

This document has been updated in 10.11.2022 by AYG M as a result of loan agreement.

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ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

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1.1 SCOPE

1.1.1. The objectives of this Environmental and Social Management Plan (ESMP) are to:

- Set out the key environmental and social issues or sensitivities related to the Project (as identified throughout the **ESIA**);
- Ensure that the Project will comply with the EIA Directive, relevant Turkish environmental, health, safety and social legislation and applicable Lenders requirements, including the EBRDs Environmental and Social Policy (ESP) and Performance Requirements (PRs), as set out in Chapter 4 of this ESIA;
- Describe the mitigation measures and management procedures (as identified throughout the **ESIA**);
- Set out how the effectiveness of the mitigation measures and management procedures will be monitored;
- Identify roles and responsibilities for the mitigation measures and management procedures;
- Facilitate a continual review of Project activities based on performance data and consultation feedback; and
- Implement corrective actions or adaptive management procedures, as required.

This ESMP is applicable to the following stages of the Project's lifecycle:

- Design;
- Construction; and
- Operation.

This ESMP represents a commitment by AYGM (design and construction) and TCDD/TCDD Transport (operation) to environmental and social sustainability, and this commitment will also apply their contractors and sub-contractors and supply chain.

1.1.2. The potential effects and associated mitigation measures and management procedures in this ESMP are based on the information and assessments provided in the:

- **ESIA** (Technical Chapters 6-18 of this document);
- **Stakeholder Engagement Plan (SEP)**;
- **Resettlement Action Plan (RAP)**;
- **Biodiversity Management Plan (BMP)**;
- **Contractor Management Plan (CMP)**;
- **Emergency Response Framework (ERF)** and
- **Railway Safety Plan (RSP)**

1.2 INTENDED USERS

1.2.1. The aim of this document is to communicate to the Project Team (including contractors and sub-contractors); the potential environmental, health, safety, and social (EHSS) issues associated with the Project and the procedures and mitigation measures that are required to be implemented.

1.2.2. AYGM and TCDD/TCDD Transport will utilise this ESMP during Project execution to achieve appropriate and effective EHSS management. This **ESMP** should be read in conjunction with the **SEP, RAP, BMP, CMP, ERF** and **RSP**.

1.2.3. AYGM will be responsible for ensuring their Contractor develops this **ESMP** into a **Construction Environmental and Social Management Plan (CESMP)**, and TCDD Transport will be responsible for developing this **ESMP** into an **Operational Environmental and Social Management Plan (OESMP)** for the Project. The **CESMP** and **OESMP** will each include, but not be limited to:

- Introduction, background, objectives and structure of the document;
- The Project's EHSS policies and goals;
- The Project's EHSS regulatory framework and safeguards;
- EHSS management roles and responsibilities (as set out in **Section 19.3** below);
- Register of environmental and social effects and mitigation measures;
- Issue-specific environmental and social management plans (as set out in **paragraph 19.4.3**);
- EHSS management procedures;
- Institutional arrangements and implementation;
- Training requirements (set out in further details in Chapter 9 of the **CMP**);
- Project resourcing and budget allocation;
- Project implementation schedule; and
- Monitoring, management review and reporting requirements (set out in further detail in Chapter 8 of the **CMP**).

1.3 ROLES AND RESPONSIBILITIES

1.3.1. The broad role of each party involved in the Project in relation to the ESMP is identified below and the minimum EHSS resources they will be required to appoint to ensure effective implementation of the Project EHSS requirements, is shown in **Figure 19-1**.

AYGM

- AYGM will have ultimate responsibility for the Project and will oversee the implementation of the Lenders requirements during design and construction, overseeing the designers, construction contractor, construction subcontractors and other involved third parties. AYGM will be responsible for creating a Project Implementation Unit to implement the Project. AYGM will be responsible for overseeing the implementation of this **ESMP** during design and construction.
- **Project Implementation Unit (PIU)** has the following responsibilities:
 - The PIU will be responsible for the implementation, financial management and overall delivery of the Project.
 - The PIU will be responsible for the implementation of mitigation measures and management procedures specified within the disclosure package of the Project, including the Environmental and Social Management System (ESMS), Environmental, Health and Safety (EHS) Policy, Human Resources Policy and Procedures, Discrimination and Harassment Policy, a Gender Equality and GBVH Action Plan, and Labour Management Procedure.
 - The PIU will oversee the preparation and implementation of the **ESMP**, which requires the preparation of a **CESMP** by AYGM's Contractor, to ensure they fulfil all the identified EHSS requirements for the Project.
 - The PIU are responsible for ensuring roles and responsibilities are clearly identified and allocated for EHSS aspects of the Project, both within the PIU itself, and within the workforce provided by the Contractor, their sub-contractors, supply chain and other involved third parties.

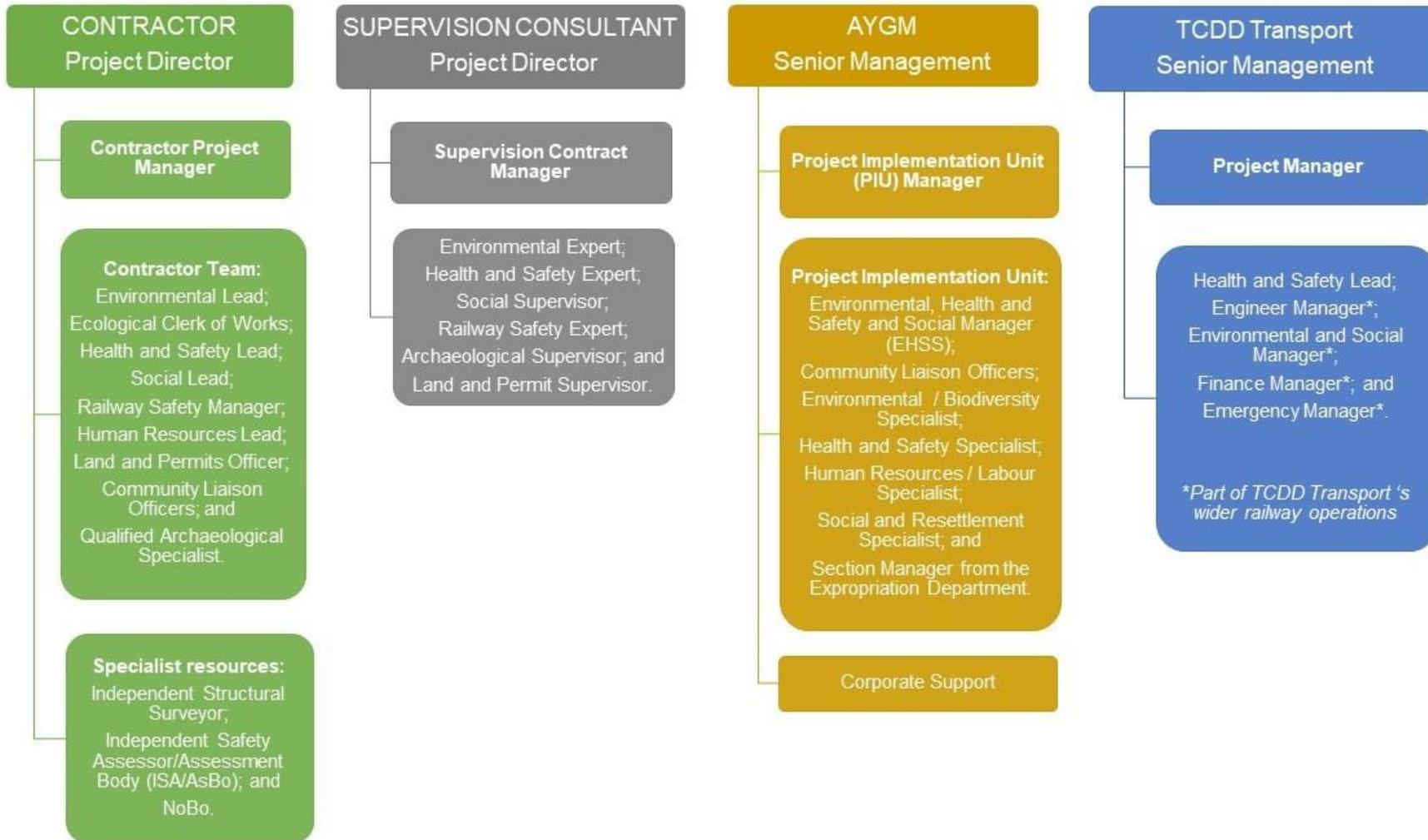


Figure Error! No text of specified style in document.-1 – The Roles of Parties with Responsibility for Delivering the ESMP

- The PIU will be responsible for the overall implementation of the Project-level grievance mechanism (GM) to ensure that all grievances and/or objections (raised by affected stakeholders or communities) are received, acknowledged and addressed as per the grievance mechanism (GM) set out in the **SEP**. The Contractor will support this implementation.
- The PIU will also be responsible for appointing technical specialists to effectively audit the implementation of EHSS measures and processes. These specialists will include:
 - **PIU Manager** will be ultimately responsible for overseeing the activities undertaken by the PIU specialists (listed below), overseeing the implementation of mitigation measures and management procedures specified within the disclosure package of the Project, and overseeing the preparation and implementation of a **CESMP**, which will be based on this **ESMP**.
 - **Environmental, Health and Safety, and Social (EHSS) Manager** will be responsible for overseeing all matters that relate to environment, health, safety and social aspects of the Project. They will be supported by experts within the PIU, and other AYGM departments, as required. The EHSS Manager would be expected to hold a degree from a University or a similar institution in relevant discipline (a Master degree would be an advantage) as well as being fluent in English and Turkish (both written and spoken).
 - **Community Liaison Officers (CLOs)** – One male and one female will be appointed to be responsible for supporting the implementation of the **SEP**, by conducting regular consultation with affected communities on any concern regarding the Project. CLOs will also have responsibility for disseminating the Project disclosure package as described in the **SEP**. They will also conduct regular inspections of records relating to grievances received and their resolution. The CLOs would be expected to be able to work in English and be fluent in Turkish (both written and spoken) and a degree from a University or a similar institution in relevant discipline (socio sciences, communication etc) would be an advantage.
 - **Environmental / Biodiversity Specialist** will be responsible for overseeing the implementation of all environmental and biodiversity measures, as specified within the disclosure package of the Project, and regular reporting to senior management and the lenders. The Environment / Biodiversity Specialist is expected to hold a degree from a University or a similar institution in relevant disciplines (a Masters degree would be an advantage) and must be fluent in English and Turkish (both written and spoken).
 - **Health and Safety Specialist** who is responsible for overseeing health and safety for the Project. The Health and Safety Specialist would be required to hold a recognised international safety qualification e.g. NEBOSH or equivalent and be fluent in Turkish (both written and spoken). A degree from a University or a similar institution in relevant discipline would be an advantage.
 - **Human Resources / Labour Specialist** will be responsible for overseeing the implementation of all health, safety and social measures, as specified within the disclosure package of the Project, and regular reporting to senior management and the lenders. The Human Resources / Labour Specialist is required to be fluent in English and Turkish (both written and spoken) and holding a certification to SA8000 / ISO 26000 Lead Auditor would be an advantage.
 - **Social and Resettlement Specialist** will be responsible for overseeing the implementation of the **RAP**, livelihood and PR5 matters in relation to expropriation, with support from the **Livelihood Restoration Specialist and Social Specialist**. Supporting the monitoring of the

RAP and appointing the external **RAP** monitoring consultant. Responsible for overseeing the implementation of the **SEP**, with support from the Social Specialist. The Social and Resettlement specialist would be expected to hold a degree from a University or a similar institution in relevant discipline (a Masters degree would be an advantage) as well as being fluent in English and Turkish (both written and spoken). The Livelihood Support Specialist and the Social Specialists would be expected to hold degrees from a University or a similar institution in relevant discipline (a Masters degree would be an advantage) and would need to be fluent in Turkish (written and spoken). The Social Specialist would also need to be fluent in English (written and spoken).

- **Section Manager from the Expropriation Department** who is responsible for leading expropriation activities in accordance with national legislation. They will be supported by experts within the PIU, and other departments, as required.
- Further technical staff may be required during the course of the Project, who will be assigned internally by the PIU, either by means of permanent or temporary basis until the completion of relevant tasks under the Project whilst they undertake their current responsibilities.

SUPERVISION CONSULTANT

- AYGM will appoint a Supervision Consultant, consisting of a range of expertise, to supervise the activities of the Contractor on a day to day basis. The Supervision Consultant will appoint the following;
 - **Supervision Contract Manager** - Responsible for supervising the Contractor to ensure that recommendations and requirements, as set out in the disclosure package, are applied. They will be responsible for continuous monitoring of the processes and activities undertaken by the Contractor, and specifying measures to be implemented by the Contractor, to address any areas of non-compliance. This includes periodic audits, inspections, and/or spot checks of project locations or work sites and/or of records and reports compiled by contractors.
 - **Environmental Expert** - Responsible for supervising the Contractors, and their sub-contractors, management of environment related matters. Including regular site inspections and regular reporting to PIU. Supported by an Environmental Field Officer and Ecologist / Biodiversity Specialist
 - **Health and Safety Expert** - Responsible for supervising the Contractors, and their sub-contractors, management of H&S. Including regular site inspections and regular reporting to PIU.
 - **Social Supervisor** - Responsible for supervising and monitoring the Contractors management of social matters including the stakeholder engagement by CLOs, land related activities and implementation of the RAP.
 - **Railway Safety Expert** - Responsible for supervising, monitoring and auditing the Rail Safety Manager and implementing their responsibilities in the Railway Safety Plan.
 - **Archaeological Supervisor** - Responsible for supervising the Contractors archaeologists. Including regular site inspections and regular reporting to PIU, and ensure the Regional Board is engaged and notified, as required.
 - **Land and Permit Supervisor** - Responsible for supervising the activities of the Contractor's Land and Permits Officer.

CONTRACTOR

- The **Contractor** will predominantly be responsible for ensuring that all their work and staff activity is compliant with the legislation, policies and standards for EHSS and the permits provided by national (and local) regulators and the Project EHSS requirements. Key responsibilities for the Contractor include;
 - Utilising this **ESMP** to prepare and implementing the **CESMP** and associated sub-plans, as well as applicable sections of other plans including the **SEP, RAP, BMP, ERF** and **RSP**.
 - Undertaking stakeholder engagement as set out in the **SEP**. This requires the establishment of a worker's grievance mechanism, as set out in **Section 8.16** of the **CMP**.
- The Contractor will be responsible for appointing specialists to ensure EHSS mitigation is implemented in accordance with the Project EHSS requirements. These specialists will include as a minimum:
 - **Contractor Project Manager** - responsible for overseeing the construction of the Project, including planning and delivery. They will be suitably competent and have a strong understanding of construction best practice. The Project Manager is accountable for overall EHSS performance, and making the human and financial resources available to ensure compliance with EHSS requirements of the Contract The Project Manager will take on the role of **Emergency Manager** in an emergency situation, and will be responsible for coordinating the internal management response of the Contractor to a major emergency (as detailed in the **ERF**). The Project Manager will also be responsible for appointing a First Aid competent person(s) on site, as well as a team responsible for site security.
 - **Construction/Site Manager(s)** – responsible for implementation of the CESMP measures through method statements and site working practices.
 - **Environmental Lead** - responsible for reporting and supervising environmental activities on site. They will be suitably competent (with a minimum of 10 years' experience including 8 years in a similar role) and have a strong understanding of environmental best practice including the Project EHSS requirements.
 - **Ecological Clerk of Works (ECoWs)** will provide biodiversity support in advance of, and throughout construction, including pre-construction surveys. Given the scale of the Project, it may be necessary for an ECoW 'team' to be employed at certain points. This role will have a wide-ranging brief but ultimately will focus on ensuring required ecological mitigation is appropriately undertaken and measures are maintained throughout construction, in accordance with the **ESMP** and **BAP**. The ECoWs will be suitably competent and have ecological knowledge.
 - **Health and Safety Lead** - responsible for the implementation of health and safety practices during construction. They will be suitably competent (with a minimum of 10 years' experience including 8 in a similar role) and have a strong understanding of health and safety best practice including the Project EHSS Requirements.
 - **Social Lead** - responsible for reporting and supervising social activities on site, stakeholder engagement and grievance management. They will be suitably competent (with a minimum of 10 years' experience including 8 years in a similar role) and have a strong understanding of environmental best practice including the Project EHSS Requirements.
 - **Railway Safety Manager** – Responsible for ensuring railway safety practices are implemented during construction, in accordance with the Common Safety Method-Risk Assessment (CSM-RA) and the Preliminary Hazard Record. The Safety Manager is

responsible for the implementation of Contractor and sub-contractor obligations within the Railway Safety Plan. The Safety Manager will engage with both the AsBo and the NoBo at Project start up and throughout construction. They will have a minimum 6 years' experience of Railway Safety Case work including at least 3 years of application of EU Common Safety Method.

- **Human Resources Lead** - Responsible for managing all matters relating to human resources management for the Contractor.
 - **Labour Relations Officer** – Responsible for employee relations, communication with workforce representatives / committees and co-ordination of the workforce grievance mechanism together with the Human Resources Lead.
 - **Land and Permits Officer** - Responsible for temporary land acquisition during construction, in accordance with the processes and compensation measures in the **RAP**, including land entry and exit protocols, and permissions to enter permanently acquired for the Project. Also responsible for the return of land to either AYGM or landowners, and the resolution of any grievance related to the contractor's land acquisition processes. Responsible for obtaining any permits required from the provincial authorities.
 - **CLOs** – 2 CLOs, 1 male and 1 female, responsible for consultation on temporary land acquisition, providing affected communities with information on the timing of key activities, and identifying and responding to grievances. CLOs will be based on or near the Project area on a permanent basis. CLOs will have at least 5 years' experience in community liaison on similar projects.
 - **Qualified Archaeological Specialist** - Responsible for overseeing all matters related to archaeology during construction, including implementing the chance finds procedure. Responsible for submitting the CHMP to the regional board and notifying them of the timing of the works at the Anastasius's Walls.
- Certain specialists will be defined as Key Personnel in the Contract and all personnel shall be proposed to the PIU for non-objection in advance of hiring, to ensure they comply with the requirements of this ESMP.
 - EHSS Leads will have the authority to suspend works when necessary, and allocate all resources, personnel and equipment required to take any corrective actions.
 - The above noted personnel will be equipped with the necessary resources to operate independently and get to all locations of the Project area without delay. This may include:
 - A suitable vehicle and the necessary operating budget;
 - A complete IT workstation: computer, printer, Internet access;
 - Field equipment: GPS, digital camera;
 - One communication equipment per person adapted to the context (mobile phone, satellite phone, or, should coverage not be adequate, a long-range two-way radio).
 - Lists of equipment will be maintained on site for inspection by PIU/Supervision Consultant.
 - Additional specialist resources will be appointed by the Contractor and include;
 - **Independent Structural Surveyor** - to be appointed to undertake pre-condition surveys at heritage assets which are sensitive to vibration.
 - **Independent Safety Assessor / Assessment Body** - ISA/AsBo will be registered with the European Union and be properly qualified both as an organization and as the individuals involved. The ISA/AsBo shall assess the safety deliverables of the Project at discrete points

within the project lifecycle against requirements of CSM-RA and as defined in the Rail Safety Plan.

- **Notified Bodies** (NoBo) - The NoBo will be fully qualified and notified with the EU to validate the Project's compliance with Technical Specifications for Interoperability (TSIs).
- The Contractor will also be responsible for appointing Sub-Contractors and ensuring their compliance with the CESMP as applicable to their construction tasks.

TCDD/TCDD TRANSPORT

- **TCDD/TCDD Transport** will have responsibility for the Project during operation, and will oversee the implementation of the Lenders requirements, overseeing the maintenance contractor(s), maintenance subcontractor(s) and other involved third parties. TCDD Transport will also be responsible for implementing this ESMP and developing the **OESMP** (as defined in **Section 19.4**).
- **TCDD Transport** will be responsible appointing the following specialists during operation:
 - **Emergency Manager** will be responsible for coordinating the internal management response in case of emergency events.
 - **Health and Safety Lead** will be responsible for the implementation of health and safety practices during operation. They will be suitably competent and have a strong understanding of health and safety best practice.
 - **Engineer Manager**¹;
 - **Environmental and Social Manager**¹; and
 - **Finance Manager**¹.

THE LENDERS

- **EBRD and AIIB** (collectively known as '**the Lenders**'), are considering financing the Project. The Lenders will require the submission of progress reports that monitor the EHSS performance of the Project against its set of specific Performance Requirements (PRs) for key areas of environmental and social sustainability.

1.4 DELIVERY MECHANISMS

DESIGN CONTROL PROCESS

- 1.4.1. AYGM will be expected to apply a formal process during the development of the design to ensure that the ESMP activities are undertaken and inform the design as it is refined.
- 1.4.2. The Project will require various environmental permits which will need to be applied for from the appropriate authorities. A list of these permits is set out in **Appendix T**.

MANAGEMENT OF CHANGE PROCEDURE

The ESIA has assessed impacts and developed mitigation measures for the Project. Any changes to the design within the Project area have been assessed and will not require re-assessment or approval by the Lenders, subject to Contractors complying with the mitigation measures set out in the disclosure documents.

¹ Part of TCDD/TCDD Transport wider railway operations.

Changes beyond the Project area will require screening and may be subject to assessment, and will require approval from AYGM, and potentially the Lenders where there are material changes. This process is set out in the Management of Change Procedure (MCP) (**Appendix V**).

The MCP provides a process for determining how the potential environmental and social implications of design changes are assessed. The assessment of any design changes ensures appropriate mitigation is identified and implemented to avoid or minimise any adverse effect results from a design change.

CONSTRUCTION ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

1.4.3. The Contractor will be required to develop the **ESMP** into the **CESMP** prior to the start of the construction phase. The **CESMP** will contain several sub-plans, including:

- Construction Biodiversity Management Plan (based on the BMP)
- Construction Emergency Response Plan (based on the ERF)
- Design Change and Management Procedure;
- Supply Chain Management Plan;
- Air Quality and Dust Management Plan;
- Construction Traffic Management Plan;
- Construction Travel Plan;
- Construction Compound Selection and Management Plan;
- Construction Worker's Accommodation Management Plan;
- Cultural Heritage Management Plan;
- Landscape Management Plan (and Landscape / Planting Plans);
- Noise and Vibration Management Plan;
- Waste Management Plan and Materials Management Plan;
- Health, Safety and Security Plan (including occupational health and safety (OHS));
- Surface Water Management Plan;
- Spoil Management Plan;
- Tunnel Construction Plan;
- Tunnel Handover Plan;
- Blasting Management Plan;
- Construction and Design Risk Register;
- Employment Plan;
- Labour Management and Monitoring Plan;
- Training Plan; and
- Workforce Demobilisation Plan

Each sub-plan will be based on a standard format covering: (i) Cross references to applicable legislation and Project EHSS standards; (ii) Roles and responsibilities; (iii) Cross reference to other procedures; (iv) Identification of construction activities with potential risks in the field of concern; (v) Description of impact specific and site specific mitigation measures; (vi) Implementation, monitoring and adaptive management process; (vii) Technical description or measurement / monitoring methods; (viii) Timeframe.

OPERATIONAL ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

1.4.4. TCDD/TCDD Transport will be required to develop the **ESMP** into the **OESMP** prior to the start of the operational phase. The **OESMP** will elaborate the measures for implementing the activities

specified in the **ESMP** during the operational phase of the Project. The **OESMP** will include sub plans including:

- Operational Emergency Response Plan (based on the **ERF**)
- Landscape Management Plan;
- Operational Soil Management Plan;
- Waste Management Plan;
- Operational Maintenance Plan;
- Tunnel Operational Management Plan;
- Employment Plan;
- Labour Management Plan;
- Supply Chain Management Plan;
- Community Health, Safety and Security Plan;
- Health, Safety and Security Plan; and
- Rail System Plan.

SUPPORTING PLANS

1.4.5. The following plans are to be read alongside the **ESMP**, where relevant the **CESMP** and **OESMP** will contain details in reference to the content and implementation of the:

- **SEP**;
- **RAP**;
- **BMP**;
- **CMP**; and
- **ERF**.

A **RSP** has been produced that mandates all the activities the Contractor will need to undertake in order to manage safety according to the European Common Safety Method for Risk Assessment (CSM-RA). A description of the Railway Safety Strategy for the Project, and the framework for a safety management system, is set out in Chapter 6 of the Railway Safety Plan. The Contractor in turn will need to comply with the **RSP** and produce further Railway Safety Management Plans of their own.

EHS NON-CONFORMANCES

- Non-conformities detected during inspections carried out jointly by the PIU and/or Supervision Consultant and Contractor are subject to a process adapted to the severity of the situation. The non-conformities will be defined as deviations from the requirements of the contract, the **ESMP**, the **CESMP** and supporting EHSS documentation. Non-conformities are divided into 4 categories as follows:
 - **Notification of observation of minor non-conformities:** The non-conformity results in a notification to the Contractor's Representative, followed-up by a signed notification of the observation prepared by the Supervision Consultant. The multiplication of notifications of observation, or absence of corrective actions by the Contractor, can result in the severity of the non-conformity being raised to that of level 1.
 - **Level 1 non-conformity:** Non-conformities that do not represent a serious immediate risk for health, environment, social or safety. The non-conformity is the subject of a report addressed to the Contractor and which shall be resolved within 5 days. The Contractor addresses to the Supervision Consultant a report explaining how the non-conformity has been corrected. Further to an inspection and a favourable evaluation of effectiveness of the corrective action,

the Supervision Consultant signs a close-out report for the non-conformity. In all cases where a non-conformity of level 1 is not resolved within one (1) month, the severity of the non-conformity is raised to level 2.

- **Level 2 non-conformities:** applies to all non-conformities that represent a risk with major consequences to health and/or the environment, social or safety. The same procedure as for level 1 non-conformities is applied. Corrective action shall be taken by the Contractor within 3 days. The Contractor addresses a report explaining the corrective actions implemented. All level 2 non-conformities, which are not resolved within 1 month, are raised to level 3.
- **Level 3 non-conformities:** applies to all non-conformities that have resulted in damage to health or the environment, or which represent a high safety hazard or high social risk. The highest levels of the Contractor's and Supervision Consultant's hierarchies present in Turkey are informed immediately and the Contractor has 24 hours to bring the situation under control. A level 3 non-conformity results in the staged reduction of interim payments until the non-conformity has been resolved. Following the resolution of the Level 3 non-conformity the reduction(s) will be included in the next Interim Payment Certificate for payment. No interest will be paid on any reductions or suspended payment amounts. If the situation requires, the Supervision Consultant can order the suspension of work until the resolution of the non-conformity.

1.5 ENVIRONMENTAL AND SOCIAL MANAGEMENT SYSTEM (ESMS)

- 1.5.1. AYGM and TCDD/TCDD Transport shall prepare an overarching corporate level ESMS to cover all projects receiving international financing, which will be applicable to the Project. The key environmental and social requirements for the Contractor to implement will be set out during the Contractor selection process, for inclusion in the Contractor ESMS (as required in the **CMP**).
- 1.5.2. The Contractor will be responsible for implementing an ESMS that is in line with international standards, the Lender requirements, and AYGM's corporate ESMS.

The Contractor will need to fulfil EU environmental, health, safety and social (EHSS) legislative requirements, national legislation requirements, and the performance requirements of the Lenders as set out in Chapter 3 of the **CMP**. Project EHSS requirements include:

- The Lenders Environmental and Social Requirements;
- European Union legislative requirements;
- International Conventions and Protocols Turkey is a party to;
- World Bank Group Environmental, Health, and Safety (EHS) Guidelines; and
- National legislative requirements, including all permits, licenses and approvals.

- 1.5.3. If, and when, national regulations differ from EU substantive environmental standards, the Project will be expected to meet the most stringent of these.

1.6 ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

- 1.6.1. The **ESMP** identifies:
- The mitigation measures and monitoring requirements identified in the ESIA that should be implemented to address the EHSS impacts during the design, construction and operation of the Project;
 - The timing for planning and implementation for mitigation measures and monitoring requirements; and

- The responsible part / parties for planning and implementing the mitigation measures and monitoring requirements.

The design, construction and operation measures are presented in the **Table 19-1**.

Table Error! No text of specified style in document.-1 - Construction Environmental and Social Management Plan (CESMP)

Ref	Environmental / Social Aspect / Concern	Proposed Mitigation Measure	Responsibility		Target/ Indicator
			Preparation / Implementation	Monitoring	
AYGM PIU					
P1	Environmental Social Management System (ESMS)	<p>AYGM shall set up a PIU, who will be responsible for implementing AYGMs corporate ESMS in relation to the Project.</p> <p>The key Environmental and Social commitments in the ESMS will be set out in the tender documents for the Contractor, for inclusion in the Contractor ESMS.</p>	<ul style="list-style-type: none"> ■ Preparation – PIU; and ■ Approval – AYGM Senior Management. 	<ul style="list-style-type: none"> ■ AYGM PIU; and ■ Reported to the Lenders in monthly ESHS reports. 	<ul style="list-style-type: none"> ■ Auditing and approval of the ESMS.
P2	Environmental, Health, Safety and Social Incident Report Procedure	<p>Set up, maintain and continually review an EHSS Incident Reporting Procedure (or equivalent) to ensure accidents and incidents are accurately recorded, maintained and reported. The procedure must be fully integrated into the Project and communicated to the contractor, who will have clearly specified responsibilities.</p>	<ul style="list-style-type: none"> ■ Preparation – PIU; and ■ Approval – AYGM Senior Management. 	<ul style="list-style-type: none"> ■ PIU / Supervision Consultant to report to the Lenders on incidents in the monthly EHSS Report; and ■ Measures to remedy non-compliance to be discussed with Construction Supervisor and agreed by PIU. 	<ul style="list-style-type: none"> ■ Establishment of PIU incident reporting procedure, and inclusion of requirements in tender documents for the Contractor.

Ref	Environmental / Social Aspect / Concern	Proposed Mitigation Measure	Responsibility		Target/ Indicator
			Preparation / Implementation	Monitoring	
P3	Stakeholder Engagement Plan (SEP)	<p>AYGM, with support from the Contractor, will implement the SEP.</p> <p>The SEP is a public document which sets out AYGM's commitments to stakeholder engagement, consultation and disclosure activities in connection with the Project.</p>	<ul style="list-style-type: none"> ■ Preparation – PIU; and ■ Approval – AYGM. 	<ul style="list-style-type: none"> ■ PIU / Supervision Consultant to provide monthly report to the Lenders; and ■ Measures to remedy non-compliance to be discussed with Construction Supervisor approved by Senior Management of AYGM. 	<ul style="list-style-type: none"> ■ SEP elaborated into a detailed SEP. ■ Appointment of CLOs.
P4	Project-level Grievance Mechanism (GM)	The Project Grievance Mechanism Process, as set out in Chapter 6 of the SEP will be implemented by the PIU, with support from the Contractor.	<ul style="list-style-type: none"> ■ Preparation – PIU; and ■ Approval – AYGM Senior Management. 	<ul style="list-style-type: none"> ■ PIU / Supervision Consultant to provide monthly report to the Lenders; and ■ Measures to remedy non-compliance to be discussed with Construction Supervisor and approved by Senior Management of AYGM. 	<ul style="list-style-type: none"> ■ Establishment of GM and feedback service.
P5	Biodiversity Management Plan	Implement the Biodiversity Management Plan (BMP), as set out in Appendix M of the ESIA Chapter 8, including the 2021 pre-	<ul style="list-style-type: none"> ■ Preparation – PIU (Environmental / Biodiversity Specialist); and 	<ul style="list-style-type: none"> ■ PIU / Supervision Consultant; ■ Monthly reporting on BMP action / 	<ul style="list-style-type: none"> ■ Outline BMP Plan approved and made available to the Contractor.

Ref	Environmental / Social Aspect / Concern	Proposed Mitigation Measure	Responsibility		Target/ Indicator
			Preparation / Implementation	Monitoring	
		construction surveys. Once the BMP is updated with the survey results the Contractor will elaborate and implement the full BMP.	<ul style="list-style-type: none"> Implementation – Contractor. 	monitoring outcomes; <ul style="list-style-type: none"> ECoW approval reports that confirm alignments have been checked and cleared prior to access; and Updates included in monthly EHSS progress reports to the Lenders. 	
P7	Contractor Management Plan (CMP)	Implement the requirements in the CMP during the tender process for Contractor selection and during Construction. The CMP is a live document, any changes occurring in relation to the requirements for the Contractor will need to be updated.	<ul style="list-style-type: none"> Preparation – PIU / AYGM; and Implementation – PIU / Contractor. 	<ul style="list-style-type: none"> PIU / Supervision Consultant; Measures to remedy non-compliance to be discussed with Construction Supervisor and approved by Senior Management of AYGM. Updates included in monthly EHSS progress reports to the Lenders. 	<ul style="list-style-type: none"> Contractor appointed in accordance with requirements in the CMP. Contractor undertakes construction in accordance with the requirements in the CMP.
P8	Emergency Response	Implement the Emergency Response Framework, which	<ul style="list-style-type: none"> Construction – PIU / supervision Consultant 	<ul style="list-style-type: none"> PIU / Supervision Consultant 	<ul style="list-style-type: none"> Contractor (construction) TCDD

Ref	Environmental / Social Aspect / Concern	Proposed Mitigation Measure	Responsibility		Target/ Indicator
			Preparation / Implementation	Monitoring	
	Framework and Plans	<p>covers all activities that have the potential to generate emergency events during construction and operation.</p> <p>The ERF is applicable to all Project facilities (e.g. construction work areas, construction compounds, train stations, etc.), Project personnel (AYGM the Contractor and their Sub-Contractors involved in the Project, and all authorised visitors to the Project).</p> <p>The PIU will be responsible for approving the Emergency Response Plans prepared by the Contractor and will ensure its implementation.</p>	<p>to approve ERPs prepared by the Contractor and oversee implementation; and</p> <ul style="list-style-type: none"> Operation – TCDD / TCDD Transport to elaborate and implement. 	<ul style="list-style-type: none"> Any requests for changes to the ERF must be addressed to PIU during construction and will be subject to their review and approval. Updates provided in monthly EHSS progress reports to the Lenders. 	<p>/ TCDD Transport (operation). elaborates the ERF to prepare Emergency Response Plans.</p> <ul style="list-style-type: none"> Contractor / TCDD / TCDD Transport implement the requirements in the ERF.
P9	Resettlement Action Plan	<p>Implement the RAP during pre-construction, construction and operation, to ensure that project-affected peoples (PAPs) and communities are properly resettled and compensated for any losses, in a manner such that their well-being is restored to at least pre-Project levels.</p>	<ul style="list-style-type: none"> PIU (Social and Resettlement Specialist) with support from CLOs, external independent monitoring consultant and other AYGM departments; and Contractor (Land and Permits Officer). 	<ul style="list-style-type: none"> Updates provided in monthly EHSS progress reports to the Lenders. AYGM, with review from external independent monitoring consultant, will prepare bi-monthly 	<ul style="list-style-type: none"> RAP implemented in accordance with requirements, as confirmed by the monitoring and completion audit.

Ref	Environmental / Social Aspect / Concern	Proposed Mitigation Measure	Responsibility		Target/ Indicator
			Preparation / Implementation	Monitoring	
		The RAP identifies eligible persons, types of impacts and entitlements to be provided, supported by the stakeholder engagement included in the SEP.	<ul style="list-style-type: none"> Operation – TCDD / TCDD Transport. 	<p>reports on performance monitoring (internal monitoring) to the Lenders.</p> <ul style="list-style-type: none"> External independent monitoring consultant and CLOs will prepare a 6-monthly report on Impact monitoring (external monitoring) to the Lenders External independent monitoring consultant to prepare a completion audit and long-term review on completion of RAP timetable as agreed between PIU and Lenders, and yearly for 3 years post-completion. 	

Ref	Environmental / Social Aspect / Concern	Proposed Mitigation Measure	Responsibility		Target/ Indicator
			Preparation / Implementation	Monitoring	
P10	Land Delivery Protocol	<p>Develop and implement the Land Delivery protocol to transfer land acquired by AGMY to the Contractor, as required in the RAP.</p> <p>Land delivery will be regulated by a Land Delivery Protocol that will be signed by the representatives of AYGM and the Contractor. The Land Delivery Protocol shall clearly identify each land parcel in the expropriation corridor and/or any other sites that shall be transferred to the Contractor. The Land Delivery Protocol shall contain the following attachments:</p> <ul style="list-style-type: none"> ■ Land acquisition drawings identifying the exact location of the Project alignment and centreline, the boundaries of the acquired expropriation corridor that are subject to transfer, the identification of parcel boundaries and land parcel numbers for all land affected land parcels; ■ List of coordinates to allow the setting out of the expropriation 	<ul style="list-style-type: none"> ■ PIU Social and Resettlement Specialist with support from CLOs and other AYGM departments; and ■ Contractor. 	<ul style="list-style-type: none"> ■ AYGM, with review from external independent monitoring consultant, will prepare bi-monthly reports on performance monitoring (internal monitoring) to the Lenders. ■ External independent monitoring consultant and CLOs will prepare a 6-monthly report on Impact monitoring (external monitoring) to the Lenders ■ External independent monitoring consultant to prepare a completion audit and long-term review on completion of RAP timetable as agreed between PIU and Lenders, and 	<ul style="list-style-type: none"> ■ RAP implemented in accordance with requirements, as confirmed by the monitoring and completion audit.

Ref	Environmental / Social Aspect / Concern	Proposed Mitigation Measure	Responsibility		Target/ Indicator
			Preparation / Implementation	Monitoring	
		<p>corridor boundaries in the field; and</p> <ul style="list-style-type: none"> ■ List of landowners and land users or tenants for all transferred land parcels. <p>In cases that land acquisition activities have not yet been completed for individual land parcels within a section of the expropriation corridor subject to delivery to the Contractor, these individual land parcels shall be listed on the relevant Land Delivery Protocol and upon availability shall then be transferred by another, individual Land Delivery Protocol.</p> <p>The Contractor shall under no circumstances enter into land that has not been delivered through a Land Delivery Protocol or for which they have established rights through a rental agreement with the relevant landowner.</p> <p>The Contractor will then follow the Land Entry Protocol (see C4).</p>		<p>yearly for 3 years post-completion.</p> <ul style="list-style-type: none"> ■ Updates provided in monthly EHSS progress reports to the Lenders. 	

Ref	Environmental / Social Aspect / Concern	Proposed Mitigation Measure	Responsibility		Target/ Indicator
			Preparation / Implementation	Monitoring	
P11	Labour Management and Monitoring	<p>To reduce and mitigate effects associated with child labour, forced labour and employment relations, the following measures will be implemented:</p> <ul style="list-style-type: none"> ■ AYGM will document their human resources policy and procedures, ensuring they are in line with both national legislation, applicable ILO standards and recommendations and PR2. ■ The PIU will ensure that the Project construction tendering process includes clauses and policies on minimum working age, normal working hours, freedom to collective bargaining, good working conditions, supply chain management, and measures to eradicate the risk of forced labour. 	<ul style="list-style-type: none"> ■ Preparation – PIU; and ■ Approval – AYGM Senior Management 	<ul style="list-style-type: none"> ■ Updates provided in monthly EHSS progress reports to the Lenders. 	<ul style="list-style-type: none"> ■ Human resources policy and procedures are aligned with both national legislation, applicable ILO standards and recommendations and PR2; and ■ Construction tendering process includes clauses and policies on minimum working age, normal working hours, freedom to collective bargaining, good working conditions, supply chain management, and measures to eradicate the risk of forced labour.
Contractor (Preparation of final design)					
D1	Management of Change	Establish a Management of Change Procedure (MCP) which	<ul style="list-style-type: none"> ■ Implementation – Contractor; and 	<ul style="list-style-type: none"> ■ PIU / Supervision Consultant. 	<ul style="list-style-type: none"> ■ MCP in place; and

Ref	Environmental / Social Aspect / Concern	Proposed Mitigation Measure	Responsibility		Target/ Indicator
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	Procedure (MCP)	<p>is aligned with Appendix V for the design finalisation, any design changes required during construction or other changes during construction, including any additional land which is required outside of the expropriation corridor. Where relevant, MCP to include the methodology for the assessment and identification of any additional mitigation measures that are required to manage the EHSS impacts and ensure continued compliance with the Project EHSS requirements.</p> <p>The MCP shall be submitted for approval within 30 days of the contract commencement date</p> <p>Undertake consultation on the design finalisation, and any design changes that have the potential to result in impacts on the local communities.</p>	<ul style="list-style-type: none"> Approval - PIU / Supervision Consultant. 	<ul style="list-style-type: none"> Updates / design changes to be provided / notified in monthly EHSS progress reports to the Lenders. 	<ul style="list-style-type: none"> Management of design change report produced, and assessment of changes undertaken, as required.
D2	CMP	Implement relevant measures in the CMP during the development of the final design and construction.	Implementation – Contractor.	PIU / Supervision Consultant to report to the Lenders on	<ul style="list-style-type: none"> CMP measures implemented during the development of

Ref	Environmental / Social Aspect / Concern	Proposed Mitigation Measure	Responsibility		Target/ Indicator
			Preparation / Implementation	Monitoring	
				incidents in the monthly EHSS Report.	the final design and construction.
D3	BMP Design Mitigation Measures	<p>The Design Mitigation Measures in the BMP (Table 4-1) will be included in the design using information from the pre-construction surveys, as follows:</p> <ul style="list-style-type: none"> ■ Adapted fencing with poles (1a(i)) ■ Animal underpasses and mammal ledges within culverts (2f(iii)) and ■ Anti-perching structures on catenary structures (4c(i)) 	Implementation – Contractor.	PIU / Supervision Consultant to report to the Lenders on incidents in the monthly EHSS Report.	<ul style="list-style-type: none"> ■ Design Mitigation Measures in the BMP included in the final design.
D4	Railway Safety Plan	Implement the design related measures in the Railway Safety Plan (lifecycle phases 1 – 6), including the development of a Hazard Log, during the development of the final design.	Implementation – Contractor.	PIU / Supervision Consultant to report to the Lenders on incidents in the monthly EHSS Report.	<ul style="list-style-type: none"> ■ Compliance with Railway Safety Plan.
D5	Tunnel Boring	Undertake a detailed assessment of vibratory effect of tunnel boring on nearby receptors at the detailed design stage. This will take into consideration any geotechnical studies undertaken to inform the final design.	Implementation – Contractor.	PIU / Supervision Consultant to report to the Lenders on incidents in the monthly EHSS Report.	<ul style="list-style-type: none"> ■ Completion of vibration assessment and refinement of mitigation, and information provided to local

Ref	Environmental / Social Aspect / Concern	Proposed Mitigation Measure	Responsibility		Target/ Indicator
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					<p>communities, if required; and</p> <ul style="list-style-type: none"> Measures to reduce vibration included in design and construction work practices, if required.
D6	Topographic Survey	Undertake a full topographic survey at the detailed design stage to identify smaller watercourses or overland flow routes that may need to be incorporated into the final design of the Project.	Implementation – Contractor.	PIU / Supervision Consultant to report to the Lenders on incidents in the monthly EHSS Report.	<ul style="list-style-type: none"> Measures included in design, if required.
D7	Surface Water Design Measures	Ensure the design of all watercourse crossings and drainage systems will have sufficient capacity for a Q100 flood event, the ESIA identified high risk areas at the crossing of Hadımköy Stream / Eşkinöz Creek (chainage 16+272) and Karasu Stream (chainage 37+198) but other locations should be reviewed and considered.	Implementation – Contractor.	PIU / Supervision Consultant to report to the Lenders on incidents in the monthly EHSS Report.	<ul style="list-style-type: none"> Detailed Hydrological assessment covering the noted issues. Measures included in design.

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		<p>Ensure the Project will be located above the maximum level of water within Buyukcekmece Lake that is stated to be 6.68m OD.</p> <p>Further consideration of the inclusion of flood defence structures at the entrance of the tunnel beneath the Kanal Istanbul project and inclusion of a flood warning system.</p> <p>Once the extent of impermeable surfaces is known, undertake a detailed assessment and, if required, provision of attenuation to reduce rate and volume of increased runoff from impermeable surfaces.</p> <p>Further consideration to potential impacts to fluvial floodplain storage and conveyance in high risk areas, and provision of appropriate mitigation such as flood relief culverts beneath embankments or reprofiling of low-vulnerability land to provide compensation, i.e. to create</p>			

Ref	Environmental / Social Aspect / Concern	Proposed Mitigation Measure	Responsibility		Target/ Indicator
			Preparation / Implementation	Monitoring	
		<p>additional flood storage capacity (for example agricultural land) in agreement with the relevant land owners. The assessment has identified high risk areas at Hadımköy Stream / Eşkinöz Creek (chainage 7+500 to chainage 16+727) and Karasu Stream (chainage 37+198 and chainage 44+500) but other locations should be reviewed and considered.</p> <p>Set back bridge piers from within watercourse where possible to remove any impacts on flow conveyance. Piers within watercourses designed to reduce displacement of water.</p> <p>Bridge piers have been designed to reduce scour with the design foundation level for the piers being at least 1m below the lowest identified point in the bed of the watercourse. Provision of scour protection measures to the piers, which could include rock</p>			

Ref	Environmental / Social Aspect / Concern	Proposed Mitigation Measure	Responsibility		Target/ Indicator
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		<p>armour, concrete bagwork and concrete scour mattress.</p> <p>Further consideration to flood risk to the Project from adjacent fluvial floodplains. If the operational risks are not considered acceptable to the potential impact on train service interruption the Project may need to be raised above adjacent ground level or other flood defence / management measures installed to improve the resilience of the Project. The assessment has identified high risk areas along Karasu Stream (chainage 25+500 to chainage 35+000, and chainage 35+224) but other locations should be reviewed and considered.</p> <p>Further consideration of the potential effects of climate change to flood flows and the extent/depth of the floodplain.</p> <p>Provision of erosion control upstream and downstream of all watercourse crossings to prevent</p>			

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		<p>scour and impact to watercourse hydromorphology and geomorphology (e.g. rock armour, concrete bagwork and concrete scour mattress).</p> <p>Further consideration of stability risks where the Project is located in close proximity to watercourses. The assessment has identified high risk areas along Karasu Stream (chainage 35+000 and chainage 43+000 to chainage 45+000) and Hadımköy Stream / Eşkinöz Creek (chainage 9+000 to chainage 16+727) but other potential high-risk locations should be reviewed and considered.</p> <p>Investigate the location of water wells along the entire length of the Project, including in Gökçeali. Ensure the detailed design of the Project does not adversely affect access to water wells or the availability of water from the water wells. The Project must ensure</p>			

Ref	Environmental / Social Aspect / Concern	Proposed Mitigation Measure	Responsibility		Target/ Indicator
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		<p>groundwater resources are protected.</p> <p>Obtain agreement from the relevant DSI Regional Directorates for any changes to existing drainage systems or increase in wastewater discharge, and/or any changes to existing water supply systems or increase in water demand.</p>			
D8	Potential Impact on Soil Erosion due to Construction Activities	<p>The detailed design of the Project will incorporate the following measures to reduce the likely release of loose material or material with the potential to become loose in-situ:</p> <ul style="list-style-type: none"> ■ Slope stabilisation – including mulching (straw mulching), brushwood mulching, erosion control blankets (protective nets), soil binders (e.g. polyacrylamide), hydro-seeding and gravelling; ■ Retaining walls – to retain loose materials on slopes where it would not naturally be held, for example on near vertical or vertical slopes; 	Implementation - Contractor	PIU / Supervision Consultant to report to the Lenders on incidents in the monthly EHSS Report.	<ul style="list-style-type: none"> ■ Measures included in the design.

Ref	Environmental / Social Aspect / Concern	Proposed Mitigation Measure	Responsibility		Target/ Indicator
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		<ul style="list-style-type: none"> ■ Sediment traps and basins – which will intercept and retain sediment-laden runoff; ■ Drainage channels – which will divert run-off water; ■ Treatment systems – to remove material contained within the run-off water; and ■ Revegetation – to increase the stability of the loose materials and surfaces which become exposed during the construction phase of the Project. 			
D7	Potential Effects on Groundwater Quality, Flow, and Recharge	<p>Contractor to undertake the following studies and investigations to inform the final design:</p> <ul style="list-style-type: none"> ■ A detailed Hydrogeological Model and Risk Assessment and Ground Investigation, particular for the design of Tunnel 1 (TBM twin-bored, CH 0+700-6+678), to understand geological and hydrogeological conditions. The geotechnical analysis for the tunnel should consider the need for liquefaction analysis due to the 	Implementation - Contractor	PIU / Supervision Consultant to report to the Lenders on incidents in the monthly EHSS Report.	<ul style="list-style-type: none"> ■ Measures included in the design.

Ref	Environmental / Social Aspect / Concern	Proposed Mitigation Measure	Responsibility		Target/ Indicator
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		<p>seismic risk at this location, this should be undertaken if the ground conditions indicate that liquefaction is a potential risk; and</p> <ul style="list-style-type: none"> Foundation Risk Assessments and Piling Risk Assessments for bridges, viaducts, overpasses, underpasses and cut and cover tunnels. They should be used to develop measures to protect groundwater resources as part of the design and during construction. 			
D9	Construction and Design Risk Register	<ul style="list-style-type: none"> Prepare a Construction and Design Risk Register at the detailed design stage. Review the register and the mitigation listed within it alongside the short list of major events (Chapter 17, Table 17-5) to ensure MA&D event risk is as low as reasonably practicable; and Review the short list of major events and embed appropriate mitigation measures into the detailed design of the Project 	Implementation - Contractor	PIU / Supervision Consultant to report to the Lenders on incidents in the monthly EHSS Report.	<ul style="list-style-type: none"> Production of Construction and Design Risk Register. Mitigation to lower the risk of Major events included in the design, if required.

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			Preparation / Implementation	Monitoring	
		so that the risk of a major event is as low as reasonably practicable.			
D10	Design Standards	The Project will comply with applicable national design standards, which include Eurocodes, this will include designing appropriate environmental parameters (flood, wind, lightning, ground stability) including climate change. Design standards apply to controls and systems and civil infrastructure.	Implementation - Contractor	PIU / Supervision Consultant to report to the Lenders on incidents in the monthly EHSS Report.	<ul style="list-style-type: none"> Design complies with design standards.
D11	Noise Design Mitigation	<p>The Project benefits from cuttings at sensitive locations. These structures will provide a noise level reduction of between 5 and 10 dB when line-of-sight is obstructed.</p> <p>Noise barriers have been modelled and predicted to be installed in the following locations:</p> <ul style="list-style-type: none"> Halkali - 500m north of the track (chainage 0+000 – 0+500) - height 3m Bahçeşehir - 200m north of the track (chainage 10+400 – 10+600) - height 3m 	Implementation - Contractor	PIU / Supervision Consultant to report to the Lenders on incidents in the monthly EHSS Report.	<ul style="list-style-type: none"> Noise mitigation is included in the design.

Ref	Environmental / Social Aspect / Concern	Proposed Mitigation Measure	Responsibility		Target/ Indicator
			Preparation / Implementation	Monitoring	
		<ul style="list-style-type: none"> ■ Ömerli - 200m south of the track (chainage 16+200 – 16+400) - height 3m ■ Çatalca - 200m north of the track (chainage 32+700 – 32+900) - height 3m ■ Kaleiçi - 200m south of the track (chainage 33+800 – 34+000) - height 3m ■ Kaleiçi - 300m south of the track (chainage 34+600 – 34+900) - height 4m ■ Kaleiçi - 220m south of the track (chainage 34+680 – 34+900) - height 4m ■ Kaleiçi - 550m north of the track (chainage 34+900 – 35+450) height 2m ■ Kaleiçi - 200m south of the track (chainage 35+700 – 35+900) - height 3m ■ Kaleiçi - 200m south of the track (chainage 36+400 – 36+600) - height 3m ■ Gökçeali - 200m south of the track (chainage 37+200 – 37+400) - height 2m 			

Ref	Environmental / Social Aspect / Concern	Proposed Mitigation Measure	Responsibility		Target/ Indicator
			Preparation / Implementation	Monitoring	
		<ul style="list-style-type: none"> ■ Gökçeali - 280m north of the track (chainage 37+970 – 38+250) - height 2m ■ İnceğiz - 200m south of the track (chainage 43+000 – 43+200) - height 4m ■ Kabakça - 200m north of the track (chainage 43+600 – 43+800) height 3m ■ Kabakça - 200m north of the track (chainage 45+900 – 46+100) - height 3m ■ İstasyon - 200m on both sides of the tracks (chainage 73+500 and 73+700) height 2m ■ İstasyon - 500m south of the track (chainage 73+800 and 74+300) - height 2m ■ İstasyon - 200m north of the track (chainage 74+500 and 74+700) - height 2m ■ İstasyon - 850m north of the track (chainage 75+750 and 76+600) - height 3m ■ <p>Noise barriers should comply with the design requirements set in BS</p>			

Ref	Environmental / Social Aspect / Concern	Proposed Mitigation Measure	Responsibility		Target/ Indicator
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		<p>EN 1793:1998, Road traffic for noise reducing devices – Test method for determining the acoustic performance, Part 2, or equivalent. The airborne sound insulation for the barrier panels should be at least 24 dB.</p> <p>The Contractor should undertake optimisation of the noise barriers (height and length), to refine their dimensions and locations as part of the detailed design process.</p> <p>The Contractor should validate the operational noise model with noise measurements for the same trains (as those that will be selected for use during operation), in similar conditions of track and speed. It will be also necessary to further understand the location of habitable rooms, within properties, and status of sensitive receptors</p> <p>Where significant effects remain after the implementation of a noise barrier and/or noise limits stated in the Regulation on the Assessment and Management of</p>			

Ref	Environmental / Social Aspect / Concern	Proposed Mitigation Measure	Responsibility		Target/ Indicator
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		Environmental Noise (2010) are not met, enhancement of the existing window glazing can be explored with the Ministry of Environment and Urbanisation. This option should be assessed taking into consideration alternative means of ventilation and in recognition that the further noise reduction will depend on the specification and state of the current windows.			
D12	Materials	<ul style="list-style-type: none"> ■ Set out the specification of recycled and secondary content in imported materials; ■ Consider the use of low-carbon cement, where it meets the required specifications; ■ Demonstrate the reduction in GHG that has been achieved through the detailed design and selection of materials. ■ Ensure the Project is designed for deconstruction and disassembly; ■ Identify materials and products that afford higher sustainability 	Implementation - Contractor	PIU / Supervision Consultant to report to the Lenders on incidents in the monthly EHSS Report.	<ul style="list-style-type: none"> ■ The recycled and secondary content in imported materials is specified. ■ The Project is designed for deconstruction and disassembly. ■ Materials and products that afford higher sustainability performance than typical industry standards are used.

Ref	Environmental / Social Aspect / Concern	Proposed Mitigation Measure	Responsibility		Target/ Indicator
			Preparation / Implementation	Monitoring	
		performance than typical industry standards; <ul style="list-style-type: none"> ■ Materials will be selected that are able to withstand temperatures up to 60C hotter than current temperatures; and ■ Selected materials will be able to withstand scour. 			
D13	Micro-Routing	As required in Chapter 2 of the RAP, the Contractor will need to consider the implementation of the outlined micro-routing to reduce the number of people who will be affected by expropriation and ensure the appropriate location, sizing / accessibility, and provision of overpasses, underpasses, and tunnels. The specific locations of the micro-routing are detailed Chapter 2 of the RAP. The findings of the micro-routing should be communicated to the local communities by the CLOs and be included on the Project website.	<ul style="list-style-type: none"> ■ Implementation – Contractor ■ Communication – PIU (CLOs) ■ Approval – PIU and Supervision Consultant 	PIU / Supervision Consultant to report to the Lenders on incidents in the monthly EHSS Report.	<ul style="list-style-type: none"> ■ Micro-routing report with recommendations and justification for final proposed routing.
Contractor (Pre-Construction and Construction)					

Ref	Environmental / Social Aspect / Concern	Proposed Mitigation Measure	Responsibility		Target/ Indicator
			Preparation / Implementation	Monitoring	
C1	Development of a Construction ESMP (CESMP)	<ul style="list-style-type: none"> ■ The Contractor will elaborate the ESMP to prepare a CESMP which must be aligned with the PIUs ESMS; ■ The CESMP will be submitted to the Supervision Consultant and PIU for approval at least 30 days prior to taking possession of any work site. No access to the Site will be allowed until the CESMP is approved by the Supervision Consultant and the PIU; The commencement of construction in each area shall be authorised by the Supervision Consultant and the PIU only after non-objection of the related specific EHSS management procedures. ■ The CESMP will include the Management of Procedure (MCP) established during the finalisation of the design (see D1 above); ■ New topic specific or site specific ESMPs may also need to be developed by the Contractor during the 	<ul style="list-style-type: none"> ■ Preparation – Contractor; and ■ Approval – PIU and Supervision Consultant. 	<ul style="list-style-type: none"> ■ The Contractor will prepare monthly reports for the PIU on the status of the CESMP and EHSS performance; and ■ PIU / Supervision Consultant will prepare monthly EHSS reports for the Lenders, drawing on the Contractors monthly reports. 	<ul style="list-style-type: none"> ■ Contractor's CESMP approved by the PIU / Supervising Engineer.

Ref	Environmental / Social Aspect / Concern	Proposed Mitigation Measure	Responsibility		Target/ Indicator
			Preparation / Implementation	Monitoring	
		<p>construction phase or the CESMP updated. These new/updated plans will also need to be approved by the Supervision Consultant and the PIU;</p> <ul style="list-style-type: none"> ■ As part of the CESMP, the Contractor will need to liaise with the contractors of any adjacent construction projects (with the support of AYGM / PIU, if required), to reduce the potential for cumulative effects; and ■ The CESMP will include a requirement to implement the CMP, RAP, SEP and RSP during construction ■ The Contractor will ensure that adequate resources are mobilised to implement the CESMP, including input from any specialist resources necessary to ensure effective planning and implementation of measures. 			

Ref	Environmental / Social Aspect / Concern	Proposed Mitigation Measure	Responsibility		Target/ Indicator
			Preparation / Implementation	Monitoring	
C2	Development of sub-plans of the CESMP	<p>Prior to the start of works and as part of the CESMP the Contractor shall prepare the following plans in line with the Lenders requirements and national legislation, this ESMP and the PIU ESMS:</p> <ul style="list-style-type: none"> ■ Construction Biodiversity Management Plan (which elaborates the BMP); ■ Construction Emergency Response Plan (which elaborates the ERF); ■ Design Change and Management Procedure; ■ Supply Chain Management Plan; ■ Air Quality and Dust Management Plan; ■ Construction Traffic Management Plan; ■ Construction Travel Plan; ■ Construction Compound Selection and Management Plan; ■ Construction Worker's Accommodation Management Plan; 	<ul style="list-style-type: none"> ■ Preparation – Contractor; and ■ Approval – PIU and Supervision Consultant. 	Supervision Consultant to prepare monthly progress reports, signed off by the PIU, for the Lenders.	<ul style="list-style-type: none"> ■ Sub-plans approved as part of the Contractor CESMP.

Ref	Environmental / Social Aspect / Concern	Proposed Mitigation Measure	Responsibility		Target/ Indicator
			Preparation / Implementation	Monitoring	
		<ul style="list-style-type: none"> ■ Cultural Heritage Management Plan; ■ Landscape Management Plan (and Landscape / Planting Plans); ■ Noise and Vibration Management Plan; ■ Waste Management Plan and Materials Management Plan; ■ Health, Safety and Security Plan; ■ Surface Water Management Plan; ■ Spoil Management Plan; ■ Tunnel Construction Plan; ■ Tunnel Handover Plan; ■ Blasting Management Plan; ■ Construction and Design Risk Register; ■ Employment Plan; ■ Labour Management and Monitoring Plan; ■ Risk Assessments and Method Statements; ■ Training Plan; and ■ Workforce Demobilisation Plan 			
C3	Construction Biodiversity	The Contractor will elaborate the BMP to prepare and implement	<ul style="list-style-type: none"> ■ Preparation / Implementation – Contractor; and 	<ul style="list-style-type: none"> ■ PIU / Supervision Consultant; 	<ul style="list-style-type: none"> ■ Preparation and implementation of a Construction BMP.

Ref	Environmental / Social Aspect / Concern	Proposed Mitigation Measure	Responsibility		Target/ Indicator
			Preparation / Implementation	Monitoring	
	Management Plan	<p>the full BMP throughout construction.</p> <p>The BMP is a live document and should be updated to reflect increased understanding of Project programme and design, and should be informed by any new information which may be obtained from ecology pre-construction surveys, invasive plant species surveys, botanical surveys, and any other ongoing/pre-construction surveys, or from relevant Project stakeholders.</p>	<ul style="list-style-type: none"> Approval - PIU / Supervision Consultant. 	<ul style="list-style-type: none"> Monthly reporting on BMP action / monitoring outcomes; ECoW approval reports that confirm alignments have been checked and cleared prior to access; and Updates included in monthly EHSS progress reports to the Lenders. 	
C4	Construction Compound Selection and Management Plan	<p>The Contractor will be responsible for negotiating agreements with landowners, to temporarily use land for construction compounds and construction access in accordance with the RAP</p> <p>Construction compounds will be selected in consultation with affected communities, as required in the SEP.</p>	<ul style="list-style-type: none"> Preparation / Implementation – Contractor; and Approval - PIU / Supervision Consultant. 	<ul style="list-style-type: none"> The PIU/Supervision Consultant will arrange independent audits and inspections of the construction sites and construction compounds every 6 months to ensure compliance with both national legislation and applicable ILO 	<ul style="list-style-type: none"> Preparation and implementation of a Construction Compound Selection and Management Plan.

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		<p>Construction compounds are required to be located away from sensitive receptors to minimise any adverse impacts as a result of construction activities, using the Construction Compound Selection criteria, which is as follows:</p> <ul style="list-style-type: none"> ■ Not currently used for residential or commercial purposes; ■ At least 1km from any residential areas; ■ At least 50m from any surface watercourse; ■ At least 2km from any internationally or nationally protected area; and ■ Situated in areas where there are no known heritage assets. <p>Any deviation from these separation distance must be supported by sufficient justification and additional mitigation measures, and the location and mitigations must be approved by the PIU. The Contractor will be responsible for the provision of utilities (water,</p>		standards and recommendations.	

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		<p>electricity and plumbing), wastewater and waste management as well as telecommunications to construction compounds.</p> <p>Foul drainage from construction compounds / construction workers accommodation must be disposed of appropriately, with robust treatment and according to the requirements of the Regulation on Control of Water Pollution and with required agreements obtained from the DSI Regional Directorates.</p> <p>Provision of water to the construction compounds will be done in accordance with the Regulation on the Quality and Treatment of Water Intended for Potable Water Supply and as agreed with the relevant DSI Regional Directorates.</p> <p>The Contractor will provide private site security for the construction</p>			

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		<p>compounds, in co-ordination the General Directorate of Security.</p> <p>The Contractor will conduct due diligence investigations for all their security personnel to make sure they have the appropriate permits / licencing from the Ministry of Internal Affairs, training and experience, they will also be given the training set out in the Training Plan.</p> <p>The Contractor will ensure all dirt and debris are cleaned on construction sites.</p> <p>Upon completion, areas used as construction compounds will be returned to their original use and state, prior to being returned to the landowner., via the land exit protocol (see C6).</p> <p>The Construction Workers Accommodation will meet the requirements set out in C10.</p>			

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C5	Land Entry Protocol	<p>Implement the following land entry protocol, as required in the RAP:</p> <ul style="list-style-type: none"> ■ Following the possession of the site by the Contractor through either the Land Delivery Protocol, or rental agreement, the Contractor shall notify the affected landowners and/or tenants and sign a Land Entry Protocol at least 3 days prior to physically entering any land in the expropriation corridor. The Land Entry Protocol shall be signed between the landowner/land user of the land and the representative of the Contractor, being witnessed by representatives of AYGM and the Mukhtar; ■ Once the Land Entry Protocol has been signed, the Contractor will stake out the construction site and prepare construction plans and procedures to be submitted to AYGM; and ■ For land, which is being use temporarily for construction 	<ul style="list-style-type: none"> ■ Implementation – Contractor; and ■ Approval – PIU / Supervision Consultant. 	<ul style="list-style-type: none"> ■ Quarterly monitoring by the external RAP Monitoring consultant, appointed by the PIU. ■ Completion Audit and Long-Term Review. ■ Updates provided in monthly EHSS progress reports to the Lenders. 	<ul style="list-style-type: none"> ■ RAP implemented in accordance with requirements, as confirmed by the monitoring and completion audit.

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		activities, via a rental agreement, records should be taken to document the existing condition of the land, and a commitment made to re-instate land to the existing condition, or better.			
C6	Land Exit Protocol	<p>Implement the following land exit protocol, as required in the RAP.</p> <p>The Contractor is responsible for the return of the land temporarily used to its original state and to the original owner and/or land tenant.</p> <p>The return of the land shall be documented in a Land Exit Protocol that shall be concluded between the Contractor and the original owner and/or the land tenant and witnessed by AYGM.</p> <p>In the Land Exit Protocol, it will be confirmed by the landowner/tenant that all eventual claims of the landowner or tenant towards the Contractor have been addressed and settled. During the</p>	<ul style="list-style-type: none"> ■ Implementation – Contractor, with AYGM responsible for providing the information pamphlet produced with input from TCDD/TCDD Transport; and ■ Approval – PIU / Supervision Consultant. 	<ul style="list-style-type: none"> ■ Updates provided in monthly EHSS progress reports to the Lenders. ■ AYGM, with review from external independent monitoring consultant, will prepare bi-monthly reports on performance monitoring (internal monitoring) to the Lenders. ■ External independent monitoring consultant and CLOs will prepare a 6-monthly report on Impact monitoring 	<ul style="list-style-type: none"> ■ RAP implemented in accordance with requirements, as confirmed by the monitoring and completion audit.

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		<p>land exit, the landowner/tenant shall receive and confirm the receipt of an information pamphlet or paper provided by AYGM addressing the operation and emergency procedures for the Project and specifically any restrictions that may be imposed onto the land.</p> <p>The process is presented below:</p> <ul style="list-style-type: none"> ■ Completion of all construction, installation and testing works and site clean-up works; ■ Completion of all reinstatement work (e.g. slope stabilisation and erosion and surface reinstatement); ■ Formal Request for Land Exit by Contractor with completion of works to AYGM's Social and Resettlement Specialist; ■ Distribution of land re-use conditions pamphlet to landowners/land users; and ■ Signing of Land Exit Protocol with landowner/land user in the presence of AYGM representative (e.g. CLO). 		<p>(external monitoring) to the Lenders</p> <ul style="list-style-type: none"> ■ External independent monitoring consultant to prepare a completion audit and long-term review on completion of RAP timetable as agreed between PIU and Lenders, and yearly for 3 years post-completion. 	

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		<p>For land that is being permanently acquired for the Project, the Contractor will be responsible for the return of land to AYGM. The Land Exit Protocol for returning land to AYGM will consist of the following:</p> <ul style="list-style-type: none"> ■ Completion of all construction, installation and testing works; ■ Completion of all site clean-up works to ensure the site is tidy and not contaminated; ■ Completion of all activities within the Landscape / Planting Plan for revegetation; ■ Agreement from AYGM that the site is in a suitable condition to be handed back. ■ Signing of Land Exit Protocol between the Contractor and AYGM. 			
C5	Construction Emergency Response Plan (based on the ERF)	The Contractor shall elaborate the ERF, which provides an overarching framework to be used to identify and manage potential emergency events, to prepare the Construction Emergency Response Plan (ERP).	Preparation – Contractor (Health and Safety Lead).	<ul style="list-style-type: none"> ■ Contractor to provide weekly progress report to the Supervision Consultant. ■ Supervision Consultant to 	<ul style="list-style-type: none"> ■ Construction ERP approved by the PIU prior to construction and implemented during construction.

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		The Construction ERP will be reviewed after any emergency event or training exercise to provide opportunity for continual improvements.		prepare monthly progress reports, signed off by the PIU, for the Lenders.	
C6	Supply Chain Management Plan	<p>The Contractor shall ensure that:</p> <ul style="list-style-type: none"> ■ All EHSS requirements for the Contractor, including Lender's requirements, Turkish legislation and the Project EHSS requirements, will apply to sub-contractors; ■ All sub-contractors will be supplied with copies of the CESMP, CESMP sub-plans, CMP and plans with EHSS requirements, as identified in the CMP; and ■ All sub-contractors will be required to appoint a safety representative who will be available on the Site throughout the contract period, unless the Supervision Consultant gives the sub-contractor exemption from this in writing. 	<ul style="list-style-type: none"> ■ Preparation – Contractor; and ■ Approval – PIU / Supervision Consultant. 	<ul style="list-style-type: none"> ■ Contractor to provide weekly progress report to the Supervision Consultant. ■ Undertake 6 monthly monitoring of suppliers. ■ Supervision Consultant to prepare monthly progress reports, signed off by the PIU, for the Lenders. 	<ul style="list-style-type: none"> ■ Supply Chain Management Plan is approved by the PIU / Supervision Consultant and reported to the Lenders; and ■ Provisions are included in all sub-contractor agreements.

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		<p>The Supply Chain Management Plan will also require the Contractor to:</p> <ul style="list-style-type: none"> ■ Ensure that all sub-contractors have human resources policies and procedures on minimum working age, normal working hours, freedom to collective bargaining, good working conditions and eradicating risks of forced labour; ■ Ensure sub-contractors have employment contract for all permanent and temporary employees in accordance with Labour law. and ■ Undertake regular (every 6 months) monitoring of suppliers to avoid risks associated with child labour and forced labour. 			
C7	Air Quality and Dust Management Plan (AQ&DMP)	<ul style="list-style-type: none"> ■ The Contractor will prepare an AQ&DMP, which will include a requirement for monitoring of dust deposition, dust flux, real-time PM₁₀ continuous monitoring and/or visual inspections; 	<ul style="list-style-type: none"> ■ Preparation / Implementation – Contractor ■ Approval – PIU / Supervision Consultant 	<ul style="list-style-type: none"> ■ Contractor. ■ Liaison with affected communities (CLOs), as required in the SEP. ■ Liaison with Istanbul and Tekirdag 	<ul style="list-style-type: none"> ■ Plan approved by PIU / Supervision Consultant; and ■ Plan implemented by Contractor.

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		<ul style="list-style-type: none"> ■ Daily on-site inspections to monitor compliance with the AQ&DMP will be carried out and results recorded. The inspection results will be recorded and made available to the Istanbul and Tekirdağ Metropolitan Municipalities when requested. This will include regular dust soiling checks of surfaces such as street furniture, cars and windowsills within 100m of the construction site boundary, with cleaning to be provided if necessary; ■ Dust deposition, dust flux, or real-time PM₁₀ continuous monitoring locations will be agreed in liaison with the Istanbul and Terkirdag Metropolitan municipalities, but this will be focused on locations where higher levels of dust are likely, such as near any borrow pits that are required, blasting locations and locations where there are substantial earthworks, such 		<p>Metropolitan Municipalities.</p> <ul style="list-style-type: none"> ■ Supervision Consultant to prepare monthly progress reports, signed off by the PIU, for the Lenders. 	

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		<p>as cut and cover tunnels and deep cuttings / embankments and unpaved access roads. Where possible, baseline monitoring should start at least three months before the construction phase commences.</p> <ul style="list-style-type: none"> ■ Dust and particulate monitoring will be focused around areas with multiple sensitive receptors within close proximity to the works (e.g. Esenyurt, Bahçeşehir and Catalca). Dust and particulate monitoring will also provide information which will be used to reduce dust exposure of the health of construction workers in the event of an exceedance of the EU Air Quality Standard short term limit for PM₁₀ of 50µm/m³ daily (24-hour) mean, not to be exceeded more than 35 times a calendar year (see full Standard in Appendix U). ■ If standards are exceeded, construction activities at that location should be stopped, 			

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		<p>and the method statements reviewed to identify further mitigation measures and / or more appropriate weather conditions under which the activity can be undertaken.</p> <ul style="list-style-type: none"> ■ All dust and air quality grievances will be recorded by the Contractor, using the Project Grievance Mechanism, and causes identified. Appropriate remedial action will be taken in a timely manner with a record kept of actions taken including of any additional measures put in-place to avoid reoccurrence. ■ The air-quality related items in the Grievance Mechanism log will be made available to the Istanbul and Tekirdağ Metropolitan Municipalities on request. ■ The application of dust reduction measures will be increased when activities with a high potential to produce dust are being carried out and 			

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		<p>during prolonged dry or windy conditions.</p> <ul style="list-style-type: none"> ■ Any exceptional incidents that cause dust and/or air emissions, either on or offsite will be recorded, and action taken to resolve the situation recorded in the Grievance Mechanism. ■ Regular liaison meetings with other high-risk construction sites within 500m of the Project boundary will be held, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. The meetings will also be used to understand the interactions of the off-site transport/ deliveries which might be using the same strategic road network routes. ■ Further measures to be implemented on construction compounds include; ■ Only cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local 			

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		<p>extraction, e.g. suitable local exhaust ventilation systems will be used;</p> <ul style="list-style-type: none"> ■ An adequate water supply will be maintained on site for effective dust or particulate matter suppression or mitigation, using non-potable water where possible and appropriate; ■ Enclosed chutes conveyors and covered skips will be used; ■ Drop heights from conveyors will be minimised, loading shovels, hoppers and other loading or handling equipment and fine water sprays will be used on such equipment wherever appropriate; and ■ Equipment will be maintained to be readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods. ■ All vehicle operators will switch off engines when stationary - no idling vehicles. 			

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		<ul style="list-style-type: none"> ■ The use of diesel- or petrol-powered generators and use mains electricity or battery powered equipment will be avoided, where practicable. ■ A maximum-speed-limit of 25 kph on surfaced and 15 kph on unsurfaced construction access roads and work areas will be imposed. If long construction access roads are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the Contractor (nominated undertaker) and with the agreement of the local municipality, where appropriate. ■ Bonfires and the burning of waste will be prohibited. ■ Construction walls will be provided in all locations where strong winds could cause the blowing of dust and debris; ■ The site layout will be planned so that machinery and dust causing activities are, as far as 			

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		<p>reasonably practicable, located away from receptors (such as residential properties);</p> <ul style="list-style-type: none"> ■ Solid screens or barriers will be erected, where practicable around dusty activities, or the site boundary, that are at least as high as any stockpiles on site; ■ Where practicable, the site or specific operations will be fully enclosed where there is a high potential for dust production and the site is active for an extensive period; ■ Earthworks and exposed areas/soil stockpiles will be re-vegetated to stabilise surfaces as soon as practicable. ■ Hessian, mulches or tackifiers will be used where it is not possible to re-vegetate or cover with topsoil, as soon as practicable; ■ Where practicable, covers will only be removed in small areas during work and not all at once; ■ Stockpile surface areas will be minimised (subject to health 			

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		<p>and safety and visual constraints regarding slope gradients and visual intrusion) to reduce area of surfaces exposed to wind pick-up;</p> <ul style="list-style-type: none"> ■ Where practicable, windbreak netting/screening will be positioned around material stockpiles and vehicle loading/unloading areas, as well as exposed excavation and material handling operations, to provide a physical barrier between Project Site and the surroundings; ■ Where practicable, stockpiles of soils and materials will be located as far as possible from sensitive properties, taking account of the prevailing wind direction; ■ During dry or windy weather, material stockpiles and exposed surfaces will be dampened down using a water spray to minimise the potential for wind pick-up. 			

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		<ul style="list-style-type: none"> ■ Scabbling (roughening of concrete surfaces) will be avoided if possible; ■ Sand and other aggregates will be stored in bunded areas and not allowed to dry out, unless this is required for a particular process, in which case appropriate additional control measures will be put in place; ■ Bulk cement and other fine powder materials will be delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery; ■ For smaller supplies of fine powder materials bags will be sealed after use and stored appropriately to prevent dust; ■ Effective water suppression will be used during demolition operations; ■ Water-assisted dust sweeper(s) will be used on the access roads and local roads, to remove, as necessary, any material tracked out of the site. 			

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		<p>This may require the sweeper to be in frequent use;</p> <ul style="list-style-type: none"> ■ Dry sweeping of large areas will be avoided; ■ Vehicles entering and leaving sites will be covered to prevent escape of materials during transport; ■ On-site haul routes will be inspected for integrity and necessary repairs instigated to the surface as soon as reasonably practicable; ■ All inspections of construction access routes and any subsequent actions will be recorded in a site log book; ■ A wheel washing system will be implemented; ■ Where practicable, hard surfaced haul routes will be installed, regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned; ■ There will be an adequate area of hard surfaced road between the wheel wash facility and the 			

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		site exit, wherever site size and layout permits; and <ul style="list-style-type: none"> Access gates will be located at least 10m from receptors, where possible. 			
C8	Construction Traffic Management Plan	<p>The Contractor will prepare a Construction Traffic Management Plan (CTMP) to ensure all construction works, logistics and travel movements are planned to enable them to be delivered safely and in a manner that minimises congestion, road safety risks and disruption to all road users and local access.</p> <p>The CTMP will set out mitigation measures to control the logistics of construction traffic, including criteria to ensure the Contractor selects suitable access and construction access routes for the site traffic.</p> <p>The Contractor will:</p> <ul style="list-style-type: none"> Ensure road users are informed of any works which will affect access in advance of works commencing; 	<ul style="list-style-type: none"> Preparation / Implementation – Contractor; and Approval – PIU / Supervision Consultant. 	<ul style="list-style-type: none"> Liaison with affected communities (CLOs) and Mukhtars, as required in the SEP. Supervision Consultant to prepare monthly progress reports, signed off by the PIU, for the Lenders. 	<ul style="list-style-type: none"> Plan approved by PIU / Supervision Consultant; and Plan implemented by Contractor.

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		<ul style="list-style-type: none"> ■ Coordinate with local communities and affected Mukhtars on the development and location of temporary access roads and routes, including those to be used by construction vehicles; ■ Limit works on the road network to not occupy more than one single lane, therefore always enabling one-way traffic, where practicable; ■ The timing of large-scale vehicles movements should avoid peak hours on the local road network. ■ Disclose the timetable for movement of any large construction vehicles, particularly any wide or long loads that may require additional road space ■ Provide temporary road access around the construction areas, where necessary; ■ Should temporary road access be necessary, roadblocks will be provided to prevent access to the areas where 			

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		<p>construction activities are taking place;</p> <ul style="list-style-type: none"> ■ Construct temporary vehicle bridges with sufficient capacity for the existing vehicle usage; ■ Construct temporary pedestrian bridges which will include appropriate safety measures, such as railings and be a minimum width of 1m; ■ Provide illuminated and non-illuminated signals and guardrails; ■ All public roads and surfaces will be cleaned immediately in the event of contamination / spillage caused by the Contractor or sub-contractors; ■ All public roads used for the Project will be cleaned, removing any debris caused by the movement of vehicles and materials for the Project; ■ Damage caused by construction vehicles to public roads will be repaired in a timely manner; and ■ The maintenance of construction vehicles will be 			

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		<p>carried out regularly and unnecessary use of the vehicles will be avoided.</p> <p>Project specific measures will be put in place by the Contractor to ensure access is maintained to Bahçeşehir, Çatalca, Çayırdere, Deliklikaya, İnceğiz, Sinekli and Yeşilbayır.</p> <p>Construction traffic will not pass along sensitive roads (including residential roads, congested roads, and unsuitable junctions).</p>			
C9	Construction Travel Plan	<p>A Construction Travel Plan that ensures the provision of transport for the workforce to the worksite to minimise disruption, health and safety risks and emissions. As a minimum this shall include:</p> <ul style="list-style-type: none"> ■ Provisions of buses to transfer workers from the workers accommodation and from local communities to the work-site and back ■ Minimise the number of private vehicles entering the construction compounds 	<ul style="list-style-type: none"> ■ Preparation / Implementation – Contractor; and ■ Approval – PIU / Supervision Consultant. 	<ul style="list-style-type: none"> ■ Supervision Consultant to prepare monthly progress reports, signed off by the PIU, for the Lenders. 	<ul style="list-style-type: none"> ■ Plan approved by PIU / Supervision Consultant; and ■ Plan implemented by Contractor.

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		<p>(where the workers accommodation will be), or construction compounds of worksites</p> <ul style="list-style-type: none"> Ensure there is sufficient car parking space at the workers accommodation and work site within the land allocated to the Project Measures to ensure car-sharing or other sustainable travel (public transport, cycling, walking,) is promoted 			
C10	Construction Workers' Accommodation Management Plan	<p>Prior to the start of site works, the Contractor will be required to employ a HSE team who will develop a Construction Workers Accommodation Management Plan, informed by the Checklist for Worker's Accommodation (see Appendix B of the CMP).</p> <p>The Construction Workers Accommodation Management Plan will include the following:</p> <ul style="list-style-type: none"> Coordination of all accommodation site activities with neighbouring land uses; 	<ul style="list-style-type: none"> Preparation / Implementation – Contractor; and Approval – PIU / Supervision Consultant. 	<ul style="list-style-type: none"> Supervision Consultant to prepare monthly progress reports, signed off by the PIU, for the Lenders. 	<ul style="list-style-type: none"> Plan approved by PIU / Supervision Consultant; and Plan implemented by Contractor.

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		<ul style="list-style-type: none"> ■ The accommodation sites will be staffed and equipped with Accident and Emergency / Medical Emergency facilities for all workers, to avoid straining the available health facilities that serve local communities; ■ The plan will cover accommodation sites, as well as any sites considered as associated facilities, and will require due diligence and approval; ■ The plan will set out best practice measures, with a particular focus on the prevention of gender-based violence and the promotion of a gender-sensitive working environment; ■ It will set out the arrangements for the provision of utilities (water, electricity and plumbing), wastewater and waste management, as well as telecommunications; and ■ The construction camp shall be in compliance with all 			

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		<p>applicable national requirements and permits (e.g. environmental, water supply, wastewater discharge, electricity, access roads etc);</p> <ul style="list-style-type: none"> ■ Back-up generators will be available in the event of an emergency; and ■ The Contractor will be responsible for maintenance, clean-up and reinstatement of accommodation sites and respecting the rights of local land users, as per the land exit protocol. ■ Demonstration of compliance with the below national requirements and EBRD Guidance on Workers' accommodation: processes and standards (2009)² <p>Accommodation for workers will meet the following standards under the OHS Law:</p> <ul style="list-style-type: none"> ■ Be non-flammable. ■ Be away from hazards created by the construction work. 			

² <https://www.ebrd.com/cs/Satellite?c=Content&cid=1395270483804&d=&pagename=EBRD%2FContent%2FDownloadDocument>

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		<ul style="list-style-type: none"> ■ Have heating, cooling and ventilation systems, good illumination, and safe electrical installations, fire and lightning protection systems. ■ Have sufficient width and sufficient number of tables and chairs, enough bedsteads, clean beds, blankets, a recreation room and lockers. ■ Have an adequate shower, toilet, washbasin and cleaning equipment etc. ■ Have good hygiene standards, with fresh drinking water, and separate cooking and eating areas. ■ Have separate facilities for men and women. ■ Have 24-hr security personnel and CCTV. 			
C11	Cultural Heritage Management Plan (CHMP)	<p>The CHMP will be used to inform all the requirements, procedures, resources and skills and timeline needed to minimise adverse cultural heritage effects.</p> <p>The CHMP aims to minimise the chance of damage to heritage</p>	<ul style="list-style-type: none"> ■ Preparation / Implementation – Contractor; and ■ Approval – PIU / Supervision Consultant. 	<ul style="list-style-type: none"> ■ Liaison with the Ministry of Culture and Tourism / Regional Directorate, as required in the SEP. ■ Supervision Consultant to 	<ul style="list-style-type: none"> ■ Plan approved by PIU / Supervision Consultant; and ■ Plan implemented by Contractor.

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		<p>assets during construction and to present a methodology and procedure for adequately mitigating for 'chance finds' should they be discovered.</p> <p>The CHMP will outline the cultural heritage management principles and procedures to be followed during construction and operation in accordance with the Project's policies and Turkish legal requirements.</p> <p>The CHMP will include:</p> <ul style="list-style-type: none"> ■ A description of roles and responsibilities of AYGM and the Contractor. The Contractor will appoint a Qualified Archaeological Specialist, responsible for the CHMP implementation; ■ A procedure for a pre-construction walk-over to verify the findings of the walkover undertaken for this assessment and confirm no changes to assets has occurred; 		<p>prepare monthly progress reports, signed off by the PIU, for the Lenders.</p>	

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		<ul style="list-style-type: none"> ■ Actions and measures to manage risks and impacts to cultural heritage as follow: <ul style="list-style-type: none"> • Bahşayış Bastion and Protection Zone (24+750 – 24+800) - Qualified archaeological specialists will be retained onsite during construction in the Protection Zone of Bahşayış Bastion to ensure that 'preservation by record' is undertaken through watching brief during the construction process. • Anustasius's Wall Protection Zone (53+300 – 53+400) - The Istanbul Regional Directorate of Protection of Cultural Heritage has stated that construction activities need to be conducted under the supervision of the Museum Directorate. Qualified archaeological specialists will be retained onsite during construction in the Protection Zone of Anustasius's Wall to ensure 			

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		<p>that 'preservation by record' is undertaken through watching brief during the construction process. The Regional or General Directorate will be formally consulted prior to construction to enable them to make arrangements for providing supervision.</p> <ul style="list-style-type: none"> • Ömerli Traditional House (9+450).- Ömerli Traditional House is 30m south of the expropriation corridor. Measures would aim to ensure that construction activities, including movement of machinery, would not have an impact upon the building (e.g. measures to prevent accidental strike damage). • Korugan Old Military Bunker (22+700) - Korugan Old Military Bunker is adjacent to the expropriation corridor. Measures would aim to ensure that construction activities, including 			

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		<p>movement of machinery, would not have an impact upon the building (e.g. measures to prevent accidental strike damage). Qualified archaeological specialists will be retained on-site due to the possibility of underground structures of the bunker within the Project alignment.</p> <ul style="list-style-type: none"> • Hoşdere Mahallesi 130-ada-1-parcel (9+100 to 11+900) - A 10m buffer zone will be applied to this asset during the construction phase. If construction activities are to take place within the 10m buffer it will be necessary for the Contractor to contact the Ministry of Culture and Tourism and inform them of the details of planned construction activities before commencement. • İnceğiz Mahallesi 879-parcel (38+100, 42+200 to 42+400 - A 10m buffer zone will be applied to this asset 			

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		<p>during the construction phase. If construction activities are to take place within the 10m buffer it will be necessary for the Contractor to contact the Ministry of Culture and Tourism and inform them of the details of planned construction activities before commencement.</p> <ul style="list-style-type: none"> • Kabakça Mahallesi 1005-parcel (43+000 to 45+200) - A 10m buffer zone will be applied to this asset during the construction phase. If construction activities are to take place within the 10m buffer it will be necessary for the Contractor to contact the Ministry of Culture and Tourism and inform them of the details of planned construction activities before commencement. • Çayırdere Mahallesi 705-parcel (68+900 to 69+100) - A 10m buffer zone will be applied to this asset during 			

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		<p>the construction phase. If construction activities are to take place within the 10m buffer it will be necessary for the Contractor to contact the Ministry of Culture and Tourism and inform them of the details of planned construction activities before commencement.</p> <ul style="list-style-type: none"> • Ömer Dede Tomb - A 10m buffer zone will be applied to this modern grave during the construction phase. If construction activities are to take place within the 10m buffer it will be necessary for the Contractor to contact both the Ministry of Culture and Tourism and the Ministry of Family and Social Policies and inform them of the details of planned construction activities before commencement. <ul style="list-style-type: none"> ■ A Chance Finds Procedure will be prepared by AYGM and 			

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		<p>implemented by the Contractor detailing necessary steps to be taken should any culturally significant assets be found:</p> <ul style="list-style-type: none"> • In case of a chance finding the construction, activities shall cease in the field where the finding is discovered and the findings shall be reported to the relevant museum expert. • Any archaeological/cultural heritage finding will require assessment by the relevant Museum Directorate. • Following the completion of investigation of the relevant Museum Directorate, the necessary arrangements, such as the identification of the boundaries of the archaeological/cultural heritage asset/site (finding) for its protection, necessary measures, including notification of workers in order to prevent any physical intervention, will be implemented. The cultural 			

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		<p>heritage/archaeological monitoring expert/s will provide cultural heritage training to all Project staff, ensuring they are aware of the potential for identifying cultural remains, and on the implementation of the chance find procedure, as part of their Environmental Training.</p> <ul style="list-style-type: none"> • The workers will be required to follow the Code of Conduct in the CMP, which sets out their roles and responsibilities in reporting chance finds and respecting cultural assets; • The cultural heritage/archaeological monitoring expert/s will record all chance finds on the Chance Find Report Form and the Chance Find Register as per the Chance Find Procedure; and • Identify potential opportunities to enhance understanding and 			

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		<p>significance of heritage assets, including intangible cultural heritage, where this would be appropriate (e.g. heritage information boards).</p> <ul style="list-style-type: none"> ■ The Contractor will liaise with the Ministry of Culture and Tourism during the preparation of the CHMP and will send them the CHMP prior to the commencement of construction. Whilst unlikely, it is possible that the Ministry of Culture and Tourism will require additional mitigation requirements to those minimum requirements outlined in the CHMP. ■ The Istanbul Regional Directorate of Protection of Cultural Heritage stated that construction activities shall be conducted under the supervision of Museum Directorate at the sections where the Project passes close to Anastasius' Walls. The Contractor will formally consult 			

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		<p>with the Regional Directorate, at the earliest opportunity, prior to construction, as required in the SEP.</p> <ul style="list-style-type: none"> ■ Pre-condition surveys and monitoring during construction will be undertaken at heritage assets which are sensitive to vibration, as set out in the Noise and Vibration Management Plan (C13). ■ The Contractor shall provide the tools, equipment, facilities (toilets/cabin/tents/security), transport and unskilled local labours for any archaeological excavations required in advance of construction or in response to chance finds. 			
C12	Landscape Management Plan	<p>The PIU / Contractor will implement a Landscape Management Plan (LMP) to cover the construction phase.</p> <p>The LMP will cover actions to suitably manage and maintain the growth and health of planting in year 1 (establishment), the first 5 years of growth (strengthening),</p>	<ul style="list-style-type: none"> ■ Preparation / Implementation – Contractor; and ■ Approval – PIU / Supervision Consultant. 	<ul style="list-style-type: none"> ■ Supervision Consultant to prepare monthly progress reports, signed off by the PIU, for the Lenders. 	<ul style="list-style-type: none"> ■ Plan approved by PIU / Supervision Consultant; and ■ Plan implemented by Contractor.

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		<p>and post 5-year longer-term typical management and maintenance requirements:</p> <ul style="list-style-type: none"> ■ Identification of management and maintenance regimes should be agreed with the Ecological Clerk of Works (Contractor), Environmental Expert (Supervision Consultant), and Environmental / Biodiversity Specialist (PIU); ■ Compliance with the plan will be the responsibility of the Contractor and monitored by the PIU; ■ The LMP will outline the tasks to establish and maintain the trees, grass and vegetation identified on the Landscape Design/Planting Plans; ■ Planting measures will be designed to provide visual screening, reduce risk of bird strikes where required, as well as provide enhancement to local landscape character; ■ Planting measures will also be designed to provide 			

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		<p>connectivity within the wider landscape where possible;</p> <ul style="list-style-type: none"> ■ Planting should make use of species of local/regional provenance; and ■ Measures to mitigate landscape character effects include. <p>Replacement tree planting / woodland planting will be carried out within areas noted as being subject to significant loss. This replacement planting will be located as close to the area of loss as practicable; and</p> <p>Where topsoil is to be stripped and stored on site temporarily for reuse, the stockpile mounds will be stored at a maximum height of 2m, in order to preserve the structural integrity of the soil.</p> <ul style="list-style-type: none"> ■ Areas where loss of tree / woodland are expected, and where these measures will need to be implemented as close as possible to, are as follows: <ul style="list-style-type: none"> ● 21+350 – 21+650 (woodland / tree loss); 			

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		<ul style="list-style-type: none"> • 23+850 – 24+000 (woodland / tree loss); • 24+700 – 25+050 (woodland / tree loss); • 26+800 – 27+350 (woodland / tree loss); • 28+850 – 29+100 (scrub / tree loss); • 31+700 – 32+000 (scrub / tree loss); • 36+150 – 37+150 (woodland / tree loss); • 38+400 – 38+600 (woodland / tree loss); • 39+400 – 42+300 (woodland / tree loss); • 42+700 – 43+200 (woodland / tree loss); • 44+300 – 45+300 (scattered tree lines / tree loss); • 46+400 – 48+100 (woodland /scattered tree lines / tree loss); • 51+600 – 69+650 (scrub / tree loss); and • 74+650 – 75+200 (scrub / tree loss). <p>Measures to mitigate effects to visual amenity include;</p>			

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		<ul style="list-style-type: none"> ■ During the construction, restricted hours of working will be implemented within built-up areas, where the works are likely to impact on residential properties, and the use of machinery during the hours when residents are most likely to be at home will be avoided; ■ Screening vegetation will be reinstated, subject to land take, and availability of suitable land area. In some instances where the Project is located within built-up areas, the availability of land for mitigation planting will be restricted. No planting is proposed directly within the rail corridor, itself due to electrical overhead lines, structures and clearances. Mitigation planting should be as close as possible to areas of loss or for maximum screening benefit, as health and safety requirements allow; and ■ Stockpiled storage mounds will have a maximum height of 2m. Where topsoil is to be stored 			

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		<p>for a prolonged period of time the mounds will be temporarily seeded with an appropriate grass seed mix in order to reduce the visual prominence of the temporary soil mounds further within view.</p> <p>Landscape / Planting Plans</p> <ul style="list-style-type: none"> ■ The Contractor will produce and implement landscape plans, at an appropriate scale to show the items specified. Landscape plans will identify: <ul style="list-style-type: none"> • Location and areas for seeding, shrub and tree planting; • Species type, density and number of plants for shrub and tree planting; and • Seed mixes, quantity and sowing rates for seed mixes (such as grass or wildflower); ■ Planting will make use of species of local/regional provenance; ■ Compensatory planting for ecological habitats lost (as 			

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		<p>outlined in the BMP) will need to be approved as part of the overall landscape/planting plan approval process;</p> <ul style="list-style-type: none"> ■ Planting measures will be designed to provide connectivity within the wider landscape where possible; ■ Planting measures will be designed to provide visual screening, and reduce risk of bird strikes, as well as provide enhancement to local landscape character; ■ Landscape plans, including proposed habitat creation areas and species lists will be agreed with the Ecological Clerk of Works (Contractor), Environmental Expert (Supervision Consultant), and Environmental / Biodiversity Specialist (PIU); and ■ Landscape /planting plans will be implemented during, or as soon after construction, as practicable. <p>Planting specifications and maintenance regimes for the</p>			

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		public realm will be important in reducing the impact of long periods of drought and waterlogging on ground conditions. Planting plans to emphasise the use of locally common native species – tolerant of local conditions, e.g. soil type, microclimate, habitat type, which would tend to be tolerant of the varying weather conditions, including drought, that may be experienced in the future.			
C13	Noise and Vibration Management Plan	<p>The Contractor will apply the following good practice measures to minimise residual noise effects to ensure levels set out in in the Regulation on the Assessment and Management of Environmental Noise (2010) are not exceeded by the Project (see Appendix U):</p> <ul style="list-style-type: none"> ■ Revving of engines will be avoided and equipment will be turned off when it is not required; ■ Internal construction access roads will be kept well maintained; 	<ul style="list-style-type: none"> ■ Preparation / Implementation – Contractor; and ■ Approval – PIU / Supervision Consultant. 	<ul style="list-style-type: none"> ■ Supervision Consultant to prepare monthly progress reports, signed off by the PIU, for the Lenders. 	<ul style="list-style-type: none"> ■ Plan approved by PIU / Supervision Consultant; and ■ Plan implemented by Contractor.

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		<ul style="list-style-type: none"> ■ Rubber linings will be used for dump trucks to reduce noise impact; ■ Drop height of materials will be minimised; ■ Start-up of plant and vehicles will be done sequentially rather than together; ■ Reversing alarms that do not have a tonal component (i.e. broadband) will be used, if applicable; ■ Sources of significant noise will be enclosed, as far as reasonably possible; ■ Loading and unloading will be done away from noise-sensitive areas, where practicable; ■ Stationary plant (i.e. pumps, compressor, concrete mixing, etc) will be located away from noise-sensitive receptors, where possible; ■ Regular and effective maintenance for plant will and any sound-reducing equipment will be carried out; 			

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		<ul style="list-style-type: none"> ■ Temporary local noise barriers will be installed for noisy equipment; <ul style="list-style-type: none"> ● Core site working hours will be agreed with the regional directorate prior to the commencement of works. Normal construction activities do not take place at night, except for specific activities which have to continue, or emergency work and based on a risk assessment for night work including noise mitigations. ● Guidance in the Directive 2000/14/EC of the European Parliament and the Council of the European Union is followed in respect to equipment for use outdoors. ● The World Bank Group Environmental, Health and Safety Guidelines: Noise Management (2007) will be followed in respect of noise arising from a source of an 			

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		<p>industrial nature (see Appendix U).</p> <ul style="list-style-type: none"> ■ The Contractor will apply good practice measures to minimise residual vibration effects: <ul style="list-style-type: none"> • Low or non-vibratory piling equipment such as rotary or bored piling will be used; • The requirement for vibratory compaction and using static force compaction, such as smooth-wheeled or sheepsfoot rollers, will be reduced; • There will be no start up or shut-down of vibratory plant within 50m of receptors, where possible; • Working hours will be limited to during less sensitive hours during the day; • Residents will be informed of potential periods of disruption in order minimise the number of complaints; and 			

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		<ul style="list-style-type: none"> • Rehousing will be offered in areas in which large adverse vibration impacts are unable to be avoided, for a period of over 10 nights. ■ In areas in where receptors are located within 25m of the Project, the following measures should be adopted to attenuate the propagation of vibration into buildings (measures are presented in order of effectiveness from Federal Transit Administration guidance): <ul style="list-style-type: none"> • Altering the trackform from B70 reinforced concrete sleepers and ballast to a floating slab trackbed (-15dB). • Including vibration attenuating ballast mats between the ballast and concrete foundation layer (-10dB). • High-resilience fasteners on the track or resilient supported ties (-5dB). 			

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		<p>A noise and vibration monitoring programme will be undertaken at sensitive receptor locations. Monitoring should undertake continuously in real-time, with equipment situated near sensitive receptors, during all blasting and tunnel construction activities. The purpose being to ensure that limits set out in the regulation on the Assessment and Management of Environmental Noise (2010) are not exceeded (see Appendix U).</p> <p>As per part of the noise and vibration management plan, where residential and other third-party buildings are located in close proximity to the working area, including transport routes, the contractor shall conduct and document a survey of the existence and condition of such buildings prior to commencement of activities in these areas of sufficient detail</p>			

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		<p>to evaluate any claims of damage from third parties.</p> <p>Contractor shall monitor the vibration level at third party buildings nearest to the works during activities which could generate offsite vibration effects at these locations. Vibration levels are to be compared to local and international norms and standards (or as referenced in the Specification) as agreed with the Engineer and in the case of exceedance, a control plan is to be agreed with the Engineer and implemented. Contractor shall commit this in the noise and vibration management plan, monitor and report.</p> <p>A detailed assessment of vibration impacts will be completed when details of blasting activities are known, including location, the size and frequency of events.</p> <ul style="list-style-type: none"> ■ Pre-condition surveys will be undertaken at heritage assets 			

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		<p>which are sensitive to vibration, these are as follows:</p> <ul style="list-style-type: none"> • Ispartakule Train Station; • Old Yogurthane Building; • Ömerli Traditional House; • Korugan Military Bunker; • Çatalca Station; • Kaleiçi Historical Bridge; • Kabakça Station Buildings; and • Çayirdere Station Building. <p>This will be undertaken by an independent surveyor to visually identify all existing signs of exterior damage, cracks (including size, type and direction) and settlement before construction takes place, it should include a written record and photographs. This will then provide a record of the existing situation, against which any change due to the construction activities can be monitored. During construction, monitoring surveys will be undertaken, at least bi-monthly, and following construction activities that generate a high level of vibration</p>			

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		at that location. Crack gauges will be installed to enhance monitoring, if required, and / or construction methodologies refined to reduce vibration levels, if required. Condition surveys will also be undertaken post construction, to identify any damage that needs to be rectified by the Contractor, in consultation with the asset.			
C14	Waste and Materials Management Plan	<p>The Contractor will prepare a Waste and Materials Management Plan to cover all activities associated with the production of wastes during construction and maximise reuse and recycling.</p> <p>The WMMP will need to be submitted for approval to the relevant Provincial Directorate of Environment and Urbanisation which outlines the Contractor's plans to avoid and reduce waste.</p> <p>The Contractor will provide waste segregation facilities. Collection will occur once containers are full</p>	<ul style="list-style-type: none"> ■ Preparation – Contractor; and ■ Authorisation – Supervision Consultant / PIU and relevant Provincial Directorate of Environment and Urbanisation. 	<ul style="list-style-type: none"> ■ Supervision Consultant to prepare monthly progress reports, signed off by the PIU, for the Lenders. 	<ul style="list-style-type: none"> ■ Plan approved by PIU / Supervision Consultant; and ■ Plan implemented by Contractor.

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		<p>by the respective municipality. A recycling company will take the waste to shared licenced recycling sites.</p> <p>Where on-site reuse (or other forms of recovery) cannot be achieved, waste arising should be sent to licensed off-site reuse, recycling or recovery facilities.</p> <p>Where it is not possible to reuse the materials off site, then they should be temporarily stored on site, in locations approved by the relevant authorities. They should then be disposed off-site, at locations provided on application to the relevant Municipality.</p> <p>No asbestos will be used to construct the Project³, in accordance with EBRD requirements, however there is the possibility that asbestos may be encountered during site preparation, The Contractor will</p>			

³ No Asbestos will be used to construct the project, in compliance with EBRD requirements. Any asbestos that is found during the project will be managed in accordance with the Asbestos Disposal Management Plan.

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		<p>be responsible for including an Asbestos Management Plan in the WMMP, to manage the risks associated with disposal of any asbestos containing materials that may be present.</p> <p>The Contractor will maintain a hazardous material register and inventory including the safety data sheets.</p> <p>The Contractor will maintain hazardous and non-hazardous waste statistics, records of transfer of wastes to corresponding licenced firms/ municipalities.</p> <p>Materials stored on Site will be stored neatly and safely, and as specified in other relevant sub-plans.</p> <p>Off-site construction and pre-fabrication methods will be maximised where practicable. During dry or windy weather, material stockpiles will be</p>			

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		dampened down using a water spray to minimise the potential for wind pick-up.			
C15	Health, Safety and Security Plan	<p>The Contractor will be responsible for developing and implementing a Health, Safety and Security Plan which sets out the measures to manage occupational risks, cross referencing the following sub-plans of the CESMP;</p> <ul style="list-style-type: none"> ■ Air Quality and Dust Management Plan; ■ Construction Travel Plan; ■ Construction Traffic Management Plan; ■ Tunnel Construction Plan; ■ Lifting Operations Management Plan; and ■ Risk Assessments and Method Statements. <p>Each construction day will begin with a tool-box talk focusing on a single environment, health, or safety matter applicable to the current site activities or stage of construction;</p> <p>The Contractor will be responsible for taking all necessary</p>	<ul style="list-style-type: none"> ■ Preparation / Implementation – Contractor; and ■ Approval – PIU / Supervision Consultant. 	<ul style="list-style-type: none"> ■ Consultation with the local community, AYGM, providers of local facility and local stakeholders. ■ Contractor and PIU will Review health risks and update in response to changes. ■ Supervision Consultant to prepare monthly progress reports, signed off by the PIU, for the Lenders. 	<ul style="list-style-type: none"> ■ Plan approved by PIU / Supervision Consultant; and ■ Plan implemented by Contractor.

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		<p>precautions to maintain the safety of construction activities, construction plant, construction facilities, the construction workforce and the local communities. This includes provision of appropriate lighting, providing appropriate safety signage and barriers, and providing a first aid department to manage workplace accidents;</p> <p>The Health, Safety and Security Plan will set out measures to manage potential occupational health and safety hazards including, but not limited to:</p> <ul style="list-style-type: none"> ■ Exposure to chemicals (asphalt fumes, pulverized silica, rail lubricants, fuels, solvents, paints); ■ Welding hazards (Aluminium thermit welding⁴ fume emissions, burns and radiation); ■ Excavations; ■ Confined spaces; 			

⁴ A welding process used to weld railway rails.

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		<ul style="list-style-type: none"> ■ Landslides; ■ Vibration of heavy construction equipment; ■ Dust, noise, fall hazards; ■ Traffic accidents; ■ Lifting of heavy materials (viaduct / bridge beams, rails, sleepers, etc.); ■ Accidents with exposed rebars; ■ Ergonomic hazards during construction; ■ Explosion hazard; ■ Environmental hazards (insects, wasps, bees, etc.); ■ Electrocutions and arc fault burns; ■ Working in proximity to the existing operational railway line; and ■ Electrical works. <p>The Contractor will also be responsible for providing private site security and fire protection, in co-ordination with the Fire Authority and the General Directorate of Security;</p> <p>The Health, Safety and Security Plan will include details of the</p>			

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		<p>medical facilities provided on-site. It will also identify the medical facilities in the local area that may be required for more severe incidents, and how to access them, when required. This provision will have been agreed with these facilities in advance.</p> <p>Regular health checks of construction workers will be undertaken, and a policy for HIV/AIDS related diseases developed.</p> <p>The plan will cover both existing risks and risks related to the Project such as the in-migration of construction workers, including increased impacts to women and vulnerable groups.</p> <p>The plan will set out measures for the prevention of unauthorised access to construction sites, construction compounds and construction workers' accommodation.</p>			

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		<p>The plan will be informed by consultation with the local community, AYGM, providers of local facility and local stakeholders.</p> <p>Contractor to conduct due diligence investigation for all their security personnel to make sure they have appropriate licensing, experience and training.</p>			
C16	Surface Water Management Plan	<p>The Contractor will be responsible for implementing a plan to manage surface water during construction. Measures included in the Plan are as follows:</p> <ul style="list-style-type: none"> ■ Regular inspection of pollution control and treatment measures (such as storage of fuels, oils and other hazardous liquids, and integrity of spill kits) will be undertaken throughout the construction period to ensure they are working effectively; ■ Construction plant will be regularly checked for oil and fuel leaks; ■ A programme of water quality monitoring on watercourses 	<ul style="list-style-type: none"> ■ Preparation / Implementation – Contractor; and ■ Approval – PIU / Supervision Consultant. 	<ul style="list-style-type: none"> ■ Supervision Consultant to prepare monthly progress reports, signed off by the PIU, for the Lenders. 	<ul style="list-style-type: none"> ■ Plan approved by PIU / Supervision Consultant; and ■ Plan implemented by Contractor.

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		<p>downstream of the working corridor will be implemented throughout the construction period.</p> <ul style="list-style-type: none"> ■ The location and requirement of water quality monitoring will be agreed with the relevant DSI Regional Directorates. ■ The locations for water quality monitoring should include the five locations where baseline water quality monitoring has already taken place as well as at any watercourse crossed by the Project, any watercourses where there will be in channel works, and any watercourses that are downstream of the construction compound / construction workers accommodation. The five locations where sampling has been taken previously are; <ul style="list-style-type: none"> ● Sazli Stream immediately upstream of the proposed tunnel of the Project (chainage 4+170). ● Camasir Creek which forms the inlet channel of 			

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		<p>Büyükçekmece Lake at the location of the proposed crossing (chainage 27+230).</p> <ul style="list-style-type: none"> • Karasu Stream immediately downstream of the proposed crossing of the watercourse (chainage 37+150). • Azinlar Creek that is close to the western extent of the Project alignment (0.2km west of chainage 76+700). • Corlu Creek that forms the downstream extent of the Ambar Stream that will be crossed by the Project (1.6km west of chainage 76+700). <ul style="list-style-type: none"> ■ Water monitoring samples will be compared against the quality status thresholds for the Water Framework Directive (WFD) relevant to Bulgaria (in the absence of local WFD standards) for the characterisation of surface water (2014). Further detail on 			

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		<p>these standards are found in Appendix U.</p> <ul style="list-style-type: none"> ■ Where standards are found to have been exceeded work will stop to allow investigation. The Contractor will be responsible for identifying the source of pollution, containing the pollution and preventing further spread, The Contractor will be responsible for cleaning up any pollution and disposing of any contaminated waste (e.g. spill kits) appropriately, ■ Any damage caused to surface water infrastructure such as supply systems, irrigation systems, flood defences and drainage ditches must be rectified by the Contractor. ■ The positioning of stockpiles near to watercourses will be avoided, they will be a minimum of 30m from any watercourse, and they will be located outside areas at fluvial flood risk; ■ Stockpiles will be contained with bunds or sediment fences 			

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		<p>and cover stockpiles when not in use;</p> <ul style="list-style-type: none"> ■ Sediment barriers will be positioned between earthworks and the watercourse to prevent sediment from washing into the river. Use silt fences, silt traps, filter bunds, settlement basins and/or proprietary units such as a 'siltbuster' to treat sediment laden water generated on site before discharge should also be implemented; ■ Any water generated by dewatering processes will be passed through silt busters or sediment tanks prior to returning this water to the watercourse; ■ Access roads will be located 60m from watercourses. Site roads and approaches to watercourse crossings will be kept free from mud and cleaning water will not be discharged to the watercourse; ■ Fuels and potentially hazardous construction 			

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		<p>materials will be stored in bunded areas with external cut-off drainage and fuel will be stored in double skinned tanks with 110% capacity. No materials will be stored within 30m of a watercourse;</p> <ul style="list-style-type: none"> ■ Waste fuels and other fluid contaminants will be collected in leak-proof containers prior to removal from site to an approved processing facility; ■ Fuelling and maintenance of construction vehicles and plant will be done on hard standing or on haul roads, with appropriate cut-off drainage and located away from watercourses. Drip trays will be placed beneath static plant such as generators and plant not in use. No plant will be stored within 30m of a watercourse and no maintenance will be undertaken within 30m of a watercourse; ■ Spill kits in the form of oil absorbent booms and other 			

Ref	Environmental / Social Aspect / Concern	Proposed Mitigation Measure	Responsibility		Target/ Indicator
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		<p>spill containment equipment will be kept on site to be deployed in the event of a spillage, and site staff will be trained in their use;</p> <ul style="list-style-type: none"> ■ Concrete mixing and washing areas will be located more than 10m from any watercourse. Wastewater from these areas will not be discharged to a watercourse and will be disposed off-site. ■ Clearance of vegetation on the channel banks will be limited. Where works are required on the watercourse banks, or in-channel, vegetation clearance will be restricted to the working area and should be undertaken only immediately prior to the commencement of those works. Vegetation will be re-established as soon as practicable, using seeded biodegradable fibre matting to encourage re-vegetation after works on, or near, the banks; ■ Until the beginning of the in-water works, a minimum of 			

Ref	Environmental / Social Aspect / Concern	Proposed Mitigation Measure	Responsibility		Target/ Indicator
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		<p>20m depth of bankside vegetation from the channel bank will be preserved to protect bank stability;</p> <ul style="list-style-type: none"> ■ Works to watercourses will be avoided during high flow events and during heavy rainfall to reduce the risk of fine sediment release, watercourse erosion and increased flood risk; ■ In-channel silt management systems will be used such as silt curtains within watercourses that require diversion or in-channel construction works; ■ Direct access of vehicles to watercourses will be minimised. If it is necessary for any vehicle to enter a watercourse, it will be inspected in advance and, if required, remedial action taken to prevent contamination from oil/fuel leakages. All drivers will be instructed in the use and safe disposal of clean up 			

Ref	Environmental / Social Aspect / Concern	Proposed Mitigation Measure	Responsibility		Target/ Indicator
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		<p>equipment and carry absorbent materials in their vehicles;</p> <ul style="list-style-type: none"> ■ Works within or adjacent to the watercourses will be avoided as far as practicable; ■ The required construction zone adjacent to and within watercourses will be minimised to reduce the impacts of flow constriction and loss of fluvial floodplain storage and conveyance; and ■ A dry-working area for works will be created within a watercourse channel or within the floodplain wherever possible. Hydraulic connectivity must be maintained, and no more than two-thirds of the watercourse capacity should be blocked. ■ Specific method statements will be developed and implemented by the Contractor for construction works in or near watercourses, including the construction of bridges, viaducts, piers, culverts, 			

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		<p>outfalls or watercourse realignments.</p> <ul style="list-style-type: none"> ■ When undertaking the substation improvements at Halkali and Kabakca the Contractor will give due consideration to the potential for the existing infrastructure at the substations to contain polychlorinated biphenyls (PCBs) which are classified as an environmental pollutant and hazardous substance. (PCBs were banned in Turkey in 1995 however, they have the potential to be present within existing infrastructure such as old transformers and capacitors). The contractor will undertake sampling of the existing transformers for the presence of PCBs in line with European Union: Council Directive 96/59/EC sampling requirements, and any additional measures to manage the pollution risk will be identified, if required. 			

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C17	Spoil Management Plan	<p>A Spoil Management Plan will be implemented prior to commencement of the generation of surplus earthworks containing commitments and supporting evidence. Measures included in the plan will include:</p> <ul style="list-style-type: none"> ■ Details of Contractor organisation - including subcontractors - involved with implementation of the Spoil Management Plan. ■ Description of the excavated soils and excavated spoil in terms of potential reuses and relative quantities involved by categories of materials, with a breakdown for each site. ■ Where and, if appropriate, how excavated materials will be stored or temporarily stockpiled for reuse. ■ The intended final destination and reuse of excavated soils and materials, with clear distinction between (i) excavated soil and materials reused for construction purposes and (ii) excavated 	<ul style="list-style-type: none"> ■ Preparation / Implementation – Contractor; and ■ Approval – PIU / Supervision Consultant. 	<ul style="list-style-type: none"> ■ Supervision Consultant to prepare monthly progress reports, signed off by the PIU, for the Lenders. 	<ul style="list-style-type: none"> ■ Plan approved by PIU / Supervision Consultant; and ■ Plan implemented by Contractor.

Ref	Environmental / Social Aspect / Concern	Proposed Mitigation Measure	Responsibility		Target/ Indicator
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		<p>soils and material that is surplus to requirements or unsuitable for reuse in fill and embankments.</p> <ul style="list-style-type: none"> ■ Wherever earthwork arisings which are unsuitable for re-use are disposed of, this will be managed in accordance with the relevant municipalities requirements, and if spoil disposal sites are developed for the Project, they will also be subject to the Lender's requirements, and the Lender's Technical Advisor (TA) will be notified. Excavation soils can only be stored in 'spoil disposal areas' specified in the Project, and selected for this purpose with the necessary permissions. ■ Stockpiles should be designed to minimise quality degradation, damaged and loss of material. Measures to consider include the stockpile location, soil type and condition, prevention of erosion 			

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		<p>and leachate generation and use of appropriate signage</p> <ul style="list-style-type: none"> ■ All long-term topsoil material stockpiles will be located outside the active construction site and away from drainage ditches. ■ Drainage from higher areas will be diverted around stockpile areas to prevent erosion. As required, sediment controls will be installed downstream of stockpile areas to collect any run-off. ■ Fertile topsoil will be stored in stockpiles using measures to prevent degradation, erosion, contamination and compaction. It will either enable agricultural land that is temporarily required during construction to be returned to agricultural use on completion of construction, or for landscaping on land that is permanently required. 			
C18	Construction Plans and	The Contractor will prepare and implement specific plans and method statements for temporary activities, such as storage areas,	<ul style="list-style-type: none"> ■ Preparation / Implementation – Contractor; and 	<ul style="list-style-type: none"> ■ Supervision Consultant to prepare monthly progress reports, 	<ul style="list-style-type: none"> ■ Plan approved by PIU / Supervision Consultant; and

Ref	Environmental / Social Aspect / Concern	Proposed Mitigation Measure	Responsibility		Target/ Indicator
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	Method Statements	<p>and the construction of ancillary structures (e.g. bridges, tunnels, viaducts, overpasses and underpasses). The method statements will include activity specific erosion protection measures, such as temporary vegetation planting, drainage, and slope stabilisation measures.</p> <p>The slope stabilisation measures will be determined by the Contractor ahead of construction. These should include a monitoring plan and a risk assessment which focusses on the ancillary structures along the Project (such as embankments for bridges and viaducts, cuttings for tunnel portals, cuttings for overpasses and embankments for underpasses). The monitoring will ensure that the slopes do not show signs of slippage or movement which has the potential to cause harm. Further monitoring of the slopes should be undertaken particularly after period of intense rainfall,</p>	<ul style="list-style-type: none"> Approval – PIU / Supervision Consultant. 	signed off by the PIU, for the Lenders.	<ul style="list-style-type: none"> Plan implemented by Contractor.

Ref	Environmental / Social Aspect / Concern	Proposed Mitigation Measure	Responsibility		Target/ Indicator
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		<p>snowmelt or earthquakes for possible traces of erosion which could destabilise the slopes.</p> <p>The specific construction plans will include:</p> <ul style="list-style-type: none"> ■ Tunnel Construction and Handover Plans; and ■ Blasting Management Plan. <p>The Tunnel Construction Plan will, as a minimum, include;</p> <ul style="list-style-type: none"> ■ Arrangements for management of tunnelling fluid, including treatment and recycling and eventual disposal. ■ Arrangement for the re-use, recycling, recovery and disposal of tunnel cuttings. ■ Noise and vibration management measures, with cross reference to the Blasting Management Plan, where required. ■ Emergency, health and safety and incident response procedures. ■ Training requirements, including health and safety. 			

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		<ul style="list-style-type: none"> ■ Risk management and reporting. ■ Any measures required following further geotechnical investigations, Foundation Risk Assessments or Piling Risk Assessments. ■ Detailed assessment of the EHSS impacts and any additional mitigations required in addition to those in the ESIA. <p>The Tunnel Handover Plan will, as a minimum, include;</p> <ul style="list-style-type: none"> ■ an operations handover process and the documentation required for handover process and the documentation required for handover; ■ training requirements including commissioning and staffing requirements; ■ occupational health and safety requirements; and ■ risk management and reporting. 			

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		<p>Once construction methods have been determined for each section of the Project Alignment, the Contractor will be responsible for assessing the EHSS impacts where blasting, as a construction method, is proposed and developing site-specific mitigation measures in compliance with the Project EHSS requirements. This will be undertaken prior to the commencement of works.</p> <p>A Blasting Management Plan will be prepared by the Contractor and set out measures including:</p> <ul style="list-style-type: none"> ■ The safe and secure storage of blasting equipment when not in use; ■ Pre and post blast surveys; ■ The Contractor must appoint an authorised blasting contractor. The PIU / Supervision Consultant will review this contractor's license; ■ Throughout the blasting activity, if required, vibration sensors will be installed at strategic locations to monitor 			

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		<p>the impact of blasting and to ensure that the vibration levels are within adopted criteria;</p> <ul style="list-style-type: none"> ■ Use blasting design with consideration of safety, blast geometry, free faces, burden, spacing, initiation patten (delayed blasting) and angled holes. Use of multi deck blasting techniques is considered as an efficient method creating lower vibration levels; ■ Suitable procedures for management of explosives, including security and storage arrangements will be developed and implemented; ■ The plan must be produced in accordance with the requirements of the BMP, and other sub-plans; ■ Communities will be informed of blasting timetable in advance and will be provided adequate notice of when blasts are required outside of the planning schedule; and 			

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		<ul style="list-style-type: none"> ■ The plan will include the licences for the companies appointed for blasting works. 			
C19	Employment Plan	<p>To enhance employment opportunities for locals within the Project area, the Contractor will:</p> <ul style="list-style-type: none"> ■ employ local workers by providing preference to suitably qualified and experienced applicants from the 25 local communities that are in close proximity to the Project as identified in Chapter 11 Social; and ■ Develop and implement Employment Plan, which will include: <ul style="list-style-type: none"> ● Details of a recruitment process which is transparent and fair, non-discriminatory and provides equal opportunities for both men and women; ● Details of the employment opportunities for locals; ● Details of how employment opportunities will be advertised (such as advertisements on AYGM 	<ul style="list-style-type: none"> ■ Preparation / Implementation – Contractor, with support from the PIU; and ■ Approval – PIU / Supervision Consultant. 	<ul style="list-style-type: none"> ■ Supervision Consultant to prepare monthly progress reports, signed off by the PIU, for the Lenders. 	<ul style="list-style-type: none"> ■ Plan approved by PIU / Supervision Consultant; and ■ Plan implemented by Contractor.

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		<p>and Ministry of Transport websites, on district governorship offices bulletin boards and providing information to the affected mukhtars, accessible advertisements in local communities);</p> <ul style="list-style-type: none"> • Details of the training opportunities which will be provided for graduates and employees on technical, health and safety and manual work where suitable. 			
C20	Labour Management and Monitoring Plan	<ul style="list-style-type: none"> ■ The Contractor will develop and implement a Labour Management and Monitoring Plan to: <ul style="list-style-type: none"> • Ensure that all workers (including sub-contractors) have employment contracts; • Ensure that all workers (including sub-contractors) employment contracts are in line with both national legislation, applicable ILO standards and recommendations and PR2; 	<ul style="list-style-type: none"> ■ Preparation / Implementation – Contractor; and ■ Approval – PIU / Supervision Consultant. 	<ul style="list-style-type: none"> ■ Supervision Consultant to prepare monthly progress reports, signed off by the PIU, for the Lenders. 	<ul style="list-style-type: none"> ■ Plan approved by PIU / Supervision Consultant; and ■ Plan implemented by Contractor.

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		<ul style="list-style-type: none"> Ensure all workers (direct and indirect) have access to human resources policy and procedures; 			
C21	Stakeholder Engagement Plan (SEP)	<p>Prior to the start of works, the Contractor shall develop and maintain a full SEP (aligned with the Contractor’s responsibilities within AYGM’s outline SEP). The Contractor SEP is a live document and will be updated throughout the construction phase.</p>	<ul style="list-style-type: none"> Preparation / Implementation – Contractor; and Approval – PIU / Supervision Consultant. 	<ul style="list-style-type: none"> Supervision Consultant to prepare monthly progress reports, signed off by the PIU, for the Lenders. 	<ul style="list-style-type: none"> Plan approved by PIU / Supervision Consultant; Plan implemented by Contractor; and
C22	Training Plan	<p>A Training Plan will be prepared for personnel and workers on the Project. The plan will include details of training programs for EHSS aspects of the Project including:</p> <ul style="list-style-type: none"> Applicable HR policy provisions and procedures, Project-level and Worker Grievance Mechanisms, including the need to refer public grievances to the CLOs, Construction Workers’ Code of Conduct, with emphasis on provisions intended to combat 	<ul style="list-style-type: none"> Preparation / Implementation – Contractor; and Approval – PIU / Supervision Consultant. 	<ul style="list-style-type: none"> Supervision Consultant to prepare monthly progress reports, signed off by the PIU, for the Lenders. 	<ul style="list-style-type: none"> Plan approved by PIU / Supervision Consultant; and Plan implemented by Contractor.

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		<p>gender-based violence and harassment (GBVH) and sexual exploitation and assault (SEA),</p> <ul style="list-style-type: none"> ■ Materials management, and ■ Environmental protection. <p>All workers will be required to undertake a construction site induction before commencing work. This training will explain the safety rules and controls in place on site, hazards that workers might be exposed to, and how to work safely on site.</p> <p>Regular toolbox talks will be delivered covering single environmental, health or safety aspect applicable to the Project, or stage of construction, via a brief presentation.</p> <p>Refresher training will be provided by the Contractor periodically to ensure all workers are up to date on best site practices.</p> <p>Contractors employed to provide security services will be trained on</p>			

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		the implementation of the Voluntary Principles for Security and Human Rights.			
C23	Resettlement Action Plan (RAP)	The Contractor will be responsible for implementing the measures outlined in the RAP (as it relates to their acquisition of temporary land) to restore the likelihood of parties affected by resettlement to pre-project levels.	<ul style="list-style-type: none"> ■ Preparation / Implementation – Contractor; and ■ Approval – PIU / Supervision Consultant. 	<ul style="list-style-type: none"> ■ AYGM, with review from external independent monitoring consultant, will prepare bi-monthly reports on performance monitoring (internal monitoring) to the Lenders. ■ External independent monitoring consultant and CLOs will prepare a 6-monthly report on Impact monitoring (external monitoring) to the Lenders ■ External independent monitoring consultant to prepare a completion audit and long-term review on completion of RAP timetable as 	<ul style="list-style-type: none"> ■ Plan approved by PIU / Supervision Consultant; ■ Plan implemented by Contractor; and ■ Completion Audit and Long-Term Review confirms implementation.

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				<p>agreed between PIU and Lenders, and yearly for 3 years post-completion.</p> <ul style="list-style-type: none"> Updates provided in monthly EHSS progress reports to the Lenders. 	
C24	Construction Workers' Code of Conduct	<p>The Contractor elaborate and apply the Construction Workers' Code of Conduct set out in Appendix A of the CMP.</p> <ul style="list-style-type: none"> The Construction Workers' Code of Conduct shall be clearly displayed at the different Project Areas and posted in the Contractor's vehicles and machinery driving cabs. New Contractor's personnel and existing Contractor's personnel are made aware and acknowledge their understanding of the Worker's Code of Conduct and the associated provisions. The Workers' Code of Conduct is initialled by all Contractors' personnel prior to the start of 	<ul style="list-style-type: none"> Preparation / Implementation – Contractor; and Approval – PIU / Supervision Consultant. 	<ul style="list-style-type: none"> Supervision Consultant to prepare monthly progress reports, signed off by the PIU, for the Lenders. 	<ul style="list-style-type: none"> Completion of Code of Conduct and subsequent implementation.

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		<p>any physical work at any Project Area. Compliance with the Code of Conduct shall be a condition in all workers' employment contracts.</p> <ul style="list-style-type: none"> ■ The Code of Conduct will include a list of acts considered as requiring a disciplinary procedure by the Contractor, or by the Supervision Consultant if the Contractor is not acting in due course. ■ Should the Contractor's personnel repeatedly commit any of the listed offences despite awareness of the Code of Conduct, and this is without prejudice to any legal action by any public authority for non-compliance with applicable regulations, then this would be regarded to be serious misconduct. Serious misconduct shall result in immediate dismissal from any Project Area. Acts requiring the implementation of a disciplinary procedure and where repeated failure or 			

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		<p>where the severity of such cases may result in serious misconduct and instant dismissal are as follows:</p> <ul style="list-style-type: none"> • Drunkenness during working hours, leading to risks for the safety of local inhabitants, customers, users and personnel; • Punishable statements or attitudes, and sexual harassment in particular; • Violent behaviour and physical aggression; • Intentional damage to the assets and interests of others, or the environment; • Repeated negligence or imprudence leading to damage or prejudice to the environment, the population or properties, particularly breaching provisions intended to prevent the spreading of STD and AIDS; • Drug including marijuana use; • Possession and/or consumption of meat or any 			

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		<p>other part of an endangered animal or plant as defined in the Washington convention (CITES) and national regulations.</p> <ul style="list-style-type: none"> • Entering property of neighbouring people without permission of the landowners or those cultivating/renting the land. ■ Serious misconduct, and therefore instant dismissal, shall also apply if workers are found to be involved in any of the following activities: organisation of sex trade (pimping), committing paedophilia, drug trafficking, deliberate and severe pollution, trading and/or trafficking in all or part of protected species. Anyone found to be committing such offences shall be immediately dismissed as of the first report of misconduct detected, in application of the Code of Conduct and labour laws. 			

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		<ul style="list-style-type: none"> ■ The Contractor establishes a record for each case of serious misconduct, and a copy will be provided to the Contractor's personnel in question, indicating all action taken to terminate the misconduct by the Contractor's personnel in question and to bring the attention of other Contractor's personnel to the type of incident detected. This record will be provided to the Implementation Consultant as an attachment to the EHSS monthly progress report ■ The Contractor shall without delay inform the Implementation Consultant who in case of serious misconduct shall immediately inform the Supervision Consultant and PIU. 			
C25	Railway Safety Plan	Pre-construction – implement the manufacturing related measures in the Railway Safety Plan (lifecycle phase 7), including updating the Hazard Log.	<ul style="list-style-type: none"> ■ Preparation / Implementation – Contractor and Independent Safety Assessor/Assessment Body (ISA/AsBo); and 	<ul style="list-style-type: none"> ■ Supervision Consultant to prepare monthly progress reports, signed off by the PIU, for the Lenders. 	<ul style="list-style-type: none"> ■ Compliance with Railway Safety Plan; and ■ ISA/AsBo acceptance of the technical and

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		Construction and Commissioning – Implement the integration, system validation and system acceptance related measures in the Railway Safety Plan (lifecycle phases 8 – 10), including updating the Hazard Log.	<ul style="list-style-type: none"> Approval – PIU / Supervision Consultant 		operational safety cases (lifecycle phase 10 of the Railway Safety Plan).
C26	Workforce Demobilisation Plan	The Contractor will be responsible for fulfilling any national obligations and legal requirements with regards to employment termination at the end of the construction phase of the Project.	<ul style="list-style-type: none"> Preparation / Implementation – Contractor; and Approval – PIU / Supervision Consultant 	<ul style="list-style-type: none"> Supervision Consultant to monitor implementation of Plan, and reporting progress regularly to the PIU throughout the post-employment stage of construction. 	<ul style="list-style-type: none"> Compliance with national and legal obligations for dismissal of workforce.

Table Error! No text of specified style in document.-2 - Operational Environmental and Social Management Plan (OESMP)

Ref	Environmental / Social Aspect / Concern	Proposed Mitigation Measure	Responsibility		Target/ Indicator
			Preparation / Implementation	Monitoring	
TCDD and TCDD Transport					
T1	Development of an OESMP	TCDD, with support from the PIU, shall prepare an OESMP. The OESMP will set out the processes and responsibilities for implementation of the requirements of permits, licenses, lenders and regulations associated with the operation and maintenance of the Project.	<ul style="list-style-type: none"> ■ Preparation – TCDD Transport; and ■ Approval – TCDD Transport. 	<ul style="list-style-type: none"> ■ TCDD Transport to prepare annual progress reports for the Lenders. 	<ul style="list-style-type: none"> ■ OESMP and plans developed and implemented.
T2	Development of OESMP sub-plans	<p>Prior to operation and as part of the OESMP TCDD shall prepare the following plans in line with the Lenders requirements and national legislation, this ESMP and the AYGM ESMS:</p> <ul style="list-style-type: none"> ■ Operational Biodiversity Management Plan ■ Operational Landscape Management Plan; ■ Operational Soil Management Plan; ■ Operational Waste Management Plan; ■ Operational Maintenance Plan; ■ Tunnel Operational Management Plan; ■ Employment Plan; ■ Labour Management Plan; ■ Supply Chain Management Plan; 	<ul style="list-style-type: none"> ■ Preparation – TCDD Transport; and ■ Approval – TCDD Transport. 	<ul style="list-style-type: none"> ■ TCDD Transport to prepare annual progress reports for the Lenders. 	<ul style="list-style-type: none"> ■ Development and implementation of OESMP and plans.

Ref	Environmental / Social Aspect / Concern	Proposed Mitigation Measure	Responsibility		Target/ Indicator
			Preparation / Implementation	Monitoring	
		<ul style="list-style-type: none"> ■ Health, Safety and Security Plan; ■ Community Health, Safety and Security Plan; ■ Operational Cultural Heritage Management Plan; ■ Gender Plan; ■ Railway Safety Plan. ■ Operational Emergency Response Plan 			
T3	Stakeholder Engagement Plan (SEP)	<ul style="list-style-type: none"> ■ TCDD Transport will update the Project SEP and GMs for the operational phase; ■ The SEP will be implemented and regular consultation activities with local communities will be organised; ■ The CLO shall manage consultation activities and workshops and implement the SEP with local communities; ■ Consultation events will be organised (including for women and vulnerable groups) as and when required; and ■ The SEP will be updated on an annual basis. 	<ul style="list-style-type: none"> ■ Preparation – TCDD Transport; and ■ Approval – TCDD Transport. 	<ul style="list-style-type: none"> ■ TCDD Transport to prepare annual progress reports for the Lenders. 	<ul style="list-style-type: none"> ■ Approval and implementation of SEP during operational phase.
T4	Biodiversity Management Plan	Develop and implement the full BMP for the operational phase in line with the outline BMP. The full operational BMP will cover actions to safeguard and	<ul style="list-style-type: none"> ■ Preparation – TCDD Transport; and ■ Approval – TCDD Transport. 	<ul style="list-style-type: none"> ■ TCDD Transport to prepare annual progress 	<ul style="list-style-type: none"> ■ Development and implementation of full BMP for operational phase.

Ref	Environmental / Social Aspect / Concern	Proposed Mitigation Measure	Responsibility		Target/ Indicator
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		<p>conserve biodiversity, that could be affected by the planned activity. Compliance with the plan will be the responsibility of TCDD/TCDD Transport and rail operations and monitored by TCDD Transport.</p> <p>The full BMP will include specific actions to be implemented through the lifetime of the Project and enhance biodiversity in the area and include;</p> <ul style="list-style-type: none"> ■ Surveys of chainages identified in the BMP will be undertaken, comprising monthly walkovers during year 1 of operation and then with decreasing frequency. Additionally, should any areas of increased perceived collision risk be identified during the pre-construction surveys, these will be added as a monitoring component; ■ Survey efforts will comprise monitoring of identified areas to assess the adequacy of the mitigation, and inform any amendments required to ensure continued efficacy of these measures; and ■ Adaptive management will be informed by findings from monitoring 		<p>reports for the Lenders.</p> <ul style="list-style-type: none"> ■ The operational surveying and monitoring requirements are set out in the BMP. 	

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			Preparation / Implementation	Monitoring	
		<p>activities. Where it is identified that BMP targets are not being met, TCDD will be responsible for rectifying this through appropriate adaptive management. These measures may include:</p> <ul style="list-style-type: none"> • Increased fauna crossing points installations; • Increased planting, and/or refined planting locations; • Supplementary seed-collection and plant propagation; • Targeted limits on train speeds; and • Increased invasive non-native species (INNS) management. 			
T5	Operational Maintenance Plan	<ul style="list-style-type: none"> ■ Maintenance of the Project will be the responsibility of TCDD Transport, and will involve routing, planned maintenance and system testing, as well as ad-hoc maintenance and repairs; ■ Maintenance activities will be planned to enable them to be delivered safely and in a manner that minimises disruption where practicable. The existing railway line will be used for maintenance activities. The maintenance of trains will be carried 	<ul style="list-style-type: none"> ■ TCDD Transport. 	<ul style="list-style-type: none"> ■ Inspection and maintenance records to be kept; and ■ TCDD Transport to prepare annual progress reports for the Lenders. 	<ul style="list-style-type: none"> ■ Operational Maintenance Plan prepared by the TCDD and implemented during operational phase.

Ref	Environmental / Social Aspect / Concern	Proposed Mitigation Measure	Responsibility		Target/ Indicator
			Preparation / Implementation	Monitoring	
		<p>out at the existing maintenance station at Halkali;</p> <ul style="list-style-type: none"> ■ A robust maintenance regime for the Project elements will be developed and implemented. Inspections must be conducted and managed by suitably qualified and experience engineers and in line with appropriate Turkish and international standards; ■ A specific programme of inspection and maintenance will also be developed for all structures including viaducts, bridges, tunnels, overpasses and underpasses, as well as railway tracks, drainage systems, and all safety features of the Project; ■ This plan will set out the storage requirements for materials required for the maintenance of the Project, including storage locations and procedures; and ■ TCDD will ensure that a sufficient resource of qualified and competent personnel is available to plan, conduct, supervise and interpret the results of any inspection and maintenance programs. 			

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T6	Tunnel Operational Management Plan	<p>TCDD will prepare a Tunnel Operational Management Plan which will include the following requirements;</p> <ul style="list-style-type: none"> ■ Working condition ventilation will be maintained; ■ Firefighting equipment and other facilities will be maintained and provided in a working condition; ■ Tunnel staff will be adequately trained in case of emergencies, including rescue, recovery and prevention of access to additional vehicles; ■ Ensure tunnels is cleaned regularly; ■ Ensure that exit doors to the gallery and passages are not blocked; and ■ An inspection routine will be specified. 	<ul style="list-style-type: none"> ■ TCDD Transport. 	<ul style="list-style-type: none"> ■ TCDD Transport to prepare annual progress reports for the Lenders. 	<ul style="list-style-type: none"> ■ Plan prepared by the PIU / TCDD Transport and implemented during operational phase.
T7	Railway Safety Plan	Implement the operation, maintenance and performance monitoring related measures in the Railway Safety Plan (lifecycle phase 11).	<ul style="list-style-type: none"> ■ TCDD Transport. 	<ul style="list-style-type: none"> ■ TCDD Transport to prepare annual progress reports for the Lenders. 	<ul style="list-style-type: none"> ■ Completed documentation, as specified in the Railway Safety Plan.
T8	Operational Cultural Heritage Management Plan	<ul style="list-style-type: none"> ■ TCDD will ensure those undertaking maintenance activities are aware of the potential for previously undiscovered buried heritage remains 	<ul style="list-style-type: none"> ■ Implementation – TCDD Transport and Maintenance Contractor. 	<ul style="list-style-type: none"> ■ TCDD Transport to prepare annual progress 	<ul style="list-style-type: none"> ■ Plan prepared by PIU / TCDD Transport and implemented by TCDD Transport

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		to exist when undertaking any intrusive below ground activity; and <ul style="list-style-type: none"> In line with national legislation, TCDD will require the maintenance contractor to establish a policy and procedure for managing any chance finds during maintenance activities. 		reports for the Lenders.	during operational phase.
T9	Landscape Management Plan	<ul style="list-style-type: none"> TCDD will continue to implement the LMP to ensure it is implemented for a full five years; The LMP will cover actions to suitably manage and maintain the growth and health of planting in year 1 (establishment), the first 5 years of growth (strengthening), and post 5-year longer-term typical management and maintenance requirements. Compliance with the plan will be the responsibility of TCDD and rail operations, and monitored by TCDD; The LMP will outline the tasks to establish and maintain the trees, grass and vegetation identified on the Landscape Design/Planting Plans; Planting measures will be designed to provide visual screening and reduce risk of bird strikes where required as well as provide enhancement to local landscape character; 	<ul style="list-style-type: none"> Implementation – The contractor will begin the implementation of the LMP and TCDD Transport will continue the implementation of the LMP and any post-5 year activities; and Authorisation – TCDD Transport. 	<ul style="list-style-type: none"> TCDD Transport to prepare annual progress reports for the Lenders. 	<ul style="list-style-type: none"> TCDD to develop and implementation of LMP.

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		<ul style="list-style-type: none"> ■ Planting measures will also be designed to provide connectivity within the wider landscape where possible; and ■ Planting should make use of species of local/regional provenance. 			
T10	Operational Soil Management Plan	<ul style="list-style-type: none"> ■ In order to prevent soil erosion, loss and degradation along the Project alignment the Operational Soil Management Plan (OSMP) will be prepared. It will include measures to: <ul style="list-style-type: none"> ● Maintain sediment traps and basins, drainage channels and treatment systems; ● Maintain slope stability (cuttings and embankment). ■ The OSMP will include measures for revegetation and/or maintenance of vegetation to increase the stability of potentially loose materials and surfaces which may develop during the operational phase of the Project. 	<ul style="list-style-type: none"> ■ TCDD Transport. 	<ul style="list-style-type: none"> ■ TCDD Transport to prepare annual progress reports for the Lenders. 	<ul style="list-style-type: none"> ■ TCDD Transport to prepare and implement Plan during operational phase.
T11	Operational Waste Management Plan	<ul style="list-style-type: none"> ■ The Operational Waste Management Plan (OWMP) is to be implemented in the Project operational phase by TCDD. It is noted that operational waste management will be dependent 	<ul style="list-style-type: none"> ■ TCDD Transport. 	<ul style="list-style-type: none"> ■ TCDD Transport to prepare annual progress reports for the Lenders. 	<ul style="list-style-type: none"> ■ TCDD Transport to prepare and implement Plan during the operational phase.

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		<p>on the corporate governance controls put in place by occupiers;</p> <ul style="list-style-type: none"> ■ Appropriate collection and disposal of waste products including oil from maintenance stations. 			
T12	Employment Plan	<ul style="list-style-type: none"> ■ To enhance employment opportunities for locals within the Project area, the following measures will be implemented: <ul style="list-style-type: none"> ● TCDD will employ local workers by providing preference to suitably qualified and experienced applicants from local communities; and ● Develop an Employment Plan, which will include; <ul style="list-style-type: none"> Details of a recruitment process which is transparent and fair; Details of the employment opportunities for locals; Details of how employment opportunities will be advertised (such as advertisements on TCDD Transport’s and Ministry of Transport websites, on district governorship offices bulletin boards and providing information to the neighbourhood mukhtars); 	<ul style="list-style-type: none"> ■ TCDD Transport. 	<ul style="list-style-type: none"> ■ TCDD Transport to prepare annual progress reports for the Lenders. 	<ul style="list-style-type: none"> ■ TCDD Transport to prepare and implement Plan during the operational phase.

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		<p>Details of the training opportunities which will be provided for graduates and employees on technical (including train driving), health and safety and manual work where suitable; and</p> <p>Details of the process for collaborating with local schools and universities to develop apprenticeship and graduate programmes.</p>			
T13	Labour Management and Monitoring Plan	<ul style="list-style-type: none"> ■ To reduce and mitigate effects associated with labour risks, the following measures will be implemented: <ul style="list-style-type: none"> ● Develop and implement a Labour Management and Monitoring Plan to: <ul style="list-style-type: none"> Ensure that all workers have employment contracts; Ensure that all workers employment contracts are in line with national legislation, applicable ILO standards and recommendations and PR2; and Ensure all workers (direct and indirect) have access to human 	<ul style="list-style-type: none"> ■ TCDD Transport. 	<ul style="list-style-type: none"> ■ TCDD Transport to prepare annual progress reports for the Lenders. 	<ul style="list-style-type: none"> ■ TCDD Transport to prepare and implement Plan during the operational phase.

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		<p>resources policy and procedures.</p> <ul style="list-style-type: none"> • Provide and implement a grievance mechanism for employees and any suppliers; • Ensure employees and any suppliers have access to human resources policies; • Ensure employees are aware of their rights to join local trade unions; and • Undertake independent audits and inspections of the stations and operational workspace every 6 months to ensure compliance with both national legislation and applicable ILO standards and recommendations. 			
T14	Supply Chain Management Plan	<ul style="list-style-type: none"> ■ To reduce and mitigate effects associated with the operational supply chain, the following measures will be implemented: <ul style="list-style-type: none"> • Develop a Supply Chain Management Plan to cover the operation stage, and as a minimum to cover the following: Ensure that any tendering process includes clauses and policies on minimum working age, 	<ul style="list-style-type: none"> ■ TCDD Transport. 	<ul style="list-style-type: none"> ■ TCDD Transport to prepare annual progress reports for the Lenders. 	<ul style="list-style-type: none"> ■ TCDD Transport to prepare and implement Plan during the operational phase.

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		<p>normal working hours, freedom to collective bargaining, good working conditions and eradicating risks of forced labour; and</p> <p>Include labour management clauses (as specified in bullet point above) in procurement contracts.</p>			
T15	Community Health, Safety and Security Plan	<ul style="list-style-type: none"> ■ In order to mitigate effects in relation to community health, safety and security, the following measures will be implemented: <ul style="list-style-type: none"> ● Develop a Community Health, Safety and Security Plan, which will include measures relating to the health, safety and security of the local communities; ● On-going consultation with local communities to ensure any potential issues are addressed; and ● Provide and implement a grievance mechanism for the local community (as detailed in the SEP). ■ In order to mitigate effects in relation to community access, the following measures will be implemented: 	<ul style="list-style-type: none"> ■ TCDD Transport. 	<ul style="list-style-type: none"> ■ TCDD Transport to prepare annual progress reports for the Lenders. 	<ul style="list-style-type: none"> ■ TCDD Transport to prepare and implement Plan during the operational phase.

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		<ul style="list-style-type: none"> • Ensure that adverts are issued (inclusive of newsletters issued to affected communities) with details of the new crossings (overpasses and underpasses); • Ensure that signage for the new crossings are displayed along the Project alignment; • Conduct regular consultation with affected users and communities to ensure that the crossings are working effectively; and • Ensure all the new crossings are maintained and inspected regularly for any potential damage, in accordance with the Operational Maintenance Plan. 			
T16	Gender Plan	<ul style="list-style-type: none"> ■ To mitigate gender related effects, the following measures will be implemented: <ul style="list-style-type: none"> • Ensure the maintenance of infrastructure and train facilities which are accessible for elderly, disabled and those with reduced mobility (both men and women) and pregnant women (in accordance with the Operational Maintenance Plan); 	<ul style="list-style-type: none"> ■ TCDD Transport with assistance from a third-party consultant. 	<ul style="list-style-type: none"> ■ TCDD Transport to prepare annual progress reports for the Lenders. 	<ul style="list-style-type: none"> ■ TCDD Transport to prepare and implement Plan during the operational phase.

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		<ul style="list-style-type: none"> • A zero-tolerance process will be in place for discrimination against women workers; • Provide training to human resource personnel of TCDD Transport to address and deal with discrimination issues in the workplace; • Collaborate with Ministry of Family, Labour and Social Services and local Non-Governmental Organisations, such as CEID, on gender related (including GBVH) raised concerns and complaints to address the gender related issues at regional level; and • Undertake regular consultation with locally affected women on their issues about the operational phase of the Project. A third-party consultant will be engaged to assist with undertaking the following activities; • Promote open discussions about gender related concerns through implementing an effective employee and public grievance mechanisms and provision of training on GBVH aspects to key 			

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		responsible people (such as a local CLO and human resources manager (or equivalent)); <ul style="list-style-type: none"> • Develop STEM subject workshops with local schools which are open to girls; • Collaborate with local schools and universities to develop apprenticeship and graduate programmes which are open to women; • Promote and develop mentoring programme for women in the rail sector; and • Provide transparency on pay to close gender pay gap. 			
T17	Health Safety and Security Plan	<ul style="list-style-type: none"> ■ To mitigate any OHS risks, TCDD will implement a Health, Safety and Security Plan, which will include control measures to minimise fatigue for train drivers (for example, railway operators' rest breaks should be scheduled at regular intervals, and for night operations, rest break practices should be in line with the international standards to maximise the effectiveness of rest breaks, to the extent possible). 	<ul style="list-style-type: none"> ■ TCDD Transport. 	<ul style="list-style-type: none"> ■ TCDD Transport to prepare annual progress reports for the Lenders. 	<ul style="list-style-type: none"> ■ TCDD Transport to prepare and implement Plan during the operational phase.

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		<ul style="list-style-type: none"> ■ TCDD Transport will appoint an occupational safety specialist. ■ Additional measures to manage OHS risks will be set out in the following OESMP sub-plans: <ul style="list-style-type: none"> ● Railway Safety Plan (update), ● Operational Maintenance Plan, and ● Tunnel Operational Management Plan. 			
T18	Emergency Response Plan	<ul style="list-style-type: none"> ■ TCDD Transport will prepare a detailed Operational Emergency Response Plans (OERP) aligned with the ERF. The OERPs must be developed prior to the operational phase commencing to achieve appropriate and effective emergency preparedness and response activities for foreseeable emergency events should they arise. This must also include consultation with the national emergency services and authorities and agreement of roles and responsibilities in the context of emergency response. 	<ul style="list-style-type: none"> ■ TCDD Transport. 	<ul style="list-style-type: none"> ■ AYGM to prepare annual progress reports for the Lenders. 	<ul style="list-style-type: none"> ■ TCDD Transport to prepare and implement Plan during the operational phase.