



Environmental and Social Management Plan (ESMP)

DRAFT ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

Prepared According to the World Bank Environmental and Social Standards

Project Owner	T. C. Ministry of Transport and Infrastructure General Directorate of Infrastructure Investments
Address	Hakkı Turaylıç Cad. No: 5 06338 Emek/Çankaya/ANKARA
Telephone and Fax Numbers	+90 (312) 203 10 00
Project Title	Filyos Port and Industrial Zone Railway Connection Project
Project Location	Zonguldak Province, Çaycuma District
Consultant	Çınar Engineering & Consultancy Inc.
Address	Bağlıca Mah. Çambayırı Cad. Çınar Plaza No: 66/5 06790 Etimesgut/ ANKARA 06460 Çankaya / ANKARA
Telephone and Fax Numbers	Phone: 0 (312) 472 38 39 Fax: 0 (312) 472 39 33
Report Submission Date	5/7/2020

TABLE OF CONTENT

List of Tables	2
List of Figures	2
Abbreviations and Definitions	3
1. Introduction	1
1.1. Purpose and Scope.....	2
1.2. Environmental and Social Management Plan Structure	3
2. Project Definition	4
3. Project Standards	6
3.1. National Environmental and Social Legislation.....	6
3.2. International Environmental and Social Standards	7
3.3. Corporate Commitment.....	9
4. Management Plans	10
5. Implementation of the Environmental and Social Management Plan.....	12
5.1. Organizational Structure	12
5.2. Roles and Responsibilities	14
5.3. Management of Change Process.....	15
5.3.1. The initial assessment of the Change.....	15
5.3.2. Coordination of the Change	15
5.3.3. Evaluation of the Change	15
5.3.4. Proceed Notification for the Change.....	16
5.3.5. Change Implementation	17
5.4. Stakeholder Engagement	17
5.5. Communication and Grievance Mechanism	18
5.6. 3 rd Party Environmental and Social Monitoring Activities	19
5.7. Monitoring, Reporting and Evaluation	20
6. Environmental and Social Mitigation Plan	21
7. Monitoring Plan	45
Annexes.....	57

List of Tables

Table 4-1: Environmental and Social Management Plans	10
Table 5-1: Roles and Responsibilities Regarding the Implementation of the ESMP	14
Table 5-2: Project Stakeholders	17
Table 6-1: Environmental and Social Mitigation Plan - Pre-Construction.....	21
Table 6-2: Environmental and Social Mitigation Plan - Land Preparation & Construction ..	24
Table 6-3: Environmental and Social Mitigation Plan - Operation	39
Table 7-1: Monitoring Plan	46

List of Figures

Figure 2-1: Settlements Located on the Project Route and Surrounding Area	5
---	---

Abbreviations and Definitions

GDII	General Directorate of Infrastructure Investments
BMP	Biodiversity Management Plan
CIMER	The Presidential Communication Center
CLO	Community Liaison Officer
CRF	Complaint register form
EHS	Environment, health and safety
EIA	Environmental Impact Assessment
ESCP	Environmental and Social Commitment Plan
ESIA	Environmental and Social Impact Assessment
ESIA Consultant	Çınar Engineering Consultancy Inc.
ESIRT	Environment and Social Incidence Response Toolkit
ESMP	Environmental and Social Management Plan
ESMS	Environmental and Social Management System
ESS	Environmental and Social Standards
Km	Kilometer
MCP	Management of Change Process
PIU	Project Implementation Unit
RAP	Resettlement Action Plan
RCA	Root Cause Analysis
SEP	Stakeholder Engagement Plan
TCDD	Republic of Turkey State Railways
MoTI	Ministry of Transport and Infrastructure

	Environmental and Social Management Plan (ESMP) DRAFT ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN	 Altyapı Yatırımları Genel Müdürlüğü
REPORT NO: CNR-ZNG-ESMP-001 Rev-00	Page 1 / 57	

1. Introduction

Filyos Port/Industrial Zone Connections Project (Project) is planned to be carried out by General Directorate of Infrastructure Investments (GDII) of the Ministry of Transport and Infrastructure (MOTI) in order to carry out the transportation and distribution of goods arriving at Filyos Port in a safe and cost effective way within the scope of Filyos Valley Project, which is planned to be built in Çaycuma District of Zonguldak province.

GDII is considering using international financing within the scope of the construction works of the Project. An Environmental and Social Impact Assessment (ESIA) study was carried out by Çınar Engineering Consultancy Inc. (“ÇINAR” or “ESIA Consultant”) between December 2019 and February 2020 to meet the environmental and social requirements of potential lenders. Within the scope of ESIA studies, ÇINAR has prepared an ESIA Package containing the following documents:

- Environmental and Social Impact Assessment (ESIA)
- Stakeholder Engagement Plan (SEP)
- Resettlement Action Plan (RAP)
- Environmental and Social Management Plan (ESMP)

In the ESIA process, the possible environmental and social risks and impacts arising from the Project have been assessed, and necessary measures have been identified to manage these impacts in accordance with national legislation, international standards and guidance documents, and through the adoption of good international industry practices. The ESIA Report consists of the following key components, each of which is described in detail:

- Description of the project
- Institutional and legal framework
- Environmental and social baseline
- Environmental and social impact assessment
- Analysis of alternatives
- Stakeholder engagement

Environmental and Social Management Plan (ESMP), which is one of the documents submitted within the scope of the ESIA package, describes the measures and controls developed in line with the mitigation hierarchy for the management of the impacts identified during the impact assessment process, determines the implementation schedule, roles and responsibilities, reporting and monitoring requirements. Each of the management plans included in the annexes of the ESMP, defines in detail the environmental and social mitigation measures and management controls to be implemented in order to ensure compliance with the Project Standards presented under ESIA Report on relevant environmental and social issues.

ESMP is a document that lives open to regular review and update due to changes in environmental and social conditions as the project progresses. GDII and all contractors / sub-contractors are responsible for the implementation of the ESMP and the general principles presented within the scope of the ESMP, as well as for the implementation of more detailed plans and procedures.

1.1. Purpose and Scope

The purpose of this ESMP is to provide management tools to be implemented to ensure compliance with the Project standards while reaching environmental and social objectives of the ESIA. It also provides the general framework for the Environmental and Social Management System (ESMS) planned to be implemented within the scope of the Project. In successful implementation of related management plans, ESMP not only defined legal and institutional requirements, but also roles and responsibilities of GDII and contractor/sub-contractors. The main objectives of the ESMP are to;

- To provide an overview of the environment, health and safety (EHS), socio-economic and cultural heritage policies, standards and legal legislation that the Project is obliged to comply with,
- Managing GDII and contractor staff. To provide guidance on how to manage EHS risks in the construction phase of the Project in compliance with EHS policies, standards and legal regulations and to ensure that Project commitments are fulfilled,
- To determine the roles and responsibilities of GDII and contractors to ensure compliance with EHS requirements during the construction phase of the project,
- To ensure that construction activities are properly checked to ensure that the Project is in compliance with EHS policies, standards and legal regulations;
- Ensure reporting systems are developed and streamlined to deliver EHS compliance performance;
- Enabling ongoing development and EHS compliance coverage.

ESMP sets out the approach planned by the Project, thus GDII and its consultants and contractors, to prevent or reduce the identified environmental and social impacts. Environmental and social management plans within the ESMP, covering the construction and commissioning phases, have been prepared to be updated in line with the changing conditions as the Project progresses and the outputs regarding the stakeholder engagement process. In the operational phase of the Project, if the conditions determined in the ESIA process differ, the risks and impacts arising from the Project will be re-evaluated. At this stage, a new ESMP may be prepared to manage the activities, adapted to the new conditions.

1.2. Environmental and Social Management Plan Structure

Environmental and social issues addressed in the ESMP are presented under the following chapters:

1. **Introduction**: Description of the process leading to preparation of the ESMP, purpose, scope and objectives of the Plan.
2. **Project Description**: Summary on Project activities, its duration and estimated cost.
3. **Project Standards**: National legislation, the World Bank and IFC standards, and guidelines, institutional commitment of GDII on its environmental and social responsibilities.
4. **Management Plans**: Framework and scope of the management plans provided in the Annexes of the ESMP.
5. **Implementation of the Environmental and Social Management Plan** Roles and responsibilities for the implementation of the Plan, stakeholder engagement process, grievance mechanism and reporting requirements.
6. **Environmental and Social Management Plan**: Mitigation measures to manage Project-related impacts, implementation plans, time frame and responsibilities.
7. **Monitoring Plan**: The general framework for environmental and social monitoring to monitor effectiveness of management controls, which will be detailed pre-construction.

	Environmental and Social Management Plan (ESMP) DRAFT ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN	 Altyapı Yatırımları Genel Müdürlüğü
REPORT NO: CNR-ZNG-ESMP-001 Rev-00	Page 4 / 57	

2. Project Definition

The Project route remains within the borders of the of Filyos Town, which is located in the Province of Zonguldak and Çaycuma district. The route begins from the northwest of Derecikören village and passes through the northeast of Gökçeler village, crossing the Filyos Creek and passing from the west of the village of Sazköy and ending to the south of this village. The Project will have a construction area of approximately 52.86 hectares. According to the land use/land cover data of the Ministry of Agriculture and Forestry, there are fallow-free dry land agricultural areas, residential areas, forests and river flood plains on the project route and construction site.

Within the scope of this project, there exist a highway connection and highway crossings. In this context, Highway Bridge is planned for highway junction and railway crossing in the north of Gökçeler Village. The Filyos Creek will be crossed via the bridge by railway and highway that are parallel to each other. After the bridge passage on Filyos Creek, highway will continue to the south moving downwards with reduced filling and the railway will over the bridge. Railway route moves in the west of Sazköy Village and ends at Industry Station (Figure 2-1).

The consolidation and expropriation of the lands corresponding to the railway and highway route planned within the scope of the Project will be conducted in accordance with the applicable laws and regulations. The main activities that will be conducted within the scope of the Project's land preparation and construction phase are as the following:

- Completion of topographic measurements, preparation of implementation projects and preparation and execution of expropriation plans
- Lose soil stripping and storage
- Highway connection and earthworks
- Construction of hydraulic structures (culverts, underpasses and overpasses, drainage pipes and ditches)
- Construction works of Filyos Creek Bridge
- Traffic signs, road markings, guardrail
- Construction of station area
- Installation of security systems such as lighting, emergency communication facilities, wire fences
- No new ETL will be needed for the project as it is planned to use the electricity which is currently obtained via ETLs of existing railway.

The construction of the Project railway route is planned to start at the the second half of 2021 and will take approximately 3 years. The construction is planned to be completed by 2024 and will be operated at the end of 2024.



Figure 2-1: Settlements Located on the Project Route and Surrounding Area

3. Project Standards

The Project will be carried out in accordance with the ESIA commitments according to the following national legislation and the requirements of international standards and guideline documents

- Turkish laws, regulations and other legal provisions regarding all environmental, health, safety, socio-economic, cultural heritage and biodiversity issues covered by ESIA
- World Bank Environmental and Social Standards (ESSs)
- IFC Performance Standards (PSs) and Guidance documents, where applicable,
- Corporate commitments in ESIA and other related documents

3.1. National Environmental and Social Legislation

Turkish Environmental Law, No. 2872, published in the Official Gazette No. 18132, dated August 11, 1983 explains basic principles that are necessary to protect the environment in line with sustainable environment and sustainable development goals. The Environmental Law provides a legal framework for the development of environmental regulations in accordance with national and international standards. Following its first publication date of 1983, various amendments have been made.

In addition to the Environmental Law and its associated regulations, detailed information on regulatory acts about pollution prevention and control, protection of the environment, and community health and safety are provided in the ESIA Report and within the scope of the management plans. Laws that are binding in implementation of the Project can be listed as the following:

- Agricultural Reform Law on Land Rearrangement in Irrigated Areas (No: 3083)
- Expropriation Law (No: 2942)
- Forestry Law (No: 6831)
- Groundwater Law (No: 167)
- Labor Law (No: 4857)
- Occupational Health and Safety Law (No: 6331)
- Law on Conservation of Cultural and Natural Assets (No: 2863)
- Law on Soil Conservation and Land Use (No: 5403)
- Mining Law (No: 3213)
- Municipality Law (No: 5393)
- National Parks Law (No: 2873)
- Pasture Law (No: 4342)
- Public Health Law (No: 1593)
- Settlement Law (No: 5543)
- Highway Traffic Law (No: 2918)
- Electricity Market Law (No: 6446)
- Energy Efficiency Law (No: 5627)

	Environmental and Social Management Plan (ESMP) DRAFT ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN	 Altyapı Yatırımları Genel Müdürlüğü
REPORT NO: CNR-ZNG-ESMP-001 Rev-00	Page 7 / 57	

3.2. International Environmental and Social Standards

Project standards have been established within the framework of the policies and procedures developed by the international financial institutions regarding the assessment and management of the environmental and social impacts of the projects they finance. The current environmental and social “Protective Policies” of the World Bank reveal the mechanism it sets out to address environmental and social issues during the project’s design, implementation and operational phases, and the framework it has established for communication with affected communities and stakeholders. The World Bank’s Environmental and Social Framework has been applied to all investment project financing since 2018. In order to better manage the environmental and social risks of the projects, the World Bank has determined the Environmental and Social Standards (ESS) that they have to meet as follows:

ESS1: Assessment and Management of Environmental and Social Risks and Impacts sets out responsibilities to assess, manage and monitor environmental and social risks and impacts associated with each phase of the project, supported by the World Bank with Investment Project Financing (IPF).

ESS2: Labor and Working Conditions, describes the importance of creating employment and income for comprehensive financial development and poverty reduction.

ESS3: Resource Efficiency and Pollution Prevention and Management, refers to resource efficiency and pollution prevention and pollution management requirements with a holistic approach in project implementation.

ESS4: Community Health and Safety, emphasizes health, safety and security risks and their impact on communities due to project activities.

ESS5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement requires avoiding compulsory resettlement, if not avoided, necessary measures should be taken to reduce negative effects on displaced people.

ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources requires conservation and preservation of natural resources living with biodiversity is essential in ensuring sustainable development.

ESS7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities encourages the development process of these communities to respect the human rights, identity, culture and lifestyles based on natural resources.

ESS8: Cultural Heritage states that cultural heritage provides continuity in concrete and abstract forms between past, present and future. Necessary measures should be taken to protect cultural heritage in the implementation of the projects.

ESS9: Financial Intermediaries was established to assess and manage environmental and social risks and impacts associated with project-related investments or subprojects. Good environmental and social management is promoted in the financing of financial intermediaries.

ESS10: Stakeholder Engagement and Information Disclosure emphasizes the importance of open and transparent participation between the client and stakeholders, and good international practice is an essential element. It contributes to projects in terms of effective stakeholder engagement, improving environmental and social sustainability, increasing project acceptance and successful project design.

The Environment, Health, and Safety (EHS) Guidelines of the World Bank Group have been prepared as reference documents containing general and industry-specific GIIP guidelines. The HSE Guidelines are acceptable for the World Bank Group and include the expected performance ratings and measures to be implemented by customers. Guidance documents that guide the evaluation and management of the environmental and social impacts of the project are listed below:

<i>Environmental, Health, and Safety Guidelines for Railways</i>	2007
<i>General Environmental, Health, and Safety Guidelines</i>	2007
<i>Environmental, Health, and Safety Guidelines for Construction Materials Extraction</i>	2007
<i>Environmental and Social Management System Implementation Manual: General</i>	2015
<i>Environmental and Social Management System Implementation Manual: Construction</i>	2014
<i>Contractor's Environmental and Social Performance Management Good Practice Rating</i>	2017
<i>Cumulative Impact Assessment and Management Good Practice Guide</i>	2013
<i>Introduction to Health Impact Assessment</i>	2009
<i>IFC and EBRD - Guide to Workers' Accommodation: Processes and Standards</i>	2009
<i>Good Practice Handbook on Using Security Forces</i>	2017
<i>Stakeholder Engagement Handbook</i>	2007
<i>Handbook on Project Migration Problems</i>	2009
<i>Good Practice Score on Complaints from Communities Affected by the Project</i>	2009

	Environmental and Social Management Plan (ESMP) DRAFT ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN	 <i>Altyapı Yatırımları Genel Müdürlüğü</i>
REPORT NO: CNR-ZNG-ESMP-001 Rev-00	Page 9 / 57	

3.3. Corporate Commitment

GDII is responsible for the implementation of all environmental and social plans in the ESMP and within its structure and ensuring the implementation of related mitigation measures and management controls by consultants / contractors. GDII is committed to providing the necessary institutional capacity and resource allocation for the implementation of the relevant plans. In line with the implementation of the ESMP, which has been prepared in accordance with the Turkish legislation and international standards, it will be acted in accordance with the Project standards, and in case of any inconsistency, necessary measures will be taken. The basic principles of GDII's environmental and social policy framework are as follows;

- Respect national culture and intercultural sensitivities and universal human rights and natural resources and contribute to environmental protection measures and improve the quality of life in areas where GDII operates,
- Adopting the concept of corporate social responsibility,
- To comply with the UN Declaration of Human Rights,
- To measure, evaluate and supervise E&S performance according to national standards, World Bank standards and industry best practices in order to ensure continuous development,
- Attaching great importance to maintaining an active and open dialogue with stakeholders in order to improve the corporate image and thus create trust between the GDII Organization and the Project Affected Communities, and
- Encouraging ethical business practice and good corporate image in the Project by ensuring that ESIA commitments are fulfilled as well as not only compensation and timely response to complaints.

4. Management Plans

The management plans prepared for the purpose of successfully implementing the ESMP and revealing the management controls of the risks and impacts related to all environmental and social issues addressed within the scope of ESIA are presented in Annexes. Each plan includes mitigation measures specific to the topics they are addressing and sets out the framework for other plans and procedures to be developed later in the Project. The general structure of the plans is as follows, depending on environmental and social issues:

- Purpose and Scope
- Objectives
- Roles and Responsibilities
- Legal Framework
- Mitigation Measures and Management Controls
- Training, Reporting and Monitoring

The management plans presented within the scope of ESMP and their contents are given in Table 4-1. Construction contractor(s) will develop and implement their own site specific sub-management plans as well. Similarly, TCDD will prepare their project specific sub-management plans prior to start of operation phase and implement them accordingly during the operational activities.

Table 4-1: Environmental and Social Management Plans

Management Plan	Scope
Construction Impacts Management Plan	It includes general measures to be taken during the land preparation and construction phases to manage the impacts of the Project activities and special measures to be implemented in line with the environmental component or the needs of the local people.
Community Health and Safety Management Plan	It determines the measures to be taken for the management of risks and impacts on the health and safety of the affected communities and the strategies to be applied to increase the awareness of the local people.
Community Relations Management Plan	It sets out the requirements for community relations activities that will be carried out in order to ensure the participation of local people, institutions and groups and other stakeholders that are likely to be affected by the project in the project processes.
Employment and Training Plan	It sets out the principles to be applied to maximize local employment, to make recruitment processes transparent, open to public and non-discriminatory.
Aggregate Management Plan	It includes the effects and mitigation measures resulting from the activities of providing aggregate material to be used in the construction of different components of the project.
Traffic (Transportation) Management Plan	It determines the framework of the management plans that the contractors will prepare to manage the risks associated with the increase in traffic load during the land preparation and construction stages.
Cultural Heritage Management Plan	It sets out effective plans and procedures to protect the archaeological and cultural heritage and to minimize Project impacts.
Pollution Prevention Plan	It outlines the actions taken to prevent or minimize air, water, noise and soil pollution during the implementation of the project.
Waste Management Plan	It includes identification of waste and waste management activities, including minimizing, recycling, collection, storage, treatment and disposal of waste that will occur during the land preparation, construction and operation phases of the project.
Emergency Preparedness and Response Plan	It defines the activities and procedures to be implemented for planned intervention in order to prevent emergencies during the construction and operation phases of the project or to minimize potential damages that may arise due to emergencies.
Biodiversity Management Plan	It aims at explicitly introducing the necessary measures and methods to manage possible impacts on biodiversity.

	Environmental and Social Management Plan (ESMP) DRAFT ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN	 <small>Altyapı Yatırımları Genel Müdürlüğü</small>
REPORT NO: CNR-ZNG-ESMP-001 Rev-00	Page 11 / 57	

Occupational Health and Safety Management Plan	It determines requirements for an adequate workplace environment by setting out necessities of the occupational health and safety in terms of risk assessment methodology, hazard prevention and site security.
--	---

If there are any alterations due to unforeseen reasons occur, Additional Environmental and Social Studies will be conducted and will be submitted for approval of GDII and WB. Necessary alterations on ESMP and Sub-management plans will be done as well.

After the locations of the construction sites, excavation waste storage areas and access roads are determined, GDII and WB will be informed, pre-construction surveys will be completed and additional Environmental and Social Studies will be conducted and will be submitted for approval of GDII and WB. Necessary alterations on ESMP and Sub-management plans will be done as well.

Blasting is a possibility that contractor might consider during construction. If location of the blasting, amount and type of the explosives and timeframe of the blasting is known assessment on air quality noise and vibration will be done and pollution prevention plan will be revised.

A logistics study will be conducted before construction for excavation waste areas, camp sites and access roads. According to the results of this study, necessary alterations on ESMP and Sub-management plans will be done as well.

After any alteration in ESMP or in any management plan, revised document will be submitted to GDII and WB for approval.

5. Implementation of the Environmental and Social Management Plan

The EMSP will be implemented with an adaptive management approach to respond to changes occurring at different stages of the Project and, as a living document, will be updated to reflect the current status of the Project and site features and management requirements when necessary.

GDII is obliged to implement the ESMP with adequate and qualified personnel working under an appropriate organizational structure, in line with Project standards, in line with stakeholder participation and information sharing requirements, and to ensure that contractors / subcontractors adopt management controls.

5.1. Organizational Structure

GDII is a public institution affiliated to the Ministry of Transport and Infrastructure with a special budget for finance. To prepare and approve the plans and projects of railways, logistic villages, centers or bases, ports, shelters, coastal structures, airports to be built by the state and to construct and / or have these transportation infrastructures handed over are among the roles and responsibilities of GDII. Filyos Port and Industrial Zone Railway - Railway Connection Line Project will be handed over to Republic of Turkey State Railways General Directorate after the completion of construction.

With the Project Implementation Unit (PIU) established within GDII, the Construction Contractor, who will be responsible for the preparation of the land preparation and construction works within the scope of the Project, will be able to manage environmental and social issues and natural resources within the scope of the ESMP, by taking consultancy both from within its organizational structures and by obtaining consultancy from outside. The Contractor undertakes to receive consultancy service from the experts on the following subjects regarding the implementation of the management controls determined within the scope of the ESMP, when necessary:

- Environmental Experts
- Cultural Heritage Specialists
- Ecological / Biological Experts
- Soil / Landscape Experts
- Social / Public Relations Specialists
- Environmental and Social Trainers

The Contractor will be responsible for all of its staff (including contractor and subcontractor staff) to have E&S responsibility awareness to ensure that E&S requirements are implemented smoothly on site.

A Design & Supervision Consultant will be contracted by GDII and they will be responsible from reviewing the final design of the project including the engineering structures, conducting necessary additional environmental and social studies such as environmental and social assessment of other project components (access roads, borrow pits etc.) which could not be assessed in the scope of ESIA since the layout and design of these facilities were not determined, biodiversity site surveys, preparation of expropriation plans etc. before the start of construction activities.

The ESMS structure to be executed by GDII and the Construction Contractor will be managed with the organizational structure defined in Figure 5-1.



Figure 5-1: ESMS Organizational Structure

After the Project construction is completed, it will be handed over to the Republic of Turkey State Railways (TCDD) General Directorate. TCDD General Directorate will establish its own ESMS system and will include the Project in its environmental and social management system within the scope of railway management.

5.2. Roles and Responsibilities

As the project owner, it is the responsibility of GDII to manage the environmental and social issues of the project and to ensure that the necessary mechanisms are developed and implemented by the Contractor. A framework regarding the roles and responsibilities of GDII PIU and the Construction Contractor is presented in Table 5-1.

Table 5-1: Roles and Responsibilities Regarding the Implementation of the ESMP

GDII PIU
<ul style="list-style-type: none"> ✓ <i>Implementation of ESMP and related management plans and fulfillment of all commitments within the scope of ESCPP</i> ✓ <i>Sharing the ESMP and management plans with the Contractor, guiding the Contractor in preparing the implementation plans, approving these plans</i> ✓ <i>Updating the ESMP when necessary and sharing additional commitments with the Contractor</i> ✓ <i>Employment of competent EHS staff and external experts to work under the project</i> ✓ <i>Providing HSE trainings to all Project staff</i> ✓ <i>Environmental review, monitoring and audits related to ESMP practices, evaluation of results</i> ✓ <i>Auditing contractor activities in line with ESMP requirements</i> ✓ <i>Ensuring compliance with project standards, making necessary emergency corrections in case of non-compliance.</i> ✓ <i>Stopping work in any situation that threatens environment and human health and safety</i> ✓ <i>Providing follow-up and analysis of environmental and social accidents</i> ✓ <i>Ensuring stakeholder participation, implementing the grievance mechanism, ensuring continuous information transfer through open communication</i> ✓ <i>Promptly notify the Bank 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 or workers including but not limited to; incidents and accidents encountered during construction works, environmental spills, etc.</i> ✓ <i>Provide sufficient detail regarding the incident or accident, findings of the Root Cause Analysis (RCA), indicating immediate measures or corrective actions taken or that are planned to be taken to address it, compensation paid, and any information provided by any contractor and supervision consultant, as appropriate. Ensure the incident report is in line with the World Bank's Environment and Social Incidence Response Toolkit (ESIRT).</i> ✓ <i>Subsequently, as per the Bank's request, prepare a report on the incident or accident and propose any measures to prevent its recurrence.</i>
Construction Contractor
<ul style="list-style-type: none"> ✓ <i>Fulfillment of all requirements of the ESMP and management plans</i> ✓ <i>Implementation of additional commitments determined by GDII</i> ✓ <i>Ensuring compliance with project standards, obtaining all relevant permits and licenses</i> ✓ <i>Monitoring construction activities (including subcontractor activities) and taking measures within the scope of the ESMP</i> ✓ <i>Development of implementation and monitoring plans / procedures in line with the ESMP structure, implementation after the approval of GDII</i> ✓ <i>Employment of competent EHS staff within the scope of the project</i> ✓ <i>Providing the necessary trainings to the contractor and sub-contractor staff on environmental and social issues</i> ✓ <i>Providing follow-up and analysis of environmental and social accidents</i> ✓ <i>Environmental inspections, monitoring and audits related to ESMP practices, reporting to GDII</i> ✓ <i>Prompt notification of accident and incidents and keeping an incident register at construction site throughout the Project life.</i>

5.3. Management of Change Process

The Project changes and the changes in key control documents which impact the conditions and commitments stated in ESIA are subject to the management of change process.

This management of change process is applied when:

- Engineering/Design changes
- Route/location changes
- Applicable legislation changes related to environmental issues
- Authority provision changes
- Any new environmental/social data is introduced
- Construction/operation strategy changes
- Stakeholders influence the project

The Facilitator of the Change who is any person within the Project Implementation unit (PIU) at GDII, which shall be responsible for the coordination of the actions and assessments of a deviation from scope of works ensures that the Environmental and Social Impact Assessment Specialist in the PIU is informed of any change, as specified above, which could have a potential environmental and social impacts.

5.3.1. The initial assessment of the Change

Prior to the implementation of the proposed change, the Facilitator of the Change, together with relevant technical experts assesses the potential impacts of the proposed change.

The Management of Change Process Form (MCP Form) given in Annex 13, is used to specifically describe potential environmental issues associated with the proposed change. If the potential environmental issues are identified from this process, the Project Director shall be notified by delivering the MCP data for evaluation.

5.3.2. Coordination of the Change

Subsequently after the MCP data is received from the Facilitator of the Change, Project Director coordinates with the Environmental and Social Impact Assessment Specialist and Community Liaison Specialist and Stakeholder Management Specialist. Community Liaison Officer Specialist and Stakeholder Management Specialist review the MCP data and advises whether a stakeholder consultation and/or new mitigations are required with respect to the change.

Project Director ensures that the feedback of Environmental and Social Impact Assessment Specialist and Community Liaison Specialist and Stakeholder Management Specialist are reflected in MCP form and delivered to the Facilitator of the Change together with the evaluation results of Environmental and Social Impact Assessment Specialist and Community Liaison Specialist and Stakeholder Management Specialist.

5.3.3. Evaluation of the Change

The Project Director ensures that any potential environmental and social impacts associated with the change which are not within the scope of ESIA studies are evaluated using the similar impact assessment methodology used in the ESIA. If a significant environmental or social impact is determined, the Project Director will:

	Environmental and Social Management Plan (ESMP) DRAFT ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN	 <small>Altyapı Yatırımları Genel Müdürlüğü</small>
REPORT NO: CNR-ZNG-ESMP-001 Rev-00	Page 16 / 57	

- Identify whether the change requires an "EIA", or preparation of an "Project Description File" is required by Ministry of Environment and Urbanization;
- Identify the environmental standards and objectives to be attained;
- Outline the way that the environmental and social impacts are managed and mitigated e.g., physical controls or the development of additional management systems i.e., environmental guidelines, procedures or training requirements;
- Detail the required human and financial resources;
- Document and communicate the above in the MCP data form, for the evaluation of this data by the "Facilitator of the Change".

The changes associated with Route and Facility Location

If the change is associated with the route or site facility change then the Facilitator of the Change subsequently notifies the Project Director (e.g. by MCP form in Annex 13). Project Director ensures that environmental and social assessment studies as well as the official process are initiated. The Environmental and Social Impact Assessment Specialist checks whether the change requires an additional environmental permit and/or approval.

The changes associated with Design

If the change is associated with the engineering or design development, the Facilitator of the Change identifies what type of new aspects such as new emission types, changes in noise, vibration levels, energy consumption etc. are expected due to such changes and reports in MCP data form. The MCP form in Annex 13 will be used for such an evaluation. The findings then are forwarded to Project Director. Project Director starts environmental and social assessment studies if a new aspect is identified. The Environmental and Social Impact Assessment Specialist checks whether the change requires an additional environmental permit and/or approval.

The changes associated with Authority Provision and Legislation

If the change is due to a change in Construction/Operation Execution Strategy (e.g. need for blasting, intermittent operation) or a Management Strategy (e.g. change of organization, resources), then the Project Director ensures that the new strategy is evaluated and identifies if additional studies, assessments or mitigations are required and, if required, starts the environmental and social assessment studies accordingly.

The changes associated with Stakeholder Influence

If the change is due to any new environmental and social data obtained through the implementation of Stakeholder Engagement Plan, the Project Director ensures that the new data is evaluated and identify if the change impacts the outcomes of the current studies and assessments. Project Director ensures that environmental and social assessment studies are implemented if required.

5.3.4. Proceed Notification for the Change

The MCP data form evaluated and completed by Environmental and Social Impact Assessment Specialist (in coordination with Community Liaison Specialist and Stakeholder Management Specialist) will be reviewed by the Facilitator of the Change, and advice shall be given, if the change is feasible, to proceed with the defined actions. Upon receipt of proceed notification, these specialists shall act accordingly and start environmental and

social assessment studies, public consultation, permitting processes or other actions required for implementation of the change.

5.3.5. Change Implementation

The Project Director reviews progress against implementation of the proposed change, as required, to verify that the environmental considerations have been fully addressed and environmental and social assessment studies, public consultation, permitting processes are completed as necessary and necessary revisions are performed in the ESMP and sub-management plans.

5.4. Stakeholder Engagement

Stakeholder engagement, one of the basic principles of the ESMS, is one of the most important tools for the implementation of the ESMP. It provides a better understanding of the conditions in the project area and the concerns of stakeholders. It is also essential to ensure the effectiveness of the mitigation measures developed under the ESMP. The Stakeholder Engagement Plan (SEP) presented within the scope of the ESIA Package has been prepared in order to meet the Project standards by considering the following basic objectives:

- Identification of stakeholders directly or indirectly affected by the project or interested in the Project
- Identification and planning of stakeholder engagement activities that will start at the preparation and planning stages of the project and continue during the construction and operation phases.
- Determining the frequency of stakeholder engagement activities, information sharing and degree of participation, content of consultation activities
- Establishing a Grievance Mechanism that will provide an open communication channel for stakeholders at every stage of the project
- Addressing concerns and expectations communicated by stakeholders in the Stakeholder Engagement Plan, ESMP and Project decision-making and planning stages.

The list of stakeholders determined within the scope of the SEP, which can be updated as the Project progresses, is presented in Table 5-2.

Table 5-2: Project Stakeholders

Stakeholder Groups	Project Stakeholders
Public institutions and organizations	<ul style="list-style-type: none"> ✓ Ministry of Transport and Infrastructure ✓ Ministry of Agriculture and Forestry ✓ Ministry of Culture and Tourism ✓ Ministry of Industry and Technology
Local administrations and institutions	<ul style="list-style-type: none"> ✓ Çaycuma Municipality ✓ Filyos Municipality ✓ Çaycuma District Agriculture and Forestry Directorate ✓ Provincial Directorate of Culture and Tourism
Interest groups; universities and related foundations, cooperatives, local businesses, business associations, chambers of commerce and others	<ul style="list-style-type: none"> ✓ Tosyalı Holding operating Filyos Industrial Zone ✓ Çaycuma Agricultural Credit Cooperative No. 2958 ✓ Köy-Koop Çaycuma Branch Office
Settlements close to the project route	<ul style="list-style-type: none"> ✓ Sazköy, Gökçeler, Derecikören, Aşağıhsaniye, Sefercik and Öteyüz

Stakeholder Groups	Project Stakeholders
Project Affected People	<ul style="list-style-type: none"> ✓ Land owners and official / informal users of private, public, government, treasury lands, official / informal owners of immovable assets in other affected lands ✓ Unorganized interest groups or vulnerable groups ✓ Shepherds and other users using pasture and forest areas affected by the project ✓ Employees of GDII and its contractors

Details of the project's approach to stakeholder engagement, the methods applied, and the stakeholder engagement activities that have been done and planned to be carried out so far are included in the scope of the SEP. GDII will ensure coordination with all Project employees, including Contractor firm staff and external consultants responsible for the implementation of the SEP. The SEP will be updated regularly and outputs and corrective actions related to the process will be reflected in the updated versions of the ESMP.

5.5. Communication and Grievance Mechanism

One of the main requirements of the ESMP is to implement an effective mechanism to be recorded and shared in environmental and social issues. The basic principles of effective communication methods with the Grievance Mechanism in question, detailed in the SEP, are as follows:

- Accurate recording and protection of all information obtained during the implementation of the ESMP
- Sharing the information about the progress and monitoring of the project with stakeholders and all interest groups, evaluating the information for the preparation of periodic reports.
- Appoint a public relations officer responsible for public relations, handling of internal and external complaints, recording oral complaints and filling in relevant forms.
- Sharing information on the functioning of the Grievance Mechanism with affected communities as part of stakeholder engagement activities.

The project's grievance mechanism and the rights of affected communities to receive information about the Project and to convey their complaints / thoughts are guaranteed by the Information Acquisition Act. The Presidential Communication Center (CIMER) provides a direct communication system that all stakeholders can use. GDII will ensure the establishment of a local grievance mechanism, both within the Directorate General and by the Construction Contractor, to deal with complaints in a timely and effective manner.

CIMER system enables stakeholders to communicate directly with GDII, but a separate system will be established for the project in which the stakeholders can receive their responses locally and communicate their complaints. This local grievance system will be established within the body of GDII, implemented and followed by both GDII PIU and Contractors during construction, operation and decommissioning/closure phases, which will be more easily accessible for stakeholders and will encourage them to voice their complaints.

Recording and follow up of grievances (including environmental issues) will be the primary responsibilities of the GDII PIU. GDII PIU will have personnel assigned for the grievance management process both on site and on Headquarters. Social Specialist on Headquarters

	Environmental and Social Management Plan (ESMP) DRAFT ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN	 <small>Altyapı Yatırımları Genel Müdürlüğü</small>
REPORT NO: CNR-ZNG-ESMP-001 Rev-00	Page 19 / 57	

and Community Liaison Officer (CLO) on site will be primarily responsible for grievance management as well as Contractors' social staff. GDII will regulate the contractual agreements with Contractor to ensure that they have a CLO on site who will be responsible for recording and follow up of grievances on site office. These assigned staff will follow the Grievance Redress Mechanism established to record and resolve all complaints from the stakeholders and follow up corrective actions taken. Contact information will be provided via Project website, through public information meetings, consultation meetings and Project brochures to raise awareness and offer transparency of how stakeholders can voice their grievances. Various channels for stakeholders to vocalize their grievances formally include:

- Face to face (Stakeholders can voice their grievance to assigned personnel of Contractor and/or GDII at site office)
- Complaint register form (CRF) (Stakeholders can fill the forms that will be distributed to them in advance to voice their grievances)
- Telephone (Stakeholders can call GDII on (0312) 203 10 00 and request to speak to contact person: Güzide SAYIN [or directly call on 0312 203 17 96])
- Email (Grievances can be sent to GDIIlozelkalem@MoTI.gov.tr)

Online application (Stakeholders can fill the forms online at the <https://aygm.uab.gov.tr/>)

5.6. 3rd Party Environmental and Social Monitoring Activities

The ESMP of the Project includes a series of management plans and mitigation measures to minimize the potential negative impacts before, during and after operational period of the Project. GDII, Construction Contractor and Design and Supervision Consultant are responsible for ensuring that the relevant measures are implemented during pre-construction and construction phase.

3rd Party Environmental and Social Monitoring Consultant will provide GDII with an independent third party environmental and social monitoring services to ensure that all site construction activities are efficiently monitored, non-conformities versus the ESIA obligations are detected and managerial decisions are developed adequately to mitigate these deficiencies, and give recommendations to overcome the identified deficiencies.

Environmental and social monitoring studies are the main part of the project management in relation to the context of the sustainable development. These studies determine the possible environmental and social effects of the project and suggest necessary mitigation measures to prevent environmental pollution.

In relation to the ESMP, the documents given in the ESMP Report will be the main but not the only documents that will be used by 3rd Party Environmental and Social Monitoring Consultant during the monitoring studies.

The Context of the monitoring studies will cover all of the ESIA Report, Resettlement Action Plan, its appendices and any other additional documents that were referenced within the ESIA report. The construction works conducted by the Contractor, should take all mitigation measures stated in the ESIA Report.

As a result of that it could be stated that the GDII, Construction Contractor and Design and Supervision Consultant will fulfill all the obligations stated in the ESIA Report, finally 3rd Party Environmental and Social Monitoring Consultant will monitor the environmental

activities of the Contractors in the light of ESIA Report and ESMP. In any types of conflicts that might arise during the services conducted, ESIA Report will be the guide.

5.7. Monitoring, Reporting and Evaluation

Regular internal audits and environmental and social monitoring will be carried out by GDII and the Contractor in order to evaluate the performance of the ESMP, as described in the ESIA Report, ESMP and related Management Plans. In line with the general framework of audits and monitoring, the following issues should be controlled:

- Implementation of environmental and social management plans and Contractor implementation plans by all personnel,
- Ensuring compliance with the national legislation, the World Bank and IFC standards and guidelines, which form the project standards, and
- Project activities are carried out in a way that meets ESCP commitments and ESMP objectives.

GDII PIU and the Contractor are obliged to carry out the relevant reporting by conducting the internal monitoring/audit activities required by the Project activities they perform. Weekly, monthly and quarterly follow-up reports, which will be prepared following daily inspection and monitoring activities in all project areas during the construction phase, will be submitted to GDII. In addition, Environmental and Social Monitoring reports will be prepared twice a year regarding the work carried out by the 3rd Party Environmental and Social Monitoring Consultant and relevant experts, and the World Bank will be informed about the operation of the Project and the management of environmental and social issues. The framework of the Environmental and social monitoring program, which will be detailed with additional works before construction, is given in Chapter 7.

6. Environmental and Social Mitigation Plan

This section describes the relevant environmental and social risks identified during the ESIA process of the Project. Since ESMP needs to serve as an active tool, additional risks identified during project implementation will be included as defined.

Table 6-1: Environmental and Social Mitigation Plan - Pre-Construction

Impact Description	Mitigation Measures	Implementation Plan	Responsibility	Cost
Land Use, Soils and Geology				
Impacts on arable lands	<ul style="list-style-type: none"> Resettlement Action Plan (RAP) will be implemented. GDII, as the main land rights authority will implement the RAP and compensate the affected land users in accordance with the RAP. GDII will ensure that land access will not be granted to contractor without necessary compensation is provided (either paid or booked under the name of the user). A grievance mechanism will be established to ensure any complaints/comments regarding the Project will be received and responded in a timely manner, providing solutions and taking corrective measures as appropriate. 	Resettlement Action Plan Stakeholder Engagement Plan	GDII	Included in RAP budget Included in Stakeholder Engagement Plan Budget: USD 320,000
Impacts on Pastures	<ul style="list-style-type: none"> A grievance mechanism will be established to ensure any complaints/comments regarding the Project will be received and responded in a timely manner, providing solutions and taking corrective measures as appropriate. 	Resettlement Action Plan Stakeholder Engagement Plan	GDII	
Seismicity	<ul style="list-style-type: none"> All structures like foundation, culverts etc. within the project will be designed and constructed as per high earthquake resistance parameters. 	Emergency Preparedness and Response Plan	GDII, Design and Supervision Consultant	Included in Design and Supervision Consultancy services: USD 500,000
Noise & Vibration				
Increase in noise levels and vibration	<ul style="list-style-type: none"> A grievance mechanism will be established to ensure any complaints/comments regarding the Project will be received and responded in a timely manner, providing solutions and taking corrective measures as appropriate. 	Construction Impacts Management Plan Pollution Prevention Plan Waste Management Plan Traffic (Transportation) Management Plan	GDII	Included in Stakeholder Engagement Plan Budget

Impact Description	Mitigation Measures	Implementation Plan	Responsibility	Cost
		Stakeholder Engagement Plan		
Air Quality				
Decrease in Air Quality	A grievance mechanism will be established to ensure any complaints/comments regarding the Project will be received and responded in a timely manner, providing solutions and taking corrective measures as appropriate.	Construction Impacts Management Plan Pollution Prevention Plan Stakeholder Engagement Plan	GDII	Included in Stakeholder Engagement Plan Budget
Biodiversity				
Habitat loss / fragmentation	<ul style="list-style-type: none"> Pre-construction surveys will be conducted on both sides of the route prior to finalization of the detailed design in an appropriate season, from April through June, to gather additional information on species (especially on those that are of high conservation concern) and habitat composition of the Biodiversity Study Area. Species-specific strategies will be developed and implemented within the scope of the Biodiversity Management Plan (BMP). If more data become available during additional surveys to be conducted prior to the finalization of the detailed design in Spring-Summer, the Critical Habitat Assessment will be updated and required actions will be taken within the scope of the ESMP. Nesting areas for fauna species will be identified through pre-construction surveys, and experts will be consulted if nests are to be displaced. Surveys targeting bird species will be conducted during migration and breeding seasons to provide further information on habitat use, breeding status and flight routes of target species prior to the finalization of the detailed design. For <i>Lutra lutra</i>, presence of its population will be confirmed and habitat preferences will also be identified prior to the finalization of the detailed design. 	Biodiversity Management Plan	GDII, Design and Supervision Consultant	Additional study on biodiversity pre-construction surveys: USD 350,000
Cultural Heritage				
Cultural Heritage	<ul style="list-style-type: none"> The registered “Sazköy 3rd Degree Archaeological Site” is located on the Railway Dock Connection (0+150 - 0+390 KP) and the planned Railway Ferry Connection (between 0+500 - 0+940 KP). The re-routing/realignment of Filyos Railway Dock and Ferry Link route will be considered to avoid impacts on the registered site in the design review stage. If such a revision is not possible the positive consent of Karabük Cultural Heritage Preservation Regional Board will be taken regarding the registered cultural asset and test pit and salvage excavations will be planned in the areas where the railway route cuts the site, and to implement them before the construction period. For all kinds of projects, revisions and similar applications to be done in Sazköy 3rd Degree Archeological Site and its surroundings, it is necessary to consult the Karabük Cultural Heritage Preservation Regional Board as 	Cultural Heritage Management Plan	GDII, Design and Supervision Consultant	Included in Design and Supervision Consultancy services: USD 500,000

Impact Description	Mitigation Measures	Implementation Plan	Responsibility	Cost
	<p>dictated by the law numbered 2863, and the decisions of the preservation committee should be followed at all phases of the project.</p> <ul style="list-style-type: none"> Starting from the design phase of the project for any project revision and similar applications to be carried out in Öteyüz Mahallesi 1st and 3rd Degree Archeological Site and its surroundings, the Karabük Cultural Heritage Conservation Regional Board will be consulted, and the decisions of the conservation board made will be followed at all phases of the Project as dictated by the Law No. 2863. The plans and projects of all kinds of construction activities planned to be carried out near the Ancient City of Tios and Tios Necropolis Area will be submitted to the Karabük Cultural Heritage Conservation Regional Board under the Law No. 2863, and the opinion of the official institution will be consulted. The decisions to be taken by the protection board will be followed at all stages of the project. 			
Socio-Economic Environment				
Physical and Economic Displacement	<ul style="list-style-type: none"> Land acquisition of the project will be in accordance with national laws and in the event of gaps between WB ESS5, the necessary measures to close these gaps will be determined within the scope of the RAP. When displacement cannot be avoided, appropriate compensation for loss of assets will be provided through project-specific measures to be developed for displaced communities and individuals. These forms of compensation will be planned within the scope of RAP. Impacts on public pasture lands reserved for these activities will also have an impact on livelihoods. For this reason, these areas should also be taken into consideration in compensating losses and will therefore be covered by RAP. Permanent limitation of both the connections between the villages and the lands used and the possibilities of transition from one part of the divided land to another may result in additional costs. To prevent this, safe and appropriate crossing points should be determined in consultation with stakeholders. Consultations within the scope of the SEP and the sound operation of the grievance mechanism are also of great importance in the good management of the impacts on land, other assets, and hence the economic structure. 	Resettlement Action Plan Stakeholder Engagement Plan Community Relations Plan	GDII Design and Supervision Consultant	Included in RAP Budget

Table 6-2: Environmental and Social Mitigation Plan - Land Preparation & Construction

Impact Description	Mitigation Measures	Implementation Plan	Responsibility	Cost
Land Use, Soils and Geology				
Impacts on arable lands	<ul style="list-style-type: none"> Land preparation and construction works will be conducted at designated sites that will be visibly and appropriately marked. Training will be provided to the construction personnel so that they maintain the pre-established construction boundaries. Implement Project Grievance Mechanism. If any comment related with arable lands is received through the Grievance Mechanism, evaluate the complaint and where necessary plan and implement corrective actions. Contractor will ensure that necessary corrective measures are taken from its own budget, in case of direct or indirect damage to adjacent properties that are state-owned or private property due to project-related activities. 	Resettlement Action Plan Stakeholder Engagement Plan	Contractor	Included in Stakeholder Engagement Plan Budget: USD 320,000 and RAP Budget Additional Training Cost: USD 10,000
Impacts on Pastures	<ul style="list-style-type: none"> Agricultural / meadow underpasses and culverts will be present or constructed on the entire Project route to reduce fragmentation impacts. Land preparation and construction activities will be carried out in designated areas that will be visible and properly marked. Trainings will be provided to the personnel working in the construction, and they will be ensured to stay within the construction limits already determined. A grievance mechanism will be established to ensure any complaints/comments regarding the Project will be received and responded in a timely manner, providing solutions and taking corrective measures as appropriate. Trainings and information sharing with community members who are using pasture land during land preparation before construction. In case of direct or indirect damage to adjacent properties that are state or private property due to the activities related to the project, Contractor will ensure that necessary corrective measures are taken from either its own budget or Contractor's budget. 	Resettlement Action Plan Stakeholder Engagement Plan Community Relations Management Plan	Contractor	
Topsoil stripping	<ul style="list-style-type: none"> Regulation on the Control of Excavation Soil, Construction and Demolition Wastes (Amended with Regulation on the Landfill of Wastes published in Official Gazette No. 27533 dated 26.03.2010) provisions will be complied. Topsoil that is stripped will be temporarily stored in the areas to be determined within the scope of the project, with a slope of not more than 5% according to provisions of Regulation on the Control of Excavation Soil, Construction and Demolition Wastes published in Official Gazette No. 25406 dated 18.03.2004 The losses that may occur during the storage of topsoil will be prevented and the quality of the soil will be preserved. Topsoil temporary storage areas will be established so that the height of the bulk material does not exceed 5 meters and is not affected by vehicle movements. In this context, 	Construction Impacts Management Plan Waste Management Plan	Contractor	Assignment of a Soil Expert at site: USD 85,000

Impact Description	Mitigation Measures	Implementation Plan	Responsibility	Cost
	<p>marking will be done around these areas and control and monitoring works will be carried out at certain intervals. If the topsoil will be exposed for a long time, its surface will be covered with fast growing plants.</p> <ul style="list-style-type: none"> • With the stripping of the topsoil, the filling of the filling areas will be carried out in parallel and temporary storage of the topsoil will be provided for a short time. • In addition, temporarily stored topsoil can also be used in the landscaping activities to be made around the project area by Zonguldak Municipality or other relevant public institutions if needed. 			
Soil Erosion	<ul style="list-style-type: none"> • Provide drainage at topsoil storage areas by open channels. • If storage of topsoil will last longer than three months, plant upper part of fertile soil temporarily so that the organic content is conserved. Select proper species and seed mixture ratios. • Apply organic or inorganic materials on the topsoil to improve quality and avoid erosion, desiccation or invasion of wild species. • Reuse topsoil stored at suitable conditions for the rehabilitation of temporary construction sites after the completion of construction activities, for the finalization of side slopes and in landscape activities. • Loosen topsoil to a depth of 15 cm before reinstatement (Increase depth of loosening up to 40-50 cm for compact heavy clay soils) • Keep depth of topsoil for areas to be planted suitable for side slopes, shrub plantation areas, tree roots etc. • Conduct grading operation in line with the natural slope and drainage conditions following the reinstatement of topsoil. • Before the onset of land preparation and construction works, erosion control measures like drainage channels, settling structures, etc. will be implemented. • In order to eliminate the risk of erosion in periods of excessive rainfall, the waters from the project surroundings and slopes will be separated from surface run-off by directing through temporary channels and soil embankments. • Erosion control measures will be implemented following the completion of excavation works, also at the culvert outlets, and slopes will be improved • Around the excavated material stored at designated storage sites, dikes will be established to prevent loss of soil. • All of the disturbed sites will be restored to the most possible extent in a timely manner following the completion of stripping and excavation works. 	<p>Construction Impacts Management Plan Waste Management Plan</p>	Contractor	Included in soil expert assignment cost
Soil Contamination	<ul style="list-style-type: none"> • Discharge of materials into soil that would cause contamination will be prohibited. • Accidental spills and leakages will be managed through implementation of the Emergency Preparedness and Response Plan. 	<p>Construction Impacts Management Plan</p>	Contractor	Included in soil expert assignment cost

Impact Description	Mitigation Measures	Implementation Plan	Responsibility	Cost
	<ul style="list-style-type: none"> Solid wastes, hazardous wastes and wastewater to be generated as a result of land preparation and construction activities along the Project route will be further managed through implementation of the related management plans. 	Pollution Prevention Plan Waste Management Plan Emergency Preparedness and Response Plan		
Geological and geotechnical Risks (bearing capacity, liquidization, slope stability)	<ul style="list-style-type: none"> There are deep cut&fill locations in route of project. These cut&fill locations are considered as critical section in terms of geotechnical and very well examined. In these locations, after loose and botanical topsoil will be excavated, it will be backfilled with granulated crushed stone. Followingly, backfill will be compacted/preloaded properly in order to prevent settlement and bearing capacity problems In these critical regions, for clay with silt and silty-clay soil locations, first 20m depth of ground will be improved by jet-grout and geopier applications against low SPT value and liquefaction possibilities. In the critical slope stability locations, numerical analyze method will be used in geotechnical report which will be prepared with certain parameters and material specifications during operation phase of the project There is no rock foundation below the railway bridge abutments as per performed borings, therefore, deep friction pile foundation will be applied for footing. By carrying out periodic control and maintenance activities along the routes, additional durability and structural measures will be developed and implemented in cuts and fills when necessary. (cracks, breaks, slips, deformations etc. of engineering structures that could happen especially after natural disasters) 	Emergency Preparedness and Response Plan	Contractor	Included in Construction service
Seismicity	<ul style="list-style-type: none"> All structures like foundation, culverts etc. within the project will be designed and constructed as per high earthquake resistance parameters. In the structures to be constructed within the scope of the project, provisions of "Regulations for the Structures to be Built in Disaster Areas" published in the Official Gazette No. 26582 dated 14.07.2007 and "Turkey Building Code" of Disaster and Emergency Management Administration published in the Official Gazette No30364. dated 18.03.2018 that came into force in 01.01.2019 will be strictly followed 	Emergency Preparedness and Response Plan	Contractor	
Landslide Risk	<ul style="list-style-type: none"> There is no active or passive landslide risk around the planned project route according to land surveys conducted within the scope of geological-geotechnical survey report, Turkey Landslide Inventory Map of MTA, Zonguldak Section and information gathered from "Earth Sciences Map Viewer and Drawing Editor" of MTA. However, especially in the construction phase, measures such as jetcrete, wire mesh, bolt etc. should be taken in the cut process performed in clastic rocks of Yemişliçay formation and caution should be taken against landslides that may develop on a local scale. 	Emergency Preparedness and Response Plan	Contractor	

Impact Description	Mitigation Measures	Implementation Plan	Responsibility	Cost
Noise & Vibration				
Increase in noise levels	<ul style="list-style-type: none"> Implement Project Grievance Mechanism. If any comment related with noise is received through the Grievance Mechanism, evaluate the complaint and where necessary plan and implement corrective actions. Carrying out construction activities only during the day Prefer machinery, equipment and vehicles with lower sound power levels and sound reduced models. Using newer models. Conduct maintenance of construction vehicles regularly by means of a regular vehicle maintenance and repair program which is also recommended by the manufacturer. Define and obey speed limitations for construction vehicles. Carry out relevant trainings and provide instructions to drivers of construction vehicles on the driving speed limits. Avoid driving of construction vehicles through settlements where possible. Use of designated site access roads. Evaluate construction of access roads where required to avoid traffic through residential areas. Prohibition of construction vehicles entering the construction site and prohibition of keeping them running while waiting on the construction site. Carry out noise monitoring by means of noise measurements in accordance with the national legislation and IFC standards Provide site personnel with necessary environmental training that aims at reducing noise caused by Project activities. When necessary, in order to protect the employees from the noise caused by machinery and equipment; Work will be carried out in accordance with the provisions of the "Occupational Health and Safety Law No. 6331" and necessary measures will be taken to protect workers from risks that may arise from health and safety, especially hearing risks, as a result of exposure to noise. In order to keep the noise level to a minimum, the provisions of the Environmental Noise Assessment and Management Regulation entered into force with the Official Gazette dated 04.06.2010 and No. 27601 will be complied with. Notification of communities/settlements about the noise levels that maybe created during construction phase due to heavy machinery use 	<p>Construction Impacts Management Plan Pollution Prevention Plan Traffic (Transportation) Management Plan Community Relations Management Plan</p>	Contractor	<p>Included in Stakeholder Engagement Plan Budget.</p> <p>Assignment of personnel (1 Environmental Expert at site): USD 100,000 Additional training budget: USD 5,000</p>
Vibration	<ul style="list-style-type: none"> Blasting is a possibility that contractor might consider during construction. If blasting is decided to be conducted and location of the blasting, amount and type of the explosives and timeframe of the blasting is determined assessment on noise and vibration will be done. 	<p>Construction Impacts Management Plan Pollution Prevention Plan Traffic (Transportation) Management Plan</p>		

Impact Description	Mitigation Measures	Implementation Plan	Responsibility	Cost
		Community Relations Management Plan		
Air Quality				
Decrease in Air Quality	<ul style="list-style-type: none"> In order to minimize the dust and impacts that may occur in soil stripping, and cut and fill works during the land preparation and construction phase of the project; measures such as water spraying at emission source, filling and unloading operations without tossing, covering vehicles with tarpaulin during material transportation and keeping the upper part of the material at 10% humidity will be taken. During the whole activity, the project site will be regularly moistened with water truck In accordance with the “Exhaust Gas Emission Control and Gasoline and Diesel Quality Regulation” published in the Official Gazette No. 28837 dated 30.11.2013; vehicles with traffic inspections, exhaust gas emission measurements will be used, and vehicles that need maintenance will be taken into maintenance after routine checks and other vehicles will be used until their maintenance is completed. Employees will be ensured to work in accordance with the Traffic Law, and special attention will be paid to make loading according to loading standards. Adopt procedures to limit the drop height of falling materials. Apply dust suppression methods such as watering with water trucks; applying non-toxic antidust chemicals etc. at construction sites, service roads, and quarries/material borrow sites and material storage sites. Apply water suppression, pressurized distribution or spraying systems to minimize dust where and when necessary on paved or unpaved road surfaces. Carry out loading and unloading of materials without throwing and scattering. Cover excavated materials with nylon canvas or with materials with grain size larger than 10 mm during transportation. Prefer local licensed quarries and material borrow sites for the reduction of transportation distance of materials. Where necessary, place wind shields or barriers around material storage sites to prevent spreading of dust emissions where necessary. Upgrade where necessary and ensure maintenance of access roads (both to construction camp sites, construction sites, quarries/material borrow sites and material storage areas). Avoid driving of construction vehicles through settlements where possible. Implement Project Grievance Mechanism. If any comment related with dust and air quality is received through the Grievance Mechanism, evaluate the complaint and where necessary plan and implement corrective actions. 	Construction Impacts Management Plan Pollution Prevention Plan	Contractor	<p>Included in Stakeholder Engagement Plan Budget and employment of environmental team.</p> <p>Additional training budget: USD 5,000</p>

Impact Description	Mitigation Measures	Implementation Plan	Responsibility	Cost
Water Resources and Wastewater Management				
Wastewater Generation	<ul style="list-style-type: none"> Since there is no wastewater (sewage) system in the field of activity and its immediate surroundings, wastewater generated will be deposited in septic tank that will be impervious, in accordance with "Regulation on Pit Opening Where Sewer System Construction is not Applicable" being published in Official Gazette No.13783 dated 19.03.1971. When the pits are filled, wastewater will be removed by sewage trucks, and disposal will be provided within the scope of the protocol to be made with the municipality that has a wastewater infrastructure system. 	Construction Impacts Management Plan Pollution Prevention Plan Waste Management Plan	Contractor	Included in employment of environmental team. Opening and maintaining of the septic tanks USD 1,000
Impacts on Surface Water Flow and Flood Risk	<ul style="list-style-type: none"> In the crossings of project route with surface waters, necessary projects will be implemented in line with the principles of "Disaster Regulation on Highway Roadside Engineering Structures". Within the scope of the project, a series of drainage measures will be taken to the right and left side of the routes, such as heel ditch, cut ditch and head ditch for the control of surface and groundwater, as well as the stability of the cut and fills to be constructed along the routes. All wastes that may arise from the project activities, excavation materials to be stored periodically / temporarily and accidental spill of fuel, oil, oil, cement etc. to the streams that are crossed by the project route will be taken under control immediately and surface waters will be protected against pollution. In order to prevent floods that may occur in the region especially on the Filyos Creek, rehabilitation works carried out within 1st, 2nd and 3rd sections of the creek in 2014-2015 by DSI 23rd Regional Directorate. Consequently flood events along the project route are prevented. In order to monitor the water quality of the surface waters within the project study area, periodically at least 2 times a year (rainy and dry periods), considering location of the pollution sources during land preparation and construction phase, water samples will be collected and assessment of the water quality of the samples will be performed. Crossings of the project routes are with the Filyos Creek and influent streams of Filyos Creek with seasonal flow. Those surface waters will be crossed with properly designed engineering structures (bridge, culverts, box culverts) and techniques. There is no rock foundation below the railway bridge abutments as per performed borings, therefore, deep friction pile foundation will be applied for footing. 	Emergency Preparedness and Response Plan	Contractor	Included in Construction service and employment of environmental team.
Impacts on Groundwater	<ul style="list-style-type: none"> When determining the locations of temporary fuel or oil storage areas, location of water resources will be taken into account. Accidental spill of hazardous materials such as fuel, oil, oil, cement etc. will be taken under control immediately 	Construction Impacts Management Plan Pollution Prevention Plan Waste Management Plan	Contractor	Included in employment of environmental team.

Impact Description	Mitigation Measures	Implementation Plan	Responsibility	Cost
		Emergency Preparedness and Response Plan		
Resource and Waste Management				
Possible impacts from storage of excavation material	<ul style="list-style-type: none"> Use of excavation material as much as possible in filling works. Storage of excavated material that cannot be used for filling operations in temporary storage areas where necessary permissions will be obtained and will have sufficient capacity. Proceeding according to the cut and fill program to minimize excavation wastes during excavation operations. 	Construction Impacts Management Plan Pollution Prevention Plan Waste Management Plan	Contractor	Included in employment of soil expert Design and construction of storage area: USD 10,000
Waste Management	<ul style="list-style-type: none"> Comply with the requirements of applicable waste management regulations for the management of all waste generated as a result of the project activities. Segregate wastes (i.e. hazardous / non-hazardous, recyclable / non-recyclable) and store them temporarily in designated storage areas Ensure that waste storage areas meet the standards set by the relevant legislation: <ul style="list-style-type: none"> Determining sufficient and appropriate storage areas and ensuring that conditions such as container types, labels and classifications are appropriate in these areas, Ensuring impermeability on the grounds of storage areas against possible contamination of soil and groundwater, Sufficient ventilation of the area under conditions where volatile wastes need to be stored, Establishing a suitable drainage system against leaks, Restriction of physical access to waste storage areas (through gates, fences, etc.); ensuring that only authorized persons can enter the storage areas, Placing warning signs and panels with the name and contact number of authorized personnel in storage areas, In order to response in case of emergency such as spills and fire immediately, keep absorbent materials, fire extinguishing equipment, etc. ready at a close location, Quick identification of any possible spillages / leaks by periodically performing visual checks in hazardous waste storage areas, Ensuring that wastes are not spilled out of areas other than those reserved for this purpose and providing all necessary waste management training and periodic repetition of these trainings, No waste should be disposed of or burned at the construction site, Marking waste explosives and used explosive containers as explosive waste. Storage of explosive wastes separately in storage areas reserved for this purpose, where only authorized personnel can work. Delivery of these wastes to construction sites should be provided by licensed companies. Ensuring that the Contractors 'and subcontractors' Waste Management Plan and the measures specified in this ESIA are implemented. 	Construction Impacts Management Plan Pollution Prevention Plan Waste Management Plan Aggregate Management Plan	Contractor	Included in employment of environmental team Additional cost on design and construction pf waste storage area: USD 10,000

Impact Description	Mitigation Measures	Implementation Plan	Responsibility	Cost
	<ul style="list-style-type: none"> Hazardous wastes will be sent via licensed transportation vehicles to hazardous waste disposal companies licensed by the Ministry of Environment and Urbanization. 			
Additional load on the waste management facilities of the region	<ul style="list-style-type: none"> Construct and use excavated material storage sites of sufficient number and capacity and store all the excavated materials at designated storage sites located within the construction corridor and having sufficient capacity Ensure related waste disposal agreements done with the municipalities and licensed recovery/disposal firms. 	Construction Impacts Management Plan Pollution Prevention Plan Waste Management Plan	Contractor	Included in employment of environmental team Additional cost on having a licensed firm for waste management: USD 25,000
Material Use	<ul style="list-style-type: none"> Contractor will identify potential borrow pits and quarries with indication of capacities, while providing measures for site reinstatement within the Aggregate Management Plan and supervise the implementation of the Plan It will be ensured that the areas and quarries have “EIA Positive” or “EIA Not Required” Decisions. Contactork will identify potential borrow areas and quarries with indication of capacities, while providing measures for site reinstatement. 	Aggregate Management Plan	Contractors	Included in Construction service
Biodiversity				
Habitat loss / fragmentation	<ul style="list-style-type: none"> Indirect impacts on the grey dune habitat and its <i>Centaurea kilaea</i> and <i>Panratiium maritimum</i> populations, and also the mesotrophic lake habitat will be avoided in line with the related environmental management plans (air quality, waste management, water and soil pollution control). The Project personnel will be informed on the sensitivity of the habitats. Land preparation and construction activities will be limited to designated work areas. Impacts on natural habitats outside the Project route will be prevented. Vegetation clearance at riparian habitats will be minimized. There will be no tree cutting/vegetation clearance other than in areas required for the Project. Project-related impacts on water quality and water flow will be avoided. Mitigation measures related to land use and soil quality will be taken in line with the related management plans ensuring conservation of natural habitats. Statuses of habitats and associated species populations will be monitored throughout land preparation and construction Where necessary, habitat and species specific measures will be developed and implemented with an adaptable management approach. The Project personnel will be informed on the sensitivity of natural habitats and species, conservation priorities, and also nesting areas that will be identified through pre-construction surveys. Any direct impact on plant and animal species will be prevented. 	Biodiversity Management Plan Stakeholder Engagement Plan	Contractors	Assignment of personnel (1 Biodiversity Specialist): USD 85,000

Impact Description	Mitigation Measures	Implementation Plan	Responsibility	Cost
	<ul style="list-style-type: none"> In setting up a schedule for land preparation activities, breeding seasons of animals will be considered to prevent direct mortality and also conserve the next generation of their populations in the area. Project-related impacts on air, soil and water in natural habitats will be avoided. In line with the characteristics of the target species, it will be decided in consultation with experts whether passages planned within the scope of the Project would be sufficient for wildlife. Where necessary, in order to ensure no net loss in populations of fauna species new structures will also be considered in areas that are identified to be significant for animal passages. Passages that will also enable human and cattle passage and provide access to grazelands will be identified through consultations within the scope of the Stakeholder Engagement Plan (SEP). In order to minimize animal mortality, locations along the route where animal passage will be prevented and methods that will be used to prevent passage of target species (fencing, sound signals, chemical repellents, lights and reflectors, etc.) will also be identified. 			
Use of machinery and equipment	<ul style="list-style-type: none"> Trainings will be organized for the Project personnel to inform them about the on-site speed limits and also importance of animal passages. Machinery and equipment that arrive in work areas will be checked for presence of invasive alien species. All machinery and equipment will be subject to regular maintenance and will not be used out of purpose. Use of machinery and equipment will be limited to designated work areas. Impacts related to noise and vibration will be controlled in line with the Project standards. 	Biodiversity Management Plan Traffic (Transportation) Management Plan	Contractor	
Invasive alien species	<ul style="list-style-type: none"> Natural vegetation will be conserved to the best possible extent during land preparation, and native species will be used in restoration after completion of the construction phase. Vehicles and equipment entering the site will be checked for invasive alien species. If identified, necessary measures will be taken in line with the Project standards to eradicate the species. Instead of using herbicides, which would destroy the natural vegetation and enable introduction of invasive alien species, different vegetation management methods will be considered as appropriate spatially and temporally. During the land preparation and construction phase biodiversity monitoring studies, potential for presence of invasive alien species in the area will also be monitored. 	Biodiversity Management Plan	Contractor	
Indirect impacts (dust, air emissions, noise, waste, and impacts on water and soil quality)	<ul style="list-style-type: none"> In order to control dust emissions, vegetation clearance will only be undertaken in pre-determined activity areas, and habitats will be rehabilitated upon completion of construction activities. All related dust suppression measures will be taken to ensure prevention of indirect impacts on biodiversity features. On-site speed limits will be enforced to avoid direct mortality of animals. There will be no direct discharge into water resources. 	Biodiversity Management Plan Pollution Prevention Plan Waste Management Plan	Contractor	

Impact Description	Mitigation Measures	Implementation Plan	Responsibility	Cost
	<ul style="list-style-type: none"> Project-related wastes will be collected at designated waste storage areas, and periodically removed from work areas. Hunting of fauna species will be prohibited. In case of illegal hunting activities, authorities will be notified. Solid wastes and wastewater that will result from land preparation and construction activities of the Project will be managed through implementation of the related management plans. 			
Cultural Heritage				
Impacts on Cultural Heritage	<ul style="list-style-type: none"> All construction works to be carried out in Ancient City of Tios and Tios Necropolis Area and its surroundings will be implemented under the supervision of an archaeologist. All kinds of excavation, skimming, logging, cleavage etc. activities to be carried out within the project construction boundaries of Öteyüz Mahallesi 1st and 3rd Degree Archeological Site will be carried out under the supervision of an archaeologist. The Chance Find Procedure, based on national laws, international standards and best practices, and presented in the Cultural Heritage Management Plan, will be applied during any chance find. Regardless of the degree of importance, if any archaeological / cultural heritage is encountered, construction activities in the find area should be stopped immediately and the relevant museum expert will be notified. Following the reviews of the relevant Museum Directorate, necessary arrangements will be implemented, such as determining the boundaries of the archaeological / cultural heritage / area, measures to be taken for its protection, and informing the employees to prevent any physical intervention. Information on cultural heritage protection measures will be made public with settlements 	Cultural Heritage Management Plan Community Relations Management Plan	Contractor	Assignment of personnel (1 Archeologist at site): USD 75,000
Socio-Economic Environment				
Impacts on Local Economy, Livelihood Sources and Employment	<ul style="list-style-type: none"> In order to ensure minimum negative impact and maximum positive impact on the local economy, it is important that the consultations and the grievance mechanism within the scope of the SEP are properly operated. 	Stakeholder Engagement Plan Community Relations Plan	Contractor	Included in Stakeholder Engagement Plan and RAP Budget.
Impacts on Infrastructure Status and Social Services	<ul style="list-style-type: none"> In order to ensure minimum negative impact and maximum positive impact on the local economy, it is important that the consultations and the grievance mechanism within the scope of the SEP are properly operated. In order to reduce the economic negative effects of short-term road closure and route changes, creating alternative routes and announcing these changes with local media and corporate announcements is a necessity of positive stakeholder engagement. 	Resettlement Action Plan Stakeholder Engagement Plan Community Relations Plan	Contractor	

Impact Description	Mitigation Measures	Implementation Plan	Responsibility	Cost
	<ul style="list-style-type: none"> In the selection of the roads to be used during the construction phase, the understanding of not passing through the settlements and keeping the use of the roads in its vicinity at a minimum level should be adopted if possible. The construction phase can have an abrasive effect on roads. In order to prevent such effects from affecting daily and economic life negatively, it is recommended that complaints about the issue are taken into consideration and necessary maintenance and repair works are carried out. Construction vehicles can also cause physical damage due to various accidents. Fences, walls, wells, trees, etc. can be damaged due to construction activities. Damaged assets should also be compensated. These situations should be stipulated in subcontractor contracts. In order to minimize the socio-economic effects that may occur if the construction activities temporarily disrupt infrastructure services such as water, electricity and internet in a planned or unplanned manner, it is important to make a plan that avoided cuts as much as possible and to announce planned cuts to stakeholders with local media and corporate announcements. . In the event of sudden and long-term cross-section, compensation practices should be developed at the community level. 			
Impacts on Vulnerable Groups	<ul style="list-style-type: none"> The use of access roads should be planned in a way that does not jeopardize the travel safety of shuttle vehicles in villages with bussed training, and traffic measures (warning signs, speed limits, and information about settlements and schools for the periods when large and dangerous goods will be transported) should be taken. Passages should be structured to allow safe passage of humans and animals. When bovine and ovine are not under shepherd management and children are not under adult supervision, measures should be taken to prevent entry into the railway route. Occupational health and safety measures should be taken at the construction sites and construction activities. Construction Impacts Management Plan and Pollution Prevention Plan should be implemented, taking waste management and health controls into consideration. Necessary measures should be taken for the safety of maintenance and repair activities, teams and local people. The grievance mechanism should be actively and efficiently operated. 	Stakeholder Engagement Plan Community Relations Plan Pollution Prevention Plan Construction Impacts Management Plan Traffic (Transportation) Management Plan	Contractor	
Labor and Working Conditions				
Impacts on Labor and Working Conditions	<ul style="list-style-type: none"> All workers, direct, contracted and others in the supply chain should have the right to organize. In this regard, grievance mechanism have an important part. A secure grievance mechanism system should be established that workers of all levels can benefit from. A fair and transparent employment procedure should be adopted. Positive discrimination should be practiced for disadvantaged groups. In case all measures are taken, remaining impact would be negligible. Ensure compliance with Workers' accommodation: processes and standards for accommodation; including clean and safe areas that ensure the minimum space requirements, air-conditioning and 	Employment and Training Plan	Contractor	Assignment of personnel (CLO at site): USD 85,000

Impact Description	Mitigation Measures	Implementation Plan	Responsibility	Cost
	<p>ventilation that is appropriate for the existing climatic conditions, gender based accommodation facilities, etc.)</p> <ul style="list-style-type: none"> • Ensure compliance with Workers' accommodation: processes and standards for onsite facilities (canteen, sanitary facilities, adequate amenities for socialization and resting, etc.). • Survey accommodation facilities to be provided off-site (if any) and ensure they are also in compliance with Project standards. • Ensure drinking and utility water to be supplied meet the requirements of the Turkish Regulation on Water Intended for Human Consumption and WHO Guidelines for Drinking Water Quality. • Provide all accommodation sites with sufficient emergency response equipment such as first aid kits and fire-fighting equipment and conduct periodic checks to ensure they are in working condition. • Provide trainings to personnel on general waste management, housekeeping, first aid practices and communicable diseases. • Conduct visual checks on site to ensure proper housekeeping. • Ensure proper first aid equipment is kept on site, at various related locations. • Conduct periodic medical checks for personnel and provide vaccination and/or other mitigating measures when required. • Establish adequate medical rooms at the camp sites, provide sufficient human resources and keep a suitable patient transport vehicle on site. • Ensure construction phase personnel's retrenchment is conducted in compliance with all applicable legal requirements and WB ESS2. • Ensure contractual requirements are fulfilled during the process. • Ensure the personnel are aware of the process and dates (through appropriate and transparent information dissemination). • To the extent possible, ensure personnel that may also be employed during the operation phase (e.g. security personnel) are not included in the scope of retrenchment at the end of construction phase. 			
General OHS Management	<ul style="list-style-type: none"> • Development of a site specific OHS risk assessment and management plan • Implementation of OHS Management Plan • Risk assessment study within the scope of every activity to be conducted for the project will be conducted before commencing the works. • Employees will be aware of any possible OHS risks and will be trained against them properly. • Contractor must ensure immediate response to and timely reporting, analysis and communication of all incidents to GDII • All incidents shall be recorded in the approved incident reporting system, and be analyzed to a level commensurate with the actual consequence or potential risk rating, whichever is higher 	Occupational Health and Safety Management Plan	Contractor	Assignment of personnel (HS Expert at site): USD 100,000

Impact Description	Mitigation Measures	Implementation Plan	Responsibility	Cost
	<ul style="list-style-type: none"> • Contractor is committed to return workers to meaningful and productive employment at the earliest possible time • Contractor employees will undergo a medical assessment to ensure they are medically fit to perform their role before commencing the works and these controls will be repeated annually • Contractor must ensure that health assessments are carried out in respect of all personnel who engage in specific tasks with the potential for occupational exposure • Contractor recognizes that fatigue may arise from hours and patterns of work and activities, and travel/commute time • Contractor acknowledges the risk associated with project area operations, and provides for the reporting and rectification of hazards • Where personnel are required to work alone, the activities and conditions shall be risk assessed and a safe system of work developed • Where a manual handling task is required a risk assessment shall be completed to identify the Hazards. The risk of injury should be assessed for each hazard, and appropriate controls implemented, including manual handling training as appropriate • Contractor must supply suitable facilities for personnel • Contractor must ensure commitment to monitoring and reporting of occupational health hazards and hazardous occupational environments, and implement controls to reduce risk in accordance with all applicable regulations and, wherever practicable, with regard to accepted best practices • Contractor must ensure the safe control of hazardous substances and reduce the level of exposure to personnel, property and the environment in accordance with the ESIA Requirements • Contractor must ensure that all personnel and visitors wear or use personal protective equipment provided if it is necessary to protect them from harm • Contractor must ensure that sufficient Safety Signs are posted in workplaces and travel ways to prevent incidents, identify hazards • Contractor must ensure that all personnel undertaking activities where there is a risk of a person falling from one level to another do so in a controlled manner to reduce the risk of personal injury • Task specific hazard identification will be done for each activity. • Access to the project area will be restricted by the Contractor and necessary precautions will be taken such as fencing the area and placing relevant signs etc. • Site inductions will be carried out by the contractor. • Inspections of the project site should be carried out weekly. Contractor will undertake weekly inspections of the whole work site 			
Community Health and Safety				

Impact Description	Mitigation Measures	Implementation Plan	Responsibility	Cost
Risk on traffic and pedestrian safety due to construction traffic	<ul style="list-style-type: none"> • Investigate all construction areas and construction access routes for potential community interaction (with a particular attention to schools, children parks, etc.) with Project construction phase traffic. Based on results, develop and implement site specific measures (i.e. improve signage, visibility) and driver/operator trainings prior to initiation of any construction work. • Implement access restriction at construction areas and access routes, by specifying restricted zones, (i.e. dangerous routes), fencing, barriers, etc. • Install signs, signals, markings and other appropriate traffic regulation devices, including reflective and flashing signage for nighttime traffic safety, at all required sites. • Avoid passage of construction traffic through the settlements, whenever alternative roads are present. • Where passage through existing settlements is unavoidable, take all necessary measures (i.e. speed limits, traffic signs, driver trainings) to prevent safety risks on local communities, engage with community representatives to plan the traffic by taking the daily life of the communities into account (i.e. selection of routes, school transportation hours, market days, etc.) and inform the communities about the construction schedule, activities to be conducted and safety measures taken, through appropriate means such as meetings and leaflets, notices, signs, etc. • Allow only drivers/operators with valid licenses specific to each construction phase vehicle to drive/operate vehicles. • Provide driving skills improvement trainings in consideration of the requirements of specific vehicles, machinery, etc. • Implement speed limits at all construction sites. • Conduct periodic medical checks for drivers/operators. • Conduct periodic vehicle maintenance. • Initiate construction only after relevant permits are obtained and all required measures such as signage, barriers, fencing, lighting, etc. are taken. • Prioritize selection of material borrow sites and quarries in the areas that does not interact with public. • Use only licensed firms for explosives delivery to ensure safety along the existing roads to be used for transport of explosives. • Provide information and awareness raising activities with stakeholders, communities including women, children and also disabled 	<p>Traffic (Transportation) Management Plan Stakeholder Engagement Plan Emergency Preparedness and Response Plan Community Health and Safety Plan Community Relations Management Plan</p>	Contractor	<p>Assignment of personnel (HS Expert at site): USD 100,000</p> <p>Assignment of personnel (CLO at site): USD 85,000</p>
Emergency Preparedness and Response	<ul style="list-style-type: none"> • Develop and implement a project-specific Emergency Preparedness and Response Plan for the construction phase covering the risks on local communities. • Develop measures/systems for collaboration with the local communities and other external parties including local governmental agencies, media, etc. where necessary. 	Emergency Preparedness and Response Plan	Contractors	

Impact Description	Mitigation Measures	Implementation Plan	Responsibility	Cost
	<ul style="list-style-type: none"> Notify local communities by using appropriate tools (e.g. telephone call lists, vehicle mounted speakers) in case of emergencies arising from the Project work/construction sites may pose risk on them. Where necessary, communicate the details of the nature of the emergency, protection options, etc. through trained community liaison officer(s). GDII will cooperate with related authorities both for prevention of emergencies and during emergency situations, where necessary. Communicate to the media through qualified, trained persons and/or by using appropriate tools (i.e. press releases), where necessary. 			
Security Personnel	<ul style="list-style-type: none"> Conduct legal inquiries during the hiring process of security personnel (or the company the security service is procured from) to check competency and existence of any former abuse incidents. Provide trainings on code of conduct, gender sensitivities and local cultural sensitivities to security personnel or ensure that the company the security service is procured from provides its personnel with similar trainings. The trainings will ensure force is used only for preventive and defensive purposes and in proportion to the threat. Provide necessary identification, communications devices, and any other equipment required for the job to the security personnel to ensure maximum efficiency. The security personnel will not be allowed to carry firearms. Investigate any grievance from local communities regarding inappropriate conduct of security forces immediately. Ensure appropriate conduct of security personnel through document and incident report reviews, as well as review of grievances received. Ensure all measures are included in contractual agreements. 	Employment and Training Plan	Contractor	
Community exposure to health problems	<ul style="list-style-type: none"> In order to avoid the spread of diseases among the workforce of the project, air conditioning and ventilation will be provided in accordance with the current climate conditions, minimum space requirement, etc. ensuring compliance with the processes and standards related to the housing of workers involving issues. Training of all staff on health and general hygiene and cleaning. Conduct periodic medical checks of staff, provide vaccination and / or develop other mitigation measures developed, when required. Carrying out health awareness raising activities involving local communities. 	Community Health and Safety Management Plan	Contractor	

Table 6-3: Environmental and Social Mitigation Plan - Operation

Impact Description	Mitigation Measures	Implementation Plan	Responsibility	Cost *
Land Use, Soils and Geology				
Seismicity	<ul style="list-style-type: none"> By carrying out periodic control and maintenance activities along the routes, additional durability and structural measures will be developed and implemented in cuts and fills when necessary. (cracks, breaks, slips, deformations etc. of engineering structures that could happen especially after natural disasters) 	Emergency Preparedness and Response Plan	TCDD	Yearly maintenance cost: USD 100,000
Soil Erosion	<ul style="list-style-type: none"> Erosion control structures will be monitored and maintained regularly to ensure that they are functioning properly Embankment and cutting slopes will also be checked regularly to identify and respond to any risks that may be associated with erosion, landslide, etc. Road pavement of the highway connection will also be conducted implementing appropriate erosion and sediment control measures 	Emergency Preparedness and Response Plan Pollution Prevention Plan Waste Management Plan	TCDD	Included in annual maintenance cost
Soil Contamination	<ul style="list-style-type: none"> In case of road accidents that may result in spills and leakages, Emergency Preparedness and Response Plan will be implemented to manage any potential contamination effectively. For de-icing of the structures of highway connections, more environmentally-friendly products will be used to prevent any potential contamination to soils. 	Emergency Preparedness and Response Plan Pollution Prevention Plan Waste Management Plan	TCDD	Included in annual maintenance cost
Noise & Vibration				
Increase in noise levels	<ul style="list-style-type: none"> Reducing the noise generated by wagons (Also in the rolling noise: reduction of rail roughness) Reducing the noise generated by railway line (Also in the rolling noise: reduction of rail roughness) Optimizing the average speed of trains by 50 km / h Developing vegetative barriers to create strong vegetative areas between the noise source and receptor (s), Construction of noise shoulders using soil materials Design and construction of noise barrier structures (e.g. panels) For receptors which have impact significance levels of "High" and distance to the Railway is less than 500 meters construction of noise barrier structures is considered; 	Pollution Prevention Plan	TCDD	Included in annual maintenance cost

Impact Description	Mitigation Measures	Implementation Plan	Responsibility	Cost *
	<ul style="list-style-type: none"> Noise monitoring will be conducted once in a three month in the first year of the operation, after one year, monitoring will be done in every two years. Noise monitoring will also be conducted upon complaint. 			
Vibration	<ul style="list-style-type: none"> Optimizing the average speed of trains by 50 km/h Having an appropriate grievance mechanism for vibration related complaints Quarterly vibration monitoring studies. 	Pollution Prevention Plan	TCDD	Included in annual maintenance cost
Water Resources and Wastewater Management				
Wastewater Generation	<ul style="list-style-type: none"> Since there is no wastewater (sewage) system in the field of activity and its immediate surroundings, the domestic wastewater generated will be deposited in septic tank that will be impervious, in accordance with "Regulation on Pit Opening Where Sewer System Construction is not Applicable" being published in Official Gazette No.13783 dated 19.03.1971. When the pits are filled, wastewater will be removed by sewage trucks, and disposal will be provided within the scope of the protocol to be made with the municipality that has a wastewater infrastructure system. In addition to the domestic wastewater to be generated during the operation phase, there will be industrial effluents due to rail car maintenance and refurbishment activities. To prevent, minimize, or control the industrial effluents generated in the rail car maintenance areas; <ul style="list-style-type: none"> Ultrafiltration will be used to extend the life of washing solutions for aqueous parts or alternatives to water cleaning (e.g. dry cleaning by wire brush or bake oven) will be used; Discharge of industrial wastes to septic systems, drain fields, dry wells, cesspools, pits, or separate storm drains or sewers will be prevented; The wastewater from the service bays and the floor drains in maintenance areas will be kept out of the storm drains and will be collected separately; The effluents from the service bays and the floor drains in maintenance areas will be pretreated to reduce contaminant concentrations before collection in septic tanks. Pretreatment systems typically consist of oil / water separators, biological and chemical treatment, and activated carbon systems. 	Pollution Prevention Plan Waste Management Plan	TCDD	Included in annual maintenance cost
Impacts on Surface Water	<ul style="list-style-type: none"> It will be prohibited to store any type of chemical and hazardous material near 50 meters of any creek or river. Personnel will be trained regarding waste disposal to the rivers and creeks 	Pollution Prevention Plan	TCDD	Included in annual maintenance cost

Impact Description	Mitigation Measures	Implementation Plan	Responsibility	Cost *
	<ul style="list-style-type: none"> Periodic checks will be maintained to monitor waste disposal to streams. 	Waste Management Plan		
Resource and Waste Management				
Waste Management	<ul style="list-style-type: none"> Implementing a project-specific Waste Management Plan. Visual control of waste and garbage spilled along the railway route and periodic collection of these garbage, separation of these wastes according to their recyclability, storage of separated wastes in separate containers and disposal according to the Waste Management Regulation. Using lead-free paints for maintenance work. Collecting the garbage that will occur at the stations from the collection areas to be placed in the station and forwarding them to the proper solid waste storage facility with the garbage trucks of the relevant Municipality. The collection, transportation, recovery and / or disposal of waste is carried out within the scope of their permits / licenses by the facilities, producers / authorized institutions, carriers / licensed carriers authorized to carry waste, from the Ministry and / or provincial directorate. It is forbidden to carry out the collection, transportation, recovery and / or disposal activities of the wastes by third parties other than these companies / facilities, and to combine them with other substances and fuels. 	Pollution Prevention Plan Waste Management Plan	TCDD	Included in annual maintenance cost
Biodiversity				
Habitat loss / fragmentation Habitat loss / displacement	<ul style="list-style-type: none"> To establish coherence between newly formed and natural habitats, conserve fauna species, prevent introduction of invasive alien species, and ensure secure transportation, integrated vegetation management strategies will be developed and implemented. Natural habitat will be restored upon completion of construction activities, enabling species to re-inhabit these areas. Animal mortality will be kept under control through implementation of methods to prevent animal passage and strategies related to use of existing passages / construction of new ones, based on habitat use of target species that will be identified pre-construction and monitored throughout construction. In order to prevent animals being attracted to vegetation along the route, to limit the time animals spend near the railway, and increase their visibility and also vision, appropriate vegetation schemes will be implemented within the scope of the integrated vegetation management. 	Biodiversity Management Plan	TCDD	Included in annual maintenance cost Additional cost on ecological services: USD 50,000

Impact Description	Mitigation Measures	Implementation Plan	Responsibility	Cost *
Invasive alien species	<ul style="list-style-type: none"> To avoid development of alien species along the railway route, natural plants will be used in restoration, and regular maintenance will continue throughout the operation phase. To take necessary measures against the risk of invasive alien species being transferred by the trains, there will be periodical controls and if identified, necessary measures will be taken in line with the Project standards to avoid spread of invasive alien species. During the operation phase biodiversity monitoring studies, potential for presence of invasive alien species in the area will also be monitored. 	Biodiversity Management Plan	TCDD	
Indirect impacts (dust, air emissions, noise, waste, and impacts on water and soil quality)	<ul style="list-style-type: none"> Use of chemicals for maintenance will be limited. Wastes will be recycled and disposed on a regular basis to prevent pollution of receiving environment due to operational activities. Noise barriers will be used to minimize impacts on animals. Measures to minimize risk of erosion will be taken within the scope of integrated vegetation management. Necessary measures will be taken to minimize risk of erosion during integrated vegetation management. To identify and respond to any hazard related to erosion, landslide, etc., verges and sloped will be checked periodically. Solid wastes, hazardous wastes, and wastewater that will result from operation activities will be managed through implementation of related management plans. 	Biodiversity Management Plan Pollution Prevention Plan Waste Management Plan	TCDD	
Labor and Working Conditions				
Impacts on Labor and Working Conditions	<ul style="list-style-type: none"> Equitable treatment of employees, non-discrimination and equal opportunity To maintain and improve the employee-management relationship To protect sensitive employees such as child labor, migrant workers, personnel supplied by third parties To provide safe and healthy working conditions To meet necessary health requirements Preventing forced labor All workers, direct, contracted and others in the supply chain should have the right to organize. In this regard, grievance mechanism has an important part. A secure grievance mechanism system should be established that workers of all levels can benefit from. A fair and transparent employment procedure should be adopted. Positive discrimination should be practiced for disadvantaged groups. In case all measures are taken, remaining impact would be negligible. 	Employment and Training Plan Occupational Health and Safety Management Plan	TCDD	No additional cost

Impact Description	Mitigation Measures	Implementation Plan	Responsibility	Cost *
	<ul style="list-style-type: none"> Development of a site specific OHS risk assessment and management plan Implementation of OHS Management Plan Suitability of the signalization system will be controlled in a daily manner. No personnel will be working without having necessary trainings Level Crossings will be controlled daily Operation will be stopped immediate if any factor that may lead accidents is reported. 			
Community Health and Safety				
Pedestrian safety	<ul style="list-style-type: none"> Putting clear and clear warning signs at the entry points (eg stations and level crossings), Installation of fences or other barriers at the ends of the station and other areas and preventing unauthorized access to the rails, Providing trainings about not entering the area without permission, especially for local youth, Ensuring that the specified route is safe, clearly determined and easy to use, Establishment of closed-circuit security cameras and monitoring systems (CCTV) to monitor railway stations, and an emergency announcement system to prevent violations in other areas where intruders are frequent. 	Traffic (Transportation) Plan	TCDD	Included in annual maintenance cost
Emergency Preparedness and Response	<ul style="list-style-type: none"> Develop and implement a project-specific Emergency Preparedness and Response Plan for the operation phase of the Railway. Regular controls of the Route Safety Cooperation with related authorities (for emergency prevention and during emergencies) Emergency Response begins as soon a rail emergency is identified or reported. When it is notified of a rail emergency they will immediately make notifications per TCDD protocols. 	Emergency Preparedness and Response Plan	TCDD	Included in annual maintenance cost
General railway operational safety	<ul style="list-style-type: none"> Implement railway operational safety procedures, such as a positive train control (PTC) system, aimed at reducing the likelihood of train collisions. Unless the full PTC system is considered practical, where manual trusses are located, reporting is made when the train passes from the mainline to the side road in the absence of signalling, and that this information is returned to all employees and train officers on the train. Regular inspection and maintenance of railway lines and facilities to operate in accordance with national and international railway line safety and standards. 	Community Health and Safety Management Plan	TCDD	Included in annual maintenance cost

Impact Description	Mitigation Measures	Implementation Plan	Responsibility	Cost *
	<ul style="list-style-type: none"> Implement a general safety management program equivalent to internationally recognized railway safety programs. 			
Level crossing safety	<ul style="list-style-type: none"> Using bridges or tunnels instead of level crossings (removing gates can also improve train performance because most gates have low speed limits to minimize the risks of road traffic.) Regular inspection / maintenance to ensure automatic doors installation and smooth operation in all level crossings. 	Community Health and Safety Management Plan	TCDD	Included in annual maintenance cost
Pedestrian safety	<ul style="list-style-type: none"> Put clear and distinctive warning signs at entry points (eg stations and level crossings). Installation of fences or other barriers at the end of the station and other areas and preventing unauthorized access to the rails. Providing trainings about not entering the area without permission, especially for local youth. To ensure that the specified route is safe, clearly determined and easy to use. Establishment of closed-circuit security cameras and monitoring systems (CCTV) to monitor railway stations, and an emergency announcement system to prevent violations in other areas where intruders are frequent. 	Community Health and Safety Management Plan	TCDD	Included in annual maintenance cost

* It should be noted that, cost of annual maintenance of the project is estimated via expert judgement considering similar previous projects. On the other hand, as the railway will be handed over to TCDD after completion of construction activities, TCDD will develop and implement its own ESMS system. Thus; the costs given in this table should be reconsidered.

	Environmental and Social Management Plan (ESMP) DRAFT ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN	 <small>Altyapı Yatırımları Genel Müdürlüğü</small>
REPORT NO: CNR-ZNG-ESMP-001 Rev-00	Page 45 / 57	

7. Monitoring Plan

The overall objective of environmental and social monitoring is to qualitatively and quantitatively measure effectiveness of mitigation measures, and develop appropriate responses to non-compliances with Project standards, and emerging environmental and social issues. A framework for monitoring activities and thresholds are provided in this chapter of ESMP to be further developed as more information becomes available before the onset of land preparation and construction phase. Monitoring will be carried out to ensure that all Project activities and mitigation measures comply with the national legislation and the World Bank and IFC standards, GDII and the Construction Contractor meet their commitments and requirements of this ESMP in terms of periodical audits and reporting. The main objectives of developing a monitoring program and defining parameters are to;

- Control that all mitigation measures are in place,
- Measure effectiveness of the mitigation measures,
- Provide mechanisms for taking timely action when unexpected environmental and social incidents are encountered, and
- Identify training requirements at all levels of the organizational structure.

Mitigation measures for each component of the Monitoring Plan are provided within the scope of the ESMP. Roles and responsibilities, monitoring parameters, monitoring frequencies, and Project's monitoring requirements are required to be identified in implementation of the Monitoring Plan. To determine whether monitoring outcomes comply with the Project standards, implementation of mitigation measures will be observed and measured, effectiveness of measures will be verified, all results will be recorded and monitored.

The 3rd Party Environmental and Social Monitoring Consultant and experts, who will take part in monitoring the compliance and performance of the project activities with the ESMP requirements, will be responsible for conducting relevant assessments, developing corrective actions and presenting them to the GDII and the Construction Contractor.

In case of an unforeseen change in the ESIA phase or an additional environmental and social work obligation arises, the World Bank will be informed about the issue and the ESMP will be revised after the management of change process described in Chapter 5.2 is completed and environmental and social studies are carried out. Implementation plans prepared by the contractor will be reviewed and updated at least quarterly periods to reflect the changing conditions or the requirements of the GDII and the World Bank. Any revisions to be made in the ESMP and related management plans will be submitted to the approval of the GDII first, and the Contractor personnel will be provided with access to the updated versions of the ESMP.

Table 7-1: Monitoring Plan

Parameter	Responsibility	Location	Frequency / Timing	Monitoring Method	Threshold Values (when available)	Management Plan detailing Monitoring Requirements / Relevant Legislation - Standard	Reporting	Cost
Pre-Construction								
RAP (Resettlement Action Plan) preparation and Stakeholder Engagement Activities	GDII	All project areas	Pre-Cons.	Documentation	-	Expropriation Law ESS5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement ESS10: Stakeholder Engagement and Information Disclosure	1 st Quarterly Monitoring Report	Assignment of 3 rd Party Environmental & Social Monitoring Consultant Cost: USD 250,000
Permission Regarding Non-Agricultural Use of Agricultural Areas	GDII	All project areas	Pre-Cons.	Documentation	-	Soil Conservation and Land Use Law	1 st Quarterly Monitoring Report	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost
Determination of the camp site, access roads and excavation storage areas and obtaining the necessary permissions	GDII	All project areas	Pre-Cons.	Documentation	-	ESIA Report Expropriation Law ESS1: Assessment and Management of Environmental and Social Risks and Impacts ESS3: Resource Efficiency and Pollution Prevention and Management ESS5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement ESS10: Stakeholder Engagement and Information Disclosure	1 st Quarterly Monitoring Report	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost

Parameter	Responsibility	Location	Frequency / Timing	Monitoring Method	Threshold Values (when available)	Management Plan detailing Monitoring Requirements / Relevant Legislation - Standard	Reporting	Cost
Ensuring Ground Safety	GDII	Project Route and all Engineering Structures	Pre-Cons.	Documentation, Visual observations at site	-	Regulation on Structures to be Built in Disaster Areas	1 st Quarterly Monitoring Report	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost
Environmental Management (Waste Contracts, additional environmental & social studies, Preparation of Site-specific management plans and procedures, 3 rd Party Environmental and Social Monitoring Activities)	GDII	Office	Pre-Cons.	Documentation, Visual observations at site	-	Environmental Law ESS1: Assessment and Management of Environmental and Social Risks and Impacts ESS3: Resource Efficiency and Pollution Prevention and Management Pollution Prevention Plan	1 st Quarterly Monitoring Report Site-specific management plans and procedures	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost
Construction Phase								
Soil Contamination	Contractor	Points to be selected to represent near stations which were selected during ESIA Report	Post construction	Soil sampling and analysis (by accredited and competent firms)	Baseline measurement results specified in the ESIA Report	Regulation on Soil Pollution Control and Point Source Contaminated Sites Pollution Prevention Plan ESS3: Resource Efficiency and Pollution Prevention and Management	Quarterly Monitoring Reports	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost Additional cost on Soil Sampling and Analysis: USD 5,000

Parameter	Responsibility	Location	Frequency / Timing	Monitoring Method	Threshold Values (when available)	Management Plan detailing Monitoring Requirements / Relevant Legislation - Standard	Reporting	Cost
Noise & Vibration	Contractor	Baseline measurement points determined within the scope of ESIA Studies / Closest settlement in case of complaint	Every 6 months or if there is a complaint	Noise level and Vibration measurements (by accredited and competent firms)	Baseline measurement results specified in the ESIA Report Legislative and WBG limit values	Regulation on Assessment and Management of Environmental Noise Pollution Prevention Plan ESS3: Resource Efficiency and Pollution Prevention and Management	Monthly & Quarterly Monitoring Reports	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost Additional cost on Noise Measurement and Analysis: USD 10,000 / Year
Dust Emission, PM10, PM2.5	Contractor	Baseline measurement points determined within the scope of ESIA Studies / Closest settlement in case of complaint	Every 6 months or if there is a complaint	Dust, PM10 and PM2.5 sampling (by accredited and competent firms)	Baseline measurement results specified in the ESIA Report Legislative and WBG limit values	Regulation on Control of Industrial Source Air Pollution IFC - WHO - Outdoor Air Quality Guidelines Pollution Prevention Plan ESS3: Resource Efficiency and Pollution Prevention and Management	Monthly & Quarterly Monitoring Reports	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost Additional cost on Air Quality Measurement and Analysis: USD 15,000 / Year
Vehicle Emissions	Contractor	Construction equipment and vehicles	During the periodic maintenance of vehicles	Recorded with exhaust emission measurement devices	-	Regulation on Control of Exhaust Gas Emission and Gasoline and Diesel Oil Quality	Quarterly Monitoring Reports	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost
Waste water	Contractor	Construction Site	Daily	Visual observations at site	-	Implementing Regulation on Pits to be Made in Sedimentation Areas Where Construction is Not Possible Water Pollution Control Regulation	Monthly & Quarterly Monitoring Reports	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost

Parameter	Responsibility	Location	Frequency / Timing	Monitoring Method	Threshold Values (when available)	Management Plan detailing Monitoring Requirements / Relevant Legislation - Standard	Reporting	Cost
Surface Water Quality	Contractor	Baseline measurement points determined within the scope of ESIA Studies	Every 6 months	Sampling and analysis (by accredited and competent firms)	Baseline measurement results specified in the ESIA Report	Surface Water Quality Regulation Pollution Prevention Plan ESS3: Resource Efficiency and Pollution Prevention and Management	Biannual Monitoring Reports	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost Additional cost on Water Quality Measurement and Analysis: USD 5,000 / Year
Seismicity	Contractor	Project route and all engineering structures	After a possible earthquake	Visual observations at all routes and structures	-	Regulation on Structures to be Built in Disaster Areas Turkey Building Earthquake Regulation Emergency Preparedness and Response Plan ESS4: Community Health and Safety	Quarterly Monitoring Reports	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost
Excavation Waste	Contractor	Project Route and Excavation Storage Areas	Continuously during excavations	Documentation and visual observations at site	-	Regulation on Control of Excavation Soil, Construction and Debris Wastes Pollution Prevention Plan ESS3: Resource Efficiency and Pollution Prevention and Management	Monthly & Quarterly Monitoring Reports	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost

Parameter	Responsibility	Location	Frequency / Timing	Monitoring Method	Threshold Values (when available)	Management Plan detailing Monitoring Requirements / Relevant Legislation - Standard	Reporting	Cost
Topsoil	Contractor	Project Route and Excavation Storage Areas	Continuously during excavations	Documentation and visual observations at site	-	Regulation on Control of Excavation Soil, Construction and Debris Wastes Pollution Prevention Plan ESS3: Resource Efficiency and Pollution Prevention and Management	Monthly & Quarterly Monitoring Reports	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost
Solid Waste and Packaging Waste	Contractor	Project working areas during construction work	Daily	Documentation and visual observations at site	-	Waste Management Regulation Pollution Prevention Plan ESS3: Resource Efficiency and Pollution Prevention and Management	Monthly & Quarterly Monitoring Reports	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost
Non-Hazardous and Inert Wastes	Contractor	Project working areas during construction work	Daily	Documentation and visual observations at site	-	Waste Management Regulation Pollution Prevention Plan ESS3: Resource Efficiency and Pollution Prevention and Management	Monthly & Quarterly Monitoring Reports	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost
Hazardous Wastes	Contractor	Project working areas during construction work	Daily	Documentation and visual observations at site	-	Waste Management Regulation Pollution Prevention Plan ESS3: Resource Efficiency and Pollution Prevention and Management	Monthly & Quarterly Monitoring Reports	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost

Parameter	Responsibility	Location	Frequency / Timing	Monitoring Method	Threshold Values (when available)	Management Plan detailing Monitoring Requirements / Relevant Legislation - Standard	Reporting	Cost
Medical Wastes	Contractor	Infirmery	Daily	Documentation and visual observations at site	-	Medical Waste Control Regulation Pollution Prevention Plan ESS3: Resource Efficiency and Pollution Prevention and Management	Monthly & Quarterly Monitoring Reports	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost
Vegetable Oils	Contractor	Camp Site (Kitchen)	Daily	Documentation and visual observations at site	-	Regulation on Control of Vegetable Waste Oils Pollution Prevention Plan ESS3: Resource Efficiency and Pollution Prevention and Management	Monthly & Quarterly Monitoring Reports	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost
Waste Batteries and Batteries	Contractor	Construction Site	Daily	Documentation and visual observations at site	-	Regulation on Control of Waste Batteries Pollution Prevention Plan ESS3: Resource Efficiency and Pollution Prevention and Management	Monthly & Quarterly Monitoring Reports	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost
End of Life Tires	Contractor	Construction Site	Daily	Documentation and visual observations at site	-	Regulation on Control of End of Life Tires Pollution Prevention Plan ESS3: Resource Efficiency and Pollution Prevention and Management	Monthly & Quarterly Monitoring Reports	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost

Parameter	Responsibility	Location	Frequency / Timing	Monitoring Method	Threshold Values (when available)	Management Plan detailing Monitoring Requirements / Relevant Legislation - Standard	Reporting	Cost
Critical habitat	Contractor	Coastal dune habitats <i>Sternbergia pulchella</i> translocation site	Biannually	Monitoring at site Sampling	Population statuses of species	Biodiversity Management Plan ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	Biannual Monitoring Reports in line with the Biodiversity Monitoring and Evaluation Program	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost Additional Cost on ecological survey: USD 50,000
Natural habitats	Contractor	All project working areas	Biannually	Monitoring at site	Population statuses of species	Biodiversity Management Plan ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	Biannual Monitoring Reports in line with the Biodiversity Monitoring and Evaluation Program	Included in 3 rd Party Environmental & Social Monitoring Consultant and Ecological Survey Cost
Fauna species of high conservation concern	Contractor	All project working areas	Biannually	Monitoring at site Sampling / Counting Photo-trap	Population statuses of species	Biodiversity Management Plan ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	Biannual Monitoring Reports in line with the Biodiversity Monitoring and Evaluation Program	Included in 3 rd Party Environmental & Social Monitoring Consultant and Ecological Survey Cost
Storage and transportation of fuel, oil and hazardous materials	Contractor	Project working areas during construction work	Daily	Documentation and visual observations at site	-	Labor Law and Regulation on Classification, Labeling and Packaging of Substances and Mixtures ESS4: Community Health and Safety Emergency Preparedness and Response Plan	Monthly & Quarterly Monitoring Reports	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost

Parameter	Responsibility	Location	Frequency / Timing	Monitoring Method	Threshold Values (when available)	Management Plan detailing Monitoring Requirements / Relevant Legislation - Standard	Reporting	Cost
Labor and Working Conditions	Contractor	All project working areas	Monthly	Documentation, Training Records, Percentage of local people, women etc. groups among employees	-	Labor Law and Regulation on Classification, Labeling and Packaging of Substances and Mixtures ESS2 Labor and Working Conditions Employment and Training Plan	Monthly & Quarterly Monitoring Reports	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost
OHS Management	Contractor	All project working areas	Daily	Documentation, Training Records, HS Audits	-	Labor Law and Regulation on Classification, Labeling and Packaging of Substances and Mixtures ESS2: Labor and Working Conditions Occupational Health & Safety Management Plan	Monthly & Quarterly Monitoring Reports	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost
Community Health and Safety (Number of community safety activities implemented, number of community safety trainings performed)	Contractor	Project working areas during construction work	Monthly	Monitoring at site, Training Records	-	ESS4: Community Health and Safety Emergency Preparedness and Response Plan Community Health and Safety Management Plan	Monthly & Quarterly Monitoring Reports	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost

Parameter	Responsibility	Location	Frequency / Timing	Monitoring Method	Threshold Values (when available)	Management Plan detailing Monitoring Requirements / Relevant Legislation - Standard	Reporting	Cost
Traffic (Transport) Management (number of complaints about traffic problems, number of traffic training provided to workers)	Contractor	Office, project working areas during construction work	Monthly	Documentation	-	ESS4: Community Health and Safety Community Health and Safety Management Plan Traffic (Transportation) Management Plan	Monthly & Quarterly Monitoring Reports	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost
Land and Livelihood Effects (loss of income due to land expropriation, pasture loss, loss of agricultural land, etc.)	Contractor	Residential areas directly or indirectly affected by the project	Monthly	Regular information / consultation with the public affected by the project, field reports prepared on RAP implementation	-	ESS5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement ESS10: Stakeholder Engagement and Information Disclosure Resettlement Action Plan Stakeholder Engagement Plan Community Relations Plan	Monthly & Quarterly Monitoring Reports	Included in 3 rd Party Environmental & Social Monitoring Consultant Cost
Operation *								
Noise	TCDD	Baseline measurement points determined within the scope of ESIA Studies / Closest settlement in case of complaint	Quarterly for the first year of operation, every 2 years afterwards or in case of a complaint	Noise level measurements (by accredited and competent firms)	Baseline measurement results specified in the ESIA Report	Regulation on Assessment and Management of Environmental Noise Site specific Pollution Prevention Plan to be prepared	Quarterly Monitoring Reports	Additional cost on Noise Measurement and Analysis: USD 10,000 / Year

Parameter	Responsibility	Location	Frequency / Timing	Monitoring Method	Threshold Values (when available)	Management Plan detailing Monitoring Requirements / Relevant Legislation - Standard	Reporting	Cost
Seismicity	TCDD	Project route and all engineering structures	After a possible earthquake	Visually in all routes and engineering structures	-	Regulation on Structures to be Built in Disaster Areas Turkey Building Earthquake Regulation Emergency Preparedness and Response Plan	Quarterly Monitoring Reports	No additional cost
Solid Waste and Packaging Waste	TCDD	Stations	Daily	Monitoring at site, waste records and reporting	-	Waste Management Regulation Site specific Pollution Prevention Plan to be prepared Site specific Waste Management Plan to be prepared	Quarterly Monitoring Reports	-
Non-Hazardous and Inert Wastes	TCDD	Stations	Daily	Monitoring at site, waste records and reporting Visual control of waste and garbage spilled along the railway route and periodic collection of these garbage, separation	-	Waste Management Regulation Site specific Pollution Prevention Plan to be prepared Site specific Waste Management Plan to be prepared	Quarterly Monitoring Reports	-
Waste Batteries	TCDD	Stations	Daily	Monitoring at site, waste records and reporting	-	Regulation on Control of Waste Batteries Site specific Pollution Prevention Plan to be prepared Site specific Waste Management Plan to be prepared	Quarterly Monitoring Reports	-

Parameter	Responsibility	Location	Frequency / Timing	Monitoring Method	Threshold Values (when available)	Management Plan detailing Monitoring Requirements / Relevant Legislation - Standard	Reporting	Cost
Emergency Preparedness and Response	TCDD	All project areas	Weekly	Regular controls of the Route Safety Regular inspection / maintenance to ensure automatic doors installation and smooth operation in all level crossings”	-	ESS4: Community Health and Safety Community Health and Safety Management Plan Traffic (Transportation) Management Plan	Quarterly Monitoring Reports	-
OHS Management	TCDD	All project areas	Daily	Documentation, Training Records, HS Audits	-	Labor Law and Regulation on Classification, Labeling and Packaging of Substances and Mixtures ESS2 Labor and Working Conditions Employment and Training Plan	Quarterly Monitoring Reports	-
Restored habitats	TCDD	All project areas	Annually during the first two years of operation	Monitoring at site	Population statuses of species	Biodiversity Management Plan ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	Annual Monitoring Reports in line with the Biodiversity Monitoring and Evaluation Program	-
Fauna species of high conservation concern	GDII / Contractor	All project areas	Annually during the first two years of operation	Monitoring at site Sampling / Counting Photo-trap	Population statuses of species	Biodiversity Management Plan ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	Annual Monitoring Reports in line with the Biodiversity Monitoring and Evaluation Program	-

Annexes

Annex-1 Construction Impacts Management Plan

Annex-2 Community Health and Safety Management Plan

Annex-3 Community Relations Management Plan

Annex-4 Employment and Training Plan

Annex-5 Aggregate Management Plan

Annex-6 Traffic (Transportation) Management Plan

Annex-7 Cultural Heritage Management Plan

Annex-8 Pollution Prevention Plan

Annex-9 Waste Management Plan

Annex-10 Emergency Preparedness and Response Plan

Annex-11 Biodiversity Management Plan

Annex-12 Occupational Health and Safety Management Plan

Annex-13 Management of Change Process Form