine geçiş sağlanabilecektir. Ünitelerin alternatifli çalışır hale gelmesi vana sistemi ile olabilecektir.

Sistem prensip olarak Fiziksel + Kimyasal + Biyolojik + Çamur olarak çalıştırılacaktır.

Kimyasal Arıtma

Kimyasal arıtma sistemi : Hızlı karıştırma + Yavaş karıştırma ve Kimyasal çöktürme işlemlerinden oluşmaktadır.

Bütün bu karıştırma işlemlerinden sonra atıksu flokülasyon işleminin gerçekleştirileceği yavaş karıştırma havuzuna alınır. Flokülayon işleminde flokların büyütülmesi sağlanır. Bu havuzun içerisinde yavaş karıştırma işlemini gerçekleştirmek amacı ile yavaş karıştırıcı kullanılır.

Atıksu daha sonra irileşen flokların çöktürülmesi amacıyla kimyasal çöktürme havuzuna alınır. Karışımın olmadığı bu havuzda oluşan floklar (çamur), tankın dibine doğru çökelirler. Havuzun dibinde, konik kısımda biriken çamur, kimyasal

çamur pompaları ile çamur depolama tankına verilir. Kimyasal arıtmaya tabi tutulmuş atıksu ise, çöktürme havuzundan savaklar vasıtası ile alınarak biyolojik arıtma girişinde dağıtım yapısına verilir.

Biyolojik Arıtma

Biyolojik arıtma havuzlarının boyutlandırması Bio-Fosfor Havuzu ve uzun havalandırmalı aktif çamur olarak yapılmıştır. Biofosfor havuzunda karışım sağlamak için dalgıç tip karıştırıcı kullanılacaktır.

Biyolojik Arıtma Dağıtım Yapısında Motorlu kapaklar kullanılacaktır. İşletme ihtiyacına göre karar verilecek çalışma yöntemleri için havuzların giriş ve çıkışlarında motorlu kapaklar olacaktır. Her havuzun giriş-çıkışındaki ve havuzlar arasındaki kapaklar sayesinde, her bir havuzun ayrı ayrı çalıştırılması veya devre dışı bırakılması mümkündür. Havuz çıkışlarındaki savak tipi çalışacak, aktüatörlü motorlu kapaklar ile havuzdaki su seviyesini ayarlamak mümkün olacaktır.

Anoksik bölümler içinde, çamurun çökelmesini engellemek amacıyla düşük hızlı, muz tipi Dalgıç Karıştırıcılar kullanılacaktır. Karıştırıcılar havuzlarda ortalama 0,3 m/sn hızı sağlayabilecek kapasitede seçilecektir. Anoksik bölgenin oluşumunu takip etmek amacıyla havuzların içinde birer adet ORP metre yer alacaktır.

Havalandırma Havuzları, biyolojik olarak karbon (KOI, BOI) ve azot giderimi esasına göre tasarlanmıştır. Nitrifikasyon/denitrifikasyon metodu ile azot ve fosfor giderimi uygulanacaktır. Havalandırma Havuzu tanklarının hacmi nitrifikasyon/denitrifikasyon prosesinin gerektirdiği ölçüde hesaplanmıştır.

Yapılacak olan iki tanklı havalandırma havuzu sistemindeki işletme sırasında seçilecek prosese göre zaman zaman anoksik olan havuzlar da dahil tüm havuzlar paralel olarak anoksik / oksik prosesinde çalışabilecek şekilde gerekli difüzörler ile donatılacaktır.

Havalandırma havuzları 2 gözlüdür ve havuzlar ortada, havuz uzunluğu boyunca yer alan bir ayırma duvarı ile bölünmüştür. Her bir Havalandırma Havuzu içinde, belirli yerlerde temin edilecek orifis ve kapaklar sayesinde, işletme şartlarına göre bakım ve onarım gerektiğinde herbir tankın devre dışı kalması sağlanabilmektedir.

Havalandırma havuzları, biyolojik prosesin yürütülmesi için gerekli oksijen ihtiyacını karşılamak üzere, ince kabarcıklı 9 inçlik membran disk difüzörler, hava dağıtım boruları ve hava körüklerinden oluşan havalandırma sistemi ile donatılmıştır.

Her bir havalandırma havuzu için ana hava dağıtım borusu blower istasyonundaki ana kollektöre bağlanmaktadır. Blower binasında bir adet blower emniyet için, arıza durumunda kullanılmak üzere yedek olarak bulunacaktır.

Arıtmadaki azot dengesine dayalı olarak inorganik azot, denitrifiye edilmesi gereken nitrat azotu ve denitrifikasyon kapasitesi hesaplanmıştır. Biyolojik arıtma için gerekli oksijen suya verilirken aynı zamanda havuzlarda tam karışımda sağlanır.

Havalandırma havuzlarındaki atıksu/çamur karışımı daha sonra Biyolojik Çökeltme Havuzları'na ile alınmaktadır. Biyolojik Çökeltme Havuzları, merkezi çamur toplama çukuru, çamur ve köpük giderimi için sıyırıcı mekanizmasına sahip dairesel betonarme tanklar olarak olarak boyutlandırılmıştır. Her bir havuz son çökeltme havuzu dağıtım yapısında bulunan kapaklarla ayrılabilmektedir. Çökelen çamur, döner köprülü sıyırıcıya bağlı taban sıyırıcıları ile merkezi çamur toplama çukuru içine atılmaktadır. Biyolojik Çökeltme Tanklarından alınan geri devir çamurunun biyolojik arıtma girişine pompalanması amacıyla geri-devir pompa istasyonu tasarlanmıştır. Biyolojik Çökeltme Havuzları tabanından Geri Devir Pompa İstasyonu'na cazibe ile akan aktif çamur, Geri Devir Pompaları ile Havalandırma Havuzu Giriş Yapısına pompalanmaktadır.

Çökeltmelerden çekilen çamur geri-devir çıkış hattı üzerinde bulunan manyetik debimetre ve motorlu teleskobik vanalar ile çamur geri-devir miktarı ölçülebilmekte ayarlanabilmektedir. İşletme şartlarına göre belirlenecek orandaki çamurun geri devri sağlanacaktır.

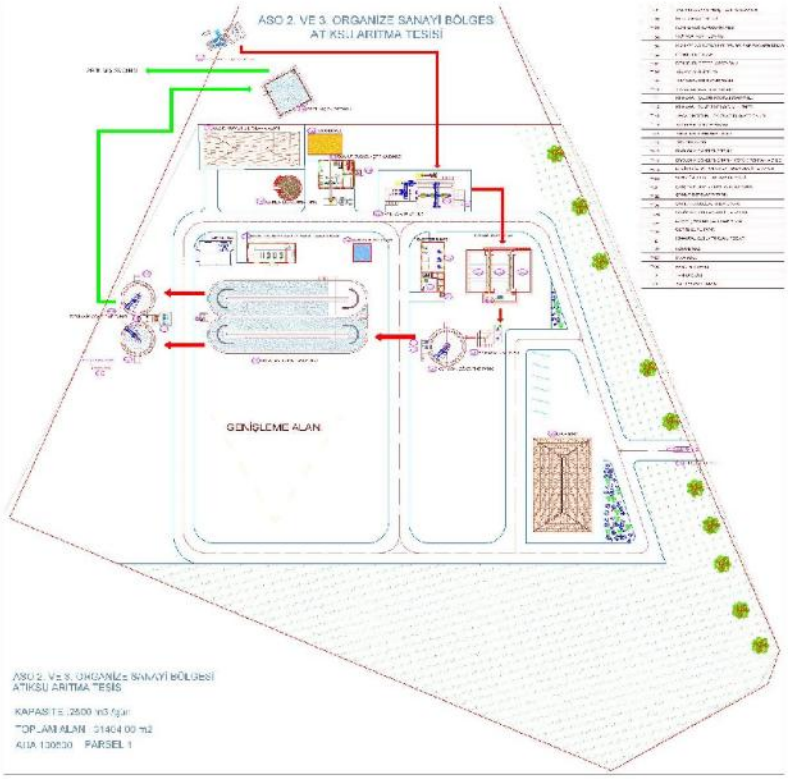
Çamur Susuzlaştırma

Biyolojik Arıtma ve Kimyasal Arıtma Sisteminden fazla çamur pompaları ile ayrılan fazla aktif çamur ve kimyasal çamur, çamur depolama tankına transfer edilir. Fazla çamurun mekanik susuzlaştırma sistemine aktarılmasından önce, ekipmanlarda olabilecek her türlü arıza durumuna karşı ve ekipmanların günlük çalışma süreleri haricinde çamurun depolanabilmesi ve dengelenebilmesi amacı ile çamur depolama tankı projelendirilmiştir.

Çamur depolama tankında çökelebilecek çamurun birikim yapmasını önlemek amacıyla zaman zaman çalıştırılmak üzere dalgıç karıştırıcı bulunmaktadır.

Çamurun katı madde yüzdesini artırmak ve çamur susuzlaştırma sisteminden verim almak amacıyla dekantöre verilirken çamur hattına katyonik polielektrolit dozlaması yapılır. Sistemden çıkan filtrat suları süzüntü suyu pompaları ile dengeleme havuzuna geri gönderilir.

Atıksu Arıtma Tesisi Vaziyet Planı



3.2. Genel Vaziyet Planı

3-1. Tablo 1.1 – Türlerine Göre Tehlikeli Atık Kaynakları

Faaliyet Alanları	Faaliyet /İşlemler	Oluşan Tehlikeli Atıklar
İdari Bina / Ofisler	Fotokopi, Faks, Yazıcı Kullanımı	Atık baskı tonerleri
	Aydınlatma Sistemi	Atık flüoresan
	Elektronik Cihazların Kullanımı	Atık pil
Arıtma Tesisi	Çalışanlardan	Yağlı bezler, üstübü kontamine işçi malzemeleri ve ambalajları
	Arıtma	Atık çamurlar
		Yağ karışımları ve gres
Laboratuvar	Laboratuvar İşlemleri	Laboratuvar kimyasalları
Revir	Tıbbi İşlemler	Tıbbi atıklar

3-2. Tablo 1.2 – Türlerine Göre Tehlikesiz Atık Kaynakları

Faaliyet Alanları	Faaliyet /İşlemler	Oluşan Tehlikesiz Atıklar
Bakım/ Onarım	Araçların ve Makinelerin Bakım ve Onarımlarından Kaynaklanan Atıklar	Metal hurda
Arıtma	Arıtma Atıkları	Arıtma Çamuru
Arıtma	Ürünlerin Ambalajları	Karışık Ambalajlar

3-3. Tablo 1.3 – EWC Kodları İle Birlikte Tehlikeli Atık Kaynakları

Atık Kodu	Atık Kodu Açıklaması	Faaliyet Alanı	Faaliyet İşlemleri	Oluşan Atıklar
08 03 17	Tehlikeli maddeler içeren atık baskı tonerleri	İdari Bina /Ofis	Fotokopi, faks, yazıcı kullanımı	Toner kutuları, kartuşlar
15 01 10	Tehlikeli maddelerin kalıntılarını içeren ya da tehlikeli maddelerle kontamine olmuş ambalajlar	Proses	Tamir-tadilat İşlemleri	Kontamine olmuş ambalajlar
15 02 02	Tehlikeli maddelerle kirlenmiş emiciler, filtre malzemeleri (başka şekilde tanımlanmamış ise yağ filtreleri), temizleme bezleri, koruyucu giysiler	Bakım	KKD kullanılması	Eldiven, koruyucu giysiler, yağ filtreleri vb.
16 05 06	Laboratuvar kimyasalları karışımları dahil tehlikeli maddelerden oluşan ya da tehlikeli maddeler içeren laboratuvar kimyasalları	Laboratuvar	Laboratuvar işlemleri	Laboratuvar kimyasalları
18 01 03	Enfeksiyonu önlemek amacı ile toplanmaları ve bertarafı özel işleme tabi olan atıklar	Revir	Tıbbi işlemler	Pamuk, plaster, yara bandı, dil çubuğu vb. atıklar
19 08 10	19 08 09 dışındaki yağ ve su ayrışmasından çıkan yağ karışımları ve gres	Arıtma tesisi	Su arıtma	Yağ karışımları ve gres
19 08 11	Endüstriyel atık suyun biyolojik arıtılmasından kaynaklanan tehlikeli maddeler içeren çamurlar	Arıtma tesisi	Su arıtma	Atık çamur
19 08 13	Endüstriyel atık suyun diğer yöntemlerle arıtılmasından kaynaklanan tehlikeli maddeler içeren çamurlar	Arıtma tesisi	Su arıtma	Atık çamur
20 01 21	Flüoresan lambalar ve diğer cıva içeren atıklar	İdari Bina /Ofis	Aydınlatma sistemi	Atık flüoresan
20 01 33	(16 06 01, 16 06 02 veya 16 06 03'un altında geçen pil ve akümülatörler ve bu pilleri içeren sınıflandırılmamış karışık pil ve akümülatörler)	İdari Bina /Ofis	Elektronik cihazların kullanımı	Atık pil

3-3. Tablo 1.3 – EWC Kodları İle Birlikte Tehlikesiz Atık Kaynakları

Atık Kodu	Atık Kodu Açıklaması	Faaliyet Alanı	Faaliyet İşlemleri	Oluşan Atıklar
15 01 06	Karışık Ambalaj	İdari Bina /Ofis- Arıtma Tesisi	Malzeme Ambalajları	Karışık Ambalaj
20 01 40	Metaller	Bakım/ Onarım	Araçların ve makinaların bakım/onarımlarından kaynaklanan atıklar	Metal hurda
19 08 01	Elek üstü maddeler	Arıtma	Su Arıtma	Evsel Atıklar
19 08 02	Kum ayırma işleminden kaynaklanan atıkları	Arıtma	Su Arıtma	Kum atıkları

4- Atık Miktarı ve Planlanan Yönetimi

BİRİNCİ YIL **Tarih Aralığı** : 01/06/2022 - 01/06/2023									
						Geri Kazanım		**Bertaraf**	
Atık kodu	**Atık kodu tanımı**	**Açıklama**	**Toplam Atık Miktarı**	**Toplama-Ayırma Yapılan Miktarı**	**Ara Depolama Miktarı**	**Geri Kazanım Yöntemi**	**Geri Kazanıma Gönderilecek Miktar**	**Bertaraf Yöntemi**	**Bertarafa Gönderilecek Miktar**
08 03 17	Tehlikeli maddeler içeren atık baskı tonerleri	M	1 Kg/yıl			**R13**	1 kg/yıl		
15 01 10	Tehlikeli maddelerin kalıntılarını içeren ya da tehlikeli maddelerle kontamine olmuş ambalajlar	M	40 Kg/yıl			**R13**	40 Kg/yıl		
15 02 02	Tehlikeli maddelerle kirlenmiş emiciler, filtre malzemeleri (başka şekilde tanımlanmamış ise yağ filtreleri), temizleme bezleri, koruyucu giysiler	M	200 Kg/yıl			**R12**	200 kg/yıl		
16 05 06	Laboratuvar kimyasalları karışımları dahil tehlikeli maddelerden oluşan ya da tehlikeli maddeler içeren laboratuvar kimyasalları	M	50 Kg/yıl			**R13**	50 Kg/yıl		
18 01 03	Enfeksiyonu önlemek amacı ile toplanmaları ve bertarafı özel işleme tabi olan atıklar	A	15 Kg/yıl					**D10**	15 Kg/yıl
19 08 10	19 08 09 dışındaki yağ ve su	A	100 Kg/yıl			R12	100 Kg/yıl		

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	ayrışmasından çıkan yağ karışımları ve gres								
19 08 11	Endüstriyel atık suyun biyolojik arıtılmasından kaynaklanan tehlikeli maddeler içeren çamurlar	M	196920 Kg/yıl			R13	196920 Kg/yıl		
19 08 13	Endüstriyel atık suyun diğer yöntemlerle arıtılmasından kaynaklanan tehlikeli maddeler içeren çamurlar	M	1000 Kg/yıl			R13	1000 Kg/yıl		
20 01 21	Flüoresan lambalar ve diğer cıva içeren atıklar	A	20 Kg/yıl			**R13**	20 Kg/yıl		
20 01 33	(16 06 01, 16 06 02 veya 16 06 03'un altında geçen pil ve akümülatörler ve bu pilleri içeren sınıflandırılmamış karışık pil ve akümülatörler)	A	4 Kg/yıl					**D5**	4 Kg/yıl
19 08 01	Elek üstü maddeler	-	100 Kg/yıl			**R13**	100 Kg/yıl		
19 08 02	Kum ayırma işleminden kaynaklanan atıkları	-	200 Kg/yıl			**R13**	200 Kg/yıl		
20 01 40	Metaller	-	200 Kg/yıl			**R4**	200 Kg/yıl		
15 01 06	Karışık Ambalaj	-	200 Kg/yıl			**R13**	200 Kg/yıl		

İKİNCİ YIL Tarih Aralığı : 01/06/2023- 01/06/2024									
						Geri Kazanım		Bertaraf	
Atık kodu	Atık kodu tanımı	Açıklama	Toplam Atık Miktarı	Toplama-Ayırma Yapılan Miktarı	Ara Depolama Miktarı	Geri Kazanım Yöntemi	Geri Kazanıma Gönderilecek Miktar	Bertaraf Yöntemi	Bertaraf a Gönderilecek Miktar
08 03 17	Tehlikeli maddeler içeren atık baskı tonerleri	M	2 Kg/yıl			**R13**	2 kg/yıl		
15 01 10	Tehlikeli maddelerin kalıntılarını içeren ya da tehlikeli maddelerle kontamine olmuş ambalajlar	M	50 Kg/yıl			**R13**	50 Kg/yıl		
15 02 02	Tehlikeli maddelerle kirlenmiş emiciler, filtre malzemeleri (başka şekilde tanımlanmamış ise yağ filtreleri), temizleme bezleri, koruyucu giysiler	M	220 Kg/yıl			**R12**	220 kg/yıl		
16 05 06	Laboratuvar kimyasalları karışımları dahil tehlikeli maddelerden oluşan ya da tehlikeli maddeler içeren laboratuvar kimyasalları	M	60 Kg/yıl			**R13**	60 Kg/yıl		
18 01 03	Enfeksiyonu önlemek amacı ile toplanmaları ve bertarafı özel işleme tabi olan atıklar	A	20 Kg/yıl					**D10**	20 Kg/yıl
19 08 10	19 08 09 dışındaki yağ ve su	A	150 Kg/yıl			**R12**	150 Kg/yıl		

	ayrışmasından çıkan yağ karışımları ve gres								
19 08 11	Endüstriyel atık suyun biyolojik arıtılmasından kaynaklanan tehlikeli maddeler içeren çamurlar	M	197000 Kg/yıl			**R13**	197000 Kg/yıl		
19 08 13	Endüstriyel atık suyun diğer yöntemlerle arıtılmasından kaynaklanan tehlikeli maddeler içeren çamurlar	M	1100 Kg/yıl			**R13**	1100 Kg/yıl		
20 01 21	Flüoresan lambalar ve diğer cıva içeren atıklar	A	20 Kg/yıl			**R13**	20 Kg/yıl		
20 01 33	(16 06 01, 16 06 02 veya 16 06 03'un altında geçen pil ve akümülatörler ve bu pilleri içeren sınıflandırılmamış karışık pil ve akümülatörler)	A	4 Kg/yıl					**D5**	4 Kg/yıl
19 08 01	Elek üstü maddeler	-	100 Kg/yıl			**R13**	100 Kg/yıl		
19 08 02	Kum ayırma işleminden kaynaklanan atıkları	-	200 Kg/yıl			**R13**	200 Kg/yıl		
20 01 40	Metaller	-	250 Kg/yıl			**R4**	250 Kg/yıl		
15 01 06	Karışık Ambalaj	-	200 Kg/yıl			**R13**	200 Kg/yıl		

ÜÇÜNCÜ YIL
Tarih Aralığı : 01/06/2024- 01/06/2025

Atık kodu	Atık kodu tanımı	Açıklama	Toplam Atık Miktarı	Toplama-Ayırma Yapılan Miktarı	Ara Depolama Miktarı	Geri Kazanım		Bertaraf	
						Geri Kazanım Yöntemi	Geri Kazanıma Gönderilecek Miktar	Bertaraf Yöntemi	Bertaraf a Gönderilecek Miktar
08 03 17	Tehlikeli maddeler içeren atık baskı tonerleri	M	3 Kg/yıl			**R13**	3 kg/yıl		
15 01 10	Tehlikeli maddelerin kalıntılarını içeren ya da tehlikeli maddelerle kontamine olmuş ambalajlar	M	60 Kg/yıl			**R13**	60 Kg/yıl		
15 02 02	Tehlikeli maddelerle kirlenmiş emiciler, filtre malzemeleri (başka şekilde tanımlanmamış ise yağ filtreleri), temizleme bezleri, koruyucu giysiler	M	240 Kg/yıl			**R12**	240 kg/yıl		
16 05 06	Laboratuvar kimyasalları karışımları dahil tehlikeli maddelerden oluşan ya da tehlikeli maddeler içeren laboratuvar kimyasalları	M	70 Kg/yıl			**R13**	70 Kg/yıl		
18 01 03	Enfeksiyonu önlemek amacı ile toplanmaları ve bertarafı özel işleme tabi olan atıklar	A	20 Kg/yıl					**D10**	20 Kg/yıl
19 08 10	19 08 09 dışındaki yağ ve su ayrışmasından çıkan yağ	A	200 Kg/yıl			**R12**	200 Kg/yıl		

	karışımları ve gres								
19 08 11	Endüstriyel atık suyun biyolojik arıtılmasından kaynaklanan tehlikeli maddeler içeren çamurlar	M	197000 Kg/yıl			**R13**	197000 Kg/yıl		
19 08 13	Endüstriyel atık suyun diğer yöntemlerle arıtılmasından kaynaklanan tehlikeli maddeler içeren çamurlar	M	1200 Kg/yıl			**R13**	1200 Kg/yıl		
20 01 21	Flüoresan lambalar ve diğer cıva içeren atıklar	A	20 Kg/yıl			**R13**	20 Kg/yıl		
20 01 33	(16 06 01, 16 06 02 veya 16 06 03'un altında geçen pil ve akümülatörler ve bu pilleri içeren sınıflandırılmamış karışık pil ve akümülatörler)	A	4 Kg/yıl					**D5**	4 Kg/yıl
19 08 01	Elek üstü maddeler	-	100 Kg/yıl			**R13**	100 Kg/yıl		
19 08 02	Kum ayırma işleminden kaynaklanan atıkları	-	200 Kg/yıl			**R13**	200 Kg/yıl		
20 01 40	Metaller	-	300 Kg/yıl			**R4**	300 Kg/yıl		
15 01 06	Karışık Ambalaj	-	200 Kg/yıl			**R13**	200 Kg/yıl		

5- Tesis İçi Geri Kazanım/Bertaraf

Tesis içi geri kazanım bulunmamaktadır.

6- Önleme ve Azaltım Bilgileri

1. Tesisimizde atıkların azaltılması ve ekstra atıkların çıkması önlenmeye çalışılmaktadır. Tesisimizde düzenli atıkların depolanmasına yönelik çalışmalar yapılmakta olup, atıklarımız düzenli olarak Çevre ve Şehircilik Bakanlığı'nın yeterlilik vermiş olduğu lisanslı firmalara gönderilmektedir.
2. Tesisimizde çalışan personellerden kaynaklanan evsel nitelikli katı atıklar çöp toplama konteynırlarında ayrı ayrı biriktirilmekte ve Organize Sanayi Bölgesine ait çöp toplama araçları tarafından alınarak atık depolama sahasına götürülmektedir.
3. İşletme içerisinde oluşan atıklar kaynağında ayrı toplanarak, Tehlikeli atık depolama alanında ayrı şekilde depolanacaktır. Tehlikeli atık depolama alanı sızdırmaz, üstü kapalı ve bölmeli olup, her bir bölme üzerinde depolanan atıkların kod ve isimlerinin belirtildiği ibareler yer almaktadır.
4. Tesiste idari bina/ofis kaynaklı oluşabilecek **08 03 17** kodlu atık baskı tonerleri mevcuttur. Bu atıklar tehlikeli atık geçici depolama alanında depolanmakta olup lisanslı firmalar aracılığı ile gönderimi yapılacaktır.
5. Tesiste üretim proseslerinden kaynaklanan atıklar mevcuttur. Bu atıklar tamir tadilat işlemlerinden kaynaklı yağlı hurdalar, tenekeler, bidonlar vs. olup **15 01 10** kodu ile nitelendirilen kontamine ambalajlarlardır. Bu atıklar tehlikeli atık depolama alanında depo edilip lisanslı firmalar aracılığı ile tesisten bertarafı sağlanmaktadır.
6. Tesiste çalışan personellerin kişisel koruyucu donanımlar kullanımından kaynaklı **15 02 02** kodlu kontamine eldiven, maske, giysi ayakkabı, vb. atıklar oluşmaktadır. Bu atıklar tesis içerisinde yönetmelik şartlarını sağlamış tehlikeli atık geçici depolama alanında depo edilerek lisanslı firmalar aracılığı ile bertarafı sağlanmaktadır.
7. Tesiste laboratuvar işlemlerinden kaynaklanacak **16 05 06** kodlu laboratuvar kimyasalları karışımları dahil tehlikeli maddelerden oluşan ya da tehlikeli maddeler içeren laboratuvar kimyasalları tehlikeli atık depolama alanında uygun şekilde depolanarak gönderimi lisanslı firmalara yapılacaktır.
8. Tesiste revirden kaynaklı oluşacak tıbbi atıklar **18 01 03** kodu ile tehlikeli atık geçici depolama alanında depolanacak olup lisanslı firmalar aracılığı ile gönderimi yapılacaktır.
9. Tesiste atıksu arıtma faaliyetiyle oluşan **19 08 10** kodlu 19 08 09 dışındaki yağ ve su ayrışmasından çıkan yağ karışımları ve gres IBC' lerde biriktirilerek lisanslı firmalarca gönderimi sağlanacaktır.
10. Tesiste atıksu arıtma faaliyetiyle oluşan **19 08 11** kodlu Endüstriyel atık suyun biyolojik arıtılmasından kaynaklanan tehlikeli maddeler içeren çamurlar geçirimsiz beton zeminli ve üstü kapalı atık çamur depolama alanında bekletilerek lisanslı firmalarca gönderimi sağlanacaktır.
11. Tesiste atıksu arıtma faaliyetiyle oluşan **19 08 13** kodlu Endüstriyel atık suyun diğer yöntemlerle arıtılmasından kaynaklanan tehlikeli maddeler içeren çamurlar geçirimsiz beton zeminli ve üstü kapalı atık çamur depolama alanında bekletilerek lisanslı firmalarca gönderimi sağlanacaktır.
12. Tesiste oluşabilecek flüoresan lambalar ve diğer cıva içeren atıklar **20 01 21** koduyla tehlikeli atık geçici depolama alanında depolanacak olup lisanslı firmalar aracılığı ile gönderimi yapılacaktır.
13. Tesiste bakım onarım işlemlerinden kaynaklanabilecek **20 01 33** kodlu (16 06 01, 16 06 02 veya 16 06 03'un altında geçen pil ve akümülatörler ve bu pilleri içeren sınıflandırılmamış karışık pil ve akümülatörler) tehlikeli atık geçici depolama alanında depolanıp TAP' a gönderilerek bertarafı sağlanacaktır.
14. Tesiste atıksu arıtma faaliyetiyle oluşan **19 08 01** kodlu elek üstü maddeler geçirimsiz beton zeminli tehlikesiz atık geçici depolama alanında depolanacak olup lisanslı firmalarca gönderimi sağlanacaktır.
15. Tesiste atıksu arıtma faaliyetiyle oluşan **19 08 02** kodlu Kum ayırma işleminden kaynaklanan atıkları geçirimsiz beton zeminli tehlikesiz atık geçici depolama alanında depolanacak olup lisanslı firmalarca gönderimi sağlanacaktır.
16. Tesis ekipmanlarının bakım/onarım/değişimden kaynaklı oluşabilecek atık metaller **20 01 40** tehlikesiz atık geçici depolama alanında depolanacak olup oluşması durumunda lisanslı firmalar aracılığı ile geri kazanımı sağlanacaktır.
17. Tesiste çalışanlar yemek ihtiyacını dışarıdaki restoranlardan karşılamaktadır. Bu sebepten bitkisel atık yağ oluşmamaktadır.

7- Atıkların Bertarafa Gönderilme Gerekçesi

- Oluşan tüm atıklar kendi bünyemizde bertaraf/geri kazanım tesisimiz veya sistemimiz olmadığı için lisanslı firma aracılığı ile bertaraf/geri kazanıma gönderilmiştir.

8- Geçici Depolama

1. İşletme içerisinde oluşan atıklar kaynağında ayrı toplanarak, Tehlikeli atık depolama alanında ayrı şekilde depolanacaktır. Tehlikeli atık depolama alanı sızdırmaz, üstü kapalı ve bölmeli olup, her bir bölme üzerinde depolanan atıkların kod ve isimlerinin belirtildiği ibareler yer almaktadır.
2. Sızma ve dökülme risklerine karşı absorban malzeme bulunmaktadır.

9- İl Müdürlüğünce Gerekli Görülen Diğer Bilgi ve Belgeler

- Bir Önceki Yıla Ait Atık Beyan Formlarının Bir Sureti,
- Geçici Tehlikeli ve Tehlikesiz Atık Depolama Alanına İlişkin Bilgiler/Fotoğraflar,
- Tehlikeli Atık Depolama Alanı Zorunlu Mali Sorumluluk Sigortası,
- Çevre İzni,
- Bir Önceki Yıla Ait Atık Yönetim Plan Onayı.

ANNEX-14- WASTE DECLARATION

ATIK BEYAN FORMU

YIL	2023	(7962406)
TESİS ADI	ANKARA SANAYİ ODASI 2. VE 3. ORGANİZE SANAYİ BÖLGESİ ÇEVRE ANALİZ LABORATUVARI DANIŞMANLIK EĞİTİM MÜHENDİSLİK HİZMETLERİ İKTİSADİ İŞLETMESİ	
TESİS ADRESİ	ANKARA,ALCI OSB MAHALLESİ, 2034 CADDE, NO: 1-, SİNCAN,TÜRKİYE	
TESİS SORUMLUSU	ECE SELENGE ÖZGÜVEN	

BEYAN KONTROL NO	ATIK KODU	ATIK ADI	ATIK YAĞ KATEGO.	MIKTAR	ÖLÇÜ BİRİMİ	İŞLEMİN NEREDE YAPILDIĞI	ATIK İŞLEME YÖNTEMİ	ATIK İŞLEME TESİSİ / TIBBİ ATIK ALAN BELEDİYE / İHRACATÇI
6268195	160506	Laboratuvar kimyasalları karışımları dahil tehlikeli maddelerden oluşan ya da tehlikeli maddeler içeren laboratuvar kimyasalları		80.000000	Kilogram	Tesis Dışı	R 13	61362

Nace Bilgisi

NACE KODU	NACE ADI	KAPASİTE	BİRİM
71.20.07	Bileşim ve saflık konularında teknik test ve analiz faaliyetleri (atık, yakıt, metal, mineral ve kimyasallar gibi maddelerin biyolojik ve kimyasal özellikleri ile mikrobiyoloji, biyokimya vb. ilgili alanlarda test ve analiz faaliyetleri)	1000	adet/yıl

06.02.2024 15:09:52 Sayfa 1 / 1

ANNEX-15- ZERO WASTE CERTIFICATE

T.C.
ANKARA VALİLİĞİ
Çevre ve Şehircilik İl Müdürlüğü

Sayı : E-25160397-145.99-2324303
Konu : Sıfır Atık Yönetimi Hk

AES ÇEVRE MÜHENDİSLİK DANIŞMANLIK EĞİTİM BİLİŞİM İNŞAAT SANAYİ VE TİCARET LİMİTED ŞİRKETİNE
(Emek Mah. 22. Sok. No:17/5 Çankaya/ANKARA)

İlgi : 25.11.2021 tarihli ve 39 sayılı yazınız.

Danışmanlığını yaptığınız Ankara Sanayi Odası 2. ve 3. Organize Sanayi Bölgesi için bütün organize sanayi bölgesine ait yönetim sorumlululuğu alınmak suretiyle Sıfır Atık Temel Seviye Belgesinin alınmış olduğundan bahisle; OSB içerisinde bulunan firmaların sıfır atık belgesi bulunmamasına rağmen atıklarını bireysel olarak yönettikleri ilgi yazınız ile bildirilmekte olup, OSB içerisindeki firmaların atıklarının yönetimi konusundaki görüşümüz talep edilmektedir.

Bilindiği üzere 12.07.2019 tarih ve 30829 sayılı Resmi Gazete'de yayımlanarak yürürlüğe giren Sıfır Atık Yönetmeliği **Organize Sanayi Bölgeleri ve Havalimanlarının Yükümlülükleri** başlıklı 11. Maddesinde "(1) Organize sanayi bölgesi yönetimleri ve havalimanı/terminal işletmecileri 10 uncu maddede verilen yükümlülüklere ilave olarak; a) Sınırları içerisinde sıfır atık yönetim sisteminin planlanması, kurulması, uygulanması ve izlenmesine yönelik gerekli koordinasyon ve işbirliğini sağlamakla, b) **Sıfır atık yönetim sistemine geçiş süreci de dahil olmak üzere, mevcut atık yönetim hizmetlerinin sıfır atık yönetim sistemine entegre edilmesine yönelik planlama yapmakla, sınırları içerisindeki tüm kurum, kuruluş ve işletmelerin bu plana uymasını sağlamakla yükümlüdürler."** hükmü yer almaktadır.

Müdürlüğümüz teknik personellerince yapılan incelemede; ASO 2. ve 3. Organize Sanayi Bölgesinde sıfır atık yönetimi konusunda tüm iş ve işlemlerin OSB Müdürlüğü tarafından yerine getirildiği, ikili toplama sistemi, atık toplama programı, geçici atık depolama alanı vb. yükümlülükler yerine getirilerek yapılan planma ile bütün OSB için Sıfır Atık Temel Seviye Belgesi aldığı anlaşılmaktadır. Bu sebeple bahse konu Organize Sanayi Bölgesi içerisinde bulunan ve münferit Sıfır Atık Temel Seviye belgesi bulunmayan işletmelerin atıklarının yönetilmek üzere Organize Sanayi Bölgesine devretmesi zorunlu olup, OSB dışındaki bir lisanslı firmaya atıkların teslim edilemeceği değerlendirilmiştir.

Bilgilerinizi ve gereğini rica ederim.

Adem KARACİF
Müdür a.
İl Müdür Yardımcısı V.

Bu belge, güvenli elektronik imza ile imzalanmıştır.
Doğrulama Kodu: 73B56BDC-E72A-4EC9-9A7C-BCE3F0D6F51C Doğrulama Adresi: https://www.turkiye.gov.tr

Necatibey Cad. No:98 Kızılay Çankaya/Ankara
Tel:0.312.219 77 91 (5 Hat) Fax:0.312.219 73 07
KEP: ankaracevrevesehircilik@hs01.kep.tr

Bilgi için:Ebru Dilber ÇAKIR
Şube Müdürü V.

T.C.
ANKARA VALİLİĞİ
Çevre ve Şehircilik İl Müdürlüğü

Belge No: TS/6/B2/8/1

Tarih: 26/08/2021

SIFIR ATIK BELGESİ
(Temel Seviye)

Adı : **ANKARA SANAYİ ODASI 2. VE 3.ORGANİZE SANAYİ BÖLGESİ**
Adresi : **ANKARA,ALCI OSB Mahallesi, 2034 CADDE, No: 1-, SİNCAN,Türkiye**
Vergi No : **0690341300**

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.

e-imzalıdır
Ahmet BEKTAŞ
Çevre ve Şehircilik İl Müdürü Vekili

Belge Son Geçerlilik Tarihi: 26/08/2026

Bu belge, güvenli elektronik imza ile imzalanmıştır.

ANNEX-16- WWTP PROJECT APPROVAL OF ASO 2-3 OIZ

T.C.
ANKARA VALİLİĞİ
Çevre, Şehircilik ve İklim Değişikliği İl Müdürlüğü

Sayı : 69415164-150/E.9523 16.06.2022
Konu : İl Müdürlüğü Uygunluk Yazısı

ANKARA SANAYİ ODASI 2. VE 3.ORGANİZE SANAYİ BÖLGESİ
ANKARA,ALCI OSB Mahallesi, 2034 CADDE, No: 1-, SİNCAN,Türkiye

İlgi : 08.06.2022 Tarihli 564363 no'lu başvurunuz.

ANKARA SANAYİ ODASI 2. VE 3.ORGANİZE SANAYİ BÖLGESİ olarak ANKARA,ALCI OSB Mahallesi, 2034 CADDE, No: 1-, SİNCAN,Türkiye adresinde Atıksu Arıtma Tesisi faaliyeti yaptığınız, Çevre İzin ve Lisans Yönetmeliği (ÇİLY) Ek-1 listesi 10.1 de yer alan faaliyetiniz için çevre izin/çevre lisans başvurusuna esas olmak üzere "İl Müdürlüğü Uygunluk Yazısı" nın tarafımıza verilmesi talep edilmektedir.

Bu kapsamda işletmenizde yerinde yapılan incelemede;
- Atıksu Deşarjı konulu çevre izni ve konulu çevre lisansına tabi olduğu,
- Çevresel Etki Değerlendirmesi Yönetmeliği kapsamında yapılan değerlendirme sonucunda, ÇED Kapsamı Dışında olduğu, verilen karar/belge çerçevesinde herhangi bir değişikliğe ya da kapasite artışına gidilmediği,
- Mali Sorumluluk Sigortası Yükümlülüğüne Tabi Olduğu ve Uygun Bulunduğu,
- Sıfır Atık Yönetmeliğine tabi olmadığı,
- Ayrıca, Hava Emisyon,Gürültü Kontrolü konulu çevre izni/izinlerinden muaf olduğu tespit edilmiştir.

Bu belge, **çevre mevzuatı açısından nihai bir izin niteliği taşımamakta olup**, yalnızca ÇİLY gereğince gerçekleştirilecek Geçici Faaliyet Belgesi (GFB) başvurusunda sunulmak üzere verilmiştir.

Bu kapsamda, bu belgenin alınmasına müteakip Yönetmeliğin Ek-3A ve Ek-3B'sinde yer alan diğer belgeler ile birlikte **ivedilikle** GFB başvurusunda bulunulması gerekmekte olup, bu yükümlülüğünü yerine getirmeyen işletmeler hakkında **2872 sayılı Çevre Kanunun** ilgili maddeleri uyarınca **idari yaptırım uygulanacaktır.**

Bilgilerinizi ve gereğini rica ederim.

e-imzalıdır
Türkmen HACIHALİLOĞLU
İl Müdürü

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

Madde 1: TARAFLAR

Bu Sözleşme, Alıcı OSB Mah.2034. Cadde No:1 Sincan Ankara adresinde mukim ASO 2. ve 3. Organize Sanayi Bölgesi (Polatlı Vergi Dairesi 0690341300) (bundan böyle Atık Üreticisi olarak anılacaktır) ile ..... Mah. ..... Sok. No:..... ...../ANKARA adresinde bulunan ..... (..... VD .....) (bundan böyle Yüklenici olarak anılacaktır) arasında düzenlenmiştir. Atık Üreticisi ve Yüklenici ile beraber "Taraflar", ayrı ayrı "Taraf" olarak ifade edilecektir.

1.1 Tarafların kanuni tebligat adresleri ve iletişim bilgileri aşağıda belirtildiği şekildedir:

	Atık Üreticisi	Yüklenici
Kanuni Tebligat Adresi	Alcı OSB Mah.2034. Cadde No:1 Sincan Ankara	MERT OĞULLARI GERİ DÖNÜŞÜM SAN. VE TİC. LTD. ŞTİ. Yukarıçak Mahallesi 3820. Cadde No: 34 Yenimahalle - ANKARA Tel: 0535 763 33 66 - 0537 763 33 66 Yenimahalle V.D. 6130725963
İrtibat Görevlisi	Dilek Demir	
Telefon	0312 641 41 41 05360752405	
Faks	0312 641 40 40	
E-posta	dilek.esen@aso2osb.org.tr sifiratik@aso2osb.org.tr	

1.2 Taraflar, işbu Sözleşmede yer alan adreslerin tebligata açık adresleri olduğunu ve bu adreslere yapılacak her türlü tebligatın geçerli ve yasal sayılacağını ve bu adreslerde meydana gelen değişikliklerin 10 (on) takvim günü içerisinde Sözleşmenin karşı tarafına yazılı olarak duyurulacağını, aksi halde Sözleşmede yazılı adreslere yapılacak tebligatların tarafları bağlayacağı ve geçerli yasal tebligat olacağını peşinen kabul ederler.

Madde 2: İŞYERLERİ

2.1. Sözleşmeye konu atık toplama hizmetinin verileceği ATIK ÜRETİCİSİ'nın işyeri adresi aşağıdaki gibidir:

Atık Üreticisi Adı	Hizmet Alanı
ASO 2. ve 3. Organize Sanayi Bölgesi	Alcı-OSB Mahallesi Organize Sanayi Bölgesi

2.2. Yukarıda belirtilen Atık Üreticisine verilecek hizmet alanı bundan böyle **"OSB"** olarak anılacaktır.

2.3.

Madde 3: KONU

3.1. İşbu sözleşmenin konusu YÜKLENİCİ tarafından ATIK ÜRETİCİSİ' nin tasarrufunda bulunan OSB' ye 12.07.2019 tarih ve 30829 sayılı Resmî Gazetede yayımlanan Sıfır Atık Yönetmeliği (**"ilgili mevzuat"**) kapsamında mevzuata uygun olarak çevreye zarar vermeden toplanması, biriktirilmesi, teslim alınması, taşınması, preslenerek balyalanması ve geri kazanım/bertaraf tesislerine teslim edilmesi faaliyetlerinin uygulanması işidir.

3.2. Bu sözleşme kapsamına giren tüm hizmetler ve iş/işler **"Hizmetler"** olarak anılacaktır. Aşağıda belirtilen hususlar, Hizmetler'in kapsamında yer almakta olup; YÜKLENİCİ tarafından yapılacaktır.

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erecektir. YÜKLENİCİ, Hizmetleri ifa etmeye, sözleşmenin imzalandığı tarih itibariyle başlayacak olup; sözleşme süresi içerisinde tamamlayacaktır. Sözleşmenin ilk yılının tamamlanmasının ardından 4.1. maddede belirtilen atık bedellerine ilişkin Yüklenici ve Atık üreticisi yeniden değerlendirme ve görüşmelerle mutabakat sağlayacaktır. Atık bedeline ilişkin mutabakatın sağlanmaması durumunda sözleşme feshedilecektir.

4.4. YÜKLENİCİ'nin işbu Sözleşmede yerine getirmeyi taahhüt ettiği Hizmetler'in yapılması ve tamamlanması ile sözleşmenin imzalanmasına ilişkin ulaşım, sigorta, vergi, resim ve harç giderleri Yüklenici tarafından ödenecek olup bu giderler için atık üreticisinden ödeme talebinde bulunmayacaktır.

4.5.YÜKLENİCİ, işçilik, SGK primleri, akaryakıt, nakliye, malzeme ve sair fiyatlarında artışlar, enflasyon artışları, ekonomik kriz ve bunlarla sınırlı olmamak üzere hiçbir sebep, şekil ve surette sözleşme bedelinin düşürülmesini isteyemez.

4.6.İşbu Sözleşme'nin akdedilmesi, ifası, her ne şekilde olursa olsun feshi ve/veya sona ermesi nedeniyle oluşacak her türlü vergi, resim, fon, harç v.b.'nin tamamından YÜKLENİCİ sorumludur.

Madde 5: SÖZLEŞMENİN FESHİ

5.1. ATIK ÜRETİCİSİ, en az 30 (otuz) takvim günü öncesinden yazılı bildirimde bulunmak suretiyle Sözleşmeyi hiçbir sebep bildirmeksizin süresinden önce feshetmeye yetkilidir. Bu halde Taraflar, Sözleşme'nin feshi sebebiyle Sözleşmeyi fesheden taraftan zarar, ziyan ve kar kaybı da dahil olmak üzere hiçbir sebep, şekilde ve surette hak, alacak ve talepte bulunmayacaktır.

5.2. Sözleşme süresi bitiminden önce Atık Üreticisi tarafından sözleşme tek taraflı fesih edilirse, işin yapılması için Yüklenici tarafından temin edilen ekipmanlar Atık Üreticisi tarafından Yükleniciye iade edilir.

Madde 6: MÜCBİR SEBEPLER

6.1. Sayılanlarla sınırlı olmamak üzere, Taraflarca önceden öngörülemeyen ve Tarafların işbu Sözleşme'den doğan yükümlülüklerinin ifasını önemli ölçüde zorlaştıran aşağıda belirtilen durumlar işbu Sözleşme kapsamında mücbir sebep sayılacaktır;

a) Doğal afetler
b) Kanuni Grev
c) Kısmi veya Genel Seferberlik ilanı
d) Tarafların makul bir seviyedeki gayretleri ile önlenemeyen ve bunlarla sınırlı olmayan diğer haller

6.2. Mücbir sebep şahsında gerçekleşen Taraf, diğer Taraf'a mücbir sebep halinin gerçekleşmesini takiben 5 (beş) gün içinde durumu bildirecek ve mücbir sebep hallerinin etkisini en aza indirmek için azami gayret gösterecektir.

6.3. Mücbir Sebeplerden birinin vukuu halinde bu sebebin ortadan kalkmasına kadar geçecek süre, Sözleşme'de belirtilen İş bitim süresine eklenecektir. Mücbir sebep hallerinin 1 (bir) ayı aşması halinde,

Taraflardan herhangi biri Sözleşme'yi feshetmeye yetkilidir. Sözleşme'nin bu nedenle feshi halinde, tasfiyeye ilişkin genel hükümler uygulanır.

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a) Ambalaj atıkları ayrı toplandıktan sonra depolanacak büyük kasa konteynerleri veya press makinesinin Atık Üreticisinin ihtiyaçları doğrultusunda temin etmek,

b) Yüklenici, atık üreticisi tarafından hazır hale getirilmiş atıkları, atık üreticisi tarafından belirlenen günlerde teslim almakla yükümlüdür. Yüklenici, atık üreticisinden almış olduğu atıkların Yönetmelik esaslarına uygun olarak toplayıp, geri kazanım ve/veya geri dönüşümünü taahhüt eder. Yüklenici, atıkların toplanması-taşınması, ayrılması ve geri kazanım/bertaraf tesislerine sevk edilmesi sırasında yönetmelik esaslarına uyacaktır. Bu işlemler sırasında herhangi bir olumsuzluk tespit edilirse bu yükümlülük Yüklenici 'ye ait olacaktır.

c) Alınan ambalaj atıkları arasında çöp, ıslaklık, nem ve geri dönüştürülemeyen atık olması durumunda; Yüklenici tarafından yapılan fire tespiti doğrultusunda fire düşülerek atık üreticisine bildirecek ve fire sonrası kalan net miktardan sayısallaştırma yapılacaktır. Uygulanacak fire oranı %5'i geçemez.

d) Alınan atık ambalaj atıklarının tartımı ASO 2.OSB'ye ait KANTARDA yapılacak olup atık alımı esnasında tartım makbuzu Atık Üreticisine teslim edilecektir.

3.3. Bu sözleşme kapsamında işin ifası durumunda Atık Üreticisinin sorumlulukları aşağıda belirtilen hususlardır.

a. Atık üreticisi, Yüklenici tarafından sağlanan kaynağında ayrı depolama teçhizatlarını uygun şekilde kullanmak ve sağlam olarak muhafaza etmekle yükümlüdür.

b. Atık üreticisi, ambalaj atıklarını kaynağında diğer atıklardan ayrı olarak biriktirip Yüklenici firmaya verilmek üzere hazır hale getirecektir.

c. Atıkların toplanacağı güzergâhının ve atıkların toplanacağı günlerin belirlenmesi, nizamiye geçişinde araç giriş çıkış koordinasyonunun sağlanması atık üreticisi sorumluluğundadır.

Madde 4: SÖZLEŞME SÜRESİ VE HİZMET BEDELİ

4.1. Sözleşme kapsamında Yüklenici tarafından, alınan atıklara karşılık olarak;

Atıkların nakliyesinin ASO 2.OSB tarafından yapılması halinde;

- Kağıt-karton :2,00 TL/kg
- Karışık Ambalaj : 2,50 TL/kg
- Plastik : 6,00 TL/kg

Atıkların nakliyesinin Yüklenici tarafından yapılması halinde;

- Kağıt-karton :1,50 TL/kg
- Karışık Ambalaj : 2,00 TL/kg
- Plastik : 4,50 TL/kg

bedel ödenecektir. Bu fiyat tarifesi ile ASO 2.OSB'ye ait KANTARDA yapılacak olan atık tartımlarına ilişkin makbuzlar esas alınarak Atık Üreticisi tarafından her ayın 15'inde fatura düzenlenecektir. Bu faturanın düzenlendiği tarihten itibaren 7 gün içerisinde fatura bedeli Yüklenici tarafından Atık Üreticisine ödenecektir.

4.2. Yüklenici sözleşmenin imzalanmasıyla birlikte 1 yıl süreli 120.000,00 TL (yüz yirmi bin Türk lirası) tutarında banka teminat mektubu/nakit teminat verecektir. Yükleniciye düzenlenen faturaların süresi içinde ödenmemesi halinde Atık üreticisi bu İsteklinin teminatından gelir kaydederek tahsil edecektir.

4.3. İşbu sözleşmenin süresi imzalandığı tarihten başlamak üzere toplam 2 (bir) yıldır. Buna göre sözleşme süresi bitiminde herhangi bir ihtara ya da ihbara gerek kalmaksızın kendiliğinden sona

Madde 7: GİZLİLİK VE KİŞİSEL VERİLERİN KORUNMASI

YÜKLENİCİ gerek işbu sözleşme ve varsa ekleri, gerekse ATIK ÜRETİCİSİ ile ilgili olarak yazılı ve şifahi olarak muttali olduğu/olacağı, her türlü bilgi, belge, değerlendirme ve sonuçların ticari sır olduğunu ve gizli tutmayı kabul ve taahhüt etmiştir

Madde 8: DİĞER HUSUSLAR

8.1. İşbu Sözleşmenin ekleri, Sözleşmenin ayrılmaz bir parçasıdır. Ancak eklerde Sözleşme hükümleriyle çelişen bir hükmün söz konusu olması halinde, Sözleşme hükümleri esas alınacaktır.

8.2. Bu Sözleşme kapsamında tüm yazışmalar, noter aracılığıyla, iadeli taahhütlü mektupla, elektronik posta veya faks yolu ile yapılabilir. Söz konusu yazışmaların geçerliliği, yazının diğer tarafa tebliğ edilmiş olmasına bağlıdır.

8.3. İşbu Sözleşmenin hükümlerinden herhangi biri, herhangi bir yeni yasa hükmü nedeniyle geçersiz kalır ve dolayısıyla uygulanamaz hale düşerse, söz konusu hüküm, bu sözleşmenin esasına etki eden bir hüküm olmadığı sürece, sözleşme geçerliliğini bütünüyle muhafaza edecek ve söz konusu hüküm sözleşmeden çıkarılmış addedilecektir.

8.4. İşbu Sözleşmenin maddelerinin kapsam ve hükümlerindeki herhangi bir değişiklik, tüm Taraflarca yazılı şekilde düzenlenip imzalanmadıkça, geçerli ve bağlayıcı olmayacaktır.

8.5. YÜKLENİCİ, ATIK ÜRETİCİSİ'nin önceden yazılı iznini almaksızın Hizmetler'in tamamını veya bir kısmını ve/veya işbu sözleşmeden doğan diğer yükümlülüklerini herhangi bir gerçek ve tüzel üçüncü bir şahsa devredemez ve bir başka gerçek ve tüzel üçüncü bir şahsı herhangi bir sebeple bu sözleşmede ve dolayısıyla ilgili yasal hükümlerde kayıtlı sorumluluklarına ortak edemez.

8.6. ATIK ÜRETİCİSİ' nin Sözleşmeden doğan bir hakkını/yetkisini açık veya örtülü, geçici veya daimi olarak kullanmaması, geç kullanması, eksik kullanması, ihtirazi kayıt ileri sürmeden ifayı ya da kısmi ifayı kabul etmesi, haklarından/yetkilerinden kısmen de olsa feragat ettiği anlamına gelmeyeceği gibi hakların/yetkilerin tek başına ya da kısmen kullanılması onun daha sonra tamamen kullanılmasını ve/veya başka hakların/yetkilerin kullanılmasını engellemeyeceğini YÜKLENİCİ peşinen kabul eder.

8.7. Taraflar, işbu Sözleşmede yazılı adreslerini yasal ikametgâh ve tebligat adresi olarak belirlemişler, sonraki adres değişikliklerinin diğer tarafa yazılı olarak bildirilmediği takdirde bu adreslere yapılacak her türlü tebligatın geçerli sayılacağını ve bu durumda tebligatların adrese ulaştığı tarihte kendilerine tebliğ edilmiş olacağını kabul etmişlerdir.

8.8. İşbu sözleşmenin uygulanmasından doğan uyuşmazlıklarda Ankara Batı Mahkemeleri'nin ve İcra Daireleri'nin yetkili olduğu Taraflarca kabul edilmiştir.,

8.9. İşbu sözleşme 8 (sekiz) maddeden ibaret olup .....tarihinde Taraflarca tek nüsha ve 4 (dört) sayfa olarak tanzim ve imza edilmiştir. Sözleşme ATIK ÜRETİCİSİ'nde kalacaktır.

YÜKLENİCİ
25.07.2023
MERT OĞULLARI GERİ DÖNÜŞÜM SAN. VE TİC. LTD. ŞTİ.

ATIK ÜRETİCİSİ
ASO 2. ve 3. OSB

T.C.
ANKARA VALİLİĞİ
Çevre ve Şehircilik İl Müdürlüğü

TEHLİKESİZ ATIKLAR TOPLAMA-AYIRMA BELGESİ

Belge No: 2020-81

İş bu Belge, 17.06.2011 tarih ve 27967 sayılı Resmi Gazetede yayımlanan Bazı Tehlikesiz Atıkların Geri Kazanımı Tebliği'nin 12.maddesinde ve 01/10/2013 tarih ve 28782 sayılı Resmi Gazetede yayımlanan Bazı Tehlikesiz Atıkların Geri Kazanımı Tebliğinde Değişiklik Yapılmasına Dair Tebliğ hükümlerine istinaden, ekli listede kodları belirtilen tehlikesiz atıklar için (28/10/2020–28/10/2025) tarihleri arasında 5 yıl süre ile geçerli olmak üzere Yakacık Mah. 3820 Cad. No:34 Yenimahalle/ANKARA adresinde faaliyet gösteren Mert Oğulları Geri Dönüşüm San. Ve Tic. Ltd.Şti.'ne verilmiştir.

Ali Vedat ÇİFTÇİ
Vali a.
Çevre ve Şehircilik İl Müdürü

EK: 2020/ 81 Nolu "Tehlikesiz Atık Toplama Ayırma Belgesi" için 28/10/2020 tarihinde verilmiş olup 28/10/2025 tarihine kadar geçerli olan atık kodları

02 01 04	Atık plastikler (ambalajlar hariç)
02 01 10	Atık Metal
11 05 01	Katı çinko
12 01 01	Demir metal çapakları ve talaşları
12 01 02	Demir metal toz ve parçacıklar
12 01 03	Demir dışı metal çapakları ve talaşları
12 01 04	Demir dışı metal toz ve parçacıklar
12 01 05	Plastik yonga lar ve çapaklar
12 01 13	Kaynak artıkları
12 01 21	12 01 20 dışındaki öğütme parçaları ve öğütme maddeleri
16 01 17	Demir metaller
16 01 18	Demir olmayan metaller
16 01 19	Plastik
17 02 03	Plastik
17 04 01	Bakır, bronz, pirinç
17 04 02	Alüminyum
17 04 03	Kurşun
17 04 04	Çinko
17 04 05	Demir ve çelik
17 04 06	Kalay
17 04 07	Karışık metaller
17 04 11	17 04 10 dışındaki kablolar
19 10 01	Demir ve çelik artıkları
19 10 02	Demir olmayan artıklar
19 12 02	Demir metali
19 12 03	Demir dışı metal
19 12 04	Plastik ve lastik
20 01 01	Kağıt Ve Karton
20 01 38	20 01 37 dışındaki ahşap
20 01 39	Plastikler
20 01 40	Metaller

T.C.
ANKARA VALİLİĞİ
Çevre Şehircilik İl Müdürlüğü

ÇEVRE İZİN VE LİSANS BELGESİ

Belge No	:	282929978.0.1
Başlangıç Tarihi	:	19.11.2021
Bitiş Tarihi	:	19.11.2026
Tesis Adı	:	MERT OĞULLARI GERİ DÖNÜŞÜM SANAYİ VE TİCARET LİMİTED ŞİRKETİ
Tesis Adresi	:	YAKACIK Mahallesi, 3820 CADDE, No: 34 -, YENİMAHALLE, ANKARA, Türkiye
İşletme Vergi No	:	6180725963
Çevre İzin ve Lisans Konusu	:	Ambalaj Atığı Toplama ve Ayırma Tip 1

Yukarıda adı ve açık adresi belirtilen tesise Çevre İzin ve Lisans Yönetmeliği kapsamında ÇEVRE İZİN VE LİSANS BELGESİ verilmiş olup 19.11.2021 tarihli ve 69415164-150/E.550 sayılı yazı ile birlikte geçerlidir. Ayrı kullanılmaz.

e-imzalıdır
Türkmen HACIHALİLOĞLU
İl Müdürü

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

TÜRKİYE CUMHURİYETİ
ÇEVRE, ŞEHİRCİLİK VE
İKLİM DEĞİŞİKLİĞİ BAKANLIĞI

SIFIR ATIK

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

SIFIR ATIK BELGESİ

(Temel Seviye)

Belge No: TS/6/C/20/90 Tarih: 12/04/2022

Adı: **MERT OĞULLARI GERİ DÖNÜŞÜM SANAYİ VE TİCARET LİMİTED ŞİRKETİ**
Adresi: **YAKACIK Mahallesi, 3820 CADDE, No: 34 -, YENİMAHALLE, ANKARA, Türkiye**
Vergi No: **6180725963**
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.

Türkmen HACIHALİLOĞLU
Çevre,Şehircilik ve İklim Değişikliği
İl Müdürü Vekili
E-İMZALIDIR

Belge Son Geçerlilik Tarihi:
12/04/2027

Bu belge, güvenli elektronik imza ile imzalanmıştır.

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ANNEX-18- APPROVED QUOTATION FOR WASTE SLUDGE DISPOSAL

Limak Anka Çimento

Limak

TEKLİF

Teklif Veren : Ünzüle GÜMÜŞ	**Firma/Yetkili** : ASO 2. ORGANİZE SAN. BÖLGESİ Sema KARA
Tel : 0 312 643 01 03 /3806	**Tel** : 0312 502 83 10
Fax : 0 312 643 01 10	**Mobil** : 0542 667 63 88
E-Mail : ugumus@limakcement.com	**E-Mail** : sema.kara@aso2osb.org.tr

Atıkların bertarafına / geri kazanımına ait fiyat teklifimiz tarafınıza aşağıda sunulmuştur.

ATIK KODU	AÇIKLAMA	BİRİM	MİKTAR	FİYAT	TUTAR	TESLİM
19 08 12	19 08 11 dışındaki endüstriyel atıksuyun biyolojik arıtılmasından kaynaklanan çamurlar	Ton	-	650,00 TL	-	-

Teslimat Şekli : Fabrikamız stok sahası

Ödeme Vadesi : Fatura + 15 Gün

Opsiyon : 2 İş Günü

Teklif Son Geçerlilik Tarihi : 30.06.2024

TOPLAM :

KDV % :

TOPLAM :

NOTLAR	FİRMA ONAY
* Birim fiyatlar KDV Hariç olarak verilmiştir.	E. Dilek DEMİR Çevre Yönetim Arıtma Müdürü ASO 2. VE 3. ORGANİZE SANAYİ BÖLGESİ Eskişehir yolu 42. km. Atıl OSB Mahallesi 2010 Cad. No:7 Temelli - Sincan / ANKARA Tel: 312 643 44 46 Fax: 312 641 10 40 Sincan Vergi Dairesi 002 034 1300 OSB Sicil No:2 www.aso2osb.org.tr
* Nakliye tarafınıza aittir.	

Limak Çimento San. Ve Tic. A.Ş
Anka Çimento Şubesi

Limak Çimento San. ve Tic. A.Ş. Anka Çimento Şubesi
Babayakup Mahallesi Babayakup Sokak 735 parsel No:82 PK: 06900 Polatlı / Ankara
Tel: 0 312 643 01 03 Fax: 0 312 643 01 10 www:limakcement.com.tr
Vergi D./Vergi No: Siirt / 770 001 4386
Halk Bankası Kurumsal Şube: TR98 0001 2009 4530 0010 2609 09

ANNEX-19- CONTACT INFORMATION AT NATIONAL LEVEL

Presidency's Communication Center: The Presidency's Communication Centre (CİMER) provides a centralized complaint system for Turkish citizens, legal persons and foreigners. CİMER only allow applications in Turkish.

Through CİMER, applicants can direct their requests directly to the relevant authorities. The requests submitted to CİMER are resolved within 30 days. If the applicants do not receive feedback within this period, they can re-submit their grievance to CİMER or elevate it to the Ombudsman Institution (www.ombudsman.gov.tr).

Webpage:	www.cimer.gov.tr/ www.turkiye.gov.tr/
Call Centre (hotline):	150
Phone number:	+90 312 590 20 00
Fax number:	+90 0312 473 64 94
Official Letter/Petition:	Republic of Türkiye, Directorate of Communications T.C. Cumhurbaşkanlığı Külliyesi 06560 Beştepe/ Ankara
Individual Application:	Community relations desks at governorates, ministries and district governorates.

CİMER will be available to Project stakeholders as an alternative and well-known channel for conveying their Project-related grievances and feedback directly to state authorities.

Foreigners Communication Center: The Foreigners Communication Center (YİMER) provides a centralized complaint system for foreigners. YİMER will be available to Project stakeholders as an alternative and well-known channel for conveying their Project-related grievances and feedback directly to state authorities.

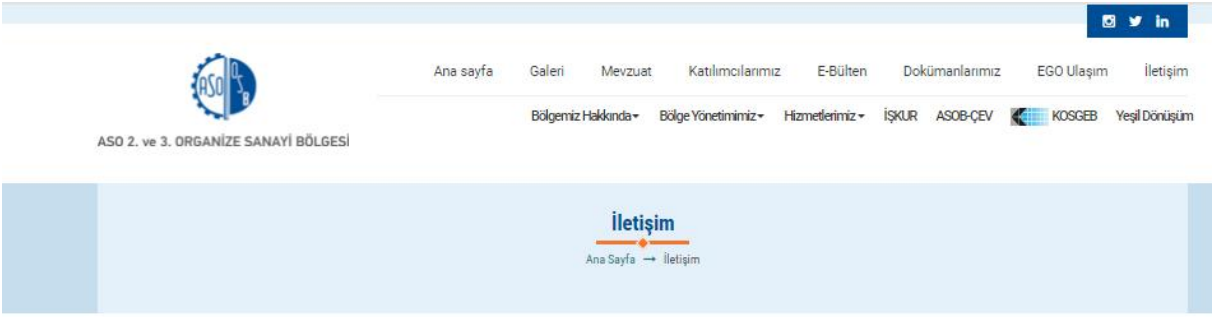
Webpage:	www.yimer.gov.tr
Email:	yimer@goc.gov.tr
Call Centre (hotline):	157
Phone number:	+90 312 515 11 22
Fax number:	+90 312 920 06 09
Official Letter/Petition:	Republic of Türkiye General Directorate of Migration Management, Çamlıca Mahallesi 122. Sokak No: 4 Yenimahalle/ Ankara
Individual Application:	Republic of Türkiye General Directorate of Migration Management

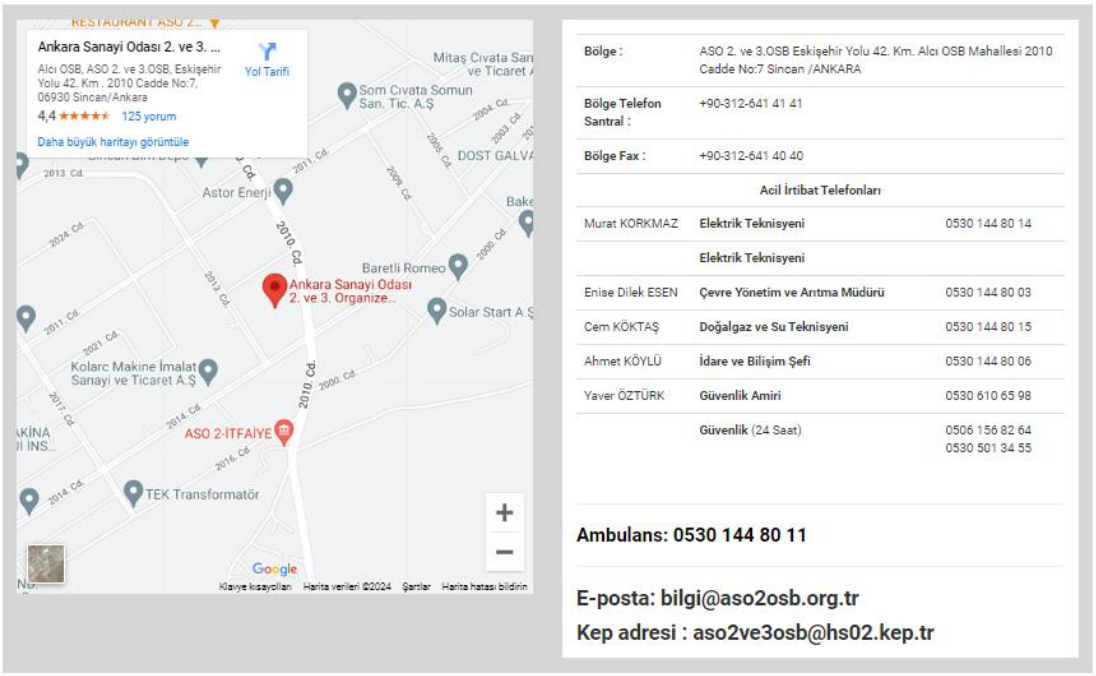
MoIT Level GM: All stakeholders can submit individual applications to the MoIT grievance mechanism established specifically for the Main Project via ways given below.

E-mail	info@sanayi.gov.tr dboneri@sanayi.gov.tr
Website	www.sanayi.gov.tr
Address	Mustafa Kemal Mahallesi Dumlupınar Bulvarı (Eskişehir Yolu 7.km) 2151. Cadde No:154/A 06530 Çankaya/ANKARA
Phone	444 6 100
Fax	+90 (312) 201 58 23

Project Level Contact Information

On the website of ASO 2nd and 3rd OIZ, there is a Contact page which is available in Turkish. The page includes information on email, phone number, mailing address and emergency contact phone numbers of ASO 2nd and 3rd OIZ.





ANNEX-20- CONTRIBUTORS

Name-Surname	Profession
Münire Selcen Ak	Environmental Engineer
Özdemir Uğural	Environmental Engineer
Bülent Taş	Geological Engineer
Tunca Ataoğlu	Civil Engineer, PEng, MSc, PMP
Sinem Otlu	Business Development, Analytics and Planing
Banu Ergin	Civil Engineer
Göze Doğu	Sociologist, Ph.D.