Request for Proposals
Works
Design and Build
(Single-Stage RFP without Initial Selection)

Procurement of:

Design and Construction of Infrastructure & Superstructure Works including electrification with three Lots of the Eastern Türkiye Middle Corridor Railway Development Project (ETMIC)

Employer: Ministry of Transport and Infrastructure, Directorate General of Infrastructure Investments

Project: Eastern Türkiye Middle Corridor Railway Development Project (ETMIC - P179128)

Contract title: Design and Construction of Infrastructure & Superstructure Works including electricfication, with three Lots, under ETMIC Project

Country: Republic of Türkiye

Loan No.: 9753-TR

RFP No: AYGM-ETMIC-2026-YAP 01/1-2-3

Issued on: October 2026

Table of Content

PART 1 – Request for Proposal Procedures **1**
Section I - Instructions to Proposers (ITP) 2
Section II - Proposal Data Sheet (PDS) 35
Section III. Evaluation and Qualification Criteria 45
Section IV - Proposal Forms 79
Section V - Eligible Countries 158
Section VI - Fraud and Corruption 159

PART 2 –Employer's Requirements **161**
Section VII. Employer's Requirements 162

PART 3 – Conditions of Contract and Contract Forms **492**
Section VIII - General Conditions (GC) 493
Section IX - Particular Conditions (PC) 494
Section X - Contract Forms 555

PART 1 – REQUEST FOR PROPOSAL PROCEDURES

SECTION I - INSTRUCTIONS TO PROPOSERS (ITP)

TABLE OF CONTENT

A. General **4**
1. Scope of Proposal 4
2. Source of Funds 5
3. Fraud and Corruption 5
4. Eligible Proposers 6
5. Eligible Materials, Equipment, and Services 8

B. Contents of RFP Document **9**
6. Sections of RFP Document 9
7. Clarification of RFP Document, Site Visit, Pre-Proposal Meeting 9
8. Amendment of RFP Document 11
9. Cost of Proposals 11
10. Contacting the Employer 11
11. Language of Proposals 11

C. Preparation of Proposals **11**
12. Documents Comprising the Proposal 11
13. Letter of Proposal, and Schedules 13
14. Alternative Technical Proposals 13
15. Proposal Prices 13
16. Proposal Currencies 15
17. Documents Establishing the Qualification of the Proposer 15
18. Documents Establishing Conformity of the Works 16
19. Securing the Proposal 17
20. Period of Validity of Proposals 18
21. Format and Signing of Proposal 19

D. Submission of Proposals **19**
22. Submission, Sealing and Marking of Proposals 19
23. Deadline for Submission of Proposals 20
24. Late Proposals 21
25. Withdrawal, Substitution, and Modification of Proposals 21

E. Opening of Technical Parts of Proposals **21**
26. Opening of Technical Part by Employer 21

F. Evaluation of Proposals – General Provisions **22**
27. Confidentiality 22
28. Clarification of Proposals 23
29. Deviations, Reservations, and Omissions 23

G. Evaluation of Technical Parts of Proposals **23**
30. Determination of Responsiveness of Technical Parts 23

31. Evaluation of Technical Proposals....24
32. Evaluation of Proposer's Qualification....24
33. Notification of evaluation of Technical Parts....25

H. Opening of Financial Parts....25
34. Public Opening of Financial Parts when BAFO or negotiations do not apply....25
35. Opening of Financial Parts when BAFO or negotiations apply....26

I. Evaluation of Financial Part....27
36. Nonmaterial Nonconformities....27
37. Arithmetic Correction....27
38. Conversion to Single Currency....28
39. Margin of Preference....28
40. Evaluation Process Financial Parts....28
41. Abnormally Low Proposals....29
42. Unbalanced or Front Loaded Proposals....29

J. Evaluation of Combined Technical and Financial Part....29
43. Evaluation of Combined Technical and Financial Proposals....29
44. Best and Final Offer (BAFO)....30
45. Most Advantageous Proposal (MAP)....30
46. Negotiations....30
47. Employer's Right to Accept Any Proposal, and to Reject Any or All Proposals....30
48. Standstill Period....31
49. Notification of Intention to Award....31

K. Award of Contract....31
50. Award Criteria....31
51. Notification of Award....31
52. Debriefing by the Employer....32
53. Signing of Contract....33
54. Performance Security....33
55. Procurement Related Complaint....34

SECTION I - INSTRUCTIONS TO PROPOSERS

A. GENERAL

1. Scope of Proposal

1.1 The Employer, as specified **in the PDS**, issues this Request for Proposals (RFP) Document for the Design and build of the Works as specified in Section VII, Employer's Requirements. The name, identification and number of lots (contracts) of this RFP are specified **in the PDS.**

1.2 Unless otherwise stated, throughout this RFP Document definitions and interpretations shall be as prescribed in the Section VIII, General Conditions.

1.3 Throughout this RFP Document:

(a) the term **"in writing"** means communicated in written form (e.g. by mail, e-mail, fax, including if specified **in the PDS**, distributed or received through the electronic-procurement system used by the Employer) with proof of receipt;

(b) if the context so requires, "**singular"** means **"plural"** and vice versa;

(c) **"Day"** means calendar day, unless otherwise specified as **"Business Day".** A Business Day is any day that is an official working day of the Borrower. It excludes the Borrower's official public holidays;

(d) **"Works"** refers to Works, subject of this request for proposals document, to be executed on design and build contracting arrangement;

(e) **"ES"** means environmental and social (including Sexual Exploitation and Abuse (SEA), and Sexual Harassment (SH));

(f) **"Sexual Exploitation and Abuse" "(SEA)"** means the following:

Sexual Exploitation is defined as any actual or attempted abuse of position of vulnerability, differential power or trust, for sexual purposes, including, but not limited to, profiting monetarily, socially or politically from the sexual exploitation of another;

Sexual Abuse is defined as the actual or threatened physical intrusion of a sexual nature, whether by force or under unequal or coercive conditions;

(g) **"Sexual Harassment" "(SH)"** is defined as unwelcome sexual advances, requests for sexual favors, and other

verbal or physical conduct of a sexual nature by the Contractor's Personnel with other Contractor's or Employer's Personnel;

(h) **"Contractor's Personnel"** is as defined in Sub-Clause 1.1.16 of the General Conditions; and

(i) **"Employer's Personnel"** is as defined in Sub-Clause 1.1.32 of the General Conditions.

A non-exhaustive list of (i) behaviors which constitute SEA and (ii) behaviors which constitute SH is attached to the Code of Conduct form in Section IV.

2. Source of Funds

2.1 The Borrower or Recipient (hereinafter called "Borrower") indicated **in the PDS** has applied for or received financing (hereinafter called "funds") from the International Bank for Reconstruction and Development or the International Development Association (hereinafter called "the Bank") in an amount specified **in the PDS** toward the project named **in the PDS**. The Borrower intends to apply a portion of the funds to eligible payments under the contract(s) for which this RFP Document is issued.

2.2 Payments by the Bank will be made only at the request of the Borrower and upon approval by the Bank in accordance with the terms and conditions of the Loan (or other financing) Agreement between the Borrower and the Bank (hereinafter called the Loan Agreement), and will be subject in all respects to the terms and conditions of that Loan (or other financing) Agreement. The Loan (or other financing) Agreement prohibits a withdrawal from the loan account for the purpose of any payment to persons or entities, or for any import of equipment, materials or any other goods, if such payment or import is prohibited by a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations. No party other than the Borrower shall derive any rights from the Loan (or other financing) Agreement or have any claim to the proceeds of the Loan (or other financing).

3. Fraud and Corruption

3.1 The Bank requires compliance with the Bank's Anti-Corruption Guidelines and its prevailing sanctions policies and procedures as set forth in the WBG's Sanctions Framework, as set forth in Section VI.

3.2 In further pursuance of this policy, Proposers shall permit and shall cause their agents (where declared or not), subcontractors, sub-consultants, service providers, suppliers, and personnel, to permit the Bank to inspect all accounts, records and other documents relating to any initial selection process,

prequalification process, bid submission, proposal submission and contract performance (in the case of award), and to have them audited by auditors appointed by the Bank.

4. Eligible Proposers

4.1 A Proposer may be a firm that is a private entity, a state-owned enterprise or institution subject to **ITP 4.6**—or any combination of such entities in the form of a joint venture (JV) under an existing agreement or with the intent to enter into such an agreement supported by a letter of intent. In the case of a joint venture, all members shall be jointly and severally liable for the execution of the Contract in accordance with the Contract terms. The JV shall nominate a Representative who shall have the authority to conduct all business for and on behalf of any and all the members of the JV during the RFP process and, in the event the JV is awarded the Contract, during contract execution. Unless specified **in the PDS**, there is no limit on the number of members in a JV.

4.2 A Proposer shall not have a conflict of interest. Any Proposer found to have a conflict of interest shall be disqualified. A Proposer may be considered to have a conflict of interest for the purpose of this RFP process, if the Proposer:

(a) directly or indirectly controls, is controlled by or is under common control with another Proposer; or

(b) receives or has received any direct or indirect subsidy from another Proposer; or

(c) has the same legal representative as another Proposer; or

(d) has a relationship with another Proposer, directly or through common third parties, that puts it in a position to influence the Proposal of another Proposer, or influence the decisions of the Employer regarding this RFP process; or

(e) any of its affiliates participates as a consultant in the preparation of the Employer's Requirements for the Works that are the subject of the Proposal; or

(f) or any of its affiliates has been hired (or is proposed to be hired) by the Employer or Borrower as the Engineer for the Contract implementation; or

(g) would be providing goods, works, or non-consulting services resulting from or directly related to consulting services for the preparation or implementation of the project specified **in the PDS ITP 2.1** that it provided or were provided by any affiliate that directly or indirectly controls, is controlled by, or is under common control with that firm; or

(h) has a close business or family relationship with a professional staff of the Borrower (or of the project implementing agency, or of a recipient of a part of the loan) who: (i) are directly or indirectly involved in the preparation of the RFP Document or specifications of the Contract, and/or the Proposal evaluation process of such Contract; or (ii) would be involved in the implementation or supervision of such Contract unless the conflict stemming from such relationship has been resolved in a manner acceptable to the Bank throughout the RFP process and execution of the Contract.

4.3 A firm that is a Proposer (either individually or as a JV member) shall not participate in more than one Proposal, except for permitted alternative Proposals. This includes participation as a subcontractor in other Proposals. Such participation shall result in the disqualification of all Proposals in which the firm is involved. A firm that is not an individual Proposer or a JV member in a Proposal may participate as a subcontractor in more than one Proposal.

4.4 A Proposer may have the nationality of any country, subject to the restrictions pursuant to **ITP 4.8.** A Proposer shall be deemed to have the nationality of a country if the Proposer is constituted, incorporated or registered in and operates in conformity with the provisions of the laws of that country, as evidenced by its articles of incorporation (or equivalent documents of constitution or association) and its registration documents, as the case may be. This criterion also shall apply to the determination of the nationality of proposed sub-contractors or sub-consultants for any part of the Contract including related Services.

4.5 A Proposer that has been sanctioned by the Bank, pursuant to the Bank's Anti-Corruption Guidelines, and in accordance with its prevailing sanctions policies and procedures as set forth in the World Bank Group's Sanctions Framework as described in Section VI paragraph 2.2 d., shall be ineligible to be initially selected for, prequalified for, bid for, submit proposal for, or be awarded a Bank-financed contract or benefit from a Bank-financed contract, financially or otherwise, during such period of time as the Bank shall have determined. The list of debarred firms and individuals is available at the electronic address specified **in the PDS**.

4.6 Proposers that are state-owned enterprises or institutions in the Employer's Country may be eligible to compete and be awarded a Contract(s) only if they can establish, in a manner acceptable to the Bank, that they (i) are legally and financially autonomous (ii)

operate under commercial law, and (iii) are not under supervision of the Employer.

4.7 A Proposer shall not be under suspension from submitting Proposals by the Employer as the result of the operation of a Bid Securing Declaration or Proposal-Securing Declaration.

4.8 Firms and individuals may be ineligible if so indicated in Section V and (a) as a matter of law or official regulations, the Borrower's country prohibits commercial relations with that country, provided that the Bank is satisfied that such exclusion does not preclude effective competition for the supply of goods or the contracting of works or services required; or (b) by an act of compliance with a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations, the Borrower's country prohibits any import of goods or contracting of works or services from that country, or any payments to any country, person, or entity in that country. When the procurement is implemented across jurisdictional boundaries (and more than one country is a Borrower, and is involved in the procurement), then exclusion of a firm or individual on the basis of **ITP 4.8 (a)** above by one country may be applied to that procurement across other countries involved, if the Bank and the Borrowers involved in the procurement agree.

4.9 A Proposer shall provide such documentary evidence of eligibility satisfactory to the Employer, as the Employer shall reasonably request.

4.10 A firm that is under a sanction of debarment by the Borrower from being awarded a contract is eligible to participate in this procurement, unless the Bank, at the Borrower's request, is satisfied that the debarment; (a) relates to fraud or corruption, and (b) followed a judicial or administrative proceeding that afforded the firm adequate due process.

5. Eligible Materials, Equipment, and Services

5.1 The materials, equipment and services to be supplied under the Contract may have their origin in any country subject to the restrictions specified in Section V, Eligible Countries, and all expenditures under the Contract will not contravene such restrictions. At the Employer's request, Proposers may be required to provide evidence of the origin of materials, equipment and services.

B. CONTENTS OF RFP DOCUMENT

6. Sections of RFP Document

6.1 The RFP Document consists of Parts 1, 2, and 3, which include all the sections indicated below, and should be read in conjunction with any Addenda issued in accordance with **ITP 8**:

PART 1 Request for Proposal Procedures

Section I - Instructions to Proposers (ITP)

Section II - Proposal Data Sheet (**PDS**)

Section III - Evaluation and Qualification Criteria

Section IV - Proposal Forms

Section V - Eligible Countries

Section VI - Fraud and Corruption

PART 2 Employer's Requirements

Section VII - Employer's Requirements

PART 3 Conditions of Contract and Contract Forms

Section VIII - General Conditions

Section IX - Particular Conditions

Section X - Contract Forms

6.2 The Specific Procurement Notice, Notice of Request for Proposals (RFP) issued by the Employer, is not part of this RFP Document.

6.3 Unless obtained directly from the Employer, the Employer is not responsible for the completeness of the document, responses to requests for clarification, the Minutes of the pre-Proposal meeting (if any), or Addenda to the RFP Document in accordance with **ITP 8**. In case of any contradiction, documents obtained directly from the Employer shall prevail.

6.4 The Proposer is expected to examine all instructions, forms, terms, and specifications in the RFP Document and to furnish with its Proposal all information or documentation as is required by the RFP Document.

7. Clarification of RFP Document, Site Visit, Pre-Proposal Meeting

7.1 A Proposer requiring any clarification of the RFP Document shall contact the Employer in writing at the Employer's address specified **in the PDS** or raise its enquiries during the pre-Proposal meeting if provided for in accordance with **ITP 7.4**. The Employer will respond to any request for clarification, provided that such request is received prior to the deadline for submission of Proposals within a period specified **in the PDS.** The Employer shall forward copies of its response to all Proposers who have

acquired the RFP Document in accordance with **ITP 6.3**, including a description of the inquiry but without identifying its source. If so specified **in the PDS**, the Employer shall also promptly publish its response at the web page identified **in the PDS**. Should the Employer deem it necessary to amend the RFP Document as a result of a request for clarification, it shall do so following the procedure under **ITP 8.**

7.2 The Proposer is advised to visit and examine the Site of the Works and its surroundings and obtain for itself on its own responsibility all information that may be necessary for preparing the Proposal and entering into a contract. The costs of visiting the site shall be at the Proposer's own expense.

7.3 The Proposer and any of its personnel or agents will be granted permission by the Employer to enter upon its premises and lands for the purpose of such visit, but only upon the express condition that the Proposer, its personnel, and agents will release and indemnify the Employer and its personnel and agents from and against all liability in respect thereof, and will be responsible for death or personal injury, loss of or damage to property, and any other loss, damage, costs, and expenses incurred as a result of the inspection.

7.4 The Proposer's designated representative is invited to attend a pre-Proposal meeting and/or a site visit, if provided for **in the PDS**. The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage. Nonattendance at the pre-Proposal meeting will not be a cause for disqualification of a Proposer.

7.5 The Proposer is requested to submit any questions in writing, to reach the Employer not later than one week before the meeting.

7.6 Minutes of the pre-Proposal meeting, including the text of the questions raised without identifying the source, and the responses given, together with any responses prepared after the meeting, will be transmitted promptly to all Proposers who have acquired the RFP Document in accordance with **ITP 6.3**. Any modification to the RFP Document that may become necessary as a result of the pre-Proposal meeting shall be made by the Employer exclusively through the issue of an Addendum pursuant to **ITP 8** and not through the minutes of the pre-Proposal meeting.

8. Amendment of RFP Document

8.1 At any time prior to the deadline for submission of Proposals, the Employer may amend the RFP Document by issuing addenda.

8.2 Any addendum issued shall be part of the RFP Document and shall be communicated in writing to all who have obtained the RFP Document from the Employer in accordance with **ITP 6.3.** The Employer shall also promptly publish the addendum on the Employer's web page in accordance with **ITP 7.1.**

8.3 To give prospective Proposers reasonable time in which to take an addendum into account in preparing their Proposals, the Employer may, at its discretion, extend the deadline for the submission of Proposals, pursuant to **ITP 23.2.**

9. Cost of Proposals

9.1 The Proposer shall bear all costs associated with the preparation and submission of its Proposal, and the Employer will in no case be responsible or liable for those costs.

10. Contacting the Employer

10.1 From the time of Proposal opening to the time of Contract award, if any Proposer wishes to contact the Employer on any matter related to the Proposal, it should do so in writing.

10.2 If a Proposer tries to directly influence the Employer or otherwise interfere in the Proposal evaluation process and the Contract award decision, its Proposal may be rejected.

11. Language of Proposals

11.1 Unless otherwise specified **in the PDS**, the Proposal prepared by the Proposer and all correspondence and documents related to the Proposal exchanged by the Proposer and the Employer shall be written in the English Language, or, **if the PDS** so provides, in either one of two languages specified there. Any printed literature furnished by the Proposer as part of its Proposal may be in a language not specified **in the PDS,** as long as such literature is accompanied by a translation of its pertinent passages into the language of the Proposal, in which case, for purposes of interpretation of the Proposal, the translation shall govern.

C. PREPARATION OF PROPOSALS

12. Documents Comprising the Proposal

12.1 The Proposal shall comprise two Parts, namely the Technical Part and the Financial Part. These two Parts shall be submitted simultaneously in two separate sealed envelopes (single-stage, two-envelope RFP process). One envelope shall contain only information relating to the Technical Part and the other, only information relating to the Financial Part. These two envelopes shall be enclosed in a separate sealed outer envelope marked "Original Proposal".

12.2 The Technical Part submitted by the Proposer shall comprise the following:

(a) Letter of Proposal - Technical Part, prepared in accordance with **ITP 13**;

(b) Security: Proposal Security or Proposal-Securing declaration, in accordance with **ITP 19**;

(c) Alternative Proposal - Technical Part, if permissible in accordance with **ITP 14**;

(d) written confirmation authorizing the signatory of the Proposal to commit the Proposer, in accordance with **ITP 21.1**;

(e) documentary evidence that the Proposer continues to be eligible and qualified to perform the contract if its Proposal is accepted;

(f) method statement, equipment, personnel, and any other information as stiplulated in Section IV, Proposal Forms

(g) documentary evidence in accordance with **ITP 18** that the Works offered by the Proposer conform to the RFP Document;

(h) Details of any departures in their Technical Part from the RFP documents;

(i) in the case of a Technical Part submitted by a JV, JV agreement, or letter of intent to enter into a JV including a draft agreement, indicating at least the parts of the Works to be executed by the respective partners;

(j) list of subcontractors, in accordance with **ITP 18.3**;

(k) Local Labor Method Statement in accordance with ITP 18.2 (d) and Section IV, Bidding Forms; and any other document required **in the PDS**.

12.3 The Financial Part submitted by the Proposer shall comprise the following:

(a) **Letter of Proposal - Financial Part:** prepared in accordance with **ITP 13**;

(b) **Price Schedules:** completed prepared in accordance with **ITP 15** and **ITP 16**;

(c) **Alternative Proposal – Financial Part:** if permissible in accordance with **ITP 14**;

(d) **Financial Disclosure:** The Proposer shall furnish in the Letter of Proposal information on commissions and gratuities, if any, paid or to be paid to agents or any other party relating to this Proposal; and

(e) **Other:** any other document required **in the PDS**.

12.4 The Technical Part shall not include any financial information related to the Proposal price. Where material financial information related to the Proposal price is contained in the Technical Part, the Proposal shall be declared non-responsive.

12.5 The Proposer shall furnish in the Letter of Proposal-Technical Part three names of the potential DAAB members and attach their curriculum vitae. The list of potential DAAB members proposed by the Employer (Contract Data 21.1) and by the Proposer (Letter of Proposal) shall be subject to Bank's No-objection.

13. Letter of Proposal, and Schedules

13.1 The Proposer shall complete the Letter of Proposal – Technical Part and Letter of Proposal - Financial Part using the relevant forms furnished in Section IV, Proposal Forms. The forms must be completed without any alterations to the text, and no substitutes shall be accepted except as provided under **ITP 21.3**. All blank spaces shall be filled in with the information requested.

14. Alternative Technical Proposals

14.1 Alternative Proposal - Technical Part: the Proposer wishing to offer alternative technical Proposal shall (i) document that the proposed technical alternatives are to the benefit of the Employer, that they fulfill the principal objectives of the contract, and that they meet the basic performance and technical criteria specified in the RFP Documents; and (ii) further provide all information necessary for a complete technical evaluation of the alternative by the Employer, including as relevant drawings, design calculations, technical specifications, and proposed construction methodology and other relevant details.

14.2 Alternative Proposal - Financial Part: The Proposer submitting alternative technical Proposal shall provide all information necessary for a complete financial evaluation of the alternative by the Employer, including breakdown of prices relevant to the offered technical alternative and in the manner and detail called for in the Schedule of Rates and Prices (if any) incuded in Section IV – Proposal Forms**.**

14.3 Only the technical alternatives, if any, of the Proposer with the Most Advantageous Proposal conforming to the basic performance and technical criteria specified in the RFP Documents shall be considered by the Employer.

15. Proposal Prices

15.1 Unless otherwise **specified in the PDS,** Proposers shall quote for the entire Works on a "single responsibility" basis such that the total lump sum Proposal price, subject to any adjustments, in accordance with the Contract, covers all the Contractor's obligations mentioned in or to be reasonably inferred from the RFP Document in respect of the design, manufacture, including procurement and subcontracting (if any), delivery, construction

and completion of the Works. This includes all requirements under the Contractor's responsibilities for testing, pre-commissioning and commissioning (as applicable) of the Works and, where so required by the RFP Document, the acquisition of all permits, approvals and licenses, etc.; the operation, maintenance and training services and such other items and services as may be specified in the RFP Document, all in accordance with the requirements of the General Conditions.

15.2 Proposers shall give a breakdown of the prices in the manner and detail called for in the Schedule of Priced Activities and Sub-activities included in Section IV, Proposal Forms with further breakdown prices for sub activities, as appropriate. The total of the prices of the items in the Schedule of Priced Activities is the Proposer's offer to complete the works on a "single responsibility" basis. The cost of any items that the Proposer may have omitted is deemed to be included in the price of other items in the Schedule of Priced Activities and Sub-activities and will not be paid for separately by the Employer.

15.3 The prices shall be either fixed or adjustable as specified **in the PDS**.

15.4 In the case of **Fixed Price**, prices quoted by the Proposer shall be fixed during the Proposer's performance of the contract and not subject to variation on any account. A Proposal submitted with an adjustable price quotation will be treated as non-responsive and rejected.

15.5 In the case of **Adjustable Price**, prices quoted by the Proposer shall be subject to adjustment during performance of the contract to reflect changes in the cost elements such as labor, material, transport and Contractor's equipment in accordance with the procedures specified in the corresponding Schedule of Cost Indexation. A Proposal submitted with a fixed price quotation will not be rejected, but the price adjustment will be treated as zero. Proposers are required to indicate the source of labor and material indices in the corresponding Form in Section IV, Proposal Forms.

15.6 If so indicated in **ITP 1.1**, Proposals are being invited for individual lots (contracts) or for any combination of lots (packages). Proposers wishing to offer any price reduction (discount) for the award of more than one Contract shall specify in their Letter of Proposal the price reductions applicable to each package, or alternatively, to individual Contracts within the package, and the manner in which the price reductions will apply. **However, discounts for the award of more than one contract will not be considered for proposal evaluation purpose.**

15.7 Proposers wishing to offer any unconditional discount shall specify in their Letter of Proposal the offered discounts and the manner in which price discounts will apply.

15.8 All duties, taxes, and other levies payable by the Contractor under the Contract, or for any other cause, as of the date 28 days prior to the deadline for submission of Proposals, shall be included in the Proposal price submitted by the Proposer.

16. Proposal Currencies

16.1 The currency (ies) of the Proposal and the currency (ies) of payments shall be the same and shall be as specified **in the PDS**.

16.2 Proposers may be required by the Employer to justify, to the Employer's satisfaction, their local and foreign currency requirements, and to substantiate that the amounts included in the Schedule of Priced Activities and Sub-activities Schedules and shown in the Table of Adjustment Data in the Appendix to the Proposal are reasonable, in which case a detailed breakdown of the foreign currency requirements shall be provided by Proposers.

17. Documents Establishing the Qualification of the Proposer

17.1 In accordance with Section III, Evaluation and Qualification Criteria, to establish its qualifications to perform the Contract, the Proposer shall provide the required information including on Sexual Exploitation and Abuse (SEA) / SH disqualification status in the corresponding information sheets included in Section IV, Proposal Forms.

17.2 If a margin of preference applies in accordance with **ITP 39.1**, domestic Proposers, individually or in joint ventures, applying for eligibility for domestic preference shall supply all information required to satisfy the criteria for eligibility specified in accordance with **ITP 39.1**.

Subcontractors

17.3 **Unless** otherwise stated **in the PDS,** the Employer does not intend to execute any specific elements of the Works by subcontractors selected in advance by the Employer.

17.4 Proposers may propose subcontracting up to the percentage of total value of contracts or the volume of works as specified **in the BDS**. Subcontractors proposed by the Proposer shall be fully qualified for their parts of the Works.

17.5 For the purpose of assessment of qualifications of the Proposer, subcontractor's qualifications shall not be used by the Proposer to qualify for the Works unless their specialized parts of the Works are designated by the Employer **in the PDS** as can be met by subcontractors referred to hereafter as Specialized Subcontractors,

in which case, the specific experience of the Specialized Subcontractors proposed by the Proposer, as specified in Section III-A, Qualification, may be considered in the assessment of the qualifications of the Proposer. The general experience and financial resources of the Specialized Subcontractors shall not be added to those of the Proposer for purposes of qualification of the Proposer.

18. Documents Establishing Conformity of the Works

18.1 Pursuant to **ITP 12.2 (f),** the Proposer shall furnish, as part of its Proposal documents establishing the conformity to the RFP Documents of the Works that the Proposer proposes to design, and build under the Contract.

18.2 The documentary evidence of the conformity of the Works with the RFP documents may be in the form of literature, drawings and data, and shall include:

(a) the documents specified in Section IV (Proposal Forms) - Technical Proposal;

(b) detailed description of the essential technical and functional/performance characteristics of the proposed Works, in response to the Employer's Requirements; and

(c) adequate evidence demonstrating the substantial responsiveness of the Works to the Employer's Requirements. Proposers shall note that standards for workmanship, materials and equipment designated by the Employer in the RFP Document are intended to be descriptive (establishing standards of quality and performance) only and not restrictive. The Proposer may substitute alternative standards, in its technical proposal, provided that it demonstrates to the Employer's satisfaction that the substitutions are substantially equivalent or superior to the standards designated in the Performance / Functional requirements specified by the Employer.

(d) Unless otherwise specified **in the PDS**, the Proposer shall: (i) allocate not less than 30% of the total labour cost under the contract to the employment of local labour[1]; and (ii) submit the Local Labour Method Statement.

18.3 The Proposer shall be responsible for ensuring that any proposed subcontractor complies with the requirements of **ITP 4**, and that any Works to be provided by the subcontractor comply with the requirements of **ITP 5** and **ITP 18.1.** The Proposer shall submit its Code of Conduct that meets the requirements setout in Section IV-Proposal Forms.

[1] Local labour excludes Contractor's foreign personnel. Foreign personnel who are already working in the Borrower's country on another project/contract shall also not be treated as local labour.

19. Securing the Proposal

19.1 The Proposer shall furnish as part of its Proposal, either a Proposal-Securing Declaration or a Proposal Security as specified **in the PDS**, in original form and, in the case of a Proposal Security, in the amount and currency specified **in the PDS**.

19.2 A Proposal-Securing Declaration shall use the form included in Section IV, Proposal Forms.

19.3 If a Proposal Security is specified pursuant to **ITP 19.1**, the Proposal security shall be a demand guarantee in any of the following forms at the Proposer's option:

(a) an unconditional guarantee issued by a bank or a non-bank financial institution (such as an insurance, bonding or surety company);

(b) an irrevocable letter of credit;

(c) a cashier's or certified check; or

(d) another security indicated **in the PDS**,

from a reputable source from an eligible country. If an unconditional guarantee is issued by a non-bank financial institution located outside the Employer's Country the issuing non-bank financial institution shall have a correspondent financial institution located in the Employer's Country to make it enforceable unless the Employer has agreed in writing, prior to Proposal submission, that a correspondent financial institution is not required.

19.4 In the case of a bank guarantee, the Proposal Security shall be submitted either using the Proposal Security Form included in Section IV, Proposal Forms or in another substantially similar format approved by the Employer prior to Proposal submission. In either case, the form must include the complete name of the Proposer. The Proposal Security shall be valid for twenty-eight days (28) beyond the original date of expiry of the Proposal validity, or beyond any extended date if requested under **ITP 20.2.**

19.5 If a Proposal Security or a Proposal-Securing Declaration is specified pursuant to **ITP 19.1**, any Proposal not accompanied by a substantially responsive Proposal Security or Proposal-Securing Declaration shall be rejected by the Employer as non-responsive.

19.6 If a Proposal Security is specified in accordance with **ITP 19.1**, the Proposal Security of the Proposers shall be returned as promptly as possible once the successful Proposer has signed the Contract, furnished the required Performance Security, and if required **in the PDS**, the Environmental and Social (ES) Performance Security.

19.7 The Proposal Security may be forfeited:

(a) if a Proposer withdraws its Proposal prior to the expiry date of the Proposal validity specified by the Proposer on the Letter of Proposal or any extended date provided by the Proposer; or

(b) if the successful Proposer fails to:

(i) sign the Contract in accordance with **ITP 53**; or

(ii) furnish a Performance Security and if required **in the PDS**, the Environmental and Social (ES) Performance Security, in accordance with **ITP 54.**

19.8 The Proposal Security or the Proposal-Securing Declaration of a JV shall be in the name of the JV that submits the Proposal. If the JV has not been legally constituted into a legally enforceable JV at the time of submission of Proposals, the Proposal Security or the Proposal-Securing Declaration shall be in the names of all future members as named in the letter of intent referred to in **ITP 4.1.**

19.9 If a Proposal Security is not required **in the PDS**, and:

(a) if a Proposer withdraws its Proposal prior to the expiry date of the Proposal validity specified by the Proposer on the Letter of Proposal or any extended date provided by the Proposer ; or

(b) if the successful Proposer fails to:

(i) sign the Contract in accordance with **ITP 53;** or

(ii) furnish a performance security and if required **in the PDS**, the Environmental and Social(ES) Performance Security, in accordance with **ITP 54**,

the Employer may, if provided for **in the PDS**, declare the Proposer disqualified to be awarded a contract by the Employer for a period of time as stated **in the PDS**.

20. Period of Validity of Proposals

20.1 Proposals shall remain valid until the date specified **in the PDS** or any extended date if amended by the Employer in accordance with ITP 8. A Proposal that is not valid until the date specified **in the PDS,** or any extended date if amended by the Employer in accordance with ITP 8, shall be rejected by the Employer as nonresponsive. -

20.2 In exceptional circumstances, prior to the date of expiry of the Proposal validity, the Employer may request that the Proposers extend the date of validity until a specified date. The request and the responses to the request shall be made in writing. A Proposer may refuse the request without risking execution of the Proposal-Securing Declaration or forfeiting the Proposal Security. Except as provided in **ITP 20.3**, a Proposer agreeing to the request will not be

required or permitted to modify its Proposal, but will be required to ensure that the Proposal Security is extended for a correspondingly longer period, pursuant to **ITP 19.4**.

20.3 In the case of fixed price contracts, if the award is delayed by a period exceeding fifty-six (56) days beyond the date of expiry of the Proposal validity specified in accordance with ITP 20.1, the contract price will be adjusted as specified **in the PDS**. Proposal evaluation will be based on the Proposal prices wpruithout taking into consideration the above correction.

21. Format and Signing of Proposal

21.1 The original and all copies of the Proposal, each consisting of the documents listed in **ITP 12**, shall be typed or written in indelible ink and shall be signed by a person or persons duly authorized to sign on behalf of the Proposer. The authorization must be in writing as specified **in the PDS**, and included in the Proposal pursuant to **ITP 12.2(d).** The name and position held by each person signing the authorization must be typed or printed below the signature. All pages of the Proposal where entries or amendments have been made shall be signed or initialed by the person signing the Proposal.

21.2 In case the Proposer is a JV, the Proposal shall be signed by an authorized representative of the JV on behalf of the JV, and so as to be legally binding on all the members as evidenced by a power of attorney signed by their legally authorized representatives.

21.3 The Proposal shall contain no interlineations, erasures, or overwriting, except to correct errors made by the Proposer, in which case such corrections shall be initialed by the person or persons signing the Proposal.

21.4 The Proposer shall furnish in the Proposal Submission Form (Section IV) information regarding commissions or gratuities, if any, paid or to be paid to agents relating to this procurement and to the execution of the Contract should the Proposer be successful.

D. SUBMISSION OF PROPOSALS

22. Submission, Sealing and Marking of Proposals

22.1 Unless the **PDS** states that Proposals are to be submitted electronically the following procedures shall apply.

(a) The Proposer shall deliver the Proposal in two separate, sealed envelopes. One envelope containing the Technical Part and the other the Financial Part. These two envelopes shall be enclosed in a sealed outer envelope and clearly marked “Proposal - Original”.

(b) In addition, the Proposer shall prepare copies of the Proposal, in the number specified **in the PDS**. Copies of the

Technical Part shall be placed in a separate sealed envelope marked "Copies: Technical Part". Copies of the Financial Part shall be placed in a separate sealed envelope marked "Copies: Financial Part". The Proposer shall place both of these envelopes in a separate, sealed outer envelope marked "Proposal - Copies". In the event of any discrepancy between the original and the copies, the original shall prevail.

(c) If alternative Proposals are permitted in accordance with **ITP 14**, the alternative Proposals shall be submitted as follows: the original of the alternative Proposal Technical Part shall be placed in a sealed envelope marked "Alternative Proposal – Technical Part" and the Financial Part shall be placed in a sealed envelope marked "Alternative Proposal – Financial Part" and these two separate sealed envelopes then enclosed within a sealed outer envelope marked "Alternative Proposal – Original", the copies of the alternative Proposal will be placed in separate sealed envelopes marked "Alternative Proposal – Copies Of Technical Part", and "Alternative Proposal – Copies Of Financial Part" and enclosed in a separate sealed outer envelope marked "Alternative Proposal - Copies"

22.2 The inner and outer envelopes shall:

(a) bear the name and address of the Proposer;

(b) be addressed to the Employer, at the address given **in the PDS** for **ITP 23.1**; and

(c) bear the Contract(s) name, the Invitation for Proposals (RFP) title and number, as specified **in the PDS** for **ITP 1.1**, and the statement "Do Not Open Before [time and date]," to be completed with the time and date specified **in the PDS** for **ITP 19.1**.

22.3 If the outer envelope is not sealed and marked as required by **ITP 22.1** and **ITP 22.2,** the Employer will assume no responsibility for the Proposal's misplacement or premature opening.

23. Deadline for Submission of Proposals

23.1 Proposals must be received by the Employer at the address specified, and no later than the time and date specified, **in the PDS**. Proposers have the option of submitting their Proposals electronically if specified **in the PDS**.

23.2 The Employer may, at its discretion, extend the deadline for submission of Proposals by amending the RFP Documents in accordance with **ITP 8.3**, in which case all rights and obligations

of the Employer and Proposers will thereafter be subject to the deadline as extended.

24. Late Proposals

24.1 The Employer shall not consider any Proposal that arrives after the deadline for submission of Proposals, in accordance with **ITP 23.** Any Proposal received by the Employer after the deadline for submission of Proposals shall be declared late, rejected, and returned unopened to the Proposer.

25. Withdrawal, Substitution, and Modification of Proposals

25.1 A Proposer may withdraw, substitute, or modify its Proposal after it has been submitted, and before the deadline for submission of Proposals, by sending a written notice, duly signed by an authorized representative, including a copy of the authorization in accordance with **ITP 21.1,** (except that withdrawal notices do not require copies). The corresponding substitution or modification of the Proposal must accompany the respective written notice. All notices must be:

(a) prepared and submitted in accordance with **ITP 21** and **ITP 22** (except that withdrawals notices do not require copies), and in addition, the respective envelopes shall be clearly marked , ("Technical Part" and/or "Financial Part")" "Modification ("Technical Part" and/or "Financial Part");" and

(b) received by the Employer prior to the deadline prescribed for submission of Proposals, in accordance with **ITP 23**.

E. OPENING OF TECHNICAL PARTS OF PROPOSALS

26. Opening of Technical Part by Employer

26.1 Except as in the cases specified in **ITP 24** and **ITP 25**, the Employer shall conduct the Technical part opening in public, in the presence of Proposers` designated representatives and anyone who chooses to attend, and at the address, date and time specified **in the PDS**. Any specific electronic Proposal opening procedures, if permitted, shall be as specified **in the PDS**.

26.2 First, the written notice of withdrawal in the envelopes marked "Withdrawal" shall be opened and read out and the envelope with the corresponding Proposal shall not be opened, but returned to the Proposer. No Proposal withdrawal shall be permitted unless the corresponding withdrawal notice contains a valid authorization to request the withdrawal and is read out at Proposal opening.

26.3 Next, envelopes marked "Substitution" shall be opened and read out and exchanged with the corresponding Technical Part being substituted, and the substituted Proposal shall not be opened, but returned to the Proposer. No Proposal substitution shall be permitted unless the corresponding substitution notice contains a

valid authorization to request the substitution and is read out at Proposal opening.

26.4 Next, envelopes marked "Modification" shall be opened and read out with the corresponding Proposal. No Proposal modification shall be permitted unless the corresponding modification notice contains a valid authorization to request the modification and is read out at Proposal opening.

26.5 Next, all other envelopes marked "Technical Part" shall be opened one at a time. All envelopes marked "Financial Part" shall remain sealed and kept by the Employer in safe custody until they are opened at a later public opening, following the evaluation of the Technical Part of the Proposals. On opening the Technical Part envelopes, the Employer shall read out: the name of the Proposer and whether there is a modification; the presence or absence of a Proposal security or a Proposal-Securing Declaration; and other details as the Employer, at its discretion, may consider appropriate.

26.6 Only Technical Parts of Proposals and Alternative Proposal - Technical Parts that are opened and read out at Proposal opening shall be considered further. At the Proposal opening the Employer shall neither discuss the merits of any Proposal nor reject any Proposal (except for late Proposals, in accordance with **ITP 24.1**).

26.7 The Employer shall prepare a record of the Technical Parts of public opening that shall include, as a minimum: the name of the Proposer and whether there is a withdrawal, substitution, or modification. The Proposers' representatives who are present shall be requested to sign the record. The omission of a Proposer's signature on the record shall not invalidate the contents and effect of the record. A copy of the record shall be distributed to all Proposers who submitted Proposals in time, and posted online when electronic procurement is permitted.

F. EVALUATION OF PROPOSALS – GENERAL PROVISIONS

27. Confidentiality

27.1 Information relating to the evaluation of the Technical Part shall not be disclosed to Proposers or any other persons not officially concerned with the RFP process until the notification of evaluation of the Technical Part in accordance with **ITP 33**.

27.2 Information relating to the evaluation of the Financial Part and recommendation of contract award, shall not be disclosed to Proposers or any other persons not officially concerned with the RFP process until the Notification of Intention to Award the Contract is transmitted to all Proposers in accordance with **ITP 49**.

27.3 Any effort by a Proposer to influence the Employer in the evaluation of the Proposals may result in the rejection of its Proposal.

27.4 Notwithstanding **ITP 27.1 and ITP 27.2**, from the time of Proposal opening to the time of Contract award, if any Proposer wishes to contact the Employer on any matter related to the RFP process, it should do so in writing.

28. Clarification of Proposals

28.1 To assist in the examination, evaluation, and comparison of the Proposals, and qualification of the Proposers, the Employer may, at its discretion, ask any Proposer for a clarification of its Proposal. Any clarification submitted by a Proposer that is not in response to a request by the Employer shall not be considered. The Employer's request for clarification and the response shall be in writing.

28.2 If a Proposer does not provide clarifications of its Proposal by the date and time set in the Employer's request for clarification, its Proposal may be rejected.

29. Deviations, Reservations, and Omissions

29.1 During the evaluation of Proposals, the following definitions apply:

(a) "Deviation" is a departure from the requirements specified in the RFP document;

(b) "Reservation" is the setting of limiting conditions or withholding from complete acceptance of the requirements specified in the RFP document; and

(c) "Omission" is the failure to submit part or all of the information or documentation required in the RFP document.

G. EVALUATION OF TECHNICAL PARTS OF PROPOSALS

30. Determination of Responsiveness of Technical Parts

30.1 The Employer will examine the Technical Parts, including any alternatives submitted by Proposers, to determine whether they are complete, have been properly signed, and are generally in order.

30.2 The Employer's determination of a Technical Part's substantial responsiveness is to be based on the contents of the Proposal itself. For purposes of this determination, a substantially responsive Proposal is one that materially conforms to the requirements of the RFP Document without material deviation, reservation, or omission. A material deviation, reservation, or omission is one that:

(a) if accepted, would:

(i) affect in any substantial way the scope, quality, or performance of the Works specified in the Contract; or

(ii) limit in any substantial way, inconsistent with the RFP Document, the Employer's rights or the Proposer's obligations under the proposed Contract; or

(b) if rectified, would unfairly affect the competitive position of other Proposers presenting substantially responsive Proposals.

30.3 Provided that a Technical Part is substantially responsive, the Employer may waive any nonmaterial nonconformity in the Proposal.

30.4 Provided that a Proposal is substantially responsive, the Employer may request that the Proposer submit the necessary information or documentation, within a reasonable period of time, to rectify nonmaterial nonconformities in the Proposal related to documentation requirements...

31. Evaluation of Technical Proposals

31.1 The Employer's evaluation of technical proposals will be carried out as specified in Section III, Evaluation and Qualification Criteria.

31.2 The scores and weightings to be given to Rated Criteria (including technical and non-price factors and sub factors) are specified **in the PDS**.

32. Evaluation of Proposer's Qualification

32.1 The Employer shall determine to its satisfaction whether the Proposers that have been assessed to have submitted substantially responsive Bids are eligible, and meet the qualifying criteria specified in Section III, Evaluation and Qualification Criteria.

32.2 Prior to Contract award, the Employer will verify that the successful Proposer (including each member of a JV) is not disqualified by the Bank due to noncompliance with contractual SEA/SH prevention and response obligations. The Employer will conduct the same verification for each subcontractor proposed by the successful Proposer. If any proposed subcontractor does not meet the requirement, the Employer will require the Proposer to propose a replacement subcontractor.

32.3 Only Proposals that are both substantially responsive to the RFP document and are qualified shall have their envelopes marked "FINANCIAL PART" opened at the second public opening.

33. Notification of evaluation of Technical Parts

33.1 Following the completion of the evaluation of the Technical Parts of Proposals, the Employer shall make the following notifications:

(a) Notify in writing those Proposers whose Proposals were considered substantially non-responsive to the requirements in the RFP, advising them of the following information:

(i) the grounds on which their Technical Part has been considered to be non-responsive;

(ii) their envelope marked "Financial Part" will be returned to them unopened after the completion of the Proposal evaluation process and the signing of the Contract;

(b) simultaneously, notify in writing those Proposers whose Proposals were considered substantially responsive to the requirements in the RFP, advising them that their Proposal has been evaluated as substantially responsive to the RFP; and

(c) notify all Proposers in accordance with the one of following two options:

(i) Option 1: when **BAFO or negotiations is not to be applied,** the date, time and location of the public opening of the envelopes marked 'Financial Part", or;

(ii) Option 2: when BAFO or negotiations apply as specified **in the PDS ITP 44** and **ITP 46** respectively, that: (i) the envelopes marked 'Financial Part' will not be opened in public, but in the presence of a Probity Assurance Provider (Probity Auditor) appointed by the Employer, and that (ii) the announcement of the names of the Proposers whose Financial Parts will be opened and the total Proposal prices will be deferred to the time that the Notification of Intention to Award the contract is issued.

H. OPENING OF FINANCIAL PARTS

34. Public Opening of Financial Parts when BAFO or negotiations do not apply

34.1 When BAFO or negotiations do not apply as specified **in the PDS**, the Financial Parts will be opened in public by the Employer in the presence of Proposers, or their designated representatives, and anyone else who chooses to attend. The opening date shall be no less than ten (10) Business Days from the date of notification of the results of the technical evaluation, described in ITP 44.1.

However, if the Employer receives a complaint on the results of the technical evaluation within the ten (10) Business Days, the opening date shall be subject to ITP 55.1. Each envelope marked "Financial Part" shall be inspected to confirm that it has remained sealed and unopened. These envelopes shall then be opened by the Employer. The Employer shall read out the names of each Proposer, the technical score, the total Proposal prices, per lot (contract) if applicable, including any discounts, the presence or absence of a Proposal Security or Proposal-Securing Declaration, if required and any other details as the Employer may consider appropriate. Only discounts read out at the public opening shall be considered for evaluation. The Letter of Proposal - Financial Part and the Price Schedules are to be initialed by representatives of the Employer attending the public opening in the manner specified **in the PDS**.

34.2 The Employer shall prepare a record of the Financial Part of the Proposal opening that shall include, as a minimum:

(a) the name of the Proposers whose Financial Part was opened;

(b) the Proposal prices, per lot (contract) if applicable, including any discounts.

34.3 The Proposers whose envelopes marked "Financial Part" have been opened, or their representatives who are present, shall be requested to sign the record. The omission of a Proposer's signature on the record shall not invalidate the contents and effect of the record. A copy of the record shall be distributed to all Proposers.

35. Opening of Financial Parts when BAFO or negotiations apply

35.1 When, **as specified in the PDS**, BAFO or negotiations apply the Financial Parts will not be opened in public, and will be opened in the presence of a Probity Assurance Provider appointed by the Employer.

35.2 At the opening each of the envelopes marked "Financial Part" shall be inspected to confirm that they have remained sealed and unopened. These envelopes shall then be opened by the Employer. The Employer shall record the names of each Proposer, and the total Proposal prices and any other details as the Employer may consider appropriate. The Letter of Proposal - Financial Part and the Price Schedules are to be initialed by representatives of the Employer attending the public opening and by the Probity Assurance Provider.

35.3 The Employer shall prepare a record of the opening of the Financial Part envelopes that shall include, as a minimum:

(a) the name of the Proposers whose Financial Part was opened;

(b) the Proposal prices including any discounts. And

(c) the Probity Assurance Provider's report of the opening of the Financial Part.

35.4 The Probity Assurance Provider shall sign the record. The contents of the envelopes marked 'Financial Part' and the record of the opening shall be kept in safe custody by the Employer and not disclosed to anyone until the time of the transmission of the Notification of Intention to Award the contract.

I. EVALUATION OF FINANCIAL PART

36. Nonmaterial Nonconformities

36.1 Provided that a Proposal is substantially responsive, the Employer shall rectify quantifiable nonmaterial nonconformities related to the Proposal Price. To this effect, the Proposal Price shall be adjusted, for comparison purposes only, to reflect the price of a missing or non-conforming item or component by adding the average price of the item or component quoted by substantially responsive Proposers. If the price of the item or component cannot be derived from the price of other substantially responsive Proposers, the Employer shall use its best estimate.

37. Arithmetic Correction

37.1 The Employer shall correct arithmetical errors on the following basis:

(a) **Schedule of Priced Sub-activities:** where there are errors between the total of the amounts given under the column for Sub-activity Price and the amount given under the total for the Sub-activity, the former shall prevail and the latter will be corrected accordingly;

(b) **Schedule of Priced Activities:** where there are errors between the total of the amounts given under the column for the Activity Price and the amount given under the total price of Activities, the former shall prevail and the latter will be corrected accordingly;

(c) where there are errors between the total of the amounts in the Schedule of **Priced Sub-activities** and the corresponding amount in the Schedule of **Priced Activities** , the former shall prevail and the latter will be corrected accordingly;

(d) **Grand Summary:** where there are errors between the total price of Activities in the Schedule of **Priced Activities** and

the amount given in **Grand Summary**, the former shall prevail and the latter will be corrected accordingly; and

(e) if there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to (a) to (d) above.

37.2 A Proposer shall be requested to accept the correction of arithmetical errors. Failure to accept the correction in accordance with **ITP 37.1** shall result in the rejection of the Proposal.

38. Conversion to Single Currency

38.1 For evaluation and comparison purposes, the currency (ies) of the Proposal shall be converted into a single currency as specified **in the PDS.**

39. Margin of Preference

39.1 Unless otherwise specified **in the PDS,** a margin of preference for domestic Proposers[2] shall not apply.

40. Evaluation Process Financial Parts

40.1 To evaluate each Proposal's Financial Part, the Employer shall consider the following:

(a) the Proposal price, excluding provisional sums and the provision, if any, for contingencies in the Schedule of Priced Activities, but including Daywork items, where priced competitively;

(b) price adjustment for correction of arithmetic errors in accordance with **ITP 37.1**;

(c) price adjustment due to discounts offered in accordance with **ITP 15.7**;

(d) price adjustment due to quantifiable nonmaterial nonconformities in accordance with **ITP 36.1**;

(e) converting the amount resulting from applying (a) to (c) above, if relevant, to a single currency in accordance with **ITP 38.1**; and

(f) any additional evaluation factors indicated **in the PDS** and detailed in Section III, Evaluation and Qualification Criteria.

40.2 If price adjustment is allowed in accordance with **ITP 15.5**, the estimated effect of the price adjustment provisions of the

[2] An individual firm is considered a domestic Proposer for purposes of the margin of preference if it is registered in the country of the Employer, has more than 50 percent ownership by nationals of the country of the Employer, and if it does not subcontract more than 10 percent of the contract price, excluding provisional sums, to foreign contractors. JVs are considered as domestic Proposer and eligible for domestic preference only if the individual member firms are registered in the country of the Employer or have more than 50 percent ownership by nationals of the country of the Employer, and the JV shall be registered in the country of the Borrower. The JV shall not subcontract more than 10 percent of the contract price, excluding provisional sums, to foreign firms. JVs between foreign and national firms will not be eligible for domestic preference.

Conditions of Contract, applied over the period of execution of the Contract, shall not be taken into account in Proposal evaluation.

40.3 If this RFP allows Proposers to quote separate prices for different lots (contracts), each lot will be evaluated separately to determine the Most Advantageous Proposal using the methodology specified in Section III, Evaluation and Qualification Criteria. **Discounts that are conditional on the award of more than one lot, or slice shall not be considered for proposal evaluation.**

41. Abnormally Low Proposals

41.1 An Abnormally Low Proposal is one where the Proposal price, in combination with other elements of the Proposal, appears so low that it raises material concerns as to the capability of the Proposer to perform the Contract for the offered Proposal Price.

41.2 In the event of identification of a potentially Abnormally Low Proposal, the Employer shall seek written clarifications from the Proposer, including detailed price analyses of its Proposal price in relation to the subject matter of the contract, scope, proposed methodology, schedule, allocation of risks and responsibilities and any other requirements of the RFP Document.

41.3 After evaluation of the price analyses, in the event that the Employer determines that the Proposer has failed to demonstrate its capability to perform the Contract for the offered Proposal Price, the Employer shall reject the Proposal.

42. Unbalanced or Front Loaded Proposals

42.1 If the Proposal that is evaluated as the lowest evaluated cost is, in the Employer's opinion, seriously unbalanced or front loaded the Employer may require the Proposer to provide written clarifications. Clarifications may include detailed price analyses to demonstrate the consistency of the Proposal prices with the scope of the Works, proposed methodology, schedule and any other requirements of the RFP Document.

42.2 After the evaluation of the information and detailed price analyses presented by the Proposer, the Employer may:

(a) accept the Proposal, or

(b) if appropriate, require that the total amount of the Performance Security be increased, at the expense of the Proposer, to a level not exceeding twenty percent (20%) of the Contract Price; or

(c) reject the Proposal.

J. EVALUATION OF COMBINED TECHNICAL AND FINANCIAL PART

43. Evaluation of Combined

43.1 The Employer's evaluation of responsive Proposals will take into account technical factors, in addition to cost factors in accordance

Technical and Financial Proposals

with Section III Evaluation and Qualification Criteria. The weight to be assigned for the Technical factors and cost is specified **in the PDS**. The Employer will rank the proposals based on the evaluated proposal score (B).

44. Best and Final Offer (BAFO)

44.1 After completion of the combined technical and financial evaluation of proposals, if **specified in the PDS**, the Employer may invite those Proposers to submit their BAFOs. The procedure for submitting BAFOs will be **specified in the PDS**. BAFO is a final opportunity for Proposers to improve their Proposals without changing the specified business function and performance requirements in accordance with the RFP Document. Proposers are not obliged to submit a BAFO. Where BAFO is used there will be no negotiation after BAFO.

44.2 BAFO will apply a two envelope procurement process. The submission of BAFOs, opening of the Technical Parts and Financial Parts and the evaluation of Proposals will follow the procedures described for the Technical, Financial and Combined evaluation above, as appropriate.

45. Most Advantageous Proposal (MAP)

45.1 The Most Advantageous Proposal is the Proposal of the Proposer that meets the Qualification Criteria, and whose Proposal has been determined to be:

(a) substantially responsive to the RFP; and

(b) the best evaluated Proposal i.e. the highest scoring Proposal, in the combined technical and financial evaluation.

46. Negotiations

46.1 If specified **in the PDS**, the Employer may conduct negotiations following the evaluation of Proposals and before the final contract award. The procedure of the negotiations will be **specified in the PDS**.

46.2 Negotiations shall be held in the presence of Probity Assurance Provider appointed by the Employer.

46.3 Negotiations may address any aspect of the contract so long as they do not change the specified business function and performance requirements.

46.4 The Employer may negotiate first with the Proposer that has the Most Advantageous Proposal. If the negotiations are unsuccessful the Employer may negotiate with the Proposer that has the next best Most Advantageous Proposal, and so on down the list until a successful negotiated outcome is achieved.

47. Employer's Right to Accept

47.1 The Employer reserves the right to accept or reject any Proposal, and to annul the RFP process and reject all Proposals at any time

Any Proposal, and to Reject Any or All Proposals

prior to contract award, without thereby incurring any liability to Proposers. In case of annulment, all Proposals submitted and specifically, Proposal securities shall be promptly returned to the Proposers.

48. Standstill Period

48.1 The Contract shall not be awarded earlier than the expiry of the Standstill Period. The Standstill Period shall be ten (10) Business Days unless extended in accordance with **ITP 52**. The Standstill Period commences the day after the date the Employer has transmitted to each Proposer (that has not already been notified that it has been unsuccessful) the Notification of Intention to Award the Contract. Where only one Proposal is submitted, or if this contract is in response to an emergency situation recognized by the Bank, the Standstill Period shall not apply.

49. Notification of Intention to Award

49.1 The Employer shall send to each Proposer (that has not already been notified that it has been unsuccessful) the Notification of Intention to Award the Contract to the successful Proposer. The Notification of Intention to Award shall contain, at a minimum, the following information:

(a) the name and address of the Proposer submitting the successful Proposal;

(b) the Contract price of the successful Proposal;

(c) the total combined score of the successful Proposal;

(d) the names of all Proposers who submitted Proposals, and their Proposal prices as readout and as evaluated prices and technical score;

(e) a statement of the reason(s) the Proposal (of the unsuccessful Proposer to whom the notice is addressed) was unsuccessful;

(f) the expiry date of the Standstill Period; and

(g) instructions on how to request a debriefing or submit a complaint during the standstill period.

K. AWARD OF CONTRACT

50. Award Criteria

50.1 Subject to **ITP 47.1**, the Employer shall award the Contract to the Proposer with the Most Advantageous Proposal, provided that the Proposer is determined to be eligible and qualified to perform the Contract satisfactorily.

51. Notification of Award

51.1 Prior to the date of expiry of the Proposal validity, and upon expiry of the Standstill Period, specified in **ITP 48.1** or any extension thereof, and upon satisfactorily addressing any complaint that has been filed within the Standstill Period, the Employer shall notify the

successful Proposer, in writing, that its Proposal has been accepted. The notification of award (hereinafter and in the Conditions of Contract and Contract Forms called the "Letter of Acceptance") shall specify the sum that the Employer will pay the Contractor in consideration of the execution of the Contract (hereinafter and in the Conditions of Contract and Contract Forms called "the Contract Price").

51.2 Within ten (10) Business days from the transmission of the Letter of Acceptance, the Employer shall publish the Contract Award Notice which shall contain, at a minimum, the following information:

(a) name and address of the Employer;

(b) name and reference number of the contract being awarded, and the selection method used;

(c) names of all Proposers that submitted Proposals, and their Proposal prices as read out at Proposal opening, and as evaluated;

(d) name of Proposers whose Proposals were rejected and the reasons for their rejection;

(e) the name of the successful Proposer, the final total contract price, the contract duration and a summary of its scope; and

(f) successful Proposer's Beneficial Ownership Disclosure Form**.**

51.3 The Contract Award Notice shall be published on the Employer's website with free access if available, or in at least one newspaper of national circulation in the Employer's Country, or in the official gazette.

51.4 Until a formal contract is prepared and executed, the Letter of Acceptance shall constitute a binding Contract.

52. Debriefing by the Employer

52.1 On receipt of the Borrower's Notification of Intention to Award referred to in **ITP 49**, an unsuccessful Proposer has three (3) Business Days to make a written request to the Employer for a debriefing. The Employer shall provide a debriefing to all unsuccessful Proposers whose request is received within this deadline.

52.2 Where a request for debriefing is received within the deadline, the Employer shall provide a debriefing within five (5) Business Days, unless the Employer decides, for justifiable reasons, to provide the debriefing outside this timeframe. In that case, the standstill period shall automatically be extended until five (5) Business Days after such debriefing is provided. If more than one debriefing is so delayed, the standstill period shall not end earlier than five (5) Business Days after the last debriefing takes place. The Employer

shall promptly inform, by the quickest means available, all Proposers of the extended standstill period.

52.3 Where a request for debriefing is received by the Employer later than the three (3)-Business Day deadline, the Employer should provide the debriefing as soon as practicable, and normally no later than fifteen (15) Business Days from the date of publication of Public Notice of Award of contract. Requests for debriefing received outside the three (3)-day deadline shall not lead to extension of the standstill period.

52.4 Debriefings of unsuccessful Proposers may be done in writing or verbally. The Proposer shall bear their own costs of attending such a debriefing meeting.

53. Signing of Contract

53.1 The Employer shall send to the successful Proposer the Letter of Acceptance including the Contract Agreement, and a request to submit the Beneficial Ownership Disclosure Form providing additional information on its beneficial ownership. The Beneficial Ownership Disclosure Form shall be submitted within eight (8) Business Days of receiving this request.

53.2 The successful Proposer shall sign, date and return to the Employer, the Contract Agreement within twenty-eight (28) days of its receipt.

54. Performance Security

54.1 Within twenty-eight (28) days of the receipt of the Letter of Acceptance from the Employer, the successful Proposer shall furnish the Performance Security and if required **in the PDS**, the Environmental and Social (ES) Performance Security, in accordance with the General Conditions, subject to **ITP 42.2 (b),** using the Performance Security and ES Performance Security Forms included in Section X, Contract Forms, or another form acceptable to the Employer. If the performance security furnished by the successful Proposer is in the form of a bond, it shall be issued by a bonding or insurance company that has been determined by the successful Proposer to be acceptable to the Employer. A foreign institution providing a bond shall have a correspondent financial institution located in the Employer's Country, unless the Employer has agreed in writing that a correspondent financial institution is not required.

54.2 Failure of the successful Proposer to submit the above-mentioned Performance Security and if required **in the PDS**, the Environmental and Social (ES) Performance Security, or sign the Contract shall constitute sufficient grounds for the annulment of the award and forfeiture of the Proposal security. In that event the Employer may award the Contract to the Proposer with the next Most Advantageous Proposal.

55. Procurement Related Complaint

55.1 The procedures for making a Procurement-related Complaint are as specified **in the PDS**.

SECTION II - PROPOSAL DATA SHEET (PDS)

The following specific data for the proposed Works shall complement, supplement, or amend the provisions in the Instructions to Proposers (ITP). Whenever there is a conflict, the provisions herein shall prevail over those in ITP.

ITP Reference	A. General
ITP 1.1	The reference number of the Request for Proposals is: AYGM-ETMIC-2026-YAP 01/1-2-3 The Employer is: Ministry of Transport and Infrastructure, Directorate General of Infrastructure Investments The name of the RFP is: Design and Construction of Infrastructure & Superstructure Works including Electricfication, with three Lots (Lot-1, Lot-2, Lot-3), under Eastern Türkiye Middle Corridor Railway Development (ETMIC) Project The number and identification of lots (contracts) comprising this RFP is: Lot 1- Rehabilitation Works for Divriği – Kars – Georgia Border Railway Line – Section 1 (Divriği – Erzincan Corridor) Lot 2- Rehabilitation Works for Divriği – Kars – Georgia Border Railway Line – Section 2 (Erzincan – Erzurum Corridor) Lot 3- Rehabilitation Works for Divriği – Kars – Georgia Border Railway Line – Section 3 (Erzurum – Kars Corridor) Proposer may bid for one or more lots. Evaluation of bids and contract award will be lot-wise.
ITP 2.1	The Borrower is: Republic of Türkiye - Ministry of Treasury and Finance where Employer is Ministry of Transport and Infrastructure - General Directorate of Infrastructure Investments (GDII)
ITP 2.1	Loan or Financing Agreement amount: A total loan amount EUR 830.8 million, including financing from the World Bank and Asian Infrastructure Investment Bank (AIIB). The name of the Project is: Eastern Türkiye Middle Corridor Railway Development Project
ITP 4.1	Maximum number of members in the JV shall be: 4 (four)

ITP 4.5	A list of debarred firms and individuals is available on the Bank's external website: http://www.worldbank.org/debarr.
B. RFP Document	
ITP 7.1	For **Clarification of Proposal purposes** only, the Employer's address is: Attention: **Serkan UÇAR** Address: **Hakkı Turayliç Caddesi No:5** Floor/ Room number*:* **Floor 6, Room 616** City: **Ankara** ZIP Code: **06500** Country: **Türkiye** Telephone: +90 312 203 17 Electronic mail address: irfan.kurnaz@uab.gov.tr Requests for clarification should be received by the Employer no later than: **28 (twenty-eight) days**
ITP 7.1	Web page: https://aygm.uab.gov.tr/ihaleler
ITP 7.4	A Pre-Proposal meeting will take place at the following date, time and place: Date: 10.11.2026 Time: 10:30 Place: The Pre-Proposal meeting shall be both physical as well as online meeting. The virtual meeting details will be shared at least 7 (seven) calendar days before the pre-proposal meeting date with prospective proposers who purchased the bidding document. **A site visit will be organized in conjunction with the Pre-Proposal Meeting.** Prospective Proposers are strongly advised to attend the site visit in order to familiarize themselves with the site conditions, access constraints, interfaces, and other factors that may affect the preparation of their Proposals. Failure to attend the Pre-Proposal Meeting or the site visit shall not be a cause for disqualification; however, Proposers shall be deemed to have obtained all information necessary for the preparation of their Proposals.
C. Preparation of Proposals	
ITP 11.1	The language of the Proposal is: English All correspondence exchange shall be in English language.

	Language for translation of supporting documents and printed literature is English.
ITP 12.2(i)	And add the following texts at the end of para (i): Joint Venture Arrangements shall have the following Provisions: i. Joint Venture Agreement shall nominate a lead member who will lead and bind the joint venture agreement and will have the authority to conduct all business for and on behalf of any and all members of the JV during the bidding process and, in the event the JV is awarded the Contract, during contract execution, ii. Lead member shall have lead/ principal share in the joint venture, iii. The Joint Venture Agreement should specify the scope and part of the contract to be carried out by each Joint Venture member. The assigned scope and parts of contract should correspond to the member's respective experience and capacity to implement them; and The Joint Venture agreement includes the clause: "Joint and Several Liability: All members of the joint venture (JV) shall be jointly and severally liable to the Employer for the execution of the entire Contract. The JV leader shall have the authority to bind the JV. Neither the composition, the constitution, and the legal status nor the scope and parts of the Contract to be carried out by each member, as specified in the Joint Venture Agreement, shall be altered without the prior consent of the Employer. Such consent shall not relieve any altered JV from the joint and several liability to the Employer for the execution of the entire Contract.
ITP 12.2(k)	The Proposer shall submit as part of its Technical Part the following additional documents: **Code of Conduct for Contractor's Personnel (ESHS)** The Proposer shall submit its Code of Conduct that will apply to Contractor's Personnel (as defined in Sub-Clause 1.1.16 of the General Conditions), to ensure compliance with the Contractor's Environmental, Social, Health and Safety (ESHS) obligations under the Contract. The Proposer shall use, for this purpose, the Code of Conduct form provided in Section IV. No substantial modifications shall be made to this form, except that the Proposer may introduce additional requirements, as necessary, to take into account specific Contract issues/risks. In addition, the Proposer shall detail how the Code of Conduct will be implemented. This shall include how it will be introduced into the conditions of employment/engagement, what training will be provided, how compliance will be monitored and how the Contractor proposes to address any breaches. The Contractor shall be required to implement the agreed Code of Conduct throughout the Contract period. **Management Strategies and Implementation Plans (MSIPs) to manage the ESHS risks and impacts** The Proposer shall submit Management Strategies and Implementation Plans (MSIPs) describing its proposed approach to managing the key Environmental,

	Social, Health and Safety (ESHS) risks and impacts associated with the design and construction of the Works. The purpose of the MSIPs is to demonstrate, at proposal stage, that the Proposer has understood the Project's key ESHS risks and has the necessary technical approach, organization, staffing and implementation capacity to manage such risks in accordance with the Contract requirements. The MSIPs shall be prepared by the Proposer in line with, at minimum, the World Bank Environmental and Social Framework (ESF), the Project's Environmental, Social, Health and Safety (ESHS) requirements identified in the "Environmental and Social Requirements" section under "Part 2 - Employer's Requirements", applicable national legislation, Good International Industry Practice (GIIP), and the Environmental and Social instruments disclosed and made publicly available through the official Project disclosure channel (the Employer's website): https://aygm.uab.gov.tr/istanbul-kuzey-demiryolu-gecisi-projesi. Considering the Design and Build nature of the Contract, the MSIPs submitted at proposal stage shall be framework-level documents. They shall demonstrate the Proposer's understanding of the Project's ESHS risks and impacts, proposed management approach, ESHS organization and staffing, monitoring and reporting arrangements, and how ESHS requirements will be integrated into detailed design, construction planning, mobilization, subcontractor management and construction implementation. The MSIPs shall also explain the Proposer's methodology for identifying, assessing, avoiding, minimizing, mitigating, monitoring and reporting ESHS risks and impacts during both design and construction stages. Besides, The Proposer shall prepare the following documents based on information given under "Technical Proposal" in Section IV-Bidding Forms and submit them with his Proposal: (i) Site Organization (Project and Construction Management Chart) (ii) Method Statement (iii) Mobilization Schedule (iv) Construction Schedule (v) Draft Project Quality Plan All pages of the Proposal, including all supporting documents, shall be provided in a logical sequence and each page shall be numbered. To facilitate the Employer's evaluation process, the Proposer shall provide an Index/ Table of Contents that describes the contents of the Proposal and the relevant page numbers.
ITP 12.3 (e)	The Proposer shall submit with its Proposal the following additional documents:

	The priced Price Schedules must additionally be submitted digitally on CD/USB Memory and enclosed in the envelope containing Financial Proposal. If material financial information related to the Proposal price is contained in the Technical Part, the Proposal shall be declared non-responsive. In case of conflict between the printed and digital copy, the printed copy shall prevail. ***Unit prices must be entered up to two digit decimals.***
ITP 14.1	Alternative Proposals shall not be considered.
ITP 15.1	(a) Proposers shall propose for all components of the Works on a single responsibility basis: These include all requirements under the Contractor's responsibilities for testing and commissioning of the works executed including integrated testing and commissioning, the acquisition of all permits, approvals and bidding licenses, etc.; the operation, maintenance and such other items and services as may be specified in the Bidding Documents.
ITP 15.3	The prices quoted by the Proposer shall be subject to adjustment during the performance of the Contracts.
ITP 15.8	Existing text is deleted and replaced with the following revised text: All duties, taxes (excluding VAT), and other levies payable by the Contractor under the Contract, or for any other cause, as of the date 28 days prior to the deadline for submission of Proposals , shall be included in the Proposal Price submitted by the Proposer. Bid Evaluation will be based on the Proposal Price (excluding VAT) submitted by the Proposer. The VAT amount based on applicable rate of the Government prevailing at the time will be added by Employer and included in the contract price.
ITP 16.1	The currency(ies) of the Proposal and the payment currency(ies) shall be in accordance with Alternative A as described below: **Alternative A (Proposers to quote entirely in local currency):** (a) The prices shall be quoted by the Proposer in the Schedules of Priced Activities and Sub-activities entirely in **Turkish Lira** and further referred to as "the local currency". A Proposer expecting to incur expenditures in other currencies for inputs to the Works supplied from outside the Employer's country (referred to as "the foreign currency requirements") shall indicate in the Appendix to Proposal - Table C, the percentage(s) of the Proposal Price (excluding Provisional Sums), needed by the Proposer for the payment of such foreign currency requirements, limited to no more than three foreign currencies. (b) The rates of exchange to be used by the Proposer in arriving at the local currency equivalent and the percentage(s) mentioned in (a) above shall be specified by the Proposer in the Appendix to Proposal - Table C, and shall

	apply for all payments under the Contract so that no exchange risk will be borne by the successful Proposer.
ITP 17.3	At this time the Employer **does not *intend*** to execute certain specific parts of the Works by subcontractors selected in advance.
ITP 17.4	(a) Contractor's proposed subcontracting: Maximum percentage of subcontracting permitted is: 30% of the total contract amount. (b) Proposers proposing to subcontract shall specify in Section IV- Proposal Forms, the activity(ies) or parts of the Works to be subcontracted along with complete details of the subcontractors and their qualifications.
ITP 17.5	The parts of the Works for which the Employer permits Proposers to propose Specialized Subcontractors are designated as follows: a. Line Laying b. Ballast Paving c. Rail Welding d. Cabling e. Ground Improvement f. Reinforced Concrete Works g. Earthworks
ITP 18.2 (d)	ITP 18.2 (d) **applies**
ITP 19	A Proposal Security **shall be** required. The amount and currency of the Proposal Security shall be: For Lot 1: USD 2,500,000 (two million five hundred thousand US Dollars) or equivalent For Lot 2: USD 2,750,000 (two million seven hundred fifty thousand US Dollars) or equivalent For Lot 3: USD 2,750,000 (two million seven hundred fifty thousand US Dollars) or equivalent The exchange rate to be applied in conversion of the Proposal Security amount shall be the Selling Exchange rates officially published by the Central Bank of Turkey (Döviz Satış) at 03.30 p.m. (Türkiye Time) on the applicable date (http://www.tcmb.gov.tr). The applicable date for the exchange rates shall be the date twenty-eight (28) days prior to the date of Proposal Opening except when the date falls on an official holiday including Saturdays and Sundays in which case the applicable date shall be the last working day before twenty-eight (28) days prior to the date of Proposal Opening. Exchange rates can be obtained from http://www.tcmb.gov.tr.

	Proposal Security is required for each lot as per amounts indicated against each lot. If a Proposer submits Proposals for multiple lots, a separate Proposal Security should be submitted for each lot. . The Proposal Security shall only be in the form of an unconditional and irrevocable bank guarantee issued by a reputable Bank. The written letter confirming the validity of the Proposal Security from the issued Bank shall be provided. An irrevocable letter of credit or a cashier's or certified check shall not be accepted as Proposal Security.
ITP 19.3	The Proposal Security shall only be in the form of an **unconditional and irrevocable bank guarantee** issued by a reputable Bank. The written letter confirming the validity of the Proposal Security from the issued Bank shall be provided. An irrevocable letter of credit or a cashier's or certified check **shall not be accepted** as Proposal Security.
ITP 19.3 (d)	Other types of acceptable securities: ***N/A***
ITP 20.1	The Proposal shall be valid until 28.05.2027
ITP 20.3	Not Applicable.
ITP 21.1	The written confirmation of authorization to sign on behalf of the Proposer shall consist of: a. The name and description of the documentation required to demonstrate the authority of the signatory to sign the Proposal such as a Power of Attorney; and b. Copies of original documents indicating the Proposer's establishment, legal status, place of registration and headquarters c. In the case of Proposals submitted by an existing or intended JV, an undertaking signed by all parties (i) stating that all parties shall be jointly and severally liable, and (ii) nominating a Representative who shall have the authority to conduct all business for and on behalf of any and all the parties of the JV during the bidding process and, in the event the JV is awarded the Contract, during contract execution.
D. Submission of Proposals	
ITP 22.1(b)	In addition to the original of the Proposal, the number of copies is as follows: The number of copies of the Technical Part is: 2 (two) hard copies and 1 (one) digital copy in pdf with searchable format in a flash disk (USB).

	The number of copies of the Financial Part is: 2 (two) hard copies and 1 (one) digital copy in pdf with searchable format in a flash disk (USB). Copies of the Technical Part shall be placed in a separate sealed envelope marked "Copies: Technical Part". Copies of the Financial Part shall be placed in a separate sealed envelope marked "Copies: Financial Part". The Proposer shall place both of these envelopes in a separate, sealed outer envelope marked "Proposal - Copies". In the event of any discrepancy between the original and the copies, the original shall prevail.
ITP 23.1	For **Proposal submission purposes** only, the Employer's address is : Attention: **General Directorate of Infrastructure Investments - Serkan UÇAR, Head of Railways Construction Department** **irfan.kurnaz@uab.gov.tr , Telephone: +90 312 203 17 40** Street Address: **Hakkı Turayliç Caddesi No:5/B, Emek** Floor/Room number: **Floor 6, Room 616** City: **Ankara** ZIP Code: **06500** Country: **Republic of Türkiye** **The deadline for Proposal submission is:** Date: ***22 December,2026*** Time: ***14:30 (Ankara Time)***
ITP 23.1	Proposers shall not have the option of submitting their Proposals electronically.
E. Opening of Technical Parts of Proposals	
ITP 26.1	The Proposal opening shall take place at: Street Address: **General Directorate of Infrastructure Investments Hakkı Turayliç Caddesi No:5/B, Emek** Floor/Room number: **Floor 6, Room 616** City: **Ankara** Country: **Republic of Türkiye** Date: ***22 December,2026*** Time: ***14:45 (Ankara Time)***
G. Evaluation of Technical Parts of Proposals	

ITP 31.2	The weighting to be given for Rated Criteria (including technical and non-price factors) is: 70% The applicable technical factors and sub-factors and the corresponding scores out of 100% are given in Section III
H. Opening of Financial Parts	
ITP 34.1	The Letter of Proposal and Price Schedules shall be initialed by all representatives of the Employer conducting Proposal opening. ***Each Financial Proposal shall be numbered and any modification to the unit or total price shall be initialed by the Representative of the Employer***.
I. Evaluation of Financial Part	
ITP 38.1	The currency that shall be used for Proposal evaluation and comparison purposes to convert, at the **selling exchange rate**, all Proposal prices expressed in various currencies into a single currency is: **Turkish Lira** The source of exchange rate shall be: **the Central Bank of Republic of Türkiye** The date for the exchange rate shall be the deadline for submission of Proposals as specified in **ITP 23**, unless otherwise specified by the Employer. The currency(ies) of the Proposal shall be converted into a single currency in accordance with the procedure under **Alternative A** that follows: ***Alternative A: Proposers quote entirely in local currency*** For comparison of Proposals, the Proposal Price, corrected pursuant to **ITP 37.1,** shall first be broken down into the respective amounts payable in various currencies by using the selling exchange rates specified by the Proposer in accordance with **ITP 16.1.** In the second step, the Employer will convert the amounts in various currencies in which the Proposal Price is payable (excluding Provisional Sums but including Daywork where priced competitively) to the single currency identified above at the selling rates established for similar transactions by the authority specified and on the date stipulated above.
ITP 39.1	A margin of domestic preference shall not apply.
ITP 40.1 (f)	Evaluation factors are indicated in Section III Evalaution and Qualification Criteria. No additional evaluation factors shall be applied.
J. Evaluation of Combined Technical and Financial Part	

ITP 43.1	The weight to be given for cost is: %30
ITP 44.1	BAFO does not apply
ITP 46.1	Negotiation does not apply
ITP 49.1 (b)	The following text is added: The contract price shall include Value Added Tax (VAT) determined in accordance with the VAT rate prevailing at the time of Notification of Intention to Award. The breakdown of the contract price inclusive and exclusive of VAT shall also be provided.
K. Award of Contract	
ITP 54.1 and 54.2	The successful Proposer shall be required to submit an Environmental and Social (ES) Performance Security.
ITP 55.1	The procedures for making a Procurement-related Complaint are detailed in the "Procurement Regulations for IPF Borrowers (Annex III)." If a Proposer wishes to make a Procurement-related Complaint, the Proposer shall submit its complaint following these procedures, In Writing (by the quickest means available, such as by email or fax), to: **For the attention**: *Serkan UÇAR* **Title/position**: *Head of Railways Construction Department* **Employer:** *General Directorate of Infrastructure Investments* **Email address***: irfan.kurnaz@uab.gov.tr* A copy of the complaint can be sent for the Bank's information and monitoring to: **pprocurementcomplaints@worldbank.org** In summary, a Procurement-related Complaint may challenge any of the following: **1.** the terms of this RFP document; **2.** the Employer's decision to exclude a Proposer from the procurement process prior to the award of contract; and **3.** the Employer's decision to award the contract.

SECTION III. EVALUATION AND QUALIFICATION CRITERIA

Contents

A. Technical Part 47
1. Qualification 47
2. Evaluation of Technical Part (ITP 31) 59

B. Financial Part 67
1. Margin of Preference 67
2. Evaluation of Financial Part (ITP 40.1(f)) 67
3. Combined Evaluation 67
4. Multiple Contracts (ITP 40.3) 68

Section III - Evaluation and Qualification Criteria
(Without Initial Selection)

This section contains all the criteria that the Employer shall use to evaluate Proposals and qualify Proposers. No other factors, methods or criteria shall be used other than specified in this RFP document. The Proposer shall provide all the information requested in the forms included in Section IV, Proposal Forms.

Wherever a Proposer is required to state a monetary amount, Proposers should indicate the USD equivalent using the rate of exchange determined as follows:

- For construction turnover or financial data required for each year - Exchange rate prevailing on the last day of the respective calendar year (in which the amounts for that year are to be converted) was originally established.
- The monetary value of the past contract references will be calculated with the following approach:

For contracts denominated in United States Dollars (USD):

The contract price at contract signing date shall be updated to present value using the U.S. Bureau of Labor Statistics (BLS) Producer Price Index (PPI): Final Demand (Series ID: WPUFD4), based on the index value applicable 14 days prior to the bid submission deadline.

For contracts denominated in other currencies:

• The contract price shall first be converted into United States Dollars (USD) using the exchange rate applicable on the contract signing date.

• The amount converted into USD shall then be updated to present value using the U.S. Bureau of Labor Statistics (BLS) Producer Price Index (PPI): Final Demand (Series ID: WPUFD4), based on the index value applicable 14 days prior to the bid submission deadline.

The official source of the (exchange) rate is selling rate published on the website of the Central Bank Republic of Turkiye (http://www.tcmb.gov.tr). Any error in determining the exchange rates in the Proposal may be corrected by the Employer.

A. Technical Part

1. Qualification

1.1 Updated Information

The Proposer's qualification shall be assessed in accordance with the Qualification table included in this section.

1.2 Subcontractors

Only the Specialized Subcontractors as approved by the Employer will be considered. The Proposer shall provide in Section IV, Proposal Forms the relevant details of all proposed subcontractors.

1.3 Financial Resources

Using the relevant Form No FIN 3.1 in Section IV, Proposal Forms, the Proposer must demonstrate access to, or availability of, financial resources such as liquid assets, unencumbered real assets, lines of credit, and other financial means, other than any contractual advance payments to meet the overall cash flow requirements for this Contract and its current Works commitment.

1.4 Contractor's Representative and Key Personnel

The Proposer must demonstrate that it will have a suitably qualified Contractor's Representative and suitably qualified (and in adequate numbers) minimum Key Personnel, as listed below and described in the Employer's Requirements.

Note: If the Proposer submits proposals for multiple lots, it must propose separate teams of key personnel for each lot. Specifically, for each of the below listed key personnel positions different persons should be proposed for the multiple lots , such that the same person is not common in the multiple lots.

Contractor's Representative and Key Personnel

Item No	Position	No. of Position	Relevant Academic Qualifications	Minimum years of relevant experience in similar work and overall experience
K-1	Project Manager (Contractor's Representative)	1	MS degree or Bachelor's degree in Civil Engineering	Minimum 12 years of specific experience on at least two construction of Tunnel and/or Railway projects using FIDIC Yellow or FIDIC Silver or FIDIC Gold Book Conditions of Contract and minimum 20 years overall experience in construction industry.
Key Personnel for Design Phase				
K-D1	Design Manager - Trackworks	1	MS degree or Bachelor's degree in Civil Engineering	10 years' experience in the design of railway systems including metro, light rail, tram, funiculars etc. Must have had experience in a Design lead role in the Design of least two similar projects.
K-D2	Design Manager- Tunnel Works	1	MS degree or Bachelor's degree in Civil Engineering	10 years' experience in the design of NATM Tunnel systems including metro, highway tunnels, shaft structures. Must have had experience in a Design lead role in the Design of least two similar projects.
K-D3	Design Manager- Engineering Works	1	MS degree or Bachelor's degree in Civil Engineering	10 years' experience in the design of Engineering Works such as ; Bridges, Viaducts, Culverts, and any other

				structures like auxiliary building. Must have had experience in a Design lead role in the Design of least two similar projects.
K-D4	Design Manager-Electirical Works	1	MS degree or Bachelor's degree in Electrical or Electronics or Electrical & Electronics Engineering.	10 years' experience in the design of Electirical works for the railway systems including metro, light rail, tram, trackworks, funiculars etc. Must have had experience in a Design lead role in the Design of least two similar projects.
K-D5	Design Manager-Mechanical Works	1	MS degree or Bachelor's degree in Mechanical Engineering.	10 years' experience in the design of Mechnanical works for the railway systems including metro, light rail, tram, trackworks, funiculars etc. Must have had experience in a Design lead role in the Design of least two similar projects.
K-D6	Architect	1	Bachelor's Degree in Architecture	Minimum 5 years relevant design experience and Minimum 10 years overall experience
K-D7	Geotechnical Engineer	1	MS degree or Bachelor's degree in Civil Engineering	Minimum 5 years relevant design experience and Minimum 10 years overall experience
K-D8	Electro-mechanical Deputy Project Manager	1	Bachelor's degree in Electrical or Electronics or Electrical & Electronics or Mechanical Engineering	Minimum 5 years relevant design experience and Minimum 10 years overall experience

K-D9	Structural Engineer	5	Bachelor's Degree in Civil Engineering	Minimum 5 years relevant design experience and Minimum 10 years overall experience
K-D10	Surveying Engineer	1	Bachelor's Degree in Survey or Topographical Engineering	Bachelor's Degree in Survey or Topographical Engineering
Key Personnel for Construction Phase				
K-C1	Construction Works Deputy Project Manager	1	MS degree or Bachelor's degree in Civil Engineering	Minimum 7 years of specific experience on at least two construction of Tunnel and/or Railway projects using FIDIC Yellow or FIDIC Silver or FIDIC Gold Book Conditions of Contract and minimum 12 years overall experience in construction.
K-C2	Electro-Mechanical Works Deputy Project Manager	1	MS degree or Bachelor's degree in Electrical or Electronics or Electrical & Electronics or Mechanical Engineering	Minimum 7 years of specific experience on Electromechanical works in Tunnel and/or Railway projects using FIDIC Yellow or FIDIC Silver or FIDIC Gold Book Conditions of Contract and Minimum 12 years overall experience in Electrics and/or Mechanics.
K-C3	Tunnel Works Manager	1	MS degree or Bachelor's degree in Civil/Mining/Geological Engineering	Minimum 5 years of specific experience on at least one construction of Tunnel project using FIDIC Yellow or FIDIC Silver or FIDIC Gold Book Conditions of

				Contract and minimum 10 years overall experience in construction.
K-C4	Trackworks Manager	1	MS degree or Bachelor's degree in Civil Engineering	Minimum 5 years of specific experience on at least one construction of Railway project using FIDIC Yellow or FIDIC Silver or FIDIC Gold Book Conditions of Contract and minimum 10 years overall experience in construction.
K-C5	Engineering Works Manager	1	MS degree or Bachelor's degree in Civil Engineering	Minimum 5 years of specific experience on construction of Engineering Works such as ; Bridges, Viaducts, Culverts, Railway Platforms, Stations and Auxillary Buildings in Railway projects using FIDIC Yellow or FIDIC Silver or FIDIC Gold Book Conditions of Contract and minimum 10 years overall experience in construction.
K-C6	Electro-Mechanical Works Manager	1	MS degree or Bachelor's degree in Electrical or Electronics or Electrical & Electronics or Mechanical Engineering	Minimum 5 years of specific experience on Electromechanical works in Tunnel and/or Railway projects using FIDIC Yellow or FIDIC Silver or FIDIC Gold Book Conditions of Contract and Minimum 10 years overall experience in Electrics and/or Mechanics.

K-C7	OHS Manager	Lot 1 :1 Lot 2 :1 Lot 3 :1	Bachelor's Degree in engineering and Valid Class A Occupational Safety Specialist Certificate issued by the competent authority in Türkiye, in accordance with applicable national legislation	Minimum 5 years of specific experience on at least one construction of Tunnel and/or Railway project using FIDIC Yellow or FIDIC Silver or FIDIC Gold Book Conditions of Contract and minimum 10 years overall experience in construction.
K-C8	QA/QC Manager	1	MS degree or Bachelor's degree in Civil Engineering	Minimum 5 years of specific experience on at least one construction of Tunnel and/or Railway project using FIDIC Yellow or FIDIC Silver or FIDIC Gold Book Conditions of Contract and minimum 10 years overall experience in construction.
K-C9	Tunnel Works Engineer	1	MS degree or Bachelor's degree in Civil/Mining/Geological Engineering	Minimum 3 years of specific experience on at least one construction of Tunnel project using FIDIC Yellow or FIDIC Silver or FIDIC Gold Book Conditions of Contract and minimum 7 years overall experience in construction.
K-C10	Trackworks Engineer	1	MS degree or Bachelor's degree in Civil Engineering	Minimum 3 years of specific experience on at least one construction of Railway project using FIDIC Yellow or FIDIC Silver or FIDIC Gold Book Conditions of Contract and minimum 7

				years overall experience in construction.
K-C11	Engineering Works Engineer	1	MS degree or Bachelor's degree in Civil Engineering	Minimum 3 years of specific experience on construction of Engineering Works such as ; Bridges, Viaducts, Culverts, Railway Platforms, Stations and Auxillary Buildings in Railway projects using FIDIC Yellow or FIDIC Silver or FIDIC Gold Book Conditions of Contract and minimum 7 years overall experience in construction.
K-C12	Electrical Works Engineer	1	MS degree or Bachelor's degree in Electrical or Electronics or Electrical & Electronics	Minimum 3 years of specific experience on Electromechanical works in Tunnel and/or Railway projects using FIDIC Yellow or FIDIC Silver or FIDIC Gold Book Conditions of Contract and Minimum 7 years overall experience in Electrics and/or Mechanics.
K-C13	Mechanical Works Engineer	1	MS degree or Bachelor's degree in Mechanical Engineering	Minimum 3 years of specific experience on Electromechanical works in Tunnel and/or Railway projects using FIDIC Yellow or FIDIC Silver or FIDIC Gold Book Conditions of Contract and Minimum 7 years overall experience in Electrics and/or Mechanics.

K-C14	Geotechnical Engineer	1	MS degree or Bachelor's degree in Civil/Mining/Geological Engineering	Minimum 3 years of specific experience on at least one construction project where geotechnical works were performed using FIDIC Yellow or FIDIC Silver or FIDIC Gold Book Conditions of Contract and minimum 7 years overall experience in construction.
K-C15	Surveying Engineer	1	MS degree or Bachelor's degree in Surveying Engineering	Minimum 3 years of specific experience on at least one construction project where road and/or railway works were performed using FIDIC Yellow or FIDIC Silver or FIDIC Gold Book Conditions of Contract and minimum 7 years overall experience in construction.
K-C16	QA/QC Engineer	1	MS degree or Bachelor's degree in Civil Engineering	Minimum 5 years of specific experience on at least one construction of Tunnel and/or Railway project using FIDIC Yellow or FIDIC Silver or FIDIC Gold Book Conditions of Contract and minimum 10 years overall experience in construction.
K-C17	Quantity Surveyor Engineer-FIDIC Expert	1	MS degree or Bachelor's degree in Engineering	Minimum 7 years of specific experience on at least one project completed by using FIDIC Yellow or FIDIC Silver or FIDIC Gold Book Conditions of Contract

				and minimum 10 years overall experience in construction.
K-C18	Architect	1	Bachelor's Degree in Architecture	Minimum 3 years of specific experience on at least one construction project where railway/metro works were performed using FIDIC Yellow or FIDIC Silver or FIDIC Gold Book Conditions of Contract and minimum 7 years overall experience in construction.
K-C19	Environmental and Social Manager	Lot 1 :1 Lot 2 :1 Lot 3 :1	Bachelor's degree in environmental engineering, social sciences, or related discipline	10 years relevant Environmental and Social experience in construction of large works, and 15 years overall professional experience
K-C20	Environmental Specialist	Lot 1 :2 Lot 2 :2 Lot 3 :2	Bachelor Degree in Environmental Engineering	8 years relevant Environmental experience in construction of large works, and 12 years overall professional experience
K-C21	Social Specialist	Lot 1 :1 Lot 2 :2 Lot 3 :2	Bachelor's Degree in social sciences, sociology, anthropology, law, development studies, or related discipline;	8 years relevant Social experience in construction of large works, and 12 years overall professional experience
K-22	Archaeologist / Cultural Heritage Expert	Lot 1 :1 Lot 2 :1 Lot 3 :1	Bachelor's Degree in Archaeology, Cultural Heritage Management, or related discipline;	Minimum 5 years of experience in cultural heritage management for construction projects; Experience implementing Chance Find Procedures

				and Cultural Heritage Management Plans; Familiarity with national cultural heritage legislation and permitting processes
K-23	Biodiversity & Ecology Specialist	Lot 1 :1 Lot 2 :1 Lot 3 :1	Bachelor's degree in biology, ecology, environmental sciences, or related discipline;	5 years relevant biodiversity & Ecology experience and 10 years overall professional experience
K-24	Resettlement and Livelihood Restoration Specialist	Lot 1 :1 Lot 2 :1 Lot 3 :1	Bachelor's degree in Law, urban planning, economics, social sciences, or related field	5 years relevant resettlement experience and 10 years overall professional experience
K-25	OHS Engineer / Site Safety Engineer	Lot 1 :2 Lot 2 :2 Lot 3 :2	Bachelor's degree in engineering or technical discipline and valid minimum Class C Occupational Safety Specialist Certificate issued by the competent authority in Türkiye, in accordance with applicable national legislation.	5 years relevant OHS/Site Safety experience and 10 years overall professional experience
K-26	OHS Documentation & Training Specialist	Lot 1 :1 Lot 2 :1 Lot 3 :1	Bachelor's degree in occupational health and safety, engineering or a related technical discipline	5 years relevant OHS Documentation/Reporting experience and 10 years overall professional experience
K-27	Community Liaison Officer	Lot 1 :4 Lot 2 :4 Lot 3 :4	Bachelor's degree in sociology, social sciences, communication, public relations, law, social work, psychology, anthropology, political	5 years relevant community Liaison experience and 10 years overall professional experience

			science, international relations, or a related discipline	
K-28	Gender and SEA/SH Specialist	Lot 1 :1 Lot 2 :1 Lot 3 :1	Bachelor's Degree in social sciences, sociology, anthropology, law, development studies, or related discipline	5 years relevant Gender and SEA/SH experience and 10 years overall professional experience
K-29	Legal Expert	Lot 1 :1 Lot 2 :1 Lot 3 :1	Bachelor's degree in in law	5 years relevant legal experience and 10 years overall professional experience
K-30	Valuation Expert	Lot 1 :1 Lot 2 :1 Lot 3 :1	Bachelor's degree in real estate valuation, economics, civil engineering, agricultural economics, law or related discipline	5 years relevant valuation experience and 10 years overall professional experience
K-31	Labor Specialist	Lot 1 :1 Lot 2 :1 Lot 3 :1	Bachelor's degree in social science such in human resources, law, sociology, social sciences or related discipline	5 years relevant Labor experience and 10 years overall professional experience

The Proposer shall provide details of the Contractor's Representative and Key Personnel and such other Key Personnel that the Proposer considers appropriate, together with their academic qualifications and work experience. The Proposer shall complete the relevant Forms in Section IV, Proposal Forms.

If any of the Key Personnel proposed by the Proposer is determined by the Employer not meeting the specified requirements, the Employer reserves the right to require the Proposer to replace such key personnel with the fully qualified and experienced key personnel prior to contract award, if awarded to the Proposer.

1.5 Equipment

The Proposer must demonstrate that it has access to the key equipment listed hereafter:

Lot-wise minimum equipment requirements are provided below:

Note: If the Proposer submits proposals for multiple lots, it must propose separate equipment for each lot. Specifically, for each of the below listed equipment different equipment should be proposed for the multiple lots , such that the same equipment is not common in the multiple lots.

For Each Lot;

No.	Equipment Type and Characteristics	Minimum Number required
1	Shotcrete Robot	1
2	Excavator (min 35 Ton)	4
3	Articulated Dump Truck (min 30 Ton Payload)	8
4	Crawler Crane (min 100 Ton)	1
5	Concrete Batching Plant	1
6	Rail Track Laying Machine	1
7	Tamping Machine	1

If any of the key equipment proposed by the Proposer is determined by the Employer not meeting the specified characteristics, the Employer reserves the right to require the Proposer to replace such key equipment with the key equipment that meets the specified characteristics prior to contract award, if awarded to the Proposer.

The Proposer shall provide its strategy for acquiring and maintaining the key equipment that may be needed to execute the Works in accordance with the Work Program.

The Proposer shall provide details in the relevant Form in Section IV.

2. Evaluation of Technical Part (ITP 31)

Assessment of adequacy of Technical Proposal with Requirements in accordance with ITP 31.1:
The Rated Criteria (including technical and non-price factors, and sub factors if any) to be evaluated and the scores to be given to each factor and sub factor are specified below. The same Rated Criteria will be applied to each of the lots for assessing the adequacy of the Technical Proposal with the requirements of the respective lot.

Factor 1: Technical Methodology and Interfaces (20 points)

No	*Subfactors*	*Maximum Points*
1.1	**Quality of Requirements Traceability & Performance Alignment** *1.1.1 Depth of mapping between proposed construction activities and Employer's Requirements. (2 points)* *1.1.2 Measurability of performance indicators and acceptance criteria. (2 points)* *1.1.3 Robustness of gap identification and resolution methodology. (2 points)*	*6*
1.2	**Integrated Interface Management & Collaborative Delivery Strategy** *1.2.1 Comprehensiveness of interface identification across design, construction, railway operations, utilities and third-party stakeholders. (2 points)* *1.2.2 Quality and active management of Interface Control Documents (ICDs) as living documents rather than static deliverables. (2 points)* *1.2.3 Robustness of escalation protocols and resolution timelines. (1 point)* *1.2.4 Frequency and structure of interface review meetings. (1 point)*	*6*
1.3	**Construction Approach and Methodology Adequacy** *1.3.1 Site-specificity of proposed construction sequences for earthworks, tunnels, bridges, viaducts and railway works relative to geotechnical conditions. (1 point)* *1.3.2 Definition and risk basis of pre-production quality gates and hold/witness points. (1 point)*	*4*

	1.3.3 Integration of method statements with Inspection and Test Plans (ITPs). (1 point) *1.3.4 Clarity of acceptance criteria and verification mechanisms for each construction phase. (1 point)*	
1.4	**Constructability and Delivery Readiness Framework** *1.4.1 Logical sequencing between design activities, procurement, construction and testing phases. (1 point)* *1.4.2 Clarity and measurability of readiness criteria for major construction activities. (1 point)* *1.4.3 Alignment of construction methodology with the overall work programme. (1 point)* *1.4.4 Quality of verification, monitoring and progress-control procedures. (1 point)*	*4*

Factor 2: Work Program & Mobilization & Logistics (12 points)

No	*Subfactors*	*Maximum Points*
2.1	**Schedule Robustness & Critical Path Optimization Strategy** *2.1.1 Realism of activity durations and sequencing relative to site, logistics and climatic constraints. (1.5 points)* *2.1.2 Treatment of interface dependencies and risk buffers within the critical path. (1.5 points)* *2.1.3 Quality of recovery logic for anticipated delay scenarios. (1 point)* *2.1.4 Degree to which the schedule reflects a genuine understanding of project constraints and delivery priorities. (1 point)*	*5*
2.2	**Resource Mobilization & Cash-Flow Planning Quality** *2.2.1 Coherence between resource demand and mobilization timeline. (1 point)* *2.2.2 Realism of cash-flow projections relative to planned activities. (1 point)* *2.2.3 Evidence of successful mobilization on comparable projects. (0.5 point)*	*2,5*
2.3	**Operational Readiness & Mobilization Strategy**	*2,5*

	2.3.1 Specificity of timelines for plant, equipment and personnel deployment. (1 point) *2.3.2 Credibility of site establishment and permit readiness assumptions. (1 point)* *2.3.3 Evidence of achievement of mobilization targets on comparable projects. (0.5 point)*	
2.4	**Supply Chain Resilience & Site Logistics Optimization** *2.4.1 Identification and management approach for long-lead procurement items. (0.75 point)* *2.4.2 Credibility of site access and materials flow plans. (0.75 point)* *2.4.3 Degree to which the strategy accounts for supply chain risks specific to the project. (0.5 point)*	*2*

Factor 3: Value Engineering, Innovation & Project Value Optimization (12)

No	*Subfactors*	*Maximum Points*
3.1	**Whole-Life Value Optimization** *3.1.1.* Quality and practicality of proposals that reduce life-cycle cost while maintaining or improving the required performance, durability and maintainability. *(2 points)* *3.1.2. Quality of value engineering proposals that optimize design solutions, construction methods or material selection without reducing functionality, safety or service life. (2 Point)* *3.1.3. Evidence that proposed optimizations are supported by measurable technical, economic or operational benefits. (2 Points)*	*6*
3.2	**Innovation & Productivity Enhancement** *3.2.1. Quality of innovative engineering or construction solutions expected to improve productivity, quality or safety.(2 Points)* *3.2.2. Extent to which digital engineering, BIM, digital quality management or data-driven monitoring tools are integrated into project delivery. (2 Points)* *3.2.3. Quality of continuous improvement mechanisms, lessons-learned integration and performance monitoring proposed throughout project implementation. (2 Points)*	*6*

Factor 4: Organization & Key Personnel (12 points)

No	*Subfactors*	*Maximum Points*
4.1	**Leadership Excellence in Technical Coordination & Delivery** *4.1.1. Evidence of multidisciplinary coordination leadership in the corridor-scale rail or infrastructure projects. (2 points)* *4.1.2 Track record in managing civil-systems interfaces under time and geotechnical pressure. (1 point)* *4.1.3 Credibility of the proposed decision-making role within the organizational structure. (1 point)* *4.1.4 Quality and specificity of the substitution and succession plan for key leadership roles. (1 point)*	*5*
4.2	**Specialized Expert Competence & Value-Added Human Capital** *4.2.1 Breadth of specialist expertise relevant to the project's technical complexity. (2 points)* *4.2.2 Degree to which competencies complement and reinforce leadership roles. (1 point)* *4.2.3 Robustness of substitution planning beyond the minimum required roster. (1 point)*	*4*
4.3	**Organizational Efficiency & Decision-Making Framework** *4.3.1 Clarity and coherence of the reporting chain across civil, systems, design, and ESHS functions. (1 point)* *4.3.2 Robustness of the RACI matrix in unambiguously assigning decision-making authority across key processes — design, construction, QA, and ESHS — without creating reporting bottlenecks. (1 point)* *4.3.3 Capacity of the organizational structure to manage cross-lot coordination and multi-contractor interfaces. (0,5 point)* *4.3.4 Quality of the shift and substitution plan in ensuring personnel continuity under attrition or absence scenarios. (0,5 point)*	*3*

Factor 5: Quality Assurance (QA/QC) & OHS/Environment/ESHS (including Road Safety) (12 points)

No	*Subfactor*	*Maximum Score*
5.1	**Quality Management Excellence & Precision Delivery Standards** *5.1.1 Robustness of acceptance criteria and definition of hold/witness points. (2 points)* *5.1.2 Effectiveness and clarity of the nonconformity and CAPA process. (1 point)* *5.1.3 Degree to which the QA/QC plan is integrated with construction sequencing and ITP activities. (1 point)*	*5*

	5.1.4 Evidence of QA/QC performance track record on comparable projects. (1 point)	
5.2	**Occupational Health & Safety Leadership & Risk Prevention** *5.2.1 Specificity of SIF prevention risk assessments for tunnelling and confined-space operations. (0,5 point)* *5.2.2. Resourcing of OHS oversight (dedicated personnel and budget). (0,5 point)* *5.2.3 Evidence of the bidder's LTIFR on comparable projects. (0,5 point)* *5.2.4 Depth of worker OHS training and induction programme (0,5 point)*	*2*
5.3	**Environmental management** *5.3.1. Specificity of monitoring indicators for noise, dust, vibration, and air quality. (0,4 point)* *5.3.2. Clarity of corrective-action thresholds and escalation protocols. (0,4 point)* *5.3.3. Robustness of SEA/SH protocols. (0,4 point)* *5.3.4. Degree to which environmental commitments are resourced and integrated with construction phasing. (0,4 point)* *5.3.5. Past implementation evidence. (0,4 point)*	*2*
5.4	**Biodiversity & habitat continuity (IFC PS6 compliance)** *5.4.1. Specificity of habitat assessment and mitigation measures beyond IFC PS6 minimum compliance. (1 point)* *5.4.2. Integration of biodiversity commitments with construction scheduling (e.g., seasonal restrictions, buffer zones). (1 point)* *5.4.3 Evidence of comparable biodiversity management on infrastructure projects. (1 point)*	*3*

Factor 6: Risk Management (12 points)

No	*Subfactors*	*Maximum Points*
6.1	**Project-Specific Risk Identification and Assessment** *6.1.1. Comprehensiveness and quality of the proposed risk register, including the methodology for probability and impact assessment. (1 point)* *6.1.2. Identification and prioritization of key technical, construction, interface, operational, schedule, supply-chain and contractual risks. (1 point)* *6.1.3. Extent to which the identified risks are project-specific and linked to relevant work packages, interfaces and implementation stages. (1 point)*	3

6.2	**Preventive and Mitigation Measures** *6.2.1. Adequacy and effectiveness of the proposed preventive and mitigation measures for material and top-ranked risks. (1 point)* *6.2.2. Clarity of the linkage between each material risk, the proposed mitigation action, applicable trigger, responsible party and expected outcome. (1 point)* *6.2.3. Practicality and integration of the mitigation measures into the work programme, logistics, construction methodology and contract delivery arrangements. (1 point)*	3
6.3	**Risk Ownership, Monitoring, Reporting and Review** *6.3.1. Clarity of the allocation of responsibilities for risk ownership, monitoring and follow-up. (1 point)* *6.3.2. Adequacy of risk monitoring, reporting, escalation and periodic review and updating mechanisms. (1 point)*	2
6.4	**Contingency and Response Arrangements for Material Risks** *6.4.1. Adequacy of contingency and response arrangements for material technical, construction, interface and operational risks. (1 point)* *6.4.2. Adequacy of schedule-recovery and business-continuity arrangements for critical delays and disruptions. (1 point)* *6.4.3. Adequacy of supply-chain contingency arrangements for critical materials, equipment and long-lead items. (1 point)* *6.4.4. Evidence that contingency measures are actionable, appropriately resourced and capable of prompt implementation when relevant risk triggers occur. (1 point)*	4

Factor 7: Sustainable Procurement (12 points)

No	*Subfactors*	*Maximum Points*
7.1	**Circular Economy Strategy & Resource Life-Cycle Optimization** *7.1.1. Realism and verifiability of reuse/recycling target percentages. (2 points)* *7.1.2. Robustness of verification and reporting protocols. (1 point)* *7.1.3. Evidence of the bidder's track record in achieving comparable circular resource targets on prior projects (1 point)*	*4*
7.2.	**Energy efficiency & carbon reduction** *7.2.1. Evidence that a construction site energy management plan has been prepared and is operational. (1 point)* *7.2.2. Identification of low-carbon equipment and solutions proposed, with corresponding reduction estimates quantified (scope 1). (1 point)* *7.2.3. Establishment of carbon reduction targets, a defined baseline against which those targets are measured, and a precise monitoring methodology (scope 2). (1 point)*	*4*

	7.2.4. Implementation of an energy/carbon reporting scheme ensuring continuous tracking and quantitative assessment of reductions against the baseline. (1 point)	
7.3	**Waste management (including hazardous waste)** *7.3.1. Specificity of separate collection and tracking protocols for hazardous and non-hazardous waste streams. (2 points)* *7.3.2. Credibility and auditability of the hazardous waste tracking system. (1 point)* *7.3.3 Evidence of waste management compliance performance on comparable projects. (1 point)*	*4*

Factor 8: Social Aspects & Local Economic Impact (8 points)

No	*Subfactors*	*Maximum Points*
8.1	**Social Standard Leadership & Workforce Welfare** *8.1.1 Depth and frequency of labor compliance monitoring. (1 point)* *8.1.2 Resourcing (staff, budget) dedicated to labor standards enforcement. (1 point)* *8.1.3 Effectiveness of subcontractor control mechanisms. (1 point)* *8.1.4 Use of early-warning indicators and corrective actions.* *(1 point)* *8.1.5 Evidence of workforce management performance on comparable labor-intensive contracts. (1 point)*	*5*
8.2	**Local economy & inclusive employment/training** *8.2.1. Targets for engaging local subcontractors and suppliers. (1 point)* *8.2.2 Targets for employment of women, youth, and persons with disabilities on-site. (1 point)* *8.2.3. Credibility of the implementation plan and monitoring mechanisms. (0,5 point)* *8.2.4. Reporting obligations and frequency of local employment reporting (0,5 point)*	*3*

TECHINICAL PROPOSAL SCORING METHOLOGY

Score (of the total score for the factor/subfactor as applicable	Description	Remarks
0	Required feature is absent; no relevant information to demonstrate how the requirement is met	
1	Required feature present with deficiencies such as insufficient or information that lacks clarity	
2	Sufficient information to demonstrate how the requirement will be met	
3	Sufficient information to demonstrate that the requirement will be marginally exceeded	
4	Sufficient information that significantly exceed the requirement/proposal contributes to significant value addition	

The score for each sub- factor (i) within a factor (j) will be combined with the scores of sub- factors in the same factor as a weighted sum to form the Factor Technical Score using the following formula:

$$S_j \equiv \sum_{i=1}^{k} t_{ji} * w_{ji}$$

where:

t_{ji} = the technical score for sub- factor "i" in factor "j"

w_{ji} = the weight of sub- factor "i" in factor "j",

k = the number of scored sub-factors in factor "j"

and $\sum_{i=1}^{k} w_{ji} = 1$

(f) The Factor Technical Scores will be combined in a weighted sum to form the total Technical Proposal Score using the following formula:

$$T \equiv \sum_{j=1}^{n} S_j * W_j$$

where:

S_j = the Factor Technical Score of factor "j"

W_j = the weight of factor "j" as specified **in the PDS**

n = the number of Factors

$$\text{and } \sum_{j=1}^{n} W_j = 1$$

B. Financial Part

1. Margin of Preference

Not applicable

2. Evaluation of Financial Part (ITP 40.1(f))

The following factors and methods will apply:

(a) Time Schedule

Time for completion of the Works from the Commencment Date shall be as specified in the Particular Conditions Part A-Contract Data Sub-clause 1.1.86. No credit will be given for earlier completion.

(b) Life Cycle Costs

Life cycle costing shall not apply.

(c) Sustainable Procurement

Not applicable

3. Combined Evaluation

The Employer will evaluate and compare the Proposals that have been determined to be substantially responsive.

An Evaluated Proposal Score (B) will be calculated for each responsive Proposal using the following formula, which permits a comprehensive assessment of the evaluated cost and the technical merits of each Proposal:

$$B = \frac{C_{low}}{C} * X * 100 + \frac{T}{T_{high}} * (1 - X) * 100$$

where

C = Evaluated Proposal Cost

C_{low} = the lowest of all Evaluated Proposal Cost among responsive Proposals

T = the total Technical Score awarded to the Proposal

T_{high} = the Technical Score achieved by the Proposal that was scored best among all responsive Proposals

X = weight for Cost as specified **in the PDS**

The Proposal with the best evaluated Proposal Score (B) among responsive Proposals shall be the Most Advantageous Proposal provided the Proposer is qualified to perform the Contract.

4. Multiple Contracts (ITP 40.3)

In accordance with **ITP 1.1**, Proposals are invited for one or more than one lots, the contract will be awarded to the Proposer or Proposers with the Most Advanageous Proposal for the individual lots.

However, if a Proposer, with Proposals that are substantially responsive and with highest evaluated score for individual lots, is not qualified for the combination of the lots, then the award will be made based on the highest total score for combination of lots for which Proposers are qualified.

Cross discounts for award of multiple lots will not be considered.

Qualification Criteria for Multiple Contracts

The criteria for qualification are the aggregate (cumulative sum of) minimum requirement for respective lots as specified under items 3.1 (financial capability), 3.2 (average annual construction turnover), 4.2(a) (Specific Construction & Contract Management Experience) and 4.2(b) (Key Activities) of Section III. With respect to the specific experience under item 4.2(a), minimum requirements for combined contract(s) shall be the aggregate requirements for each lot for which the Proposer has bid, and the Proposer's referenced contracts for each lot shall be different.

A. Qualification

No.	Subject	Requirement	Single Entity	Joint Venture (existing or intended)			Submission Requirements
				All Members Combined	Each Member	One Member	
1. Eligibility							
1.1	**Nationality**	Nationality in accordance with ITP 4.4	Must meet requirement	Must meet requirement	Must meet requirement	N/A	Forms ELI – 1.1 and 1.2, with attachments
1.2	**Conflict of Interest**	No conflicts of interest in accordance with ITP 4.2	Must meet requirement	Must meet requirement	Must meet requirement	N/A	Letter of Proposal
1.3	**Bank Eligibility**	Not having been declared ineligible by the Bank, as described in ITP 4.5.	Must meet requirement	Must meet requirement	Must meet requirement	N/A	Letter of Proposal
1.4	**State- owned Enterprise or Institution of the Borrower country**	Meets conditions of ITP 4.6	Must meet requirement	Must meet requirement	Must meet requirement	N/A	Forms ELI – 1.1 and 1.2, with attachments
1.5	**United Nations resolution or Borrower's country law**	Not having been excluded as a result of prohibition in the Borrower's country laws or official regulations against commercial relations with the Proposer's country, or by an act of compliance with UN Security Council resolution, both in accordance with ITP 4.8 and Section V.	Must meet requirement	Must meet requirement	Must meet requirement	N/A	Forms ELI – 1.1 and 1.2, with attachments

No.	Subject	Requirement	Single Entity	Joint Venture (existing or intended)			Submission Requirements
				All Members Combined	Each Member	One Member	
2. Historical Contract Non-Performance							
2.1	**History of Non-Performing Contracts**	Non-performance of a contract[1] did not occur as a result of contractor default since 1st January 2020.	Must meet requirement	Must meet requirements	Must meet requirement[2]	N/A	Form CON-2
2.2	**Suspension Based on Execution of Bid/Proposal Securing Declaration by the Employer**	Not under suspension based on-execution of a Bid/Proposal Securing Declaration pursuant to ITP 4.7 and ITP 19.9	Must meet requirement	Must meet requirement	Must meet requirement	N/A	Letter of Proposal
2.3	**Pending Litigation**	Proposer's financial position and prospective long-term profitability still sound according to criteria established in 3.1 below and assuming that all pending litigation will be resolved against the Proposer	Must meet requirement	N/A	Must meet requirement	N/A	Form CON – 2
2.4	**Litigation History**	No consistent history of court/arbitral award decisions	Must meet requirement	Must meet requirement	Must meet requirement	N/A	Form CON – 2

[1] Nonperformance, as decided by the Employer, shall include all contracts where (a) nonperformance was not challenged by the contractor, including through referral to the dispute resolution mechanism under the respective contract, and (b) contracts that were so challenged but fully settled against the contractor. Nonperformance shall not include contracts where Employers decision was overruled by the dispute resolution mechanism. Nonperformance must be based on all information on fully settled disputes or litigation, i.e., dispute or litigation that has been resolved in accordance with the dispute resolution mechanism under the respective contract and where all appeal instances available to the Proposer have been exhausted.

2 This requirement also applies to contracts executed by the Proposer as JV member.

No.	Subject	Requirement	Single Entity	Joint Venture (existing or intended)			Submission Requirements
				All Members Combined	Each Member	One Member	
		against the Proposer[3] since 1st January 2020					
2.5	**Declaration: Environmental and Social (ES) past performance**	Declare any civil work contracts that have been suspended or terminated and/or performance security called by an employer for reasons of breach of environmental, or social (including Sexual Exploitation, and Abuse) contractual obligations in the past five years.[4]	Must make the declaration. Where there are Specialized Subcontractor/s, the Specialized Subcontractor/s must also make the declaration.	N/A	Each must make the declaration. Where there are Specialized Subcontractor/s, the Specialized Subcontractor/s must also make the declaration.	N/A	Form CON-3 ES Performance Declaration
2.6	**Bank's SEA and/or SH Disqualification**	At the time of Contract Award, not subject to disqualification by the Bank for non-compliance with SEA/ SH obligations	Must meet requirement (including each subcontractor proposed by the Proposer)	N/A	Must meet requirement (including each subcontractor proposed by the Proposer)	N/A	Letter of Proposal, Form CON-4
		If the Proposer had been subject to disqualification by the Bank for non-compliance with SEA/ SH obligations, the Proposer	Must meet requirement (including each	N/A	Must meet requirement (including each	N/A	Letter of Proposal, Form CON-4

[3] The Proposer shall provide accurate information on the related Bid Form about any litigation or arbitration resulting from contracts completed or ongoing under its execution over the last five years. A consistent history of awards against the Proposer or any member of a joint venture may result in failure of the Bid.

[4] The Employer may use this information to seek further information or clarifications in carrying out its due diligence.

No.	Subject	Requirement	Single Entity	Joint Venture (existing or intended)			Submission Requirements
				All Members Combined	Each Member	One Member	
		shall either (i) provide evidence of an arbitral award on the disqualification made in its favour; or (ii) demonstrate that it has adequate capacity and commitment to comply with SEA/SH prevention and response obligations; or (iii) provide evidence that it has already demonstrated such capacity and commitment on another Bank financed works contract.	subcontractor proposed by the Proposer)		subcontractor proposed by the Proposer)		
3. Financial Situation and Performance							
3.1	**Financial Capabilities**	(i) The Proposer shall demonstrate that it has access to, or has available, liquid assets, unencumbered real assets, lines of credit, and other financial means (independent of any contractual advance payment) sufficient to meet the construction cash flow requirements estimated as For Lot 1: USD 20,000,000 (twenty million USD) For Lot 2: USD 22,000,000 (twenty-two million USD	Must meet requirement	Must meet requirement	N/A	N/A	Form FIN – 3.1, with attachments

No.	Subject	Requirement	Single Entity	Joint Venture (existing or intended)			Submission Requirements
				All Members Combined	Each Member	One Member	
		For Lot 3: USD 22,500,000 (twenty-two million five hundred thousand USD) (ii) The Proposers shall also demonstrate, to the satisfaction of the Employer, that it has adequate sources of finance to meet the cash flow requirements on works currently in progress and for future contract commitments. (iii) The audited balance sheets or, if not required by the laws of the Proposer's country, other financial statements acceptable to the Employer, for the **last *5* years (2021, 2022, 2023, 2024 and 2025)** shall be submitted and must demonstrate the current soundness of the Proposer's financial position and indicate its prospective long-term profitability.	Must meet requirement Must meet requirement	Must meet requirement N/A	N/A Must meet requirement	N/A N/A	
3.2	**Average Annual**	Minimum average annual construction turnover of	Must meet requirement	Must meet requirement	Must meet *20* % (twenty) of	Must meet *50* % (fifty percent) of	Form FIN – 3.2

No.	Subject	Requirement	Single Entity	Joint Venture (existing or intended)			Submission Requirements
				All Members Combined	Each Member	One Member	
	Construction Turnover	For Lot 1: USD 115,000,000 (One Hundred Fifteen Million USD) For Lot 2: USD 130,000,000 (One Hundred Thirty Million USD) For Lot 3: USD 135,000,000 (One Hundred Thirty-Five Million USD) calculated as total certified payments received for contracts in progress and/or completed within the last *5* years (2021, 2022, 2023, 2024 and 2025), divided by *5* years.			the requirement. [5]	the requirement	
4. Experience							
4.1	**General Construction Experience**	Experience of more than 15 (fifteen) years prior to the bid submission deadline under any type of construction contracts in the role of prime contractor, JV member, Subcontractor, or management contractor	Must meet requirement	N/A	Must meet requirement. [6]	N/A	Form EXP – 4.1
					N/A	N/A	Form EXP 4.2(a)

5 In case any member(s) of a JV are proposed for the design services, the requirement for Average Annual Construction Turnover shall not be applicable to the JV member proposed for the Design.

6 In case any member(s) of a JV are proposed for the design services, the requirement for 15 years experience under any type of construction contract shall not be applicable. Instead, the JV member proposed for the Design shall have at least 10 years of experience in design of works under railway projects.

No.	Subject	Requirement	Single Entity	Joint Venture (existing or intended)			Submission Requirements
				All Members Combined	Each Member	One Member	
4.2 (a)	**Specific Construction & Contract Management Experience**	(i) A minimum number of similar contract(s) specified below have been satisfactorily and substantially[7] completed as a prime contractor, joint venture member[8], management contractor or Subcontractor between **1st January 2011** and bid submission deadline. Similar contracts are defined as contracts for the Construction of railway projects (light rail, metro, and/or mainline railway[9]), including railway infrastructure[10] or superstructure[11] works shall be considered as similar works. **For Lot 1:** One (1) contract equal or more than **USD 160 Million**	Must meet requirement	Must meet requirement[12]			

7 Substantial completion shall be based on 80% or more works completed under the contract.

8 For contracts under which the Proposer participated as a joint venture member or Subcontractor, only the Proposers shall be considered to meet this requirement.

9 Mainline railway includes, may include but not limited to, intercity passenger, freight, and mixed rail traffic operations.

10 Infrastructure works includes, may include but not limited to, earthworks, tunneling, bridges, viaducts, stations, drainage, and electrification.

11 Superstructure works includes, may include but not limited to, tracklaying, ballasting (or slab construction), rail welding, fastening installation, and turnout assembly.

12 In the case of JV, the value of contracts completed by its members shall not be aggregated to determine whether the requirement of the minimum value of a single contract has been met. Instead, each contract performed by each member shall satisfy the minimum value of a single contract as required for single entity. In determining whether the JV meets the requirement of total number of contracts, only the number of contracts completed by all members each of value equal or more than the minimum value required shall be aggregated.

No.	Subject	Requirement	Single Entity	Joint Venture (existing or intended)			Submission Requirements
				All Members Combined	Each Member	One Member	
		OR Two contracts including one contract of equal or more than **USD 100 Million** equivalent and one contract of equal or more than **USD 60 Million.** **For Lot 2:** One (1) contract equal or more than **USD 190 Million** OR Two contracts including one contract of equal or more than **USD 120 Million** equivalent and one contract of equal or more than **USD 70 Million.** **For Lot 3:** One (1) contract equal or more than **USD 200 Million** OR Two contracts including one contract of equal or more than **USD 130 Million** equivalent and one contract of equal or more than **USD 70 Million.**					
4.2 (b)	**Specific Experience in Key Activities**	**For Lot 1, Lot 2 and Lot 3;** For the above and/ or any other contracts substantially	Must meet requirements	Must meet requirements	N/A	N/A	Form EXP – 4.2 (b)

No.	Subject	Requirement	Single Entity	Joint Venture (existing or intended)			Submission Requirements
				All Members Combined	Each Member	One Member	
		completed and under implementation as prime contractor, joint venture member, or Subcontractor between **1st January 2011** and Proposal submission deadline, a minimum construction experience[13] in the following key activities successfully completed: **For each Lot:** (i) Experience in the design of railway projects with a route length of at least **20 km**, under a single contract, and (ii) Experience in the construction of railway line with a route length of at least **20 km** under a single contract.					
4.2 (c)	**Specific Experience in managing ES aspects**	For the contracts in 4.2 (a) above and/or any other contracts substantially completed and under implementation as prime	Must meet requirements	Must meet requirement	N/A	*N/A*	Form EXP – 4.2 (c)

[13] If the past contract references submitted under this clause have been completed as a joint venture, the work completion quantities attributable to each joint venture partner shall be calculated in proportion to their respective participation (shareholding) ratios.

No.	Subject	Requirement	Single Entity	Joint Venture (existing or intended)			Submission Requirements
				All Members Combined	Each Member	One Member	
		contractor, joint venture member, or Subcontractor between **1st January 2011** and Proposal submission deadline, experience in managing the following ES risks and impacts and any additional sustainable procurement aspects: **For each Lot:** Implementing environmental and social management plan in at least one similar contract, which should be supported by the employer's letter confirming satisfactory completion.					

SECTION IV - PROPOSAL FORMS

Table of Forms

Proposal Forms **81**
Letter of Proposal - Technical Part 81
Letter of Proposal - Financial Part 84
Appendix to Proposal 87
Schedule of Cost Indexation 87
Table of Adjustment Data 89
Table A. Local Currency 89
Table B. Foreign Currency (FC) 91
Table C. Summary of Payment Currencies 92
Schedule of Priced Activities and Sub-activities 94
Sample Schedule of Priced Activities Table ..... **Hata! Yer işareti tanımlanmamış.**
Sample Schedule of Priced Sub-activities Table ..... **Hata! Yer işareti tanımlanmamış.**
Daywork Schedule ..... **Hata! Yer işareti tanımlanmamış.**
Schedule of Daywork Rates: 1. Labor ..... **Hata! Yer işareti tanımlanmamış.**
Schedule of Daywork Rates: 2. Materials ..... **Hata! Yer işareti tanımlanmamış.**
Schedule of Daywork Rates: 3. Contractor's Equipment **Hata! Yer işareti tanımlanmamış.**
Daywork Summary ..... **Hata! Yer işareti tanımlanmamış.**
Specified Provisional Sums ..... **Hata! Yer işareti tanımlanmamış.**
Grand Summary ..... **Hata! Yer işareti tanımlanmamış.**
Schedule of Payments 115
Schedule of Performance Guarantees and Performance Damages 116

Technical Proposal Forms **117**
Design Proposal 118
Construction Management Strategy 119
Method Statement for key construction activities 120
Sustainable Procurement Proposal 121
Code of Conduct for Contractor's Personnel (ES) Form 122
Work Program 126
Contract Personnel Organization Chart 127
Risk assessment and Proposed Management Plan 128
Contractor's Equipment 129
Subcontractors 130

Personnel **131**
Key Personnel qualifications and resource schedule 131
Resume and Declaration 132
Contractor's Representative and Key Personnel 132
Local Labour Method Statement 134

Qualification Forms **135**

Proposer Information Sheet 136
Party to JV Information Sheet.....138
Historical Contract Non-Performance, Pending Litigation and Litigation History.....139
Environmental and Social Performance Declaration.....141
Financial Situation and Performance.....145
Average Annual Construction Turnover.....147
Financial Resources 148
General Construction Experience 150
Specific Construction and Contract Management Experience 151
Construction Experience in Key Activities.....153
Specific Experience in Managing ES Aspects.....155
Others.....156

Form of Proposal Security – Demand Guarantee.....157

Form of Proposal-Securing Declaration ..... Hata! Yer işareti tanımlanmamış.

Proposal Forms

Letter of Proposal - Technical Part

INSTRUCTIONS TO PROPOSERS

INSTRUCTIONS TO PROPOSERS: DELETE THIS BOX ONCE YOU HAVE COMPLETED THE DOCUMENT

Place this Letter of Proposal in the first envelope "TECHNICAL PART".

The Proposer must prepare the Letter of Proposal on stationery with its letterhead clearly showing the Proposer's complete name and business address.

Note: All italicized text in black font is to help Proposers in preparing this form and Proposers shall delete it from the final document.

Date of this Proposal submission: *[insert date (as day, month and year) of Proposal submission]*

RFP No.: *[insert number of RFP process]*

Request for Proposal No.: *[insert identification]*

Alternative No.: *[insert identification No if this is a Proposal for an alternative]*

To: *[Employer insert:* ***name and address of Employer****]*

Dear Sir or Madam:

We, the undersigned Proposer, hereby submit our Proposal, in two parts, namely:

(a) the Technical Part, and

(b) The Financial Part.

Having examined the RFP Documents, including any Addenda issued in accordance **with ITP 8,** we, the undersigned, offer to execute the Works to _____, in full conformity with the said RFP Documents, and any Addenda.

We undertake, if our Proposal is accepted, to commence the Works and achieve Completion within the respective times stated in the RFP Documents.

We hereby certify that we, including any subcontractors for any part of the contract, meet the eligibility requirements and have no conflict of interest in accordance with **ITP 4.**

Sexual Exploitation and Abuse (SEA) and/or Sexual Harassment (SH): [*select the appropriate option from (i) to (v) below and delete the others*].

We *[where JV, insert:* "including any of our JV members"*]*, and any of our subcontractors:

(i) [have not been subject to disqualification by the Bank for non-compliance with SEA/ SH obligations.]

(ii) [are subject to disqualification by the Bank for non-compliance with SEA/ SH obligations.]

(iii) [had been subject to disqualification by the Bank for non-compliance with SEA/ SH obligations. An arbitral award on the disqualification case has been made in our favor.]

(iv) [had been subject to disqualification by the Bank for non-compliance with SEA/ SH obligations for a period of two years. We have subsequently provided and demonstrated that we have adequate capacity and commitment to comply with SEA and SH prevention and response obligations.]

(v) [had been subject to disqualification by the Bank for non-compliance with SEA/ SH obligations for a period of two years. We have attached documents demonstrating that we have adequate capacity and commitment to comply with SEA and SH prevention and response obligations.]

We, along with any of our subcontractors, suppliers, consultants, manufacturers, or service providers for any part of the contract, are not subject to, and not controlled by any entity or individual that is subject to, a temporary suspension or a debarment imposed by the World Bank Group or a debarment imposed by the World Bank Group in accordance with the Agreement for Mutual Enforcement of Debarment Decisions between the World Bank and other development banks. Further, we are not ineligible under the Employer's Country laws or official regulations or pursuant to a decision of the United Nations Security Council;

We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf engages in any type of Fraud and Corruption.

State-owned enterprise or institution: *[select the appropriate option and delete the other] [We are not a state-owned enterprise or institution] / [We are a state-owned enterprise or institution but meet the requirements of **ITP 4.6**]*;

Potential DAAB Members: We hereby propose the following three persons, whose curriculum vitae are attached, as potential DAAB members:

Name	Address
1. …….....	
2. ……..	
3. ……	

We agree to abide by this Proposal, which, in accordance with **ITP 12** and **ITP 13**, consists of this letter (Technical Part) and enclosures, until [insert day, month and year in accordance with PDS 20.1] , and it shall remain binding upon us and may be accepted by you at any time on or before this date.

Until the formal final Contract is prepared and executed between us, this Proposal, together with your written acceptance thereof included in your Letter of Acceptance, shall constitute a binding contract between us.

_____

Name of the Proposer: **[insert complete name of the Proposer]*

_____

Name of the person duly authorized to sign the Proposal on behalf of the Proposer:
*** [insert complete name of person duly authorized to sign the Proposal]*

_____

Title of the person signing the Proposal: *[insert complete title of the person signing the Proposal]*

_____

Signature of the person named above: *[insert signature of person whose name and capacity are shown above]*

_____

Date signed *[insert date of signing]* **day of** *[insert month]*, *[insert year]*

*: In the case of the Proposal submitted by a Joint Venture specify the name of the Joint Venture as Proposer.

**: Person signing the Proposal shall have the power of attorney given by the Proposer. The power of attorney shall be attached with the Proposal Schedules.

ENCLOSURE(S):

Letter of Proposal - Financial Part

INSTRUCTIONS TO PROPOSERS

INSTRUCTIONS TO PROPOSERS: DELETE THIS BOX ONCE YOU HAVE COMPLETED THE DOCUMENT

Place this Letter of Proposal in the second envelope "FINANCIAL PART".

The Proposer must prepare the Letter of Proposal on stationery with its letterhead clearly showing the Proposer's complete name and business address.

Note: All italicized text in black font is to help Proposers in preparing this form and Proposers shall delete it from the final document.

Date of this Proposal submission: *[insert date (as day, month and year) of Proposal submission]*

RFP No.: *[insert number of RFP process]*

Request for Proposal No.: *[insert identification]*

Alternative No.: *[insert identification No if this is a Proposal for an alternative]*

To: *[Employer insert:* ***name and address of Employer****]*

Dear Sir or Madam:

We, the undersigned Proposer, hereby submit the second part of our Proposal, the Financial Part

Having examined the RFP Documents, the Addenda issued in accordance with **ITP 8,** we, the undersigned, offer to _____, in full conformity with the said RFP Documents, and any Addenda for the total Proposal Price, excluding any discounts offered as follows:

[Insert one of the options below as appropriate]

Option 1, in case of one lot: Total price: *[insert the total price of the Proposal in words and figures, indicating the various amounts and the respective currencies]*;

Or

Option 2, in case of multiple lots: (a) Total price of each lot *[insert the total price of each lot in words and figures, indicating the various amounts and the respective currencies]*; and (b) Total price of all lots (sum of all lots) *[insert the total price of all lots in words and figures, indicating the various amounts and the respective currencies]*;

The discounts offered and the methodology for their application is:

(i) The discounts offered are: *[Specify in detail each discount offered]*

(ii) The exact method of calculations to determine the net price after application of discounts is shown below: *[Specify in detail the method that shall be used to apply the discounts]*;

If our Proposal is accepted, we undertake to provide an advance payment security, and a Performance Security *[and an Environmental and Social (ES) Performance Security.* ***Delete if not applicable]*** in the forms, in the amounts, and within the times specified in the RFP Documents.

We agree to abide by this Proposal, which, in accordance with **ITP 12** and **ITP 13**, consists of this letter (Letter of Proposal – Financial part) and the enclosures listed below, until [insert day, month and year in accordance with PDS 20.1], and it shall remain binding upon us and may be accepted by you at any time on or before this date.

Commissions, gratuities and fees: We have paid, or will pay the following commissions, gratuities, or fees with respect to the RFP process or execution of the Contract: *[insert complete name of each Recipient, its full address, the reason for which each commission or gratuity was paid and the amount and currency of each such commission or gratuity]*.

Name of Recipient	Address	Reason	Amount

(If none has been paid or is to be paid, indicate "none.")

Until the formal final Contract is prepared and executed between us, this Proposal, together with your written acceptance thereof included in your Letter of Acceptance, shall constitute a binding contract between us.

_____

Name of the Proposer:**[insert complete name of the Proposer]*

_____

Name of the person duly authorized to sign the Proposal on behalf of the Proposer: ** *[insert complete name of person duly authorized to sign the Proposal]*

_____

Title of the person signing the Proposal: *[insert complete title of the person signing the Proposal]*

_____

Signature of the person named above: *[insert signature of person whose name and capacity are shown above]*

_____

Date signed *[insert date of signing]* **day of** *[insert month]*, *[insert year]*

*: In the case of the Proposal submitted by a Joint Venture specify the name of the Joint Venture as Proposer.

**: Person signing the Proposal shall have the power of attorney given by the Proposer. The power of attorney shall be attached with the Proposal Schedules.

ENCLOSURE(S):

Appendix to Proposal

Schedule of Cost Indexation

If in accordance with GC 13.7, prices shall be adjustable, the following method shall be used to calculate the price adjustment:

Prices payable to the Contractor, in accordance with the Contract, shall be subject to adjustment during performance of the Contract to reflect changes in the cost of labor and material components, in accordance with the following formula:

Pn = a + b1 * (K1n/K1o) + b2 * (K2n/K2o) + b3 * (K3n/K3o) + b4 * (K4n/K4o) + b5 * (K5n/K5o) + b6 * (K6n/K6o) + b7 * (K7n/K7o) + b8 * (K8n/K8o) + b9 * (K9n/K9o) + b10 * (K10n/K10o)

"Pn" is the adjustment multiplier to be applied to the estimated contract value in the relevant currency of the work carried out in period "n", this period being a month unless otherwise stated in the Contract Data;

"a" is a fixed coefficient, stated in the relevant table of adjustment data, representing the non-adjustable portion in contractual payments;

"b1", "b2", "b3", "b4", "b5", "b6", "b7", "b8", "b9" and "b10" "are coefficients representing the estimated proportion of each cost element related to the execution of the Works as stated in the relevant table of adjustment data; such tabulated cost elements may be indicative of resources such as labour, equipment, and materials and these coefficients are:

"K1n", "K2n ", "K3n", "K4n", "K5n", "K6n", "K7n" "K8n", "K9n ", and "K10n": are the current cost indices or reference prices for period "n", expressed in the relevant currency of payment, each of which is applicable to the relevant tabulated cost element on the date 49 days prior to the last day of the period (to which the particular Payment Certificate relates); and

"K1o", "K2o ", "K3o", "K4o", "K5o", "K6o", "K7o" "K8o", "K9o ", and "K10o": are the base cost indices or reference prices, expressed in the relevant currency of payment, each of which is applicable to the relevant tabulated cost element on the Base Date.

The cost indices or reference prices stated in the Table of Adjustment Data shall be used. If their source is in doubt, it shall be determined by the Engineer. For this purpose, reference shall be made to the values of the indices at stated dates (quoted in the fourth and fifth columns respectively of the table).

If the currency in which the Contract price is expressed is different from the currency of the country of origin of the indices, a correction factor will be applied to avoid incorrect adjustments of the Contract price. The correction factor shall be: Z_0 / Z_1, where,

Z_0 = the number of units of currency of the origin of the indices which equal to one unit of the currency of the Contract Price on the Base date, and

Z_1 = the number of units of currency of the origin of the indices which equal to one unit of the currency of the Contract Price on the Date of Adjustment.

Table of Adjustment Data

[In Tables A, B, and C, below, the Proposer shall (a) indicate its amount of local currency payment, (b) indicate its proposed source and base values of indices for the different foreign currency elements of cost, (c) derive its proposed weightings for local and foreign currency payment, and (d) list the exchange rates used in the currency conversion. In the case of very large and/or complex works contracts, it may be necessary to specify several families of price adjustment formulae corresponding to the different works involved.]

Table A. Local Currency

Index code*	Index description*	Source of index*	Base value and date*	Proposer's related currency amount	Proposer's proposed weighting
a	Nonadjustable	-	-	-	A: 0.10
A01	Labor Cost Index	TUIK1*			b1: 0.08-0.10
A02	Other non-metallic mineral products Index	TUIK2*			b2: 0.10-0.14
A03	Iron and steel product Index	TUIK3*			b3: 0.22-0.26
A04	Basic precious metals and other non-ferrous metals	TUIK4*			b4: 0.04-0.06
A05	Solid or liquid fuels	TUIK5*			b5: 0.10-0.14
A06	Wood and cork Index	TUIK6*			b6: 0.01-0.03
A07	Electrical equipment	TUIK7*			b7: 0.03-0.06
A08	Computers and electronic and optical products	TUIK8*			b8: 0.07-0.09
A09	Other material Index	TUIK9*			b9: 0.04-0.06
A10	Mechanical Equipment	TUIK10*			b10: 0.13-0.17
			Total		**1.00**

* ***TUIK1****: The number in the "General" column of the Consumer Price Index (2003=100) Table of Index Numbers by Expenditure Groups published monthly by the Turkish Statistical Institute*

TUIK2: *Number in column 23.9 "Other Non-Metallic Mineral Products" of the Domestic Producer Price Index*

TUIK3: *Number in column 24 "Base Metals" of Domestic Producer Price Index*

TUIK4*: Number in column 24.4 "Basic Precious Metals and Other Non-iron Metals" of Domestic Producer Price Index*

TUIK5: *Number in column 19.2 "Solid or Liquid Fuels" of Domestic Producer Price Index*
TUIK6: *Number in column 16 "Wood and Cork Products (Except Furniture)" of Domestic Producer Price Index*

TUIK7: *Number in column 27.1 "Electric Motors, Generators, Transformers and Electricity Distribution and Control Apparatus" of Domestic Producer Price Index*

TUIK8: *Number in column 26.2 "Computers and Peripheral Equipment" of Domestic Producer Price Index*

TUIK9: *For other work items included in the scope of the construction work subject to the tender, the Domestic Producer Price Index, 2003=100, CPA 2008, published monthly by the Turkish Statistical Institute, the Domestic PPI "General" index in the historical series table according to sections, sections and groups*

TUIK10: *Number in column 28 "Machinery and equipment n.e.c." of Domestic Producer Price Index*

"Base value and date" is the Index value twenty-eight (28) days before the Bid Submission Date, to be provided by the Bidder.

The Bidder will be required to specify weightings within the range such that the total weightings = 1.00.

Table B. Foreign Currency (FC)

State type: ..... *[If the Proposer is allowed to receive payment in foreign currencies this table shall be used. If Proposer wishes to quote in more than one foreign currency (up to three currencies permitted) then this table should be repeated for each foreign currency.]*

Index code	Index description	Source of index	Base value and date	Bidder's related source currency in type/amount	Equivalent in FC1	Bidder's proposed weighting
a	Nonadjustable	—	—	—		A: 0.10
K1	Labor Cost Index					b1: 0.08-0.10
K2	Other non-metallic mineral products Index					b2: 0.10-0.14
K3	Iron and steel product Index					b3: 0.22-0.26
K4	Basic precious metals and other non-ferrous metals					b4: 0.04-0.06
K5	Solid or liquid fuels					b5: 0.10-0.14
K6	Wood and cork Index					b6: 0.01-0.03
K7	Electrical equipment					b7: 0.03-0.06
K8	Computers and electronic and optical products					b8: 0.07-0.09
K9	Other material Index					b9: 0.04-0.06
K10	Mechanical Equipment					b10: 0.13-0.17
				Total		**1.00**

The Bidder shall complete the above table for indices as applicable.

"Base value and date" is the Index value twenty-eight (28) days before the Bid Submission Date, to be provided by the Bidder.

The Bidder will be required to specify weightings within the range such that the total weightings = 1.00.

Table C. Summary of Payment Currencies

Table: Alternative A

For ..... *[insert name of Section of the Works]*

Name of payment currency	**A** **Amount of currency**	**B** **Rate of exchange (local currency per unit of foreign)**	**C** **Local currency equivalent** **C = A x B**	**D** **Percentage of Total Proposal Price (TPP)** **100xC / TPP**
Local currency Turkish Lira		**1.00**		
Foreign currency #1 _____				
Foreign currency #2 _____				
Foreign currency # _____				
Total Proposal Price				**100.00**
Provisional sums expressed in local currency	** to be entered by the Bidder in accordance with the lots for which bids are submitted*		*to be entered by the Bidder in accordance with the lots for which bids are submitted* *TL 100,000,000.00 for Lot 1* *TL 110,000,000.00 for Lot 2*	

			TL 120,000,000.00 for Lot 3	
TOTAL PROPOSAL PRICE (including provisional sumin in TL)				

Schedule of Priced Activities and Sub-activities (LOT 1)

[To be completed by the Proposer]

The total of the prices of the activities in the Schedule of Priced Activities is the Proposer's offer to complete the works on a "single responsibility" basis.

The price of any activity or sub-activity that the Proposer may have omitted is deemed to be included in the price of other activities or sub-activities in the Schedule of Priced Activities and Sub-activities and will not be paid for separately by the Employer.

The Lump Sum Price for each Activity and sub-activity indicated below shall be completed in full by the Proposer. The Proposers' quoted lump sum prices are binding and form part of the Contract upon award. For each of the activities, the Proposer has the option to add up to 3(three) more sub-activities to the existing sub-activities indicated below. The sub-activities submitted at the Bid stage shall form the basis for lump sum payment under the Contract. Any addition to, or deviation from, the sub-activities list as submitted at the Bid stage, shall not constitute grounds for a variation claim during contract implementation.

Basis of Lump Sum Prices: All lump sum prices quoted in this Schedule are based on the Proposer's own independent assessment of all conditions relevant to the execution of the Works, including but not limited to ground and geotechnical conditions, site conditions, existing infrastructure, regulatory requirements, and all other technical, logistical, and administrative factors. Any reference documents provided by the Employer — including geotechnical, survey, or other technical reports — are furnished for informational purposes only and do not constitute a contractual representation of actual conditions. Reference documents furnished by the Employer include, without limitation, Annex C — Geotechnical Data Report (GDR).

The Proposer assumes full design, quantity, and execution risk for all activities and sub-activities priced in this Schedule. No adjustment to any lump sum price shall be made on account of conditions or circumstances differing from those described in any Employer-furnished reference document.

Each lump sum price shall be deemed to include all costs necessary to complete the relevant activity or sub-activities in full conformity with the Contract and the Employer's Requirements, and in compliance with all applicable laws and regulations. Such costs include, without limitation, all materials, labour, plant, temporary works, permits, third-party costs, board or body establishment and operation costs, and all other incidental costs and obligations arising from or in connection with the Works.

ACTIVITY 0 - MOBILIZATION			
Item No	**Deliverable**	**Unit**	**Lump Sum Price (৳)**
0.1	Mobilization Works	L.S.	
TOTAL ACTIVITY 0			

ACTIVITY 1 - DESIGN COMPLETION			
Item No	**Deliverable**	**Unit**	**Lump Sum Price (৳)**
1.1	Preliminary / Concept Design — All Disciplines (submission and approval)	L.S.	
1.2	Detailed Design — Civil & Structural Works (submission and approval)	L.S.	
1.3	Detailed Design — Track / Superstructure Works (submission and approval)	L.S.	
1.4	Detailed Design — Electrification & Systems Works (submission and approval)	L.S.	
1.5	Detailed Design — Tunnel Electromechanical Works (submission and approval)	L.S.	
1.6	Detailed Design — Station Works (submission and approval)	L.S.	
1.7	As-Built Documentation — All Disciplines (submission and acceptance)	L.S.	
TOTAL ACTIVITY 1			

ACTIVITY 2 - RELOCATION OF EXISTING INFRASTRUCTURE			
Item No	**Deliverable**	**Unit**	**Lump Sum Price (৳)**
2.1	Relocation of existing infrastructure and utilities — all locations within Lot 1	L.S.	
TOTAL ACTIVITY 2			

ACTIVITY 3 - ALIGNMENT INFRASTRUCTURE AND SLOPE STABILIZATION (Lot 1 open alignment works between major structures, all as required by the approved detailed design and Employer's Requirements)			
Item No	**Deliverable**	**Unit**	**Lump Sum Price (৳)**
3.1	Excavation and fill works	L.S.	

3.2	Formation and drainage	L.S.	
3.3	Slope stabilization	L.S.	
TOTAL ACTIVITY 3			

ACTIVITY 4 - SOIL IMPROVEMENT WORKS			
Item No	**Deliverable**	**Unit**	**Lump Sum Price (₺)**
4.1	All soil improvement works — all locations within Lot 1 complete (method, depth, and extent as determined by the Contractor's approved detailed design)	L.S.	
TOTAL ACTIVITY 4			

ACTIVITY 5 - STRUCTURAL WORKS: MINOR STRUCTURES (CULVERTS, UNDERPASSES, OVERPASSES AND CUT-AND-COVER TUNNLES ETC.)			
Item No	**Deliverable**	**Unit**	**Lump Sum Price (₺)**
5.1	Culverts and drainage structures	L.S.	
5.2	Retaining walls	L.S.	
TOTAL ACTIVITY 5			

ACTIVITY 6 - STRUCTURAL WORKS: CROSSING OBLIGATIONS (ENGINEERING STRUCTURES)			
Item No	**Deliverable**	**Unit**	**Lump Sum Price (₺)**
6.1	Bridges	L.S.	
6.2	Overpasses / underpasses	L.S.	
6.n	(Additional structures as identified in Employer's Requirements)		
TOTAL ACTIVITY 6			

ACTIVITY 7 - STRUCTURAL WORKS: TUNNELS

Item No	Deliverable	Unit	Lump Sum Price (৳)
7.1	Tunnel works including excavation, lining, invert lowering and slab track	L.S.	
7.2	Tunnel modification works for clearance	L.S.	
7.3	Temporary works, access and logistics	L.S.	
TOTAL ACTIVITY 7			

ACTIVITY 8 - STATION WORKS			
Item No	**Deliverable**	**Unit**	**Lump Sum Price (৳)**
8.1	Station civil and structural construction	L.S.	
8.2	Station architectural finishing works	L.S.	
8.3	Station electromechanical works (lifts, escalators, HVAC, MEP, public areas)	L.S.	
TOTAL ACTIVITY 8			

ACTIVITY 9 - SUPERSTRUCTURE (TRACK) WORKS SUBSTANTIAL COMPLETION			
Item No	**Deliverable**	**Unit**	**Lump Sum Price (৳)**
9.1	Track substructure works— all locations within Lot 1	L.S.	
9.2	Track superstructure works — complete (all locations, per approved design)	L.S.	
9.3	Track maintenance and repair— complete (all locations, per approved design)	L.S.	
9.4	Removal of existing railway	L.S.	
TOTAL ACTIVITY 9			

ACTIVITY 10 - SYSTEMS INSTALLATION SUBSTANTIAL COMPLETION

Item No	Deliverable	Unit	Lump Sum Price (₺)
10.1	Electrification works—all locations within Lot 1	L.S.	
10.2	Signaling works — complete	L.S.	
10.3	Telecom and DAS systems — complete	L.S.	
10.4	Technical buildings (Type-1, Type-2, CTC building)	L.S.	
10.5	Power systems	L.S.	
TOTAL ACTIVITY 10			

ACTIVITY 11 - TESTING AND COMMISSIONING			
Item No	**Deliverable**	**Unit**	**Lump Sum Price (₺)**
11.1	Pre-commissioning checks and static testing — all systems	L.S.	
11.2	Dynamic testing and trial running (track geometry, ride quality, systems integration)	L.S.	
11.3	Electrification and power systems commissioning and acceptance tests	L.S.	
11.4	Tunnel electromechanical systems commissioning and acceptance tests	L.S.	
11.5	Station systems commissioning and acceptance – all stations	L.S.	
11.6	Safety demonstration, regulatory acceptance and authority approvals — all applicable Turkish national authorities and TCDD operational acceptance	L.S.	
11.7	Notified Body (NoBo) engagement, EC Verification process and issuance of EC Verification Certificates — all subsystems, per approved Certification Plan	L.S.	
11.8	Assessment Body (AsBo) engagement, CSM-RA Safety Assessment and issuance of Safety Assessment Report — condition precedent to Taking-Over Certificate	L.S.	
TOTAL ACTIVITY 11			

ACTIVITY 12 - FINAL ACCEPTANCE			
Item No	**Deliverable**	**Unit**	**Lump Sum Price (₺)**

12.1	Completion of all outstanding snagging / punch-list items post Taking-Over	L.S.	
12.2	Submission and acceptance of complete As-Built documentation — all disciplines	L.S.	
12.3	Defects Notification Period obligations (maintenance, remediation, inspections)	L.S.	
TOTAL ACTIVITY 12			

ACTIVITY 13 - DAAB			
Item No	**Deliverable**	**Unit**	**Lump Sum Price (৳)**
13.1	Establishment and operation of the Dispute Avoidance and Adjudication Board (DAAB) in accordance with PCC Clause 21	L.S.	
TOTAL ACTIVITY 13			

PROVISIONAL SUM

Item No.	**Description**	**Unit**	**Amount (৳)**
P.1	Provisional Sums	L.S.	100,000,000.00
P.2	Provisional Sum for Environmental and Social Mitigation Measures	L.S.	100,000,000.00
TOTAL PROVISIONAL SUM			

LOT 1 — SUMMARY PRICE TABLE

ACTIVITY	**Description**	**Lump Sum Price (৳)**
0	Mobilization	
1	Design Completion	
2	Relocation of Existing Infrastructure	
3	Alignment Infrastructure and Slope Stabilization	
4	Soil improvement works	
5	Structural works: Minor structures (culverts, underpasses, overpasses, Cut-and-Cover Tunnels…. Etc.)	
6	Structural works: Crossing obligations (Engineering Structures Bridges and Viaducts)	
7	Structural works: Tunnels	

8	Station works	
9	Superstructure (Track) Works Substantial Completion	
10	Systems Installation Substantial Completion	
11	Testing and Commissioning	
12	Final Acceptance	
13	Establishment and operation of the DAAB	
P.1	Provisional Sum	
P.2	Provisional Sum for Environmental and Social Mitigation Measures	
TOTAL CONTRACT PRICE - LOT 1		

Schedule of Priced Activities and Sub-activities (LOT 2)

The total of the prices of the activities in the Schedule of Priced Activities is the Proposer's offer to complete the works on a "single responsibility" basis.

The price of any activity or sub-activity that the Proposer may have omitted is deemed to be included in the price of other activities or sub-activities in the Schedule of Priced Activities and Sub-activities and will not be paid for separately by the Employer.

The Lump Sum Price for each Activity and sub-activity indicated below shall be completed in full by the Proposer. The Proposers' quoted lump sum prices are binding and form part of the Contract upon award. For each of the activities, the Proposer has the option to add up to 3(three) more sub-Activities to the existing sub-Activities indicated below. The sub-activities submitted at the Bid stage shall form the basis for lump sum payment. Any addition to, or deviation from, the sub-activities list submitted at Bid stage, shall not constitute grounds for a variation claim during contract implementation.

Basis of Lump Sum Prices: All lump sum prices quoted in this Schedule are based on the Proposer's own independent assessment of all conditions relevant to the execution of the Works, including but not limited to ground and geotechnical conditions, site conditions, existing infrastructure, regulatory requirements, and all other technical, logistical, and administrative factors. Any reference documents provided by the Employer — including geotechnical, survey, or other technical reports — are furnished for informational purposes only and do not constitute a contractual representation of actual conditions. Reference documents furnished by the Employer include, without limitation, Annex C — Geotechnical Data Report (GDR).

The Proposer assumes full design, quantity, and execution risk for all activities and sub-activities priced in this Schedule. No adjustment to any lump sum price shall be made on account of conditions or circumstances differing from those described in any Employer-furnished reference document.

Each lump sum price shall be deemed to include all costs necessary to complete the relevant Activities or sub-activities in full conformity with the Contract and the Employer's Requirements, and in compliance with all applicable laws and regulations. Such costs include, without limitation, all materials, labour, plant, temporary works, permits, third-party costs, board or body establishment and operation costs, and all other incidental costs and obligations arising from or in connection with the Works.

ACTIVITY 0 - MOBILIZATION			
Item No	**Deliverable**	**Unit**	**Lump Sum Price (৳)**
0.1	Mobilization Works	L.S.	
TOTAL ACTIVITY 0			

ACTIVITY 1 - DESIGN COMPLETION			
Item No	**Deliverable**	**Unit**	**Lump Sum Price (৳)**
1.1	Preliminary / Concept Design — All Disciplines (submission and approval)	L.S.	
1.2	Detailed Design — Civil & Structural Works (submission and approval)	L.S.	
1.3	Detailed Design — Track / Superstructure Works (submission and approval)	L.S.	
1.4	Detailed Design — Electrification & Systems Works (submission and approval)	L.S.	
1.5	Detailed Design — Tunnel Electromechanical Works (submission and approval)	L.S.	
1.6	Detailed Design — Station Works (submission and approval)	L.S.	
1.7	As-Built Documentation — All Disciplines (submission and acceptance)	L.S.	
TOTAL ACTIVITY 1			

ACTIVITY 2 - RELOCATION OF EXISTING INFRASTRUCTURE			
Item No	**Deliverable**	**Unit**	**Lump Sum Price (৳)**
2.1	Relocation of existing infrastructure and utilities — all locations within Lot 1	L.S.	
TOTAL ACTIVITY 2			

ACTIVITY 3 - ALIGNMENT INFRASTRUCTURE AND SLOPE STABILIZATION (Lot 1 open alignment works between major structures, all as required by the approved detailed design and Employer's Requirements)			
Item No	**Deliverable**	**Unit**	**Lump Sum Price (৳)**
3.1	Excavation and fill works	L.S.	

3.2	Formation and drainage	L.S.	
3.3	Slope stabilization	L.S.	
TOTAL ACTIVITY 3			

ACTIVITY 4 - SOIL IMPROVEMENT WORKS			
Item No	**Deliverable**	**Unit**	**Lump Sum Price (₺)**
4.1	All soil improvement works — all locations within Lot 1 complete (method, depth, and extent as determined by the Contractor's approved detailed design)	L.S.	
TOTAL ACTIVITY 4			

ACTIVITY 5 - STRUCTURAL WORKS: MINOR STRUCTURES (CULVERTS, UNDERPASSES, OVERPASSES AND CUT-AND-COVER TUNNLES ETC.)			
Item No	**Deliverable**	**Unit**	**Lump Sum Price (₺)**
5.1	Culverts and drainage structures	L.S.	
5.2	Retaining walls	L.S.	
TOTAL ACTIVITY 5			

ACTIVITY 6 - STRUCTURAL WORKS: CROSSING OBLIGATIONS (ENGINEERING STRUCTURES)			
Item No	**Deliverable**	**Unit**	**Lump Sum Price (₺)**
6.1	Bridges	L.S.	
6.2	Overpasses / underpasses	L.S.	
6.n	(Additional structures as identified in Employer's Requirements)		
TOTAL ACTIVITY 6			

ACTIVITY 7 - STRUCTURAL WORKS: TUNNELS

Item No	Deliverable	Unit	Lump Sum Price (৳)
7.1	Tunnel works including excavation, lining, invert lowering and slab track	L.S.	
7.2	Tunnel modification works for clearance	L.S.	
7.3	Temporary works, access and logistics	L.S.	
TOTAL ACTIVITY 7			

ACTIVITY 8 - STATION WORKS			
Item No	**Deliverable**	**Unit**	**Lump Sum Price (৳)**
8.1	Station civil and structural construction	L.S.	
8.2	Station architectural finishing works	L.S.	
8.3	Station electromechanical works (lifts, escalators, HVAC, MEP, public areas)	L.S.	
TOTAL ACTIVITY 8			

ACTIVITY 9 - SUPERSTRUCTURE (TRACK) WORKS SUBSTANTIAL COMPLETION			
Item No	**Deliverable**	**Unit**	**Lump Sum Price (৳)**
9.1	Track substructure works— all locations within Lot 1	L.S.	
9.2	Track superstructure works — complete (all locations, per approved design)	L.S.	
9.3	Track maintenance and repair— complete (all locations, per approved design)	L.S.	
9.4	Removal of existing railway	L.S.	
TOTAL ACTIVITY 9			

ACTIVITY 10 - SYSTEMS INSTALLATION SUBSTANTIAL COMPLETION

Item No	Deliverable	Unit	Lump Sum Price (₺)
10.1	Electrification works—all locations within Lot 1	L.S.	
10.2	Signaling works — complete	L.S.	
10.3	Telecom and DAS systems — complete	L.S.	
10.4	Technical buildings (Type-1, Type-2, CTC building)	L.S.	
10.5	Power systems	L.S.	
TOTAL ACTIVITY 10			

ACTIVITY 11 - TESTING AND COMMISSIONING			
Item No	**Deliverable**	**Unit**	**Lump Sum Price (₺)**
11.1	Pre-commissioning checks and static testing — all systems	L.S.	
11.2	Dynamic testing and trial running (track geometry, ride quality, systems integration)	L.S.	
11.3	Electrification and power systems commissioning and acceptance tests	L.S.	
11.4	Tunnel electromechanical systems commissioning and acceptance tests	L.S.	
11.5	Station systems commissioning and acceptance – all stations	L.S.	
11.6	Safety demonstration, regulatory acceptance and authority approvals — all applicable Turkish national authorities and TCDD operational acceptance	L.S.	
11.7	Notified Body (NoBo) engagement, EC Verification process and issuance of EC Verification Certificates — all subsystems, per approved Certification Plan	L.S.	
11.8	Assessment Body (AsBo) engagement, CSM-RA Safety Assessment and issuance of Safety Assessment Report — condition precedent to Taking-Over Certificate	L.S.	
TOTAL ACTIVITY 11			

ACTIVITY 12 - FINAL ACCEPTANCE			
Item No	**Deliverable**	**Unit**	**Lump Sum Price (₺)**

12.1	Completion of all outstanding snagging / punch-list items post Taking-Over	L.S.	
12.2	Submission and acceptance of complete As-Built documentation — all disciplines	L.S.	
12.3	Defects Notification Period obligations (maintenance, remediation, inspections)	L.S.	
TOTAL ACTIVITY 12			

ACTIVITY 13 - DAAB			
Item No	**Deliverable**	**Unit**	**Lump Sum Price (৳)**
13.1	Establishment and operation of the Dispute Avoidance and Adjudication Board (DAAB) in accordance with PCC Clause 21	L.S.	
TOTAL ACTIVITY 13			

PROVISIONAL SUM

Item No.	**Description**	**Unit**	**Amount (৳)**
P.1	Provisional Sums	L.S.	110,000,000.00
P.2	Provisional Sum for Environmental and Social Mitigation Measures	L.S.	110,000,000.00
TOTAL PROVISIONAL SUM			

LOT 2 — SUMMARY PRICE TABLE

ACTIVITY	**Description**	**Lump Sum Price (৳)**
0	Mobilization	
1	Design Completion	
2	Relocation of Existing Infrastructure	
3	Alignment Infrastructure and Slope Stabilization	
4	Soil improvement works	
5	Structural works: Minor structures (culverts, underpasses, overpasses, Cut-and-Cover Tunnels…. Etc.)	
6	Structural works: Crossing obligations (Engineering Structures Bridges and Viaducts)	
7	Structural works: Tunnels	

8	Station works	
9	Superstructure (Track) Works Substantial Completion	
10	Systems Installation Substantial Completion	
11	Testing and Commissioning	
12	Final Acceptance	
13	Establishment and operation of the DAAB	
P.1	Provisional Sum	
P.2	Provisional Sum for Environmental and Social Mitigation Measures	
TOTAL CONTRACT PRICE - LOT 2		

Schedule of Priced Activities and Sub-activities (Lot 3)

The total of the prices of the activities in the Schedule of Priced Activities is the Proposer's offer to complete the works on a "single responsibility" basis.

The price of any activity or sub-activity that the Proposer may have omitted is deemed to be included in the price of other activities or sub-activities in the Schedule of Priced Activities and Sub-activities and will not be paid for separately by the Employer.

The Lump Sum Price for each activity and sub-activity indicated below shall be completed in full by the Proposer. The Proposers' quoted lump sum prices are binding and form part of the Contract upon award. For each of the activities, the Proposer has the option to add up to 3(three) more sub-activities to the existing sub-activities indicated below. The sub-activities submitted at the Bid stage shall form the basis for lump sum payment. Any addition to, or deviation from, the sub-activities list submitted at Bid stage, shall not constitute grounds for a variation claim during contract implementation.

Basis of Lump Sum Prices: All lump sum prices quoted in this Schedule are based on the Proposer's own independent assessment of all conditions relevant to the execution of the Works, including but not limited to ground and geotechnical conditions, site conditions, existing infrastructure, regulatory requirements, and all other technical, logistical, and administrative factors. Any reference documents provided by the Employer — including geotechnical, survey, or other technical reports — are furnished for informational purposes only and do not constitute a contractual representation of actual conditions. Reference documents furnished by the Employer include, without limitation, Annex C — Geotechnical Data Report (GDR).

The Proposer assumes full design, quantity, and execution risk for all activities and sub-activities priced in this Schedule. No adjustment to any lump sum price shall be made on account of conditions or circumstances differing from those described in any Employer-furnished reference document.

Each lump sum price shall be deemed to include all costs necessary to complete the relevant activity or sub-activity in full conformity with the Contract and the Employer's Requirements, and in compliance with all applicable laws and regulations. Such costs include, without limitation, all materials, labour, plant, temporary works, permits, third-party costs, board or body establishment and operation costs, and all other incidental costs and obligations arising from or in connection with the Works.

ACTIVITY 0 - MOBILIZATION			
Item No	**Deliverable**	**Unit**	**Lump Sum Price (৳)**
0.1	Mobilization Works	L.S.	
TOTAL ACTIVITY 0			

ACTIVITY 1 - DESIGN COMPLETION			
Item No	**Deliverable**	**Unit**	**Lump Sum Price (৳)**
1.1	Preliminary / Concept Design — All Disciplines (submission and approval)	L.S.	
1.2	Detailed Design — Civil & Structural Works (submission and approval)	L.S.	
1.3	Detailed Design — Track / Superstructure Works (submission and approval)	L.S.	
1.4	Detailed Design — Electrification & Systems Works (submission and approval)	L.S.	
1.5	Detailed Design — Tunnel Electromechanical Works (submission and approval)	L.S.	
1.6	Detailed Design — Station Works Station (submission and approval)	L.S.	
1.7	As-Built Documentation — All Disciplines (submission and acceptance)	L.S.	
TOTAL ACTIVITY 1			

ACTIVITY 2 - RELOCATION OF EXISTING INFRASTRUCTURE			
Item No	**Deliverable**	**Unit**	**Lump Sum Price (৳)**
2.1	Relocation of existing infrastructure and utilities — all locations within Lot 3	L.S.	
TOTAL ACTIVITY 2			

ACTIVITY 3 - ALIGNMENT INFRASTRUCTURE AND SLOPE STABILIZATION (Lot 1 open alignment works between major structures, all as required by the approved detailed design and Employer's Requirements)			
Item No	**Deliverable**	**Unit**	**Lump Sum Price (৳)**
3.1	Excavation and fill works	L.S.	

3.2	Formation and drainage	L.S.	
3.3	Slope stabilization	L.S.	
TOTAL ACTIVITY 3			

ACTIVITY 4 - SOIL IMPROVEMENT WORKS			
Item No	**Deliverable**	**Unit**	**Lump Sum Price (₺)**
4.1	All soil improvement works — all locations within Lot 1 complete (method, depth, and extent as determined by the Contractor's approved detailed design)	L.S.	
TOTAL ACTIVITY 4			

ACTIVITY 5 - STRUCTURAL WORKS: MINOR STRUCTURES (CULVERTS, UNDERPASSES, OVERPASSES AND CUT-AND-COVER TUNNLES ETC.)			
Item No	**Deliverable**	**Unit**	**Lump Sum Price (₺)**
5.1	Culverts and drainage structures	L.S.	
5.2	Retaining walls	L.S.	
TOTAL ACTIVITY 5			

ACTIVITY 6 - STRUCTURAL WORKS: CROSSING OBLIGATIONS (ENGINEERING STRUCTURES)			
Item No	**Deliverable**	**Unit**	**Lump Sum Price (₺)**
6.1	Bridges	L.S.	
6.2	Overpasses / underpasses	L.S.	
6.n	(Additional structures as identified in Employer's Requirements)		
TOTAL ACTIVITY 6			

ACTIVITY 7 - STRUCTURAL WORKS: TUNNELS

Item No	Deliverable	Unit	Lump Sum Price (৳)
7.1	Tunnel works including excavation, lining, invert lowering and slab track	L.S.	
7.2	Tunnel modification works for clearance	L.S.	
7.3	Temporary works, access and logistics	L.S.	
TOTAL ACTIVITY 7			

ACTIVITY 8 - STATION WORKS			
Item No	**Deliverable**	**Unit**	**Lump Sum Price (৳)**
8.1	Station civil and structural construction	L.S.	
8.2	Station architectural finishing works	L.S.	
8.3	Station electromechanical works (lifts, escalators, HVAC, MEP, public areas)	L.S.	
TOTAL ACTIVITY 8			

ACTIVITY 9 - SUPERSTRUCTURE (TRACK) WORKS SUBSTANTIAL COMPLETION			
Item No	**Deliverable**	**Unit**	**Lump Sum Price (৳)**
9.1	Track substructure works— all locations within Lot 1	L.S.	
9.2	Track superstructure works — complete (all locations, per approved design)	L.S.	
9.3	Track maintenance and repair— complete (all locations, per approved design)	L.S.	
9.4	Removal of existing railway	L.S.	
TOTAL ACTIVITY 9			

ACTIVITY 10 - SYSTEMS INSTALLATION SUBSTANTIAL COMPLETION

Item No	Deliverable	Unit	Lump Sum Price (₺)
10.1	Electrification works—all locations within Lot 1	L.S.	
10.2	Signaling works — complete	L.S.	
10.3	Telecom and DAS systems — complete	L.S.	
10.4	Technical buildings (Type-1, Type-2, CTC building)	L.S.	
10.5	Power systems	L.S.	
TOTAL ACTIVITY 10			

ACTIVITY 11 - TESTING AND COMMISSIONING			
Item No	**Deliverable**	**Unit**	**Lump Sum Price (₺)**
11.1	Pre-commissioning checks and static testing — all systems	L.S.	
11.2	Dynamic testing and trial running (track geometry, ride quality, systems integration)	L.S.	
11.3	Electrification and power systems commissioning and acceptance tests	L.S.	
11.4	Tunnel electromechanical systems commissioning and acceptance tests	L.S.	
11.5	Station systems commissioning and acceptance – all stations	L.S.	
11.6	Safety demonstration, regulatory acceptance and authority approvals — all applicable Turkish national authorities and TCDD operational acceptance	L.S.	
11.7	Notified Body (NoBo) engagement, EC Verification process and issuance of EC Verification Certificates — all subsystems, per approved Certification Plan	L.S.	
11.8	Assessment Body (AsBo) engagement, CSM-RA Safety Assessment and issuance of Safety Assessment Report — condition precedent to Taking-Over Certificate	L.S.	
TOTAL ACTIVITY 11			

ACTIVITY 12 - FINAL ACCEPTANCE			
Item No	**Deliverable**	**Unit**	**Lump Sum Price (₺)**

12.1	Completion of all outstanding snagging / punch-list items post Taking-Over	L.S.	
12.2	Submission and acceptance of complete As-Built documentation — all disciplines	L.S.	
12.3	Defects Notification Period obligations (maintenance, remediation, inspections)	L.S.	
TOTAL ACTIVITY 12			

ACTIVITY 13 - DAAB			
Item No	**Deliverable**	**Unit**	**Lump Sum Price (৳)**
13.1	Establishment and operation of the Dispute Avoidance and Adjudication Board (DAAB) in accordance with PCC Clause 21	L.S.	
TOTAL ACTIVITY 13			

PROVISIONAL SUM

Item No.	**Description**	**Unit**	**Amount (৳)**
P.1	Provisional Sums	L.S.	120,000,000.00
P.2	Provisional Sums for Environmental and Social Mitigation Measures	L.S.	120,000,000.00
TOTAL PROVISIONAL SUM			

LOT 3 — SUMMARY PRICE TABLE

ACTIVITY	**Description**	**Lump Sum Price (৳)**
0	Mobilization	
1	Design Completion	
2	Relocation of Existing Infrastructure	
3	Alignment Infrastructure and Slope Stabilization	
4	Soil improvement works	
5	Structural works: Minor structures (culverts, underpasses, overpasses, Cut-and-Cover Tunnels…. Etc.)	
6	Structural works: Crossing obligations (Engineering Structures Bridges and Viaducts)	
7	Structural works: Tunnels	

8	Station works	
9	Superstructure (Track) Works Substantial Completion	
10	Systems Installation Substantial Completion	
11	Testing and Commissioning	
12	Final Acceptance	
13	Establishment and operation of the DAAB	
P.1	Provisional Sum	
P.2	Provisional Sum for Environmental and Social Mitigation Measures	
TOTAL CONTRACT PRICE - LOT 3		

Schedule of Payments

The Schedule of Priced Activities and Sub-Activities submitted by the Proposer for each Lot shall constitute the Schedule of Payments under Sub-Clause 14.4 of the Conditions of Contract.

Each Deliverable/Sub-Activity specified therein, including up to three (3) additional Sub-Activities proposed by the Proposer under each Activity, shall constitute a separate payment milestone.

Payments shall be made upon the completion and acceptance of the corresponding Deliverable/Sub-Activity in accordance with the Contract and the Employer's Requirements.

The payment amount for each completed and accepted Deliverable/Sub-Activity shall be based on the respective lump-sum price quoted by the Proposer in the Schedule of Priced Activities and Sub-Activities.

Advance payments, Provisional Sums and other payments governed by separate provisions of the Contract shall remain subject to those provisions.

Schedule of Performance Guarantees and Performance Damages

Not Applicable

Technical Proposal Forms

1. Design Proposal

2. Construction Management Strategy

3. Method Statements for construction activities

4. Sustainable Procurement Proposal

5. Code of Conduct for Contractor's Personnel (ES)

6. Work Program

7. Contractor's Personnel Organization Chart

8. Risk Assessment and Proposed Management Plan

9. Contractor's Equipment

10. Subcontractors

11. Local Labour Method Statement

12. AIIB's Covenant of Integrity

13. Others

Design Proposal

The Proposer shall submit a design proposal which addresses as a minimum the following:

(a) organizational arrangements for the design including: team structure, roles and responsibilities, interface arrangements, design review and approval procedures and quality assurance arrangements;

(b) Proposed design deliverables

(c) design statement setting out how the Employers Requirements will be achieved;

(d) Any added value the Proposer will bring including examples of innovative aspects of the design;

(e) comments on the Employer's Requirements, including:

i. status of the information available and relevant design issues for the Works;
ii. comments on any errors, defects or ambiguities noted in the Employer's Requirements; and

(f) Sustainable Procurement: sustainability aspects (e.g. energy efficiency, reduction of wastages, material reduction, sources of materials etc.) demonstrating the Proposer's approach and commitment to sustainable design and construction practices;

(g) strategy for gathering baseline ES information in time to inform design development;

(h) details of how the ES requirements, and any proposal to enhance ES outcomes, will be incorporated into all design stages, and how the implications for the construction phase has been considered;

(i) details of the approach to managing risks, stakeholder engagement, consultation and environmental permits/consents;

(j) value engineering (value management) arrangements, including consideration of ESissues; and

(k) software systems intended to be employed for planning, design, records and reporting.

Construction Management Strategy

The Proposer shall submit a construction management strategy which addresses as a minimum:

(a) organizational arrangements for the construction management including: team structure, roles and responsibilities, interface arrangements, approval procedures and quality assurance arrangements;
(b) subcontractor selection and management;
(c) proposals for induction and training of all personnel attending site;
(d) stakeholder engagement arrangements, in coordination with the Project SEP and grievance mechanism requirements;
(e) arrangements for obtaining,managing and maintaining consents, permits and approvals, including coordination with the Employer/Engineer where such consents, permits and approvals are under the responsibility of the Employer;
(f) site setup proposals including access, accommodation, welfare facilities, traffic interface, arrangement for plant and material storage;
(g) construction phasing proposals including sequence of work and management of conflicting activities;
(h) arrangements to ensure that geotechnical investigations and other advance works are carried out in accordance with the applicable the ESHS requirements;
(i) risk management approach for geotechnical and subsurface aspects of the Works;
(j) quality management system including a draft of the quality management plan;
(k) sustainability aspects demonstrating the Proposer's approach and commitment to sustainable construction practices (e.g. energy efficiency, waste reduction, material optimization and responsible sourcing of materials etc.);
(l) preparation, approval and implementation of the Contractor's ESMP and relevant sub-management plans;
(m) preparation, approval and implementation of the Contractor's Occupational Health and Safety Management Plan and Procedures;
(n) grievance redress mechanisms for worker and community;
(o) reporting arrangements, including topics (that include ESHS) and timescales in accordance with the Particular Conditions – Part B Sub-Clause 4.20;
(p) arrangements for testing upon completion of the works;
(q) arrangements for site handover, including completion of as-built drawings, preparation of operation and maintenance manuals, site reinstatement and any other relevant aspects; and

Method Statement for key construction activities

The Proposer shall provide its method statements for addressing the following risks and carrying out the following construction activities. Each method statement shall describe the proposed approach, the level of staffing and experience, the safe system of work, and the equipment or materials to be used to manage risk or activity in accordance with the Employer's Requirements. Further, the Proposer shall provide its method statement for engaging local labour, in accordance with the Local Labour Method Statement included in this Section IV, Proposal Forms.]

Sustainable Procurement Proposal

*[**Note to Proposer**: In addition to submitting the **required** ES Management Strategies and Implementation Plans, the Proposer shall provide its proposal to demonstrate how additional sustainable procurement requirements, if any, specified in Section VII- Works' Requirements would be addressed. The Proposer shall also provide its proposal, if any, for exceeding the sustainable procurement requirements.]*

Code of Conduct for Contractor's Personnel (ES) Form

CODE OF CONDUCT FOR CONTRACTOR'S PERSONNEL

We are the Contractor, [*enter name of Contractor*]. We have signed a contract with [*enter name of Employer*] for [*enter description of the Works*]. These Works will be carried out at [*enter the Site and other locations where the Works will be carried out*]. Our contract requires us to implement measures to address environmental and social risks related to the Works, including the risks of sexual exploitation, sexual abuse and sexual harassment.

This Code of Conduct is part of our measures to deal with environmental and social risks related to the Works. It applies to all our staff, labourers and other employees at the Works Site or other places where the Works are being carried out. It also applies to the personnel of each subcontractor and any other personnel assisting us in the execution of the Works. All such persons are referred to as "**Contractor's Personnel"** and are subject to this Code of Conduct.

Note to the Proposer:

The minimum content of the Code of Conduct form as set out by the Employer shall not be substantially modified. However, the Proposer may add requirements as appropriate, including to take into account Contract-specific issues/risks.

The Proposer shall initial and submit the Code of Conduct form as part of its proposal.

This Code of Conduct identifies the behavior that we require from all Contractor's Personnel.

Our workplace is an environment where unsafe, offensive, abusive or violent behavior will not be tolerated and where all persons should feel comfortable raising issues or concerns without fear of retaliation.

REQUIRED CONDUCT

Contractor's Personnel shall:

1. carry out his/her duties competently and diligently;
2. comply with this Code of Conduct and all applicable laws, regulations and other requirements, including requirements to protect the health, safety and well-being of other Contractor's Personnel and any other person;
3. maintain a safe working environment including by:
    a. ensuring that workplaces, machinery, equipment and processes under each person's control are safe and without risk to health;
    b. wearing required personal protective equipment;
    c. using appropriate measures relating to chemical, physical and biological substances and agents; and
    d. following applicable emergency operating procedures.

4. report work situations that he/she believes are not safe or healthy and remove himself/herself from a work situation which he/she reasonably believes presents an imminent and serious danger to his/her life or health;
5. treat other people with respect, and not discriminate against specific groups such as women, people with disabilities, migrant workers or children;
6. not engage in any form of Sexual Harassment, which means unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature with other Contractor's or Employer's Personnel;
7. not engage in Sexual Exploitation, which means any actual or attempted abuse of position of vulnerability, differential power or trust, for sexual purposes, including, but not limited to, profiting monetarily, socially or politically from the sexual exploitation of another;
8. not engage in Sexual Abuse, which means the actual or threatened physical intrusion of a sexual nature, whether by force or under unequal or coercive conditions;
9. not engage in any form of sexual activity with individuals under the age of 18, except in case of pre-existing marriage;
10. complete relevant training courses that will be provided related to the environmental and social aspects of the Contract, including on health and safety matters, Sexual Exploitation and Abuse (SEA), and Sexual Harassment (SH);
11. report violations of this Code of Conduct; and
12. not retaliate against any person who reports violations of this Code of Conduct, whether to us or the Employer, or who makes use of the grievance mechanism for Contractor's Personnel or the project's Grievance Redress Mechanism.

RAISING CONCERNS

If any person observes behavior that he/she believes may represent a violation of this Code of Conduct, or that otherwise concerns him/her, he/she should raise the issue promptly. This can be done in either of the following ways:

1. Contact [*enter name of the Contractor's Social Expert with relevant experience in handling sexual exploitation, sexual abuse and sexual harassment cases, or if such person is not required under the Contract, another individual designated by the Contractor to handle these matters*] in writing at this address [ ] or by telephone at [ ] or in person at [ ]; or
2. Call [ ] to reach the Contractor's hotline *(if any)* and leave a message.

The person's identity will be kept confidential, unless reporting of allegations is mandated by the country law. Anonymous complaints or allegations may also be submitted and will be given all due and appropriate consideration. We take seriously all reports of possible misconduct and will investigate and take appropriate action. We will provide warm referrals to service providers that may help support the person who experienced the alleged incident, as appropriate.
There will be no retaliation against any person who raises a concern in good faith about any behavior prohibited by this Code of Conduct. Such retaliation would be a violation of this Code of Conduct.

CONSEQUENCES OF VIOLATING THE CODE OF CONDUCT

Any violation of this Code of Conduct by Contractor's Personnel may result in serious consequences, up to and including termination and possible referral to legal authorities.

FOR CONTRACTOR'S PERSONNEL:

I have received a copy of this Code of Conduct written in a language that I comprehend. I understand that if I have any questions about this Code of Conduct, I can contact [*enter name of Contractor's contact person with relevant experience*] requesting an explanation.

Name of Contractor's Personnel: [insert name]

Signature: _____

Date: (day month year): _____

Countersignature of authorized representative of the Contractor:

Signature: _____

ATTACHMENT 1: Behaviors constituting Sexual Exploitation and Abuse (SEA) and behaviors constituting Sexual Harassment (SH)

ATTACHMENT 1 TO THE CODE OF CONDUCT FORM

BEHAVIORS CONSTITUTING SEXUAL EXPLOITATION AND ABUSE (SEA) AND BEHAVIORS CONSTITUTING SEXUAL HARASSMENT (SH

The following non-exhaustive list is intended to illustrate types of prohibited behaviors.

(1) **Examples of sexual exploitation and abuse** include, but are not limited to:

- A Contractor's Personnel tells a member of the community that he/she can get them jobs related to the work site (e.g. cooking and cleaning) in exchange for sex.
- A Contractor's Personnel that is connecting electricity input to households says that he can connect women headed households to the grid in exchange for sex.
- A Contractor's Personnel rapes, or otherwise sexually assaults a member of the community.
- A Contractor's Personnel denies a person access to the Site unless he/she performs a sexual favor.
- A Contractor's Personnel tells a person applying for employment under the Contract that he/she will only hire him/her if he/she has sex with him/her.

(2) **Examples of sexual harassment in a work context**

- Contractor's Personnel comment on the appearance of another Contractor's Personnel (either positive or negative) and sexual desirability.
- When a Contractor's Personnel complains about comments made by another Contractor's Personnel on his/her appearance, the other Contractor's Personnel comment that he/she is "asking for it" because of how he/she dresses.
- Unwelcome touching of a Contractor's or Employer's Personnel by another Contractor's Personnel.
- A Contractor's Personnel tells another Contractor's Personnel that he/she will get him/her a salary raise, or promotion if he/she sends him/her naked photographs of himself/herself.

Work Program

The Proposer shall set out a work program for design and construction of the Works to be undertaken. The proposed work program shall be developed based on the Employer's Requirements and shall consider the following key activities:

(a) design of the Works, including the submission of the design deliverables, review and approval of the design by the Engineer;

(b) processes and deliverables needed to commence the Works;

(c) execution of the Works within the Time for Completion, highlighting activities imposing constraints on the construction sequence;

(d) testing, commissioning and handing over of the completed Works;

(e) No-objection to the Contractor's MSIPs, which collectively form the C-ESMP, in accordance with the Particular Conditions Part B- Sub-Clause 4.1;

(f) Constitution of the DAAB; and

Contract Personnel Organization Chart

The Proposer shall provide an organization chart illustrating the proposed management structure and reporting lines for delivery of the Contract. The organization chart shall include the names of all Key Personnel.

Risk assessment and Proposed Management Plan

The Proposer should submit a risk register identifying the hazards anticipated during the implementation of the contract.

For the key hazards ranked by impact, the risk register shall include a description of the hazard, an assessment of the potential impact on health and safety, environment, cost, program or other, and the proposed mitigation strategy for each hazard.

*[**Note to the Proposer**: (i) If the contract has been assessed to present potential or actual cyber security risks,, also include method statement, management strategies and implementation plans and innovations, to manage cyber security risks; (ii) if there are assessed supply chain risks, the risk assessment and proposed management plans, must include proposed supply chain risks management plan.]*

FORM EQU
Contractor's Equipment

The Proposer shall provide its strategy for acquiring and maintaining the key equipment that may be needed to execute the Works in accordance with the Work Program. In the strategy, the Proposer shall specify the manufacturer, capacity, model, power rating, age and maintenance condition, and how it will ensure that the equipment is maintained in accordance with manufacturer's specifications for the duration of the Contract. The Proposer shall specify whether it will own, lease, rent or specially manufacture the key equipment.

Item of equipment		
Equipment information	Name of manufacturer	Model and power rating
	Capacity	Year of manufacture
Current status	Current location	
	Details of current commitments	
Source	Indicate source of the equipment ☐ Owned ☐ Rented ☐ Leased ☐ Specially manufactured	

Omit the following information for equipment owned by the Proposer.

Owner	Name of owner	
	Address of owner	
	Telephone	Contact name and title
	Fax	Telex
Agreements	Details of rental / lease / manufacture agreements specific to the project	

Subcontractors

The following Specialized Subcontractors are proposed for parts of the Works permitted by the Employer [state "Not Applicable", if not permitted]

No.	Part of the Works to be subcontracted	Specialized Subcontractor's name and address	Nationality	Specific Experience

The following [add: "other" if Specialized Subcontractors are included above. Proposers are free to propose more than one subcontractor for each part of the Works.] Subcontractors are proposed.

No.	Part of the Works to be subcontracted	Subcontractor's name and address	Nationality	Specific Experience

Personnel

FORM PER -1

Key Personnel qualifications and resource schedule

Proposers should provide the names and details of the suitably qualified Contractor's Representative and Key Personnel to perform the Contract. The data on their experience should be supplied using the Form PER-2 below for each candidate. Proposers should submit a fully detailed Key Personnel resource schedule for the whole contract implementation period. The resource schedule must include:

- the name and role for each Key Personnel position
- The duration of each Key Personnel appointment
- The level of effort (time) allocated to each Key Personnel position and its distribution throughout the contract implementation period.

	Title of position	**Name of candidate**	
1.	*[Contractor's Representative]*		
2.	*[Cyber security Expert/s] [Include as required]*		
Key Personnel for Design			
3.	*[Design Manager]*		
4.	*[Environmental Impact Assessment Specialist]*		
5.	*[Social Impact Assessment Specialist]*		
6.	*[Health and Safety Specialist]*		
7.	*[Biodiversity, Air quality, Noise etc. Specialists]*		
8.	*[Modify/add others as appropriate]*		
Key Personnel for Construction			
9.	*[Construction Manager]*		
10.	*[Environmental Specialist]*		
11.	*[Health and Safety Specialist]*		
12.	*[Social Specialist]*		
13.	*Survey Manager*		
14.	*[***Sexual Exploitation, Abuse and Harassment Expert(s)*** *[Where a Project SEA risks are assessed to be substantial or high, Key Personnel shall include an expert (s) with relevant experience in addressing sexual exploitation, sexual abuse and sexual harassment cases]]*		
15.	*[Modify/add others as appropriate]*		

FORM PER-2:
Resume and Declaration
Contractor's Representative and Key Personnel

Name of Proposer

Position ***[#1]: [title of position from Form PER-1]***		
Personnel information	**Name:**	**Date of birth:**
	Address:	**E-mail:**
	Professional qualifications:	
	Academic qualifications:	
	Language proficiency: *[language and levels of speaking, reading and writing skills]*	
Details		
	Address of employer:	
	Telephone:	**Contact (manager / personnel officer):**
	Fax:	
	Job title:	**Years with present employer:**

Summarize professional experience in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

Project	**Role**	**Duration of involvement**	**Relevant experience**
[main project details]	*[role and responsibilities on the project]*	*[time in role]*	*[describe the experience relevant to this position]*

Declaration

I, the undersigned Key Personnel, certify that to the best of my knowledge and belief, the information contained in this Form PER-2 correctly describes myself, my qualifications and my experience.

I confirm that I am available as certified in the following table and throughout the expected time schedule for this position as provided in the Proposal:

Commitment	**Details**
Commitment to duration of contract:	*[insert period (start and end dates) for which this Key Personnel is available to work on this contract]*
Time commitment:	*[insert the number of days/week/months/ that this Key Personnel will be engaged]*

I understand that any misrepresentation or omission in this Form may:

(a) be taken into consideration during Proposal evaluation;

(b) result in my disqualification from participating in the Proposal;

(c) result in my dismissal from the contract.

Name of Key Personnel: *[insert name]* _____

Signature: _____

Date: (day month year): _____

Countersignature of authorized representative of the Proposer:

Signature: _____

Date: (day month year): _____

Local Labour Method Statement

This Method Statement demonstrates Proposer's approach and methodology to engaging local labour[1] during the execution of the contract in accordance with the requirement specified in ITP 18.2(d).

In developing this Method Statement, the Proposer shall exercise its best efforts to present its approach and methodology for the engagement of local labour that the Proposer will be able to deliver during contract execution and comply with the requirement for allocating not less than 30% of total labour cost[2] to local labour. This Method Statement will be part of the contract and updated as appropriate during contract execution, subject to the Engineer's approval.

The Proposer's approach and methodology for the engagement of local labour, will include but not be limited to the following aspects:

- The total number of labour employed by skill category, expressed as Full-time Equivalent (FTE)[3] over the duration of the contract. Please use the formula below to calculate the FTE over the duration of the contract for each skill category[4]:

$$\text{FTE Skill Category (X) over the duration of the contract} = \frac{\text{Total estimated labour hours over the duration of the contract in Skill Category (X)}}{\text{Number of available full-time labour hours estimated per year multiplied by the estimated duration of the contract (in years)}}$$

- The percentage of total FTE to be filled by local labour per skill category;
- The proposed hiring strategy (e.g., direct hiring, subcontracting);
- Any plans and programs for training, skills development, or upskilling of local labour.

<u>This Method Statement shall not include any financial information (e.g., wages in dollar terms).</u>

Notes for Proposers:

[1] Local labour excludes Contractor's foreign personnel. Foreign personnel who are already working in the Borrower's country on another project/contract shall also not be treated as local labour.

[2] For the purpose of this requirement, the Proposer should consider "costs" as only wages.

[3] FTE should be calculated for each skill category. Skill categories are Skilled, Semi-skilled, and Unskilled labour.

[4] In the formula, the number of available full-time labour hours per worker per year can be estimated based on the specifics of the contract, using a calculation such as: 40 hours/week x 52 weeks/year = 2080 hours/year. This can be multiplied by the estimated duration (in years) of the contract.

AIIB's COVENANT OF INTEGRITY

Invitation of Bids/Proposals/Contract No. _____

To: _____

We declare and undertake that neither we nor anyone, including any member of our joint venture or any of our suppliers, contractors, sub-contractors, consultants, sub-consultants, where these exist, acting on our behalf with due authority or with our knowledge or consent, or facilitated by us, has engaged, or will engage, in any activity prohibited under AIIB's Policy on Prohibited Practices (AIIB's Policy) in connection with the present procurement process and (in case of award) the execution of the above- referenced contract ("Contract"), including any amendments thereto.

We acknowledge that AIIB's participation in the financing of the Contract is subject to AIIB's Policy. As such, we acknowledge that AIIB will not be able to participate in the financing of the Contract if we, including any member of our joint venture, or any of our suppliers, contractors, subcontractors, consultants or sub-consultants are ineligible as a result of a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations or are on any of the following lists (AIIB's Sanction Lists):

[add lists and websites]

We shall permit, and shall cause our sub-contractors, sub-consultants, agents (whether declared or not), personnel, consultants, service providers or suppliers, to permit the AIIB to inspect all accounts, records, and other documents relating to the procurement process and/or Contract execution (in the case of award), and to have them audited by auditors appointed by AIIB.

We agree to preserve all accounts, records, and other documents (whether in hard copy or electronic format) related to the procurement and execution of the Contract.

Name: _____ In the capacity of: _____

Duly empowered to sign in the name and on behalf of[5]: _____

Signature: _____ Dated: _____

[5] In case of joint venture, the name of the joint venture shall be inserted here, and the Covenant shall be signed by the person duly authorized to sign the application, bid or proposal on behalf of the applicant, proposer, bidder or consultant.

Qualification Forms

Form ELI 1.1

Proposer Information Sheet

Date: _____

RFP No.: _____

Page _____ of _____ pages

1. Proposer's Legal Name
2. In case of JV, legal name of each party:
3. Proposer's actual or intended Country of Registration:
4. Proposer's Year of Registration:
5. Proposer's Legal Address in Country of Registration:
6. Proposer's Authorized Representative Information Name: Address: Telephone/Fax numbers: Email Address:

7. Attached are copies of original documents of

☐ Articles of Incorporation (or equivalent documents of constitution or association), and/or documents of registration of the legal entity named above, in accordance with ITP 4.4

☐ In case of JV, letter of intent to form JV or JV agreement, in accordance with ITP 4.1

☐ In case of state-owned enterprise or institution, in accordance with ITP 4.6, documents establishing:

- Legal and financial autonomy
- Operation under commercial law
- Establishing that the Proposer is not under the supervision of the Employer

8. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership. The successful Proposer shall provide additional information on beneficial ownership, using the Beneficial Ownership Disclosure Form.

Form ELI 1.2

Party to JV Information Sheet

(*[The following table shall be filled in for contracts performed by the Proposer, and each member of a Joint Venture]*Date: _____

RFP No.: _____

Page _____ of _____ pages

1. Proposer's Legal Name:
2. JV's Party legal name:
3. JV's Party Country of Registration:
4. JV's Party Year of Registration:
5. JV's Party Legal Address in Country of Registration:
6. JV's Party Authorized Representative Information Name: Address: Telephone/Fax numbers: Email Address:
7. Attached are copies of original documents of ☐ Articles of Incorporation (or equivalent documents of constitution or association), and/or registration documents of the legal entity named above, in accordance with ITP 4.4. ☐ In case of a state-owned enterprise or institution, documents establishing legal and financial autonomy, operation in accordance with commercial law, and that they are not under the supervision of the Employer, in accordance with ITP 4.6. 8. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership. The successful Proposer shall provide additional information on beneficial ownership for each JV member using the Beneficial Ownership Disclosure Form.

Form CON – 2

Historical Contract Non-Performance, Pending Litigation and Litigation History

[The following table shall be filled in for the Proposer and for JVs, each member of the Joint Venture]

Proposer's Name: *[insert full name]*
Date: *[insert day, month, year]*
JV Member's Name: *[insert full name]*
RFP No. and title: *[insert RFP number and title]*
Page *[insert page number]* of *[insert total number]* pages

Non-Performed Contracts in accordance with Section III, Evaluation and Qualification Criteria			
☐ Contract non-performance did not occur since 1st January *[insert year]* ☐ Contract(s) not performed since 1st January *[insert year]*			
Year	**Non-performed portion of contract**	**Contract Identification**	**Total Contract Amount (current value, currency, exchange rate and US$ equivalent)**
[insert year]	*[insert amount and percentage]*	Contract Identification: *[indicate complete contract name/ number, and any other identification]* Name of Employer: *[insert full name]* Address of Employer: *[insert street/city/country]* Reason(s) for nonperformance: *[indicate main reason(s)]*	*[insert amount]*
Pending Litigation, in accordance with Section III, Evaluation and Qualification Criteria			
☐ No pending litigation ☐ Pending litigation			

Year of dispute	Amount in dispute (currency)	Contract Identification	Total Contract Amount (currency), USD Equivalent (exchange rate)
		Contract Identification: _____ Name of Employer: _____ Address of Employer: _____ Matter in dispute: _____ Party who initiated the dispute: _____ Status of dispute: _____	

Litigation History in accordance with Section III, Evaluation and Qualification Criteria

☐ No Litigation History
☐ Litigation History

Year of award	Outcome as percentage of Net Worth	Contract Identification	Total Contract Amount (currency), USD Equivalent (exchange rate)
[insert year]	*[insert percentage]*	Contract Identification: [indicate complete contract name, number, and any other identification] Name of Employer: *[insert full name]* Address of Employer: *[insert street/city/country]* Matter in dispute: *[indicate main issues in dispute]* Party who initiated the dispute: *[indicate "Employer" or "Contractor"]* Reason(s) for Litigation and award decision *[indicate main reason(s)]*	*[insert amount]*

Form CON – 3
Environmental and Social Performance Declaration

[The following table shall be filled in for the Proposer and for JVs, each member of the Joint Venture and each Specialized Subcontractor]

Proposer's Name: *[insert full name]*
Date: *[insert day, month, year]*
Joint Venture Member's or Specialized Subcontractor's Name: *[insert full name]*
RFP No. and title: *[insert RFP number and title]*
Page *[insert page number]* of *[insert total number]* pages

Environmental and Social Performance Declaration in accordance with Section III, Evaluation and Qualification Criteria			
☐ **No suspension or termination of contract**: An employer has not suspended or terminated a contract and/or called the performance security for a contract for reasons related to Environmental and Social (ES) performance since the date specified in Section III, Qualification Criteria, and Requirements, Sub-Factor 2.5. ☐ **Declaration of suspension or termination of contract**: The following contract(s) has/have been suspended or terminated and/or Performance Security called by an employer(s) for reasons related to Environmental and Social (ES) performance since the date specified in Section III, Qualification Criteria, and Requirements, Sub-Factor 2.5. Details are described below:			
Year	**Suspended or terminated portion of contract**	**Contract Identification**	**Total Contract Amount (current value, currency, exchange rate and US$ equivalent)**
[insert year]	*[insert amount and percentage]*	Contract Identification: *[indicate complete contract name/ number, and any other identification]* Name of Employer: *[insert full name]* Address of Employer: *[insert street/city/country]* Reason(s) for suspension or termination: *[indicate main reason(s) e.g. gender-based violence; sexual exploitation or sexual abuse breaches]*	*[insert amount]*
[insert year]	*[insert amount and percentage]*	Contract Identification: *[indicate complete contract name/ number, and any other identification]* Name of Employer: *[insert full name]*	*[insert amount]*

		Address of Employer: *[insert street/city/country]* Reason(s) for suspension or termination: *[indicate main reason(s)]*	
…	…	*[list all applicable contracts]*	…
Performance Security called by an employer(s) for reasons related to ES performance			
Year	**Contract Identification**		**Total Contract Amount (current value, currency, exchange rate and US$ equivalent)**
[insert year]	Contract Identification: *[indicate complete contract name/ number, and any other identification]* Name of Employer: *[insert full name]* Address of Employer: *[insert street/city/country]* Reason(s) for calling of performance security: *[indicate main reason(s) e.g. gender-based violence; sexual exploitation or abuse breaches]*		*[insert amount]*

Form CON – 4

Sexual Exploitation and Abuse (SEA) and/or Sexual Harassment Performance Declaration

[The following table shall be filled in for the Proposer, each member of a Joint Venture and each Subcontractor]

Proposer's Name: *[insert full name]*
Date: *[insert day, month, year]*
Joint Venture Member's or Subcontractor's Name: *[insert full name]*
RFP No. and title: *[insert RFP number and title]*
Page *[insert page number]* of *[insert total number]* pages

SEA and/or SH Declaration

in accordance with Section III, Evaluation and Qualification Criteria

We:

- ☐ (a) have not been subject to disqualification by the Bank for non-compliance with SEA/ SH obligations
- ☐ (b) are subject to disqualification by the Bank for non-compliance with SEA/ SH obligations
- ☐ (c) had been subject to disqualification by the Bank for non-compliance with SEA/ SH obligations. An arbitral award on the disqualification case has been made in our favor.
- ☐ (d) had been subject to disqualification by the Bank for non-compliance with SEA/ SH obligations for a period of two years. We have subsequently demonstrated that we have adequate capacity and commitment to comply with SEA/ SH obligations.
- ☐ (e) had been subject to disqualification by the Bank for non-compliance with SEA/ SH obligations for a period of two years. We have attached evidence demonstrating that we have adequate capacity and commitment to comply with SEA/ SH obligations.

[If (c) above is applicable, attach evidence of an arbitral award reversing the findings on the issues underlying the disqualification.]

[If (d) or (e) above are applicable, provide the following information:]

Period of disqualification: From: _____ To: _____

If previously provided on another Bank financed works contract, details of evidence that demonstrated adequate capacity and commitment to comply with SEA/ SH obligations (**as per (d) above)**

Name of Employer: _____

Name of Project: _____

Contract description: _____

Brief summary of evidence provided: _____

_____ Contact Information: (Tel, email, name of contact person): _____ _____
As an alternative to the evidence under (d), other evidence demonstrating adequate capacity and commitment to comply with SEA/ SH obligations (**as per (e) above)** *[attach details as appropriate]*.

Form FIN – 3.1
Financial Situation and Performance

[The following table shall be filled in for contracts performed by the Proposer, and each member of a Joint Venture]

Proposer's Name: *[insert full name]*
Date: *[insert day, month, year]*
Joint Venture Member's or Specialized Subcontractor's Name: *[insert full name]*
RFP No. and title: *[insert RFP number and title]*
Page *[insert page number]* of *[insert total number]* pages

1. Financial data

Type of Financial information in (currency)	**Historic information for previous** _____*years,* _____ **(amount in currency, currency, exchange rate*, USD equivalent)**				
	Year 1	Year 2	Year 3	Year4	Year 5
Statement of Financial Position (Information from Balance Sheet)					
Total Assets (TA)					
Total Liabilities (TL)					
Total Equity/Net Worth (NW)					
Current Assets (CA)					
Current Liabilities (CL)					
Working Capital (WC)					
Information from Income Statement					
Total Revenue (TR)					
Profits Before Taxes (PBT)					

	Cash Flow Information				
Cash Flow from Operating Activities					

*Refer to ITP 38.1 for the exchange rate

2. Sources of Finance

Specify sources of finance to meet the cash flow requirements on works currently in progress and for future contract commitments.

No.	Source of finance	Amount (US$ equivalent)
1		
2		
3		

3. Financial documents

The Proposer and its parties shall provide copies of financial statements for _____years pursuant Section III, Evaluation and Qualifications Criteria, Sub-factor 3.1. The financial statements shall:

(a) reflect the financial situation of the Proposer or in case of JV member, and not an affiliated entity (such as parent company or group member).

(b) be independently audited or certified in accordance with local legislation.

(c) be complete, including all notes to the financial statements.

(d) correspond to accounting periods already completed and audited.

☐ Attached are copies of financial statements[6] for the _____years required above; and complying with the requirements

[6] If the most recent set of financial statements is for a period earlier than 12 months from the date of Bid, the reason for this should be justified.

Form FIN - 3.2
Average Annual Construction Turnover

[The following table shall be filled in for contracts performed by the Proposer, and each member of a Joint Venture]

Proposer's Name: *[insert full name]*
Date: *[insert day, month, year]*
Joint Venture Member's or Specialized Subcontractor's Name: *[insert full name]*
RFP No. and title: *[insert RFP number and title]*
Page *[insert page number]* of *[insert total number]* pages

	Annual turnover data (construction only)		
Year	**Amount Currency**	**Exchange rate**	**USD equivalent**
[indicate year]	*[insert amount and indicate currency]*		
Average Annual Construction Turnover *			

* See Section III, Evaluation and Qualification Criteria, Sub-Factor 3.2.

Form FIN 3.3
Financial Resources

Specify proposed sources of financing, such as liquid assets, unencumbered real assets, lines of credit, and other financial means, net of current commitments, available to meet the total construction cash flow demands of the subject contract or contracts as indicated in Section III, Evaluation and Qualification Criteria

Source of financing	Amount (US$ equivalent)
1.	
2.	
3.	
4.	

Form FIN – 3.4
Current Contract Commitments / Works in Progress

Proposers and each partner to a JV should provide information on their current commitments on all contracts that have been awarded, or for which a letter of intent or acceptance has been received, or for contracts approaching completion, but for which an unqualified, full completion certificate has yet to be issued.

No.	**Name of Contract**	**Employer's Contact Address, Tel, Fax**	**Value of Outstanding Work [Current US$ Equivalent]**	**Estimated Completion Date**	**Average Monthly Invoicing Over Last Six Months [US$/month)]**
1					
2					
3					
4					
5					

Form EXP - 4.1
General Construction Experience

[The following table shall be filled in for contracts performed by the Proposer, and each member of a Joint Venture]

Proposer's Name: *[insert full name]*
Date: *[insert day, month, year]*
Joint Venture Member's or Specialized Subcontractor's Name: *[insert full name]*
RFP No. and title: *[insert RFP number and title]*
Page *[insert page number]* of *[insert total number]* pages

Starting Year	Ending Year	Contract Identification	Role of Proposer
		Contract name: _____ Brief Description of the Works performed by the Proposer: _____ Amount of contract: _____ Name of Employer: _____ Address: _____	
		Contract name: _____ Brief Description of the Works performed by the Proposer: _____ Amount of contract: _____ Name of Employer: _____ Address: _____	
		Contract name: _____ Brief Description of the Works performed by the Proposer: _____ Amount of contract: _____ Name of Employer: _____ Address: _____	

Form EXP - 4.2(a)

Specific Construction and Contract Management Experience

Proposer's Name: *[insert full name]*
Date: *[insert day, month, year]*
Joint Venture Member's or Specialized Subcontractor's Name: *[insert full name]*
RFP No. and title: *[insert RFP number and title]*
Page *[insert page number]* of *[insert total number]* pages

Similar Contract No.	**Information**			
Contract Identification				
Award date				
Completion date				
Role in Contract	Prime Contractor ☐	Member in JV ☐	Management Contractor ☐	Subcontractor ☐
Total Contract Amount			US$	
If member in a JV or Subcontractor, specify participation in total Contract amount				
Employer's Name:				
Address: Telephone/fax number E-mail:				

Form EXP - 4.2(a) (cont.): Specific Construction and Contract Management Experience (cont.)

Similar Contract No.	Information
Description of the similarity in accordance with Sub-Factor 4.2(a) of Section III:	
1. Amount	
2. Physical size of required works items	
3. Complexity	
4. Methods/Technology	
5. Construction rate for key activities	
6. Other Characteristics	

Form EXP - 4.2(b)
Construction Experience in Key Activities

Proposer's Name: *[insert full name]*
Date: *[insert day, month, year]*
Joint Venture Member's or Specialized Subcontractor's Name: *[insert full name]*
RFP No. and title: *[insert RFP number and title]*
Page *[insert page number]* of *[insert total number]* pages

All Subcontractors for key activities must complete the information in this form as per Section III, Evaluation and Qualification Criteria, Sub-Factor 4.2.

1. Key Activity No One: _____

	Information			
Contract Identification				
Award date				
Completion date				
Role in Contract	Prime Contractor ☐	Member in JV ☐	Management Contractor ☐	Subcontractor ☐
Total Contract Amount			US$	
Quantity (Volume, number, or rate of production, as applicable) performed under the contract per year or part of the year	Total quantity in the contract (i)	Percentage participation (ii)		Actual Quantity Performed (i) x (ii)
Year 1				
Year 2				
Year 3				
Year 4				
Employer's Name:				

	Information
Address: Telephone/fax number E-mail:	

	Information
Description of the key activities in accordance with Sub-Factor 4.2(b) of Section III:	

2. Activity No. Two
3. ……

Form EXP - 4.2(c)
Specific Experience in Managing ES Aspects

[The following table shall be filled in for contracts performed by the Proposer, and each member of a Joint Venture]

Proposer's Name: *[insert full name]*
Date: *[insert day, month, year]*
Joint Venture Member's or Specialized Subcontractor's Name: *[insert full name]*
RFP No. and title: *[insert RFP number and title]*
Page *[insert page number]* of *[insert total number]* pages

1. Key Requirement no 1 in accordance with 4.2 (c): _____

Contract Identification				
Award date				
Completion date				
Role in Contract	Prime Contractor ☐	Member in JV ☐	Management Contractor ☐	Subcontractor ☐
Total Contract Amount			US$	
Details of relevant experience				

2. Key Requirement no 2 in accordance with 4.2 (c): _____

3. Key Requirement no 3 in accordance with 4.2 (c): _____

4. ....

Others

Commercial or contractual aspects of the RFP documents that the Proposer would like to discuss with the Employer during clarifications.

Form of Proposal Security – Demand Guarantee

Beneficiary: _____

Request for Proposals No: _____

Date: _____

PROPOSAL GUARANTEE No.: _____

Guarantor: _____

We have been informed that _____ (hereinafter called "the Applicant") has submitted or will submit to the Beneficiary its Proposal (hereinafter called "the Proposal") for the execution of _____ under Request for Proposals No. _____ ("the RFP").

Furthermore, we understand that, according to the Beneficiary's conditions, Proposals must be supported by a Proposal guarantee.

At the request of the Applicant, we, as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of _____ (_____) upon receipt by us of the Beneficiary's complying demand, supported by the Beneficiary's statement, whether in the demand itself or a separate signed document accompanying or identifying the demand, stating that either the Applicant:

(a) has withdrawn its Proposal prior to the Proposal validity expiry date set forth in the Applicant's Letter of Proposal, or any extension thereto provided by the Applicant; or

(b) having been notified of the acceptance of its Proposal by the Beneficiary prior to the expiry date of the Proposal validity or any extension thereto provided by the Applicant, (i) has failed to execute the contract agreement, or (ii) has failed to furnish the Performance Security and, if required, an Environmental and Social (ES) Performance Security, in accordance with the Instructions to Proposers ("ITP") of the Beneficiary's RFP document.

This guarantee will expire: (a) if the Applicant is the successful Proposer, upon our receipt of copies of the contract agreement signed by the Applicant and the Performance Security and, if required, an Environmental and Social (ES) Performance Security, issued to the Beneficiary in relation to such contract agreement; or (b) if the Applicant is not the successful Proposer, upon the earlier of (i) our receipt of a copy of the Beneficiary's notification to the Applicant of the results of the RFP process; or (ii) twenty-eight days after the expiry date ofthe Proposal validity.

Consequently, any demand for payment under this guarantee must be received by us at the office indicated above on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758.

_____

[signature(s)]

SECTION V - ELIGIBLE COUNTRIES

Eligibility for the Provision of Goods, Works and non-consulting Services in Bank-Financed Procurement

In reference to **ITP 4.8** and **ITP 5.1**, for the information of the Proposers, at the present time firms, goods and services from the following countries are excluded from this RFP process:

Under **ITP 4.8(a)** and **ITP 5.1**: *none*

Under **ITP 4.8(b)** and **ITP 5.1**: *none*

SECTION VI - FRAUD AND CORRUPTION
(Section VI shall not be modified)

1. Purpose

1.1 The Bank's Anti-Corruption Guidelines and this annex apply with respect to procurement under Bank Investment Project Financing operations.

2. Requirements

2.1 The Bank requires that Borrowers (including beneficiaries of Bank financing); bidders (applicants/proposers), consultants, contractors and suppliers; any sub-contractors, sub-consultants, service providers or suppliers; any agents (whether declared or not); and any of their personnel, observe the highest standard of ethics during the procurement process, selection and contract execution of Bank-financed contracts, and refrain from Fraud and Corruption.

2.2 To this end, the Bank:

a. Defines, for the purposes of this provision, the terms set forth below as follows:

i. "corrupt practice" is the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;

ii. "fraudulent practice" is any act or omission, including misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain financial or other benefit or to avoid an obligation;

iii. "collusive practice" is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party;

iv. "coercive practice" is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;

v. "obstructive practice" is:

(a) deliberately destroying, falsifying, altering, or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede a Bank investigation into allegations of a corrupt, fraudulent, coercive, or collusive practice; and/or threatening, harassing, or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation; or

(b) acts intended to materially impede the exercise of the Bank's inspection and audit rights provided for under paragraph 2.2 e. below.

b. Rejects a proposal for award if the Bank determines that the firm or individual recommended for award, any of its personnel, or its agents, or its sub-consultants, sub-contractors, service providers, suppliers and/ or their employees, has, directly or indirectly, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices in competing for the contract in question;

c. In addition to the legal remedies set out in the relevant Legal Agreement, may take other appropriate actions, including declaring misprocurement, if the Bank determines at any time that representatives of the Borrower or of a recipient of any part of the proceeds of the loan engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices during the procurement process, selection and/or execution of the contract in question, without the Borrower having taken timely and appropriate action satisfactory to the Bank to address such practices when they occur, including by failing to inform the Bank in a timely manner at the time they knew of the practices;

d. Pursuant to the Bank's Anti-Corruption Guidelines, and in accordance with the Bank's prevailing sanctions policies and procedures, may sanction a firm or individual, either indefinitely or for a stated period of time, including by publicly declaring such firm or individual ineligible (i) to be awarded or otherwise benefit from a Bank-financed contract, financially or in any other manner;[22] (ii) to be a nominated[23] sub-contractor, consultant, manufacturer or supplier, or service provider of an otherwise eligible firm being awarded a Bank-financed contract; and (iii) to receive the proceeds of any loan made by the Bank or otherwise to participate further in the preparation or implementation of any Bank-financed project;

e. Requires that a clause be included in bidding/request for proposals documents and in contracts financed by a Bank loan, requiring (i) bidders (applicants/proposers),, consultants, contractors, and suppliers, and their sub-contractors, sub-consultants, service providers, suppliers, agents personnel, permit the Bank to inspect[24] all accounts, records and other documents relating to relating to the procurement process, selection and/or contract execution, and to have them audited by auditors appointed by the Bank.

---

22 For the avoidance of doubt, a sanctioned party's ineligibility to be awarded a contract shall include, without limitation, (i) applying for pre-qualification, expressing interest in a consultancy, and bidding, either directly or as a nominated sub-contractor, nominated consultant, nominated manufacturer or supplier, or nominated service provider, in respect of such contract, and (ii) entering into an addendum or amendment introducing a material modification to any existing contract.

23 A nominated sub-contractor, nominated consultant, nominated manufacturer or supplier, or nominated service provider (different names are used depending on the particular bidding document) is one which has been: (i) included by the bidder in its pre-qualification application or bid because it brings specific and critical experience and know-how that allow the bidder to meet the qualification requirements for the particular bid; or (ii) appointed by the Borrower.

24 Inspections in this context usually are investigative (i.e., forensic) in nature. They involve fact-finding activities undertaken by the Bank or persons appointed by the Bank to address specific matters related to investigations/audits, such as evaluating the veracity of an allegation of possible Fraud and Corruption, through the appropriate mechanisms. Such activity includes but is not limited to: accessing and examining a firm's or individual's financial records and information, and making copies thereof as relevant; accessing and examining any other documents, data and information (whether in hard copy or electronic format) deemed relevant for the investigation/audit, and making copies thereof as relevant; interviewing staff and other relevant individuals; performing physical inspections and site visits; and obtaining third party verification of information.

PART 2 –EMPLOYER'S REQUIREMENTS

SECTION VII. EMPLOYER'S REQUIREMENTS

Table of Contents

1 Project Overview 172
1.1 Project Description 172
1.2 Project Objectives 173
1.3 Operational Characteristics and Demand 173
1.3.1 Current Operational Status of the Line 173
1.3.2 Line Capacity, Travel Time and Timetable 174
1.3.3 Existing Freight and Passenger Operations 174
1.4 Reference Lengths and Chainages 175
1.5 Contract Boundary with the Kars–Georgia Border/BTK Section 175
1.6 Key Technical and Operational Performance Requirements 176
1.7 Basis of Performance Requirements 178

1.7.1 Journey Time – Baseline and Target 178
1.7.2 Headway, Crossing Interval and Line Capacity 178
1.7.3 Energy Performance 179

2 Project Governance and Institutional Framework 180
2.1 Key Project Stakeholders.....180
2.2 Roles and Responsibilities.....180
2.3 Contractual and Operational Interfaces 181
2.4 Contract Interpretation and Document Hierarchy.....181

3 Project Reference Data 184
3.1 Site Information 184
3.1.1 Site Information Classification 184
3.2 Level Crossings.....186
3.3 Tunnels.....187
3.3.1 Inventory 187
3.3.2 Reference Data 189
3.3.2.1 Employer's Reliance Data 189
3.3.2.2 Status of the Inventory at the Tender Stage. 189
3.3.2.3 Fixed requirements 189
3.3.2.4 Lump Sum Pricing Principles 189
3.3.2.5 Deviations from Reference Data 189
3.3.2.6 Additional Slab Track. 190
3.4 Bridges, Culverts, Overpasses and Underpasses 190
3.4.1 Inventory 190
3.4.2 Reference Data 190
3.4.2.1 Employer's Reliance Data 190
3.5 Stations.....191
3.5.1 Inventory 191
3.5.2 Reference Data 191
3.5.2.1 Employer's Reliance Data 191
3.6 Specifications.....192
3.7 Drawings.....196
3.8 Supplementary Typical Drawings.....198
3.9 Supplementary Information 200
3.9.1 ESIA Package – Environmental and Social Management Instruments 200
3.9.2 Project Context – ETMIC Programme 201
3.10 Key Quantities (Divriği–Kars) All Lots Combined.....201
3.10.1 Tunnels 201
3.10.2 Bridges, Culverts, Overpasses & Underpasses 201
3.10.3 Retaining Walls 202
3.10.4 Passenger Platform Renewals 202
3.10.5 Level Crossings 202
3.10.6 Technical Buildings 202
3.10.7 Traction Power Substations 202
3.10.8 Electrification and Power Supply 203
3.10.9 Signaling, Telecommunications and DAS: 203

4 Lot Structure and Geographic Breakdown.....204

5 Lot 1 Divriği – Erzincan Section 205
5.1 Existing Railway Characteristics 206
5.1.1 Alignment & Trackworks 206
5.1.2 Structural and Design 209
5.1.3 Infrastructure and Drainage 209
5.1.4 Level Crossings 209
5.1.5 Tunnels 210
5.1.6 Bridges, Culverts, Overpasses and Underpasses 216
5.1.7 Signaling 217
5.1.8 Telecommunication 217
5.1.9 Communication Lines 218
5.1.10 Radio Communication System 218
5.1.11 Station Passenger Information Systems 218
5.1.12 Power Systems219
5.1.13 Maintenance and Rehabilitation 219
5.1.14 Restricted Access 219
5.2 Scope of Works.....220
5.2.1 Design Works 220
5.2.1.1 Alignment and Detail Design Works 220
5.2.1.2 Geological and Geotechnical Designs 221
5.2.1.3 Civil Structure Designs 221
5.2.1.4 Power Supply and Electrification Designs 221
5.2.1.5 154 kV Grid Connection and Power Transmission Lines 222
5.2.1.6 Tunnel Electromechanical Works**Hata! Yer işareti tanımlanmamış.**
5.2.1.7 Signaling, Telecommunication and Support Systems Design **Hata! Yer işareti tanımlanmamış.**
5.2.2 Construction Works 222
5.2.2.1 Track Substructure and Superstructure Maintenance and Repair Works 223
5.2.2.2 Enlargement of Tunnel Clearance for Electrification Integration 224
5.2.2.3 Structural Modifications of Bridges, Culverts, Overpasses and Underpasses 224
5.2.2.4 Construction of Retaining Walls 224
5.2.2.5 Renewal of Station Platforms 225
5.2.2.6 Improvement and Upgrading of Level Crossings 225
5.2.2.7 Construction of Technical Buildings 225
5.2.2.8 Establishment of Electrification and Power Supply System 225
5.2.2.9 Establishment of Signaling and Telecommunication System 225
5.2.2.10 Establishment of Distributed Acoustic Sensing (DAS) System 226
5.2.3 Track Substructure and Superstructure Maintenance and Repair 226
5.2.3.1 Technical Requirements and Execution Method 231
5.2.3.2 Items Deemed Included in the Lump Sum Contract Price 231
5.2.3.3 Measurement and Payment 232
5.2.4 Enlargement of Tunnel Clearance for Electrification Integration 233
5.2.4.1 Technical Requirements and Execution Method 234
5.2.4.2 Contractor's Responsibilities 235
5.2.4.3 Temporary and Permanent Works 235
5.2.4.4 Tunnel Construction Schedule 236
5.2.4.5 Items Deemed Included in the Lump Sum Contract Price 236
5.2.4.6 Measurement and Payment 239
5.2.5 Structural Modification of Bridges, Culverts, Overpasses & Underpasses 240
5.2.5.1 Items Deemed Included in the Lump Sum Contract Price 240
5.2.5.2 Measurement and Payment 243
5.2.6 Construction of Retaining Walls 243

5.2.6.1 Technical Requirements and Execution Method 244
5.2.6.2 Items Deemed Included in the Lump Sum Contract Price 244
5.2.6.3 Measurement and Payment 246
5.2.7 Renewal of Station Platforms 247
5.2.7.1 Technical Requirements and Execution Method 249
5.2.7.2 Items Deemed Included in the Lump Sum Contract Price 249
5.2.7.3 Measurement and Payment 250
5.2.8 Improvement and Upgrading of Level Crossings 251
5.2.8.1 Items Deemed Included in the Lump Sum Contract Price 252
5.2.8.2 Measurement and Payment 254
5.2.9 Construction of Technical Buildings 255
5.2.9.1 Measurement and Payment 258
5.2.10 Establishment of Electrification and Power Supply System 260
5.2.10.1 Technical Requirements and Execution Method 260
5.2.10.2 Measurement and Payment 263
5.2.11 Establishment of Signaling and Telecommunication System **Hata! Yer işareti tanımlanmamış.**
5.2.11.1 Technical Requirements and Execution Method **Hata! Yer işareti tanımlanmamış.**
5.2.11.2 Measurement and Payment **Hata! Yer işareti tanımlanmamış.**
5.3 Testing and Commissioning Requirements 264

6 Lot 2 Erzincan–Erzurum Section 265
6.1 Existing Railway Characteristics 266
6.1.1 Alignment & Trackworks 266
6.1.2 Structural and Design 269
6.1.3 Infrastructure and Drainage 269
6.1.4 Level Crossings 269
6.1.5 Tunnels 271
6.1.6 Bridges, Culverts, Overpasses and Underpasses 274
6.1.7 Signaling 274
6.1.8 Telecommunication 275
6.1.9 Communication Lines 275
6.1.10 Radio Communication System 276
6.1.11 Station Passenger Information Systems 276
6.1.12 Power Systems276
6.1.13 Maintenance and Rehabilitation 276
6.1.14 Restricted Access 277
6.2 Scope of Works.....277
6.2.1 Design Works 277
6.2.1.1 Alignment and Detail Design Works 278
6.2.1.2 Geological and Geotechnical Designs 278
6.2.1.3 Civil Structure Designs 278
6.2.1.4 Power Supply and Electrification Designs 279
6.2.1.5 154 kV Grid Connection and Power Transmission Lines 279
6.2.1.6 Tunnel Electromechanical Works**Hata! Yer işareti tanımlanmamış.**
6.2.1.7 Signaling, Telecommunication and Support Systems Design **Hata! Yer işareti tanımlanmamış.**
6.2.2 Construction Works 280
6.2.2.1 Track Substructure and Superstructure Maintenance and Repair Works 280
6.2.2.2 Enlargement of Tunnel Clearance for Electrification Integration 281
6.2.2.3 Structural Modifications of Bridges, Culverts, Overpasses and Underpasses 282
6.2.2.4 Construction of Retaining Walls 282

6.2.2.5 Renewal of Station Platforms 282
6.2.2.6 Improvement and Upgrading of Level Crossings 282
6.2.2.7 Construction of Technical Buildings 283
6.2.2.8 Establishment of Electrification and Power Supply System 283
6.2.2.9 Establishment of Signaling and Telecommunication System 283
6.2.2.10 Establishment of Distributed Acoustic Sensing (DAS) System 283
6.2.3 Track Substructure and Superstructure Maintenance and Repair 284
6.2.3.1 Technical Requirements and Execution Method 289
6.2.3.2 Items Deemed Included in the Lump Sum Contract Price 289
6.2.3.3 Measurement and Payment 290
6.2.4 Enlargement of Tunnel Clearance for Electrification Integration 291
6.2.4.1 Technical Requirements and Execution Method 293
6.2.4.2 Contractor's Responsibilities 293
6.2.4.3 Temporary and Permanent Works 294
6.2.4.4 Tunnel Construction Schedule 294
6.2.4.5 Items Deemed Included in the Lump Sum Contract Price 295
6.2.4.6 Measurement and Payment 297
6.2.5 Structural Modification of Bridges, Culverts, Overpasses & Underpasses 298
6.2.5.1 Items Deemed Included in the Lump Sum Contract Price 299
6.2.5.2 Measurement and Payment 301
6.2.6 Construction of Retaining Walls 302
6.2.6.1 Technical Requirements and Execution Method 303
6.2.6.2 Items Deemed Included in the Lump Sum Contract Price 303
6.2.6.3 Measurement and Payment 305
6.2.7 Renewal of Station Platforms 306
6.2.7.1 Technical Requirements and Execution Method 308
6.2.7.2 Items Deemed Included in the Lump Sum Contract Price 308
6.2.7.3 Measurement and Payment 309
6.2.8 Improvement and Upgrading of Level Crossings 310
6.2.8.1 Items Deemed Included in the Lump Sum Contract Price 311
6.2.8.2 Measurement and Payment 313
6.2.9 Construction of Technical Buildings 314
6.2.9.1 Measurement and Payment 317
6.2.10 Establishment of Electrification and Power Supply System 319
6.2.10.1 Technical Requirements and Execution Method 319
6.2.10.2 Measurement and Payment 322
6.2.11 Establishment of Signaling and Telecommunication System **Hata! Yer işareti tanımlanmamış.**
6.2.11.1 Technical Requirements and Execution Method **Hata! Yer işareti tanımlanmamış.**
6.2.11.2 Measurement and Payment **Hata! Yer işareti tanımlanmamış.**
6.3 Testing and Commissioning Requirements 323

7 Lot 3 Erzurum-Kars Section 324
7.1 Existing Railway Characteristics 326
7.1.1 Alignment & Trackworks 326
7.1.2 Structural and Design 328
7.1.3 Infrastructure and Drainage 328
7.1.4 Level Crossings 328
7.1.5 Tunnels 330
7.1.6 Bridges, Culverts, Overpasses and Underpasses 334
7.1.7 Signaling 334
7.1.8 Telecommunication 335

7.1.9 Communication Lines 335
7.1.10 Radio Communication System 335
7.1.11 Station Passenger Information Systems 336
7.1.12 Power Systems336
7.1.13 Maintenance and Rehabilitation 336
7.1.14 Restricted Access 336
7.2 Scope of Works.....337
7.2.1 Design Works 337
7.2.1.1 Alignment and Detail Design Works 338
7.2.1.2 Geological and Geotechnical Designs 338
7.2.1.3 Civil Structure Designs 338
7.2.1.4 Power Supply and Electrification Designs 338
7.2.1.5 154 kV Grid Connection and Power Transmission Lines 339
7.2.1.6 Tunnel Electromechanical Works**Hata! Yer işareti tanımlanmamış.**
7.2.1.7 Signaling, Telecommunication and Support Systems Design **Hata! Yer işareti tanımlanmamış.**
7.2.2 Construction Works 340
7.2.2.1 Track Substructure and Superstructure Maintenance and Repair Works 340
7.2.2.2 Enlargement of Tunnel Clearance for Electrification Integration 341
7.2.2.3 Structural Modifications of Bridges, Culverts, Overpasses and Underpasses 341
7.2.2.4 Construction of Retaining Walls 342
7.2.2.5 Renewal of Station Platforms 342
7.2.2.6 Improvement and Upgrading of Level Crossings 342
7.2.2.7 Construction of Technical Buildings 342
7.2.2.8 Establishment of Electrification and Power Supply System 342
7.2.2.9 Establishment of Signaling and Telecommunication System 343
7.2.2.10 Establishment of Distributed Acoustic Sensing (DAS) System 343
7.2.3 Track Substructure and Superstructure Maintenance and Repair 343
7.2.3.1 Technical Requirements and Execution Method 349
7.2.3.2 Items Deemed Included in the Lump Sum Contract Price 349
7.2.3.3 Measurement and Payment 350
7.2.4 Enlargement of Tunnel Clearance for Electrification Integration 351
7.2.4.1 Technical Requirements and Execution Method 352
7.2.4.2 Contractor's Responsibilities 353
7.2.4.3 Temporary and Permanent Works 353
7.2.4.4 Tunnel Construction Schedule 354
7.2.4.5 Items Deemed Included in the Lump Sum Contract Price 354
7.2.4.6 Measurement and Payment 357
7.2.5 Structural Modification of Bridges, Culverts, Overpasses & Underpasses 358
7.2.5.1 Items Deemed Included in the Lump Sum Contract Price 359
7.2.5.2 Measurement and Payment 361
7.2.6 Construction of Retaining Walls 361
7.2.6.1 Technical Requirements and Execution Method **Hata! Yer işareti tanımlanmamış.**
7.2.6.2 Items Deemed Included in the Lump Sum Contract Price **Hata! Yer işareti tanımlanmamış.**
7.2.6.3 Measurement and Payment **Hata! Yer işareti tanımlanmamış.**
7.2.7 Renewal of Station Platforms 362
7.2.7.1 Technical Requirements and Execution Method **Hata! Yer işareti tanımlanmamış.**
7.2.7.2 Items Deemed Included in the Lump Sum Contract Price **Hata! Yer işareti tanımlanmamış.**
7.2.7.3 Measurement and Payment **Hata! Yer işareti tanımlanmamış.**
7.2.8 Improvement and Upgrading of Level Crossings 362
7.2.8.1 Items Deemed Included in the Lump Sum Contract Price 363
7.2.8.2 Measurement and Payment 365
7.2.9 Construction of Technical Buildings 366
7.2.9.1 Technical Requirements and Execution Method 372

7.2.9.2 Contractor's Responsibilities 376
7.2.9.3 Items Deemed Included in the Lump Sum Contract Price 376
7.2.9.4 Measurement and Payment 378
7.2.10 Establishment of Electrification and Power Supply System 380
7.2.10.1 Technical Requirements and Execution Method 381
7.2.10.2 Measurement and Payment 384
7.2.11 Establishment of Signaling and Telecommunication System **Hata! Yer işareti tanımlanmamış.**
7.2.11.1 Technical Requirements and Execution Method **Hata! Yer işareti tanımlanmamış.**
7.2.11.2 Measurement and Payment **Hata! Yer işareti tanımlanmamış.**
7.2.12 Establishment of Distributed Acoustic Sensing (DAS) System **Hata! Yer işareti tanımlanmamış.**
7.2.12.1 Technical Requirements and Execution Method **Hata! Yer işareti tanımlanmamış.**
7.2.12.2 Measurement and Payment **Hata! Yer işareti tanımlanmamış.**
7.3 Testing and Commissioning Requirements 384

8 Applicable Standards and Regulations.....385
8.1 General.....385
8.2 RAMS and Interoperability.....385
8.3 UIC Leaflets (Explicit) 385
8.4 Track and Civil 385
8.5 Signaling & Telecom 386
8.6 Power 389
8.7 National.....389
8.8 Standards Prevail Over Drawings.....390
8.9 Design Life.....390

9 Construction Works Programme.....391
9.1 TCDD Collaboration Protocol 391
9.2 Possession Types and Availability Baseline.....392
9.3 Possession Planning and Confirmation Cycle 394
9.4 Seasonal Restrictions and Blackout Periods 394
9.5 Possession Risk Allocation 396
9.5.1 Standing Time.397
9.5.2 Late Handback397
9.5.3 Possession Coordination Committee. 397
9.6 Railway Safety Plan.....397
9.7 Annexes to be Provided 398
9.8 Obligations Arising from the Collaboration Protocol.....399

10 Programme Governance 401
10.1 Scheduling Software and Format.....401
10.2 Programme levels and submission.....401
10.3 Updates, Recovery and Revision 401
10.4 Integrated Master Programme and Inter-lot Interfaces.....402
10.5 Effect of the Milestones.....403

11 Construction Requirements.....404
11.1 General.....404
11.2 Dismantling.....406

12 Environmental and Social (ES) Requirements 407
12.1 Overarching Objectives of the Environmental and Social Requirements 407
12.2 Applicable Legal, Policy and Contractual Framework.....407
12.3 Design–Build Model.....410
12.4 ESS1 – Assessment and Management of Environmental and Social Risks and Impacts 411
12.4.1 Status of ESIA and ESMP 411
12.4.2 Finalization of the ESIA and ESMP by the Contractor 412
12.4.3 Management and Mitigation Measures 413
12.4.4 C-ESMP 414
12.4.5 Sub-Management Plans under C-ESMP 415
12.4.6 Status of SEP 416
12.4.7 World Bank No-Objection as a Condition Precedent to Construction 417
12.4.8 Integration of E&S Requirements into the Work Programme 420
12.5 Additional Environmental and Social Studies and Surveys 421
12.5.1 General Requirement 421
12.5.2 Types of Additional Studies and Surveys 421
12.5.3 Timing and Integration 422
12.5.4 Standards and Methodology 423
12.5.5 Review, Approval and Disclosure 424
12.5.6 Cost and Responsibility 424
12.6 Associated Facilities and Project Facilities.....425
12.6.1 Definition and Scope 425
12.6.2 Environmental and Social Scope 425
12.6.3 Approval, Permits and Land Access (Project Facilities) 426
12.6.4 Subcontractors and Third Parties 428
12.7 ESS2 – Labor and Working Conditions 428
12.7.1 Contractor's Labor Management Plan (C-LMP) 428
12.7.2 Local Employment and Local Workforce Development 431
12.7.3 Subcontractors and Labor Service Providers 432
12.8 ESS3 – Resource Efficiency and Pollution Prevention 445
12.9 ESS4 – Community Health, Safety and Security.....449
12.9.1 Community Health and Safety Risk Assessment 449
12.9.2 Traffic and Road Safety 450
12.9.3 Management of Construction-Related Community Risks 451
12.9.4 Emergency Preparedness and Response 452
12.9.5 Security Arrangements 453
12.9.6 Monitoring, Incident Reporting and Corrective Action 453
12.9.7 Subcontractors and Third Parties 454
12.10 ESS5 – Land Acquisition, Resettlement and Livelihood.....454
12.10.1 Allocation of Roles and Responsibilities 454
12.10.2 Contractor's Obligations under ESS5 455
12.10.3 Informal Users and Livelihood Impacts 456
12.10.4 Provisional Sums and ESS5-Related Mitigation Measures 457
12.10.5 Monitoring, Audit and Oversight 458
12.11 Provisional Sums for Environmental and Social Outcomes 459

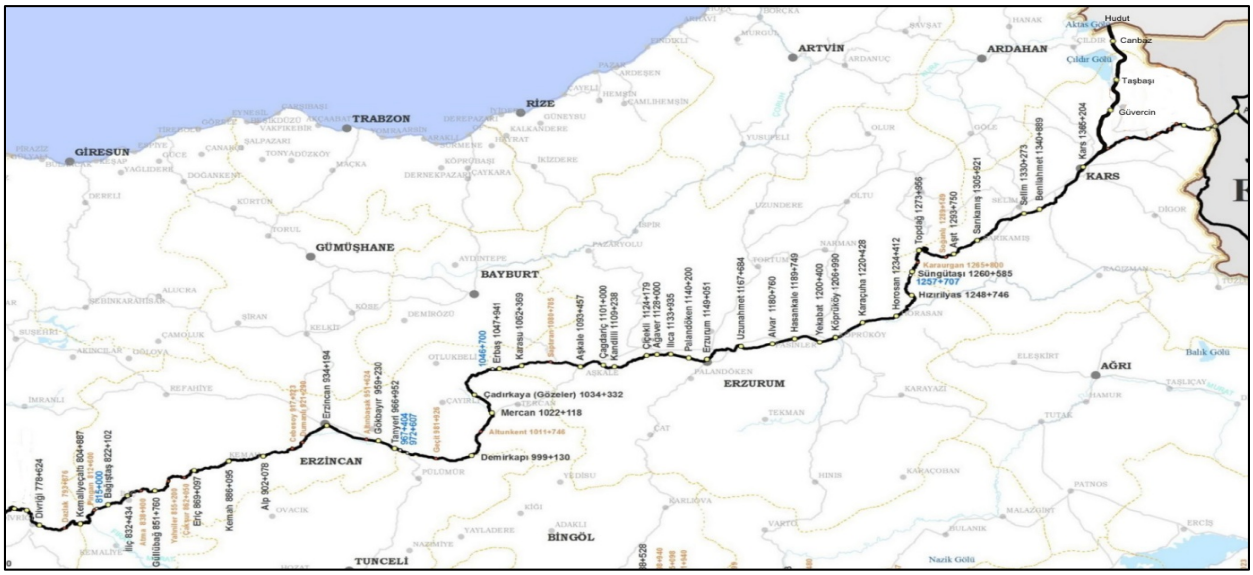
12.11.1 Purpose and Nature of E&S Provisional Sums 459
12.11.2 Scope of Application 460
12.11.3 Governance and Control of Provisional Sums 460
12.11.4 Oversight, Audit and Transparency 461
12.12 ESS6 – Biodiversity Conservation.....462
12.12.1 Baseline Information and Use of Existing Assessments 462
12.12.2 Identification and Assessment of Biodiversity Risks and Impacts 462
12.12.3 Mitigation Hierarchy and Biodiversity Management Measures 463
12.12.4 Sensitive Habitats and Species 464
12.12.5 Vegetation Clearance and Restoration **Hata! Yer işareti tanımlanmamış.**
12.12.6 Invasive Alien Species 465
12.12.7 Sustainable Management of Living Natural Resources 465
12.12.8 Monitoring and Reporting 466
12.12.9 Subcontractors and Third Parties 467
12.13 ESS8 – Cultural Heritage.....468
12.13.1 Known Cultural Heritage 468
12.13.2 Chance Find Procedure **Hata! Yer işareti tanımlanmamış.**
12.13.3 Training and Awareness 471
12.13.4 Monitoring and Reporting 472
12.13.5 Subcontractors and Third Parties 472
12.14 ESS10 – Stakeholder Engagement.....473
12.14.1 Stakeholder Engagement Plan (SEP) 473
12.14.2 Information Disclosure 473
12.14.3 Engagement with Affected Communities 474
12.14.4 Vulnerable Groups **Hata! Yer işareti tanımlanmamış.**
12.14.5 Grievance Mechanism for Communities 476
12.14.6 Monitoring and Reporting 477
12.14.7 Subcontractors and Third Parties 478
12.15 Monitoring, Reporting, Audit and Enforcement.....478
12.15.1 Contractor's Environmental and Social Organization and Capacity 478
12.15.2 E&S Staffing Arrangements479
12.15.3 Monitoring Requirements 480
12.15.3.1 Routine Monitoring 480
12.15.3.2 Compliance Monitoring and Inspections 481
12.15.4 Reporting Requirements 482
12.15.4.1 Regular E&S Reporting 482
12.15.4.2 Immediate Notifications and Incident Reporting 483
12.15.5 Grievance and Feedback Tracking 484
12.15.6 Monitoring and Audit 484
12.15.7 Non-Compliance Management and Corrective Action 485
12.15.7.1 Corrective Action Plans 485
12.15.7.2 Stop-Work and Site Controls 486
12.15.8 Access to Site Conditionality Related to Land Acquisition and Resettlement 486
12.15.9 Enforcement and Contract Administration 487
12.16 Contractual Administration of E&S Requirements 488
12.17 Final Enforceability 489

13 Contractor's Representative and Key Personnel 491

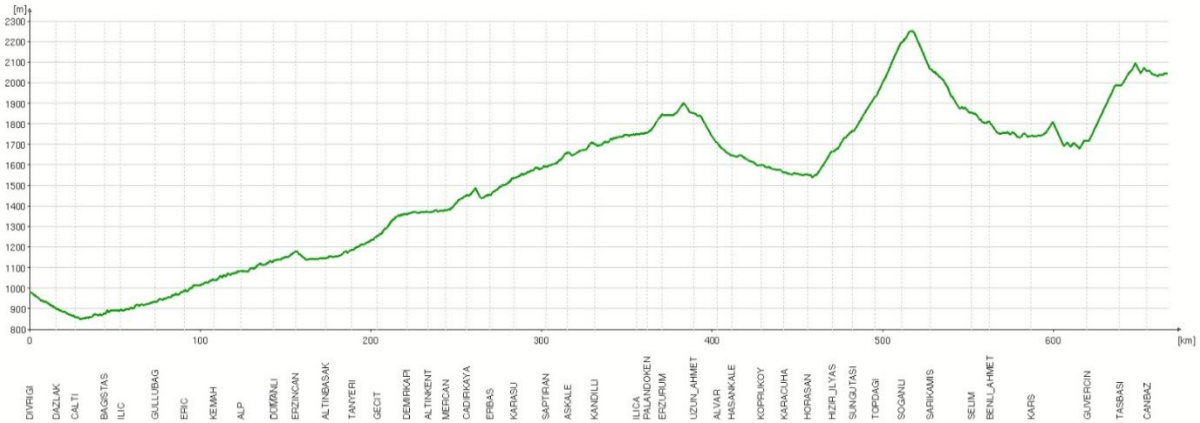
1 PROJECT OVERVIEW

1.1 Project Description

The General Directorate of State Railways (TCDD) and the General Directorate of Infrastructure (AYGM) under the Ministry of Transport and Infrastructure of the Republic of Türkiye are implementing the Divriği – Erzincan – Erzurum – Kars Railway Rehabilitation, Electrification and Signaling Project. This Contract covers the Divriği–Kars section (approximately 587.067 km), forming a critical part of the southern corridor of the Trans-Caspian International Transport Route ("One Belt One Road") between China and Europe. The Kars–Georgia Border (BTK) section is excluded from the scope of this Contract.



Alignment Plan



Alignment Profile

The railway line covered by this Contract starts from Divriği (Km 777+708), passes through Erzincan (Km 933+784) and Erzurum (Km 1148+672), and terminates at Kars (Km 1364+775), with a total length of

approximately 587.067 km. The line is an existing non-electrified, single-track, standard-gauge railway with a track gauge of 1,435 mm.

The Works shall be executed under live railway operating conditions and are tendered in three geographically defined Lots, each covering the full scope of work types — civil and infrastructure works, track superstructure, tunnel works, electrification and power supply, and signalling and telecommunications — within their respective corridor sections. The Contractor shall be fully responsible for design, supply, construction, testing, commissioning and integration of all disciplines within their lot, and shall interface with adjacent lots and the operational railway at all times.

1.2 Project Objectives

The overall objective of the project is to modernize the existing railway line from Divriği to Kars and the Georgian border, thereby improving railway infrastructure and the integrated use of transport modes in favor of the railway sector, while enhancing safety levels and attracting a significant share of the freight transport potential between China and Europe to Türkiye.

1.3 Operational Characteristics and Demand

Divriği – Kars railway line can be defined as a mixed line serving both passenger and freight transport. With the rehabilitation of the line and improvements tailored to the needs of modern railways, a significant increase in demand for railway transportation, particularly in freight, is expected in connection with the One Belt One Road project.

This line also hosts the operation of the Eastern Express (Doğu Ekspresi), which gives it a considerable passenger transport potential under current conditions.

However, with the renewal and upgrading of the line, it is foreseen that passenger transport will remain limited when compared to freight transport, and that the line will primarily serve freight transportation purposes. Due to the region's geographical position, the railway is expected to become competitive in international transit freight transport.

1.3.1 Current Operational Status of the Line

The operation of the railway line is organized through the TMİ system by the dispatching centers in Erzincan and Erzurum. Travel orders are transmitted by telephone to the station dispatch officers and then delivered to the train drivers. The basis of operations consists of the relevant timetables, passenger and freight train schedules (block train programs), and the locomotive dispatch program.

Due to the absence of remotely controlled switches, an electric signaling system, and automatic track control, all operations are carried out manually by personnel working in shifts at the stations.

Larger stations operate with full staff to cover wagon inspection, repair, shunting, and maintenance of technical facilities.

Stations permanently or temporarily closed due to staff shortages or low demand on the railway line include:
,

- Lot 1 : Dazlak and Dumanlı Stations
- Lot 2 : Altınbaşak, Altınkent, Saptıran and Çiçekli Stations
- Lot 3 : Alvar, Karaçuha, Hızır İlyas, Aşit, Çatak and Dikme Stations

The low number of daily trains allows the existing station arrangements to support current operations.

1.3.2 Line Capacity, Travel Time and Timetable

In recent years, due to the reduced train operations and declining train numbers, the closure of certain stations has become necessary.

With the closure and abandonment of these stations, significant capacity and demand losses have occurred.

Because of horizontal/vertical geometry limitations and infrastructure/superstructure issues, the average speed on the railway line is quite low.

The approximate travel time between Divriği and Kars is 17 hours for freight trains and 11 hours for passenger trains.

The 2020 train timetables are provided in Annex-12, and the operational diagram examples are given in Volume 3/ Section 3-Drawings and Annexes/Annex-13.

1.3.3 Existing Freight and Passenger Operations

The operation of the railway line consists of both passenger and freight transport. The region also attracts a significant number of tourists, and substantial passenger traffic is carried by the Eastern Express (Doğu Ekspresi) and the Tourist Eastern Express (Turistik Doğu Ekspresi).

As of 2020, the current operational status of the Divriği–Kars–BTK line, based on the number of trains in both directions, is as follows:

Freight Train Operations

- 4 daily transit freight trains operate on the Divriği–Kars–BTK line. (Lot 1 covers only Divriği-Erzincan)
- 2 local freight trains operate between Divriği–Bağıştaş, and 4 local freight trains operate between Divriği–Çaltı.
- 2 local freight trains operate daily between Alp–Erzincan–Aşkale. (Aşkale is out of scope of Lot 1)

Passenger Train Operations

- 4 DMU passenger train sets operate daily between Divriği–Erzincan.

- 2 daily Eastern Express trains operate on the Ankara–Sivas–ErzincanErzurum-Kars Route. (Lot 1 covers Divriği-Erzincan)
- 2 daily Tourist Eastern Express trains operate on the Ankara–Sivas–Erzincan in the scope of Lot 1 and also, continue for operation between Erzurum and Kars route, with approximately 3-hour stops in Erzincan and Erzurum in the direction of Kars. .

Summary of Daily Train Operations

- Divriği–Erzincan: a total of 12 freight and passenger trains per day (in Lot 1)
- Erzincan–Erzurum: a total of 10 freight and passenger trains per day (in Lot 2)
- Erzurum–Kars: a total of 8 freight and passenger trains per day (in Lot 3)
- BTK (Kars–Georgia): a total of 2 freight and passenger trains per day

1.4 Reference Lengths and Chainages

The three Lots cover the railway corridor between Km 777+708 and Km 1364+775. The chainage difference between these limits is 587.067 km.

For the purposes of the Employer's Requirements, the following quantities shall be distinguished and shall not be used interchangeably:

- Chainage difference: the arithmetic difference between the stated start and end chainages, equal to 587.067 km;
- Surveyed alignment length: the center-line length measured along the surveyed or approved railway alignment;
- Main-line route length: the one-way route length of the main railway line;
- Track-equivalent length: the total length of all individual tracks, including parallel, station and siding tracks; and
- Siding and station-track length: the aggregate length of the siding and station-track works, equal to 45,195 track-meters.

The Lot lengths stated above are chainage differences. A further 21 level crossings and the traction substations beyond Km 1364+775 lie in the excluded Kars–Georgia Border (BTK) section and are outside the scope of this Contract. Traction substations are allocated to Lots by chainage.

1.5 Contract Boundary with the Kars–Georgia Border/BTK Section

The physical Contract boundary is Km 1364+775. The Kars–Georgia Border/BTK section beyond this boundary is excluded from the scope of the Contract.

Notwithstanding this exclusion, the Contractor's scope includes all interface works required to ensure safe and functional integration with the existing BTK infrastructure. The Contract Boundary and Interface Drawings shall identify the:

- Boundary signal;

- Boundary turnout;
- Catenary sectioning and isolation point;
- Fibre-optic termination point;
- ETCS level-transition point;
- Traction-power interface; and
- Return-current and earthing interface.

All works and equipment located on the Contract side of the identified boundary, together with the interface modifications expressly shown in the Contract Boundary and Interface Drawings, shall be included in the Contractor's scope. Works beyond the identified boundary are excluded.

1.6 Key Technical and Operational Performance Requirements

The key technical and operational performance requirements applicable to the Works are consolidated below. For the avoidance of doubt, the existing operational speed, the design basis, the target operational speed and the existing local speed restrictions are separate requirements and shall not be used interchangeably.

Performance Parameter	Contract Requirement
Speed requirements	Signaling design basis and target operational speed: 120 km/h. Existing operational speed: posted line speeds range from 45 km/h to 105 km/h per Timetable Book No. 6 (Annex-12), of which 2% of the route length is posted at 50 km/h or below, 65% between 51 and 70 km/h, 16% between 71 and 90 km/h and 18% between 91 and 105 km/h; lower speeds apply over station turnouts, down to 25 km/h.
Axle load	22.5 tones per axle throughout the Divriği–Kars section.
Train length	Maximum 700 m, including the locomotive. Selected station tracks shall accommodate 750 m or 1,050 m trains, as specified in the Station Schedule.
Headway and line capacity	Minimum signaling headway in the same direction, based on approximately 4,500 m blocks, ERTMS/ETCS Level 1 and a 700 m train: 5 minutes at 120 km/h, 6 minutes at 100 km/h and 8 minutes at 80 km/h. Minimum crossing interval on the single track, governed by the longest inter-station section of each Lot (Lot 1 Alp–Dumanlı 19.204 km; Lot 2 Karasu–Saptıran 18.611 km; Lot 3 Hasankale–Köprüköy 17.187 km): 20 minutes for passenger trains and 24 minutes for freight trains. Line capacity: not less than 48 train paths per day in both directions in each Lot, over a 20-hour operating day, at a UIC 406 infrastructure occupancy not exceeding 60%, with flighting of at least two trains per direction.

	The Contractor shall demonstrate compliance with these values through the approved operational and signaling simulations and shall identify any additional crossing loops required to achieve them.
Journey-time performance	Target journey times for the design traffic: passenger trains — Divriği–Erzincan 134 minutes (156.076 km, 70 km/h commercial speed), Erzincan–Erzurum 172 minutes (214.888 km, 75 km/h), Erzurum–Kars 173 minutes (216.103 km, 75 km/h), Divriği–Kars not exceeding 8 hours 15 minutes. Freight trains — Divriği–Erzincan 170 minutes (55 km/h), Erzincan–Erzurum 234 minutes (55 km/h), Erzurum–Kars 259 minutes (50 km/h), Divriği–Kars not exceeding 12 hours, and Divriği to the Türkiye–Georgia border not exceeding 13 hours 30 minutes including crossing waits. The baseline is the current timetable, in which the Divriği–Kars journey takes 11 hours 8 minutes at a commercial speed of 52.7 km/h. **The Contractor shall demonstrate compliance through the approved operational simulation and timetable study.**
Energy performance	Specific traction energy at the pantograph for the reference freight train shall not exceed 15 Wh per gross ton-kilometer over the corridor (Lot 1: 14; Lot 2: 17; Lot 3: 13) and 25 Wh per net ton-kilometer. Recovered regenerative energy shall be not less than 15% of traction energy over the corridor and not less than 20% in Lot 3. Well-to-wheel greenhouse gas emissions shall not exceed 11 g CO2e per net ton-kilometer, calculated with the national grid emission factor of 0.436 tCO2e/MWh at transmission level. Nominal voltage 25 kV 50 Hz with the permanent range 19–27.5 kV (EN 50163); mean useful voltage not less than 22.5 kV (EN 50388); power factor not less than 0.95 above 2 MW. Peak demand per feeding section shall not exceed 25 MVA. With any one traction substation out of service, the line shall carry not less than 70% of the design traffic without the voltage falling below 19 kV. **The Contractor shall demonstrate compliance through the approved traction-power study.**
RAMS	The Works shall comply with EN 50126, EN 50128 and EN 50129 and shall be supported by the required RAMS Plan, Safety Plan, Hazard Log and safety-case documentation.
Availability and maintainability	Availability, fault restoration, inspection and maintenance requirements shall be demonstrated in the approved RAM and Maintenance Plans and shall be compatible with the approved possession and maintenance periods.
Temporary speed restrictions	All construction-related temporary speed restrictions shall be removed before Taking-Over of the relevant Section, unless otherwise accepted by TCDD and the Engineer.

1.7 Basis of Performance Requirements

The values stated above are fixed contract requirements. The tables below give the basis on which they were established and the Lot-by-Lot values against which the Contractor's simulations and studies shall be assessed.

1.7.1 Journey Time – Baseline and Target

Section	Length (km)	Baseline up (min)	Baseline down (min)	Baseline commercial speed	Target passenger	Target freight
Lot 1 Divriği–Erzincan	156.076	184	183	50.9 / 51.2 km/h	134 min (70 km/h)	170 min (55 km/h)
Lot 2 Erzincan–Erzurum	214.888	254	232	50.8 / 55.6 km/h	172 min (75 km/h)	234 min (55 km/h)
Lot 3 Erzurum–Kars	216.103	220	217	58.9 / 59.8 km/h	173 min (75 km/h)	259 min (50 km/h)
Divriği–Kars total	587.067	668 (11 h 08)	642 (10 h 42)	52.7 km/h	≤ 8 h 15	≤ 12 h 00
Divriği–Georgia border	666.771	–	–	–	–	≤ 13 h 30

Baseline values are taken from TCDD Timetable Book No. 6, being train 22010 (Doğu Ekspresi) in the direction of Kars and train 42009 in the direction of Divriği. Target speeds are derived from the permissible speed on the existing curves (71 km/h at R = 236 m, 80 km/h at R = 300 m and 103 km/h at R = 500 m with 150 mm cant and 100 mm cant deficiency), 120 km/h elsewhere, 7% UIC running-time supplement and station dwell times. Curves of R = 236–500 m extend over 158 km, being 27% of the Divriği–Kars section.

1.7.2 Headway, Crossing Interval and Line Capacity

Lot	Governing inter-station section	Crossing interval, passenger	Crossing interval, freight	Capacity, 2-train flights	Capacity, 3-train flights
Lot 1	Alp–Dumanlı, 19.204 km 11 crossing stations, mean 15.6 km	≤ 17 min	≤ 24 min	45 paths/day	54 paths/day
Lot 2	Karasu–Saptıran, 18.611 km 16 crossing stations, mean 14.3 km	≤ 15 min	≤ 23 min	46 paths/day	55 paths/day
Lot 3	Hasankale–Köprüköy, 17.187 km 18 crossing stations, mean 11.6 km	≤ 14 min	≤ 24 min	46 paths/day	55 paths/day

Capacity values are for both directions combined over a 20-hour operating day at a UIC 406 infrastructure occupancy of 60%, the remaining four hours being reserved for the possession windows set out in Clause 4.9.2. The reference freight train for capacity purposes is 700 m long with a gross trailing load of 2,200 tones and a net load of 1,400 tones on the ruling gradient of 25 per mile in the Topdağı–Soğanlı–Sarıkamış zone, hauled by two locomotives. On that basis, a corridor throughput of 20 million tons per year corresponds to approximately 39 loaded trains and 67 train paths per day. Where the approved simulation shows that this throughput cannot be achieved within the stated occupancy limit, the Contractor shall

identify the additional crossing loops, the increase of train length to 750 m or 1,050 m at the governing sections, or the banking arrangements required, and shall report them to the Engineer before completion of the detailed design.

1.7.3 Energy Performance

Parameter	Lot 1	Lot 2	Lot 3	Corridor
Specific traction energy at pantograph	≤ 14 Wh/gross t-km	≤ 17 Wh/gross t-km	≤ 13 Wh/gross t-km	≤ 15 Wh/gross t-km ≤ 25 Wh/net t-km
Regenerative energy recovered	≥ 12%	≥ 12%	≥ 20%	≥ 15%
Well-to-wheel GHG emissions	–	–	–	≤ 11 g CO2e/net t-km
Cumulative ascent (basis)	≈ 400 m over 156.076 km	≈ 650 m over 214.888 km	≈ 600 m over 216.103 km (summit 2,260 m at Sarıkamış)	Divriği 980 m to Kars 1,756 m
Traction substations	4 × 2×25 MVA	4 × 2×25 MVA	5 × 2×25 MVA	13 × 2×25 MVA mean spacing 46.0 km, maximum 52.3 km

Energy values are stated for the reference freight train and are based on a rolling and aerodynamic resistance of 6 Wh per gross ton-kilometer, an energy requirement of 2.725 Wh per ton per meter of ascent, a traction chain efficiency of 0.85 and the regenerative recovery stated above. Greenhouse gas emissions are calculated with the national grid emission factor of 0.436 tCO2e/MWh at transmission level.

2 PROJECT GOVERNANCE AND INSTITUTIONAL FRAMEWORK

2.1 Key Project Stakeholders

AYGM shall act as the Employer under the Contract. TCDD shall act as the existing and future railway operator and asset user. The Engineer shall administer the Contract in accordance with the FIDIC Conditions of Contract. The Contractor shall execute, complete, test and commission the Works and remedy any defects, including the performance of any design obligations expressly allocated to the Contractor under the Contract. Engineer will be determined by the AYGM prior to Contract commencement.

2.2 Roles and Responsibilities

AYGM shall act as the Employer under the Contract. TCDD shall act as the existing railway infrastructure manager and operator and as the future operator and asset user of the completed Works. The Engineer shall administer the Contract and exercise the authorities assigned to the Engineer under the Conditions of Contract.

Subject	AYGM – Employer	Engineer	TCDD – Operator / Infrastructure Manager
Contract Administration	Acts as the Employer and makes decisions expressly reserved for the Employer under the Contract. Coordinates institutional matters with TCDD.	Administers the Contract and issues contractual instructions, determinations, approvals, payment certificates and other certificates in accordance with the Conditions of Contract.	Has no authority to issue contractual instructions, determine Contractor entitlements or issue payment or contractual certificates.
Design Review and Approval	Coordinates any Employer-level or institutional approvals required under the Contract.	Reviews the Contractor's designs and issues the applicable contractual review, approval or no-objection in accordance with the Contract.	Reviews design matters affecting railway operations, operational safety, maintainability, compatibility with the existing railway and compliance with applicable TCDD operational requirements. TCDD's review shall not replace the Engineer's contractual review.
Operational Permits and Authorizations	Facilitates institutional coordination between the Contractor, the Engineer, TCDD and other competent authorities.	Verifies that the operational permits and authorizations required under the Contract have been obtained before permitting the relevant	Issues or confirms the railway operational permits, authorizations and operational-safety clearances falling within TCDD's authority.

		contractual activity to proceed.	
Possessions, Line Closures and Reopening	Coordinates possession and access requirements with TCDD at institutional level.	Reviews the Contractor's possession requirements, coordinates their incorporation into the Work Programme and assesses any contractual consequences.	Has final authority to approve full or partial line closures, possession periods, operational scenarios and reopening of the railway line to traffic.
Testing and Commissioning	Ensures the necessary institutional coordination and participation of the relevant parties.	Reviews and witnesses the Tests on Completion and commissioning activities and assesses the results for compliance with the Contract.	Participates in testing and commissioning and confirms operational compatibility, railway-safety suitability and readiness for operation.
Taking-Over	Receives the Works contractually following issuance of the Taking-Over Certificate and coordinates the institutional handover to TCDD.	Issues the Taking-Over Certificate in accordance with the Conditions of Contract after confirming that the contractual requirements for Taking-Over have been satisfied.	Assesses operational readiness and provides the operational acceptance required for use of the Works. TCDD's operational acceptance shall not replace the Engineer's Taking-Over Certificate.
Handover, Operation and Maintenance	Formally hands over the completed assets to TCDD following contractual Taking-Over and completion of the applicable institutional procedures.	Verifies that the required contractual records, as-built documents, manuals, training and outstanding obligations relevant to handover have been completed.	Receives the completed assets and assumes responsibility for railway operation and operational maintenance following formal handover.

2.3 Contractual and Operational Interfaces

TCDD's operational review, approval or acceptance shall not constitute a contractual instruction, approval, certification or Taking-Over under the Contract. Similarly, the Engineer's contractual review or certification shall not replace any operational permission or authorization that falls within TCDD's authority.

2.4 Contract Interpretation and Document Hierarchy

- A. General order of priority.

  The documents forming the Contract are to be taken as mutually explanatory of one another. For the purposes of interpretation, the priority of the documents shall be in accordance with Sub-Clause 1.5 [Priority of Documents] of the Conditions of Contract, namely:
  (1) the Contract Agreement;
  (2) the Letter of Acceptance;

(3) the Letter of Proposal;
(4) the Particular Conditions Part A – Contract Data;
(5) the Particular Conditions Part B – Special Provisions;
(6) the General Conditions;
(7) the Employer's Requirements, in the internal order stated in paragraph (b);
(8) the Schedules;
(9) the Contractor's Proposal, including the Contractor's design and all documents submitted with it; and
(10) any other document forming part of the Contract.
Accordingly, the Employer's Requirements prevail over the Contractor's Proposal and over the Contractor's design.

- B. Order within the Employer's Requirements.

  Where two provisions of the Employer's Requirements conflict, they shall be applied in the following order:
  (1) the Environmental and Social Requirements, together with the Environmental and Social Commitment Plan and the approved E&S instruments (ESIA, ESMP, SEP, LMP, RF, OHSMP and CHSMP), in respect of environmental, social, health and safety matters;
  (2) the general and Lot-specific provisions of the Employer's Requirements, including the Key Technical Performance Requirements, the Lot Summary and the Schedules referred to in them;
  (3) the Technical Specifications, in the internal order stated in paragraph (c);
  (4) the Drawings and Annexes in Volume 3 / Section 3; and
  (5) the tender or reference design issued by the Employer, which is provided for information and tender-pricing purposes only and shall not prevail over any of the foregoing.
- C. Order within the Technical Specifications.

  Where two provisions of the Technical Specifications conflict, they shall be applied in the following order:
  (1) the Design Technical Specifications (Section 2.2), in respect of design criteria, design parameters, loadings, methods of analysis, design life and acceptance criteria for design;
  (2) the discipline-specific Technical Specifications (Sections 2.3 Trackworks, 2.4 Tunnels, 2.5 Civil Works, 2.6 Signaling, 2.7 Telecommunication, 2.8 Power Supply and 2.9 Surveying Works), in respect of materials, workmanship, testing, commissioning and execution of the discipline concerned;
  (3) the asset-type Technical Specifications in Section 2.1 (2.1.1 to 2.1.12); and
  (4) the General Technical Specifications (Section 2.1.0), which apply to matters not addressed in (1) to (3) and are otherwise residual.
- D. Rules of interpretation.

  Where two documents of the same rank address the same matter, the provision specifically addressing that matter prevails over the general provision, and, where both are equally specific, the later-dated document prevails. Where documents differ as to the requirement of railway safety, occupational health and safety, or environmental and social performance, the more stringent requirement applies. Quantities, counts and inventories stated in the General Technical Specifications are indicative and shall not override the verified Schedules of this Contract, namely the Tunnel Schedule, the Level Crossing Schedule, the Station Schedule and the Lot Summary. Compliance with any specification does not relieve the Contractor of the fitness-for-purpose obligation.
- E. Environmental and social precedence. Notwithstanding paragraphs (b) and (c), where a requirement of the Environmental and Social Commitment Plan or of an approved E&S instrument is more stringent than a requirement of the Technical Specifications, the E&S requirement prevails, and no provision of

the Technical Specifications shall be construed as relieving the Contractor of compliance with the World Bank Environmental and Social Framework.

- F. Ambiguities and discrepancies. Any ambiguity or discrepancy between the Contract documents shall be notified to the Engineer, who shall issue the necessary clarification or instruction in accordance with Sub-Clause 1.5 of the Conditions of Contract. References in the Employer's Requirements to a Technical Specification by number are references to the corresponding document in the Section 2 – Technical Specifications Document Index, and no other numbering of the Technical Specifications shall be used.

3 PROJECT REFERENCE DATA

3.1 Site Information

Based on the available information provided in the Environmental and Social Impact Assessment (ESIA) package, a comprehensive understanding of the Project's topographic context has been developed through desk-based studies, satellite imagery, and field observations undertaken during the ESIA process. Each item of Site Information is classified in one of the three categories defined below, and the classification of every item is given in the Site Information Classification table. Save in respect of Employer's Reliance Data, the Employer does not warrant the completeness or sufficiency of the Site Information for the Contractor's purposes.

3.1.1 Site Information Classification

Employer's Reliance Data is information that has been surveyed, measured or otherwise verified by or for the Employer and on which the Contractor is entitled to rely for the purposes of its design, its Programme and its price. Where such information is found to be materially incorrect, the consequences shall be determined in accordance with the Conditions of Contract.

Reference Data is information provided in good faith which the Contractor shall verify and complete for its own purposes. The Contractor shall be deemed to have inspected and examined the Site and to have satisfied itself as to the matters covered by Reference Data, and no entitlement to an extension of time or to additional Cost arises from its incompleteness or insufficiency. This is without prejudice to the Contractor's rights in respect of physical conditions which are Unforeseeable under the Conditions of Contract.

Information provided For Information Only is given for background and orientation. The Contractor shall place no reliance upon it and no entitlement arises from it.

All Site Information is Reference Data unless it is listed in the table below as Employer's Reliance Data or as For Information Only.

Item of Site Information	Classification	Basis
Contract limits, Lot boundary chainages and the main-line lengths stated in the Lot Summary	Employer's Reliance Data	Chainage records
Tunnel Schedule: schedule item number, TCDD tunnel number, chainage, length, type, lining and foundation (Annex-14)	Employer's Reliance Data	TCDD Tunnel Schedule
Laser-surveyed tunnel cross-sections (Annex-15 and Annex-30)	Employer's Reliance Data	Laser survey
Level Crossing Schedule: identity, chainage and existing protection type of each crossing (Annex-22)	Employer's Reliance Data	TCDD level-crossing records
AYGM–TCDD Collaboration Protocol – Implementation Protocol, signed Turkish original and English translation – and its disclosed key terms (Annex-32)	Employer's Reliance Data	Collaboration Protocol
Restricted-Access Schedule (Annex-33)	Employer's Reliance Data	TCDD operational planning
Possession Availability Baseline (Annex-34)	Employer's Reliance Data	TCDD traffic planning

Item of Site Information	Classification	Basis
Seasonal Restriction Calendar and climatic baseline (Annex-35)	Employer's Reliance Data	MGM records
Topographic, geological, geotechnical, hydrological and seismic information	Reference Data	Desk studies, satellite imagery and ESIA field observations
Condition of existing bridges, culverts, underpasses, overpasses, retaining walls and drainage	Reference Data	Visual inspection
Existing track superstructure characteristics, station and platform arrangements and existing utilities	Reference Data	TCDD records and field observation
Train timetables and operator graphs (Annex-12 and Annex-13), being Timetable Book No. 6	Employer's Reliance Data	TCDD Timetable Book No. 6
ESIA, ESMP and related environmental and social baseline data	Reference Data	ESIA package; the E&S obligations remain binding in full
Tender or reference design issued by the Employer	For Information Only	Not a construction design
Indicative quantities stated in the Key Quantities	For Information Only	To be established by each Proposer
Drawings expressly marked indicative, photographs, satellite imagery and figures	For Information Only	Background material

Where an item of Site Information is not listed above, it is Reference Data. Where a quantity stated in a verified Schedule also appears in the Key Quantities or in the General Technical Specifications, the Schedule prevails in accordance with the Priority of Documents.

The Project corridor extends approximately 587.067 km through the northeastern Anatolian region of Türkiye (Km 777+708 at Divriği to Km 1364+775 at Kars). The Kars–Georgia Border (BTK) section is excluded from this Contract. The line passes through highly varied terrain including river canyons, mountain ranges and high plateaus. The Divriği station is located at 980 m elevation. The line descends to İliç (approximately 850 m), rises to 1,186 m at Erzincan, and continues to climb through the Topdağı–Soğanlı–Sarıkamış critical gradient zone to its highest point of approximately 2,260 m near Sarıkamış, before descending to Kars at 1,756 m. The corridor contains numerous tunnels, viaducts and bridges in the canyon sections, particularly between Divriği and Erzincan where road access is only possible at limited points (notably along the Divriği–Çaltı section, Km 777+708–805+000). Maximum line gradients reach 2.5% (25 mm/m) in the Topdağı–Soğanlı–Sarıkamış area, with isolated sections at up to 2.8%. Curves with radii between 236 m and 500 m account for 158 km (27%) of the Divriği–Kars section.

The Project alignment traverses rugged valleys and canyons, following river courses, with the line generally in close proximity to riverbeds. The three Lots traverse distinctly different terrain: Lot 1 (Divriği–Erzincan, Km 777+708–933+784) passes through the most challenging canyon terrain of the corridor, crossing the Euphrates (Fırat) and Karasu basins via successive viaducts and tunnels with restricted road access; Lot 2 (Erzincan–Erzurum, Km 933+784–1148+672) transitions from canyon terrain to high plateau, climbing through the critical gradient zone toward Erzurum at approximately 1,750 m elevation; Lot 3 (Erzurum–Kars, Km 1148+672–1364+775) traverses the high Anatolian plateau through the Ağrı valley, reaching

approximately 2,260 m at the Sarıkamış summit before descending to 1,756 m at Kars. The corridor contains significant engineering structures including tunnels constructed primarily in the 1950s–1960s, multiple viaducts and bridges, retaining walls and embankments. Detailed tunnel cross-sections are provided in the Contract Drawings.

The project area is located in eastern and northeastern Anatolia and is characterized by a continental climate with harsh winters and heavy snowfall, particularly in the Sarıkamış and Kars regions where temperatures regularly fall below –20°C. The region around Erzurum and Kars is at high altitude and experiences significant freeze-thaw cycles. These climatic conditions directly affect construction scheduling, material selection and tunnel/track maintenance requirements. The Contractor shall account for these conditions in all design and programming activities.

3.2 Level Crossings

Along the Divriği–Kars section, there are in total 117 level crossings within the Divriği–Kars project limits (Km 777+708 to Km 1364+775), distributed by Lot as follows:

- Lot 1 (Km 777+708–933+784) – 20;
- Lot 2 (Km 933+784–1148+672) – 49; and
    - Lot 3 (Km 1148+672–1364+775) – 48 level crossings.

Lot	Section	Chainage	Main-line length (m)	Tunnels	Level crossings	Traction substations
Lot 1	Divriği–Erzincan	Km 777+708 Km 933+784	156,076	79 (21,031 m)	20	4
Lot 2	Erzincan–Erzurum	Km 933+784 Km 1148+672	214,888	33 (6,913 m)	49	4
Lot 3	Erzurum–Kars	Km 1148+672 Km 1364+775	216,103	46 (11,899 m)	48	5
Total	Divriği–Kars	Km 777+708 Km 1364+775	587,067	158 (39,843 m)	117	13

According to information provided, some of these crossings, where overpasses, underpasses and bridges are to be constructed to the points that coincide with the existing level crossings, will be eliminated through the construction of overpasses by TCDD, leaving rest active level crossings to be evaluated. A further 21 level crossings shown on the annexed list lie beyond Km 1364+775, in the excluded Kars–Georgia Border (BTK) section and are outside the scope of this Contract. From 117 in-scope crossings, apart from eliminated ones, the rests are to be upgraded/modernized under this Contract; any grade-separation (elimination) of individual crossings by TCDD, and reconciliation with the figures in the General Technical Specification, shall be as set out in the Level Crossing Schedule.

The level crossings on the railway line facilitate both pedestrian and vehicle passage, with and without barriers. In the Divriği–Kars section, some level crossings are equipped with automatic or mechanical barriers and are controlled, while the remainder operate either uncontrolled or under guard supervision.

The verified position for the corridor is:

- Lot 1 – 20 crossings, of which
    - 10 have automatic barriers and
    - 10 are uncontrolled;
- Lot 2 – 49 crossings, of which
    - 18 have automatic barriers,
    - 1 has a mechanical barrier,
    - 2 are operated by gatekeepers and
    - 28 are uncontrolled;
- Lot 3 – 48 crossings, of which
    - 11 have automatic barriers,
    - 3 are operated by gatekeepers and
    - 34 are uncontrolled.

The level crossing figures stated for each Lot follow the Lot 2 / Lot 3 boundary at Km 1148+672; the two crossings at Km 1150+225 and Km 1151+530 accordingly fall within Lot 3.

The in-scope total is 117 crossings, of which 45 are controlled and 72 are uncontrolled; a further 21 crossings lie beyond Km 1364+775 in the excluded Kars–BTK section, giving 138 crossings on the corridor.

These figures shall be used consistently in all Sections of the Employer's Requirements, the Drawings and the Schedules.

3.3 Tunnels

3.3.1 Inventory

The tunnel schedules of all three Lots use the same two identifiers, taken from the TCDD Tunnel Schedule: the Schedule Item No. (Sıra No), which runs continuously from 42 to 199 over the Divriği–Kars section, and the TCDD Tunnel No., which is the asset designation and may carry a letter suffix (for example 123/A) where a snow tunnel or gallery adjoins a mountain tunnel. The two identifiers shall not be used interchangeably, and every reference in the Employer's Requirements, the Drawings and the Schedules shall state which identifier is used.

The Divriği–Kars section contains 158 tunnels with a total length of 39,843 m, distributed as follows:

- Lot 1 – 79 tunnels (Schedule Item Nos. 42–120; TCDD Tunnel Nos. 39–123), 21,031 m, 78 mountain tunnels, 1 snow sheds and no pedestrian tunnel.
- Lot 2 – 33 tunnels (Schedule Item Nos. 121–153; TCDD Tunnel Nos. 123/A–137), 6,913 m, 13 mountain tunnels, 19 snow sheds and 1 pedestrian tunnel.
- Lot 3 – 46 tunnels (Schedule Item Nos. 154–199; TCDD Tunnel Nos. 138–173/A), 11,899 m, 33 mountain tunnels, 12 snow sheds, and 1 pedestrian tunnel.
    - Total 158 tunnels,
      39,843 m, 124 rock (mountain) tunnels, 32 snow sheds and 2 pedestrian tunnels

TCDD Tunnel Nos. 76–84 was superseded by the Bağıştaş realignment and are represented in the Lot 1 schedule by the realigned variant tunnel (Km 838+750 – Km 841+380, 2,630 m); the TCDD Tunnel No. range is therefore discontinuous and shall not be used to derive tunnel counts. TCDD Tunnel No. 39 (Schedule Item No. 42, Km 777+434 – Km 777+712) begins 274 m before the Contract limit at Km 777+708 and is included in the Lot 1 schedule and in the Accepted Contract Amount.

A single verified tunnel inventory is provided in the Tunnel Schedule (annex). Some tunnels require clearance enlargement to meet the 5.30 m electrification gauge (to specify the clearance of tunnels to meet the required clearance, the sections of the tunnels were provided in Annexes.)

Lot	Section	Chainage	Main-line length (m)	Tunnels	Level crossings	Traction substations
Lot 1	Divriği–Erzincan	Km 777+708 Km 933+784	156,076	79 (21,031 m)	20	4
Lot 2	Erzincan–Erzurum	Km 933+784 Km 1148+672	214,888	33 (6,913 m)	49	4
Lot 3	Erzurum–Kars	Km 1148+672 Km 1364+775	216,103	46 (11,899 m)	48	5
Total	Divriği–Kars	Km 777+708 Km 1364+775	587,067	158 (39,843 m)	117	13

Tunnel counts shall not be derived from the numbering ranges. TCDD Tunnel Nos. 76–84, nine numbers in total, are withdrawn: the tunnels they designated were bypassed by the Bağıştaş realignment of 2014 and are replaced by the realigned variant tunnel, which lies between TCDD Tunnel No. 75/A (Km 828+100) and TCDD Tunnel No. 85 (Km 843+177).

In addition, snow tunnels and galleries adjoining a numbered tunnel carry a letter suffix and are separate structures with their own Schedule Item No. The counts therefore reconcile as follows:

- Lot 1 – 85 numbers in the range 39 to 123,

  less the 9 withdrawn numbers 76 to 84,
  plus the 2 suffixed structures 75/A and 118/A and
  the realigned variant tunnel,
  giving 79 structures;
- Lot 2 – 14 numbered structures from 124 to 137

  plus 19 suffixed structures,
  giving 33;
- Lot 3 – 36 numbered structures from 138 to 173

  plus 10 suffixed structures,
  giving 46.
- The total is 158 structures.

The tunnel quantities of this Contract are based on this verified inventory:

- 124 rock (mountain) tunnels of 34,240 m, (78 nos for Lot 1 in total length of 20,681 m, 13 nos for Lot 2 in total length of 3,329 m and 33 nos for Lot 3 in total length of 10,230 m)
- 32 snow tunnels and galleries of 5,555 m and (1 nos for Lot 1 in total length of 350 m, 19 nos for Lot 2 in total length of 3,554 m and 12 nos for Lot 3 in total length of 1,651 m)

- 2 pedestrian tunnels of 48 m, a total of 39,843 m, (1 nos for Lot 2 in total length of 30 m and 1 nos for Lot 3 in total length of 18 m)

as stated in the Key Quantities. Any tunnel quantity stated elsewhere in the tender documents that differs from this inventory shall be read as superseded by it, and the Accepted Contract Amount shall be based on 39,843 m.

3.3.2 Reference Data

3.3.2.1 Employer’s Reliance Data

The existing tunnel cross-sections of the Divriği–Kars section have been measured by laser survey. The measured cross-sections are provided in Volume 3 / Section 3 – Drawings and Annexes, Annex-15 and Annex-30 (Divriği–Akyaka Tunnel Cross-Sections), together with the Tunnel Schedule (Annex-14). These documents are classified as Employer's Reliance Data.

3.3.2.2 Status of the Inventory at the Tender Stage.

The tunnel inventory is verified for tender purposes as to the identity, chainage, length, type, lining and foundation of each tunnel and as to its surveyed cross-section. The Employer does not state the required clearance, an extent of invert lowering or a rehabilitation category for each individual tunnel, because these follow from the construction method, the track form, the catenary arrangement and the structural solution adopted by the Contractor in its own design. Each Proposer shall derive from the surveyed cross-sections and the Tunnel Schedule the clearance to be achieved, the rehabilitation category and the resulting quantities for each tunnel and shall price the Works accordingly. The information provided is sufficient for that purpose, and no further clearance survey by the Employer is envisaged.

3.3.2.3 Fixed requirements

Irrespective of the Contractor's design, the following are fixed requirements of the Employer: a minimum vertical clearance of 5.30 m measured from top of rail to the intrados of the tunnel lining; slab track in every tunnel of 1,000 m or more and at the structures designated in the Contract, with transition zones at every ballasted-to-slab interface; tunnel drainage, emergency and electromechanical provisions for all tunnels listed in the Tunnel Schedule; and compliance with the TCDD structure gauge.

3.3.2.4 Lump Sum Pricing Principles

Tunnel works, including invert lowering, clearance enlargement, lining rehabilitation, drainage, electromechanical installation and slab track within tunnels, are included in the Accepted Contract Amount as a lump sum and shall not be re-measured. The tunnel quantities stated in Annexes, in particular the approximately 88 tunnels and 22,373 m stated as requiring clearance enlargement, are indicative and are given for information only. No adjustment to the Accepted Contract Amount shall be made because of a difference between the quantities derived by the Contractor from the surveyed cross-sections and those indicative quantities.

3.3.2.5 Deviations from Reference Data

Where the condition of a tunnel differs from the surveyed cross-section provided in Annex-15 and Annex-30 by more than 50 mm of clearance at any measured section, or where a structural condition is encountered that an experienced contractor could not have foreseen from the Employer's Reliance Data, the Contractor

shall notify the Engineer before the affected work is executed and the matter shall be determined in accordance with the Conditions of Contract.

3.3.2.6 Additional Slab Track.

Slab track in tunnels of 1,000 m or more and at the designated structures are included in the lump sum. Slab track additional to that requirement shall be dealt with as follows: where it results from the Contractor's design, method or programme, including any increase in invert lowering adopted by the Contractor, it shall be at the Contractor's cost and shall be deemed included in the Accepted Contract Amount; where it is instructed by the Engineer, arises from Employer's Reliance Data being materially incorrect, or follows from a change to the Employer's Requirements after the Base Date, it shall constitute a Variation and shall be valued at the rates stated in the Schedule of Rates. Each Proposer shall state in the Schedule of Rates a unit rate per meter of slab track in tunnel, including transition zones and the associated invert works, for the valuation of such Variations.

3.4 Bridges, Culverts, Overpasses and Underpasses

3.4.1 Inventory

The list of existing bridges, culverts, underpasses, and overpasses and details for the Divriği–Kars section is provided in Volume 3/ Section 3-Drawings and Annexes/Annex-16.

3.4.2 Reference Data

3.4.2.1 Employer's Reliance Data

In Divriği–Kars section, there are 2,050 railway bridges, underpasses or overpasses and culverts available in total along the line, built of steel, stone, or reinforced concrete. These structures were constructed between 1899 and 2015. The longest railway bridge is 280 m on the relocated Bağıştaş–İliç section. Some of the steel structures have ballastless tracks with wooden bridge sleepers mounted directly on the structure. Most other bridges are equipped with ballast-retaining metal plates to protect the ballast. In general, walkways for staff are not provided on bridges.

The Divriği–Kars section contains 2,050 bridges, culverts, underpasses and overpasses distributed as follows:

- Lot 1 (Km 777+708 – 933+784) – 51 bridges, 575 culverts, 5 overpasses and no underpasses; 631 structures in total
- Lot 2 (Km 933+784 – 1148+672) – 66 bridges, 747 culverts, 9 overpasses and 2 underpasses; 824 structures in total
- Lot 3 (Km 1148+672 – 1364+775) – 45 bridges, 534 culverts, 11 overpasses and 5 underpasses; 595 structures in total
- Total – 162 bridges, 1,856 culverts, 25 overpasses and 7 underpasses; 2,050 structures in total

Structures with a span of 8 m and above are bridges and structures with a span of less than 8 m are culverts. Overpasses and underpasses are counted separately and are not included in the bridge or culvert figures.

Guard rails are not present on the bridges between Divriği and Kars.

Along the Divriği–Kars railway line, underpasses or overpasses intersecting the railway, used by road traffic and pedestrians.

Culverts made of steel or reinforced concrete are located along the Divriği–Kars section.

The structures along the Divriği–Kars railway are designed to carry axle loads of 22.5 tons.

3.5 Stations

3.5.1 Inventory

The list and the layout plans of existing stations for the Divriği–Kars section is provided in Annexes/Annex-3.

3.5.2 Reference Data

3.5.2.1 Employer's Reliance Data

The Divriği–Kars line has a total of 45 railway stations, of which 44 lie within the Contract limits and are listed in the tables of this Clause; Divriği station (Km 777+708) is on the line but is not included in the scope, some of which are abandoned and not currently in operation.

	Name	**Km**	**Siding Nos.**	**Maximum Useful Length**	**NOTES**
LOT -1					
-	Divriği	777+708	9	950	Station. Not included in the scope
1	Dazlak	793+500	-		Abandoned Stop/Station
2	Çaltı	804+599	3	498	Station
3	Bağıştaş	821+802	2	424	Station
4	İliç	832+434	2	432	Station
5	Güllübağ	851+457	2	424	Station
6	Eriç	868+650	2	709	Station
7	Kemah	885+765	2	410	Station
8	Alp	901+798	2	406	Station
9	Dumanlı	921+002	-		Abandoned Stop/Station
10	Erzincan	933+784	8	893	Station
LOT-2					
11	Altınbaşak	951+338	-		Abandoned Stop/Station
12	Tanyeri	966+648	2	428	Station
13	Geçit	981+650	2	430	Station
14	Demirkapı	998+831	2	430	Station
15	Altınkent	1011+460	-		Abandoned Stop/Station
16	Mercan	1021+812	3	436	Station
17	Çadırkaya	1033+998	3	436	Station

18	Erbaş	1047+637	3	429	Station
19	Karasu	1061+852	4	590	Station
20	Saptıran	1080+463	-		Abandoned Stop/Station
21	Aşkale	1093+221	3	617	Station
22	Kandilli	1108+989	2	427	Station
23	Çiçekli	1124+500	-	417	Abandoned Stop/Station
24	Kaplıca(Ilıca)	1133+496	3	752	Station
25	Palandöken	1139+800	-		Replaced by Erzurum Logistics Center. Former siding tracks, turnouts, and station building are abandoned.
26	Erzurum	1148+672	10	749	Station
LOT-3					
27	Uzun Ahmet	1167+219	3	679	Station
28	Alvar	1180+762	-		Abandoned Stop/Station
29	Hasankale	1189+298	2	555	Station
30	Köprüköy	1206+485	2	528	Station
31	Karaçuha	1219+943	-		Abandoned Stop/Station
32	Horasan	1233+879	4	696	Station
33	Hızır İlyas	1248+408	-		Abandoned Stop/Station
34	Süngütaşı	1260+280	2	591	Station
35	Topdağı	1273+531	2	575	Station
36	Sayding	1283+000	-	-	This siding does not exist.
37	Soğanlı	1288+850	2	455	Station
38	Aşit	1293+750	-	417	Abandoned Stop/Station
39	Sarıkamış	1305+615	6	650	Station
40	Çatak	1319+875	-	417	Abandoned Stop/Station
41	Selim	1329+945	3	529	Station
42	Benli Ahmet	1340+550	3	547	Station
43	Dikme	1352+150	-	417	Abandoned Stop/Station
44	Kars	1364+775	6	765	Station (included)

The Divriği–Kars section contains 44 stations, distributed as follows:

- Lot 1 – 10 Stations (2 of which are abandoned and not currently in operation)
- Lot 2 – 16 Stations (4 of which are abandoned and not currently in operation)
- Lot 3 – 18 Stations (7 of which are abandoned and not currently in operation)
    - Total – 44 Stations (13 of which are abandoned and not currently in operation)

3.6 Specifications

The following Employer's Requirements and Technical Specifications form an integral part of the Contract. All documents listed below are binding on the Contractor:

Section 2 – Technical Specifications Document Index

Ref.	Document Title (EN)	Doküman Adı (TR)	Type
2.1 General | *2.1 Genel*			
2.1.0	General Technical Specifications	Genel Teknik Şartname	**WORD**
2.1.1	Tunnels	Tüneller	**WORD**
2.1.2	Bridges, Overpasses, Underpasses and Culverts	Köprüler, Üstgeçitler, Altgeçitler ve Menfezler	**WORD**
2.1.3	Platforms and Stations	Peronlar ve İstasyonlar	**WORD**
2.1.4	Level Crossings	Hemzemin Geçitler	**WORD**
2.1.5	Station Additional Trackworks	İstasyon Ek Hat İşleri	**WORD**
2.1.6	Trackworks	Hat İşleri	**WORD**
2.1.7	Retaining Walls	İstinat Duvarları	**WORD**
2.1.8	Technical Buildings	Teknik Binalar	**WORD**
2.1.9	General Civil Works	Genel İnşaat İşleri	**WORD**
2.1.10	Infrastructure Works	Altyapı İşleri	**WORD**
2.1.11	Electrical Works for Station Building	İstasyon Binası Elektrik İşleri	**WORD**
2.1.12	Mechanical Specifications for Station Building	İstasyon Binası Mekanik Şartnamesi	**WORD**
2.1.13	Signalling	Sinyalizasyon	**WORD**
2.1.14	Telecommunication	Telekomünikasyon	**WORD**
2.1.15	Power Supply	Güç Temini	**WORD**
Annex-1	Tunnel Time Schedule	Tünel Zaman Çizelgesi	**WORD**
2.2 Design | *2.2 Tasarım*			
2.2.1	Detailed Design Specifications	Ayrıntılı Tasarım Şartnamesi	**WORD**
2.2.2	Geotechnical Specifications	Zemin Teknik Şartnamesi	**WORD**

Ref.	Document Title (EN)	Doküman Adı (TR)	Type
2.2.3	Superstructure Projects Drawing Technical Spec.	Üstyapı Projeleri Çizim Teknik Şartnamesi	**PDF**
2.3 Trackworks | *2.3 Hat İşleri*			
└ 2.3.1 Infrastructures | *└ 2.3.1 Altyapılar*			
2.3.1.1	Soil Fillings	Zemin Dolguları	**WORD**
2.3.1.2	Geotextile	Jeotekstil	**WORD**
└ 2.3.2 Superstructures | *└ 2.3.2 Üstyapılar*			
2.3.2.1	Acceptance Conditions	Kabul Koşulları	**WORD**
2.3.2.2	Slabtrack Tunnel	Balastsız Hat Tüneli	**WORD**
2.3.2.3	Ballasts	Balas	**WORD**
2.3.2.4	Sub-Ballast	Alt Balas	**WORD**
2.3.2.5	Concrete Sleepers	Beton Traversler	**WORD**
2.3.2.6	Fastenings	Bağlantı Elemanları	**WORD**
2.3.2.7	De-Stressing	Gerilim Giderme	**WORD**
2.3.2.8	Fishplates	Balık Plakası	**WORD**
2.3.2.9	Insulated Joints	İzoleli Derzler	**WORD**
2.3.2.10	Insulated Seals	İzoleli Contalar	**WORD**
2.3.2.11	Butt Welding	Alın Kaynağı	**WORD**
2.3.2.12	Machineries	Makineler	**WORD**
2.3.2.13	Rail Grinding	Ray Taşlama	**WORD**
2.3.2.14	Switches	Makaslar	**WORD**
2.3.2.15	Ultrasonic Butt Welding	Ultrasonik Alın Kaynağı	**WORD**
2.3.2.16	Underballast Mat	Balas Altı Mat	**WORD**
2.3.2.17	Slabtrack Fastening	Balastsız Hat Bağlantısı	**WORD**
2.3.2.18	Switch Fastenings	Makas Bağlantı Elemanları	**WORD**
2.3.2.19	Rails	Raylar	**WORD**
2.3.2.20	General Technical Specifications	Genel Teknik Şartname	**WORD**

Ref.	Document Title (EN)	Doküman Adı (TR)	Type
2.3.2.21	Construction Technical Spec.	Yapım Teknik Şartnamesi	**WORD**
2.3.2.22	Rail Welding	Ray Kaynağı	**WORD**
2.3.2.23	Switch Rail	Makas Ray	**WORD**
2.3.2.24	Mechanical Rail Butt Welding	Mekanik Ray Alın Kaynağı	**WORD**
2.4 Tunnels | *2.4 Tüneller*			
2.4.1	Tunnels Construction	Tünel İnşaatı	**WORD**
2.4.2	Slabtrack	Balastsız Hat	**WORD**
2.4.3	Ballast Screening	Balas Eleme	**WORD**
2.4.4	Formwork	Kalıp İşleri	**WORD**
2.5 Civil Works | *2.5 İnşaat İşleri*			
2.5.1	Infrastructure Works	Altyapı İşleri	**WORD**
2.5.2	Soil Improvements	Zemin İyileştirme	**WORD**
2.5.3	Civil Works – Annex – Formwork	İnşaat İşleri – Ek – Kalıp İşleri	**WORD**
2.5.4	Fencing Technical Specifications	Çit Teknik Şartnamesi	**WORD**
2.5.5	Railway Bridges Technical Specifications	Demiryolu Köprüleri Teknik Şartnamesi	**PDF**
2.5.6	Retaining Walls	İstinat Duvarları	**WORD**
2.5.7	CTC Buildings	MKM Binaları	**WORD**
2.5.8	Technical Buildings	Teknik Binalar	**WORD**
2.5.9	CTC Buildings Other Technical Spec.	MKM Binaları Diğer Teknik Şartnamesi	**WORD**
2.5.10	Fencing Technical Specifications Annex 1	Çit Teknik Şartnamesi Ek 1	**PDF**
2.5.11	Auxiliary Technical Buildings Study	Yardımcı Teknik Bina Çalışması	**EXCEL**
2.6 Signalling (see 2.1.13) | *2.6 Sinyalizasyon (bkz. 2.1.13)*			
2.7 Telecommunication | *2.7 Telekomünikasyon*			
2.7.1	General Issues on Telecommunication	Telekomünikasyona İlişkin Genel Konular	**WORD**

Ref.	Document Title (EN)	Doküman Adı (TR)	Type
2.7.2	SDH Transmission System	SDH Aktarım Sistemi	**WORD**
2.7.3	Fiberoptic Cables	Fiberoptik Kablolar	**WORD**
2.7.4	Communication Cables	İletişim Kabloları	**WORD**
2.8 Power Supply | *2.8 Güç Temini*			
2.8.1	Catenary Systems Technical Specifications	Katener Sistemleri Teknik Şartnamesi	**WORD**
2.8.2	Power Supply and Distribution Systems	Güç Temini ve Dağıtım Sistemleri	**WORD**
2.8.3	Transformer Centres Technical Specifications	Trafo Merkezleri Teknik Şartnamesi	**WORD**
2.8.4	Transformer Centre Equipment Characteristics	Trafo Merkezi Cihaz Özellikleri	**WORD**
2.8.5	Auxiliary Service Transformers	Yardımcı Servis Trafoları	**WORD**
2.9 Surveying Works | *2.9 Ölçüm İşleri*			
2.9.1	Surveying Technical Specifications	Ölçme Teknik Şartnamesi	**PDF**

3.7 Drawings

The following drawings are provided as part of the Contract Documents. These drawings are indicative and for information purposes. The Contractor shall independently verify all information and shall not rely upon them for construction without independent verification: Item 32 is a document and not a drawing; its contractual status is governed by Clause 4.9.1 and by the Site Information classification table, and the qualification in this paragraph does not apply to it.

No	Drawing Title (English)	Çizim Adı (Türkçe)
01	Route Plan	Hat Planı
02	TCDD Structure Gauge	TCDD Yapı Gabarisi
03	Existing Station Plans	Mevcut İstasyon Planları
04	Gradient Lists	Hat Eğim Listeleri
05	Curve Lists	Hat Kurb Listeleri

No	Drawing Title (English)	Çizim Adı (Türkçe)
06	Schematic Profiles	Şenaj Profilleri
07	Kars Logistics Center Track Plan	Kars Lojistik Merkez Hat Planı
09	Kars Station Plan	Kars Gar Planı
10	Erzurum Station Plan	Erzurum Gar Planı
11	Erzincan Station Plan	Erzincan Gar Planı
12	Train Timetables (Timetable Book No. 6)	Tren Livreleri (6 No'lu Tarife Livreleri)
13	Operator Graphs (Timetable Book No. 6)	Örer Grafikleri (6 No'lu Tarife Livreleri)
14	Tunnel List	Tünel Listesi
15	Divriği-Akyaka Tunnel Cross-Sections	Divriği-Akyaka Tünel Enkesitleri
16	Bridge, Culvert, Underpass and Overpass List	Köprü Menfez Altgeçit Üstgeçit Listesi
17	Feeding Plan	Besleme Planı
18	Principle Diagram	Prensip Şeması
19	Single Track Type Diagram	Tek Hat Tip Şeması
20	Transformer Center Location Survey Report	Trafo Merkezleri Yer Tespit Raporu
21	Divriği-Kars Single Track Type Cross-Section	Divriği-Kars Tek Hat Tip Kesit
22	Divriği-Kars Level Crossing List	Divriği-Kars Hemzemin Geçit Listesi
23	Divriği-Kars Connection Switches Displacement	Divriği-Kars Bağıstaş İlic Deplase
24	BTK Main Plan and Profile	BTK Anahat Plan ve Profili
25	BTK Signalization Project	BTK Sinyalizasyon Projesi
26	BTK Signalization Report	BTK Sinyalizasyon Raporu
27	BTK Type Cross-Sections	BTK Tip Kesitler
28	BTK Canbaz Station Facility Site Plan	BTK Canbaz İstasyon Tesisi Vaziyet Planı
29	BTK Single Track Diagram	BTK Tek Hat Diyagramı
30	Divriği-Akyaka Tunnel Cross-Sections	Divriği-Akyaka Tünel Enkesitleri

No	Drawing Title (English)	Çizim Adı (Türkçe)
31	Signalization and Technical Buildings Drawings	Sinyalizasyon ve Teknik Binaları Çizimleri
32	AYGM–TCDD Collaboration Protocol (Implementation Protocol, signed Turkish original and English translation)	AYGM–TCDD İş Birliği Protokolü (Uygulama Protokolü, imzalı Türkçe asıl ve İngilizce çeviri)

3.8 Supplementary Typical Drawings

No	File Name	Type	Description (English)	Açıklama (Türkçe)
1	BTK-Kesit_SS-AcKapaTunel	**PDF**	BTK Cross-Section – Open/Cut Tunnel	BTK Kesit – Açık Kapama Tünel
2	BTK-Kesit_SS-DelmeTunel	**PDF**	BTK Cross-Section – Drill Tunnel	BTK Kesit – Delme Tünel
3	BTK-Kesit_SS-Dolgu	**PDF**	BTK Cross-Section – Fill	BTK Kesit – Dolgu
4	BTK-Kesit_SS-Viyaduk	**PDF**	BTK Cross-Section – Viaduct	BTK Kesit – Viyadük
5	BTK-Kesit_SS-Yarma	**PDF**	BTK Cross-Section – Cut	BTK Kesit – Yarma
6	CNB-O-A-GNL-DW-01-TR	**DWG**	Canbaz Station – General Drawing 01	Canbaz İstasyon – Genel Çizim 01
7	CNB-O-A-GNL-DW-02-TR	**DWG**	Canbaz Station – General Drawing 02	Canbaz İstasyon – Genel Çizim 02
8	Document List-Architectural	**Excel**	Document List – Architectural	Doküman Listesi – Mimari
9	DOKÜMAN LİSTESİ-Mimari	**Excel**	Document List – Architectural (TR)	Doküman Listesi – Mimari
10	Hat-Krokisi_SS	**PDF**	Route Sketch	Hat Krokisi
11	KARS-O-A-GNL-GRS-03	**PDF**	Kars Station – General Cross-Section 03	Kars İstasyon – Genel Kesit 03
12	KARS-O-A-GNL-KST-02	**PDF**	Kars Station – General Layout 02	Kars İstasyon – Genel Yerleşim 02
13	KARS-O-A-GNL-MHL-04	**PDF**	Kars Station – General Plan 04	Kars İstasyon – Genel Plan 04

No	File Name	Type	Description (English)	Açıklama (Türkçe)
14	KRS_001_UG01	**PDF**	Kars – Underpass 01	Kars – Altgeçit 01
15	KRS_002_UG02	**PDF**	Kars – Underpass 02	Kars – Altgeçit 02
16	KRS_003_UG03	**PDF**	Kars – Underpass 03	Kars – Altgeçit 03
17	KRS_004_MNFZ	**PDF**	Kars – Culvert 04	Kars – Menfez 04
18	KRS_005_MNFZ	**PDF**	Kars – Culvert 05	Kars – Menfez 05
19	KRS_006_AG	**PDF**	Kars – Overpass 06	Kars – Üstgeçit 06
20	KRS_007_TD	**PDF**	Kars – Support Wall 07	Kars – Taşıyıcı Duvar 07
21	KRS_008_TPR	**PDF**	Kars – Retaining Wall 08	Kars – Toprak Perde 08
22	KRS_009_CIT	**PDF**	Kars – Fence 09	Kars – Çit 09
23	KRS_PROJE LİSTESİ	**Excel**	Kars Project List	Kars Proje Listesi
24	ANNEX TECHNICAL BUILDINGS REFERENCE PLAN_Type-1	**DWG**	Annex – Technical Buildings Reference Plan Type-1	Ek – Teknik Binalar Referans Planı Tip-1
25	ANNEX TECHNICAL BUILDINGS REFERENCE PLAN_Type-2	**DWG**	Annex – Technical Buildings Reference Plan Type-2	Ek – Teknik Binalar Referans Planı Tip-2
26	Balastlı Hat Tip Kesiti	**PDF**	Ballasted Track Type Cross-Section	Balastlı Hat Tip Kesiti
27	BALASTLI TUNEL_TIP_KESIT	**DWG**	Ballasted Tunnel Type Cross-Section	Balastlı Tünel Tip Kesit
28	Betonarme Duvarlı Balastlı Hat Tip Kesit	**PDF**	RC-Walled Ballasted Track Type Cross-Section	Betonarme Duvarlı Balastlı Hat Tip Kesit
29	Culverts Tip Kesit	**ZIP**	Culverts Type Cross-Section	Menfezler Tip Kesit
30	Drenaj Tip Detaylar -1	**PDF**	Drainage Type Details -1	Drenaj Tip Detaylar -1
31	Drenaj Tip Detaylar -2	**PDF**	Drainage Type Details -2	Drenaj Tip Detaylar -2
32	Drenaj Tip Detaylar -3	**PDF**	Drainage Type Details -3	Drenaj Tip Detaylar -3

No	File Name	Type	Description (English)	Açıklama (Türkçe)
33	Hat Altyapı ve Üst Yapı Tip Kesit	**DWG**	Track Substructure and Superstructure Type Cross-Section	Hat Altyapı ve Üst Yapı Tip Kesit
34	Hat Altyapı ve Üst Yapı Tip Kesit-2	**DWG**	Track Substructure and Superstructure Type Cross-Section-2	Hat Altyapı ve Üst Yapı Tip Kesit-2
35	Hendek Tip Kesit	**PDF**	Trench Type Cross-Section	Hendek Tip Kesit
36	İstinat Duvarlı Balastlı Hat Tip Kesit	**PDF**	Retaining Walled Ballasted Track Type Cross-Section	İstinat Duvarlı Balastlı Hat Tip Kesit
37	Monoblok Beton Köşk Çizimi-Model	**PDF**	Monobloc Concrete Cabin Drawing – Model	Monoblok Beton Köşk Çizimi-Model
38	The Drawings of CTC Building	**DWG**	The Drawings of CTC Building	MKM Binası Çizimleri

3.9 Supplementary Information

The following supplementary information is provided to assist Proposers in understanding the environmental, social, health and safety (ESHS) framework applicable to this Project and the management instruments that have been prepared by the Employer in accordance with the World Bank Environmental and Social Framework (ESF), the Asian Infrastructure Investment Bank (AIIB) ESF, and the Islamic Development Bank (IsDB) Environmental and Social Safeguards Policy.

3.9.1 ESIA Package – Environmental and Social Management Instruments

The Employer has commissioned the preparation of a comprehensive Environmental and Social Impact Assessment (ESIA) package for the Project. This package, prepared by Çınar Engineering Consultancy Inc. on behalf of AYGM, comprises the following documents, which are made available to Proposers as part of the tender documentation and constitute binding reference documents for the preparation of the Contractor's Environmental and Social Management Plan (C-ESMP):

- Environmental and Social Impact Assessment Report (ESIA) – CNR-ETMIC-ESIA-001
- Environmental and Social Management Plan (ESMP) – CNR-ETMIC-ESMP-001
- Community Health and Safety Management Plan (CHSMP) – CNR-ETMIC-CHSMP-001
- Emergency Preparedness and Response Plan (EPRP) – CNR-ETMIC-EPRP-001
- Traffic Management Plan (TMP) – CNR-ETMIC-TMP-001
- Biodiversity Management Plan (BMP) – CNR-ETMIC-BMP-001
- Pollution Prevention and Waste Management Plan (PPWMP) – CNR-ETMIC-PPWMP-001
- Cultural Heritage Management Plan (CHMP) – CNR-ETMIC-CHMP-001

- Labor Management Procedure (LMP) – CNR-ETMIC-LMP-001
- Resettlement Framework (RF) – CNR-ETMIC-RF-001
- Occupational Health and Safety Management Plan (OHSMP) – CNR-ETMIC-OHSMP-001
- Stakeholder Engagement Plan (SEP) – CNR-ETMIC-SEP-001

The above documents are provided as indicative draft instruments prepared prior to final design. The Contractor shall finalize and update these instruments in accordance with the final design, construction methodology, and site-specific conditions, and shall submit the finalized documents for review and approval by the Engineer and, where required, the World Bank, AIIB, and IsDB prior to commencement of Works.

3.9.2 Project Context – ETMIC Programme

This Contract forms Component 1 (Sub-component 1.1) of the Eastern Türkiye Middle Corridor Railway Development Project (ETMIC), financed by the World Bank, the Asian Infrastructure Investment Bank (AIIB), and the Islamic Development Bank (IsDB). The ETMIC programme encompasses rehabilitation and modernization of the Divriği–Kars–Georgia Border Railway Line as well as associated project management and supervision components. The environmental and social risk rating of the ETMIC project has been identified as "Substantial" under the World Bank ESF.

3.10 Key Quantities (Divriği–Kars) All Lots Combined

3.10.1 Tunnels

Total tunnels	: 158 tunnels	length : 39,843 m
Rock Tunnels	: 124 rock tunnels	length : 34,240 m
Snow sheds	: 32 snow sheds	length : 5,555 m
Pedestrian Tunnels	: 2 pedestrian tunnels	length : 48 m

Tunnels requiring 5.30 m electrification gauge clearance enlargement

Total tunnels : 88 tunnels (Approximately) length : (22,443 m) where 75 of which is for Lot 1 tunnels in total length of 17,346 m, 11 of which is for Lot 2 tunnels in total length of 3,222 m and 2 of which is for Lot 3 tunnels in total length of 1,875 m.

These values are indicative only. Each bidder shall establish its own quantities from the laser-surveyed cross-sections provided in Annex-15 and Annex-30.

3.10.2 Bridges, Culverts, Overpasses & Underpasses

New bridges: 2 – Km 831+266 at İliç Station (Lot 1; 110 m, parallel to the existing bridge) and Km 981+501 at Geçit Station (Lot 2; 20 m, double track)

Overpass demolition and reconstruction: 4 – Km 1088+044 (L = 20.00 m; reinforced concrete; h = 4.90 m) and Km 1092+278 (L = 20.00 m; reinforced concrete; h = 4.80 m) at Erzurum, both in Lot 2; Km 1284+244

(L = 10.00 m; reinforced concrete; 1959; h = 4.50 m) and Km 1291+232 (L = 16.00 m, 2 × 8.00 m; reinforced concrete; 1960; h = 4.50 m) at Kars, both in Lot 3

Culvert extension or renewal due to station extensions: 85 – 17 in Lot 1, 35 in Lot 2 and 33 in Lot 3

The quantities in this Clause are the station-extension and grade-separation works. They are separate from, and additional to, the renewal of existing bridges and culverts listed by chainage for each Lot in the Existing Railway Characteristics Clauses, and the two sets of quantities shall not be aggregated.

3.10.3 Retaining Walls

Retaining walls: 3 – Güllübağ Station (Km 851+457) and Kemah Station (Km 885+765) in Lot 1; Erbaş Station (Km 1047+637) in Lot 2; none in Lot 3

3.10.4 Passenger Platform Renewals

Passenger platform renewals: 2 – Kemah Station (Km 885+765) in Lot 1 and Demirkapı Station (Km 998+831) in Lot 2; none in Lot 3

3.10.5 Level Crossings

Level crossings : 117

Lot 1 (Km 777+708 – 933+784): 20

Lot 2 (Km 933+784 – 1148+672): 49

Lot 3 (Km 1148+672 – 1364+775): 48

Protection status of the 117 level crossings within the scope of this Contract: 39 with automatic barriers, 1 with a mechanical barrier operated by station staff, 5 with a guarded barrier and 72 uncontrolled (St Andrew's cross only); barriered crossings therefore total 40. By Lot: Lot 1 – 10 automatic and 10 uncontrolled; Lot 2 – 18 automatic, 1 mechanical, 2 guarded and 28 uncontrolled; Lot 3 – 11 automatic, 3 guarded and 34 uncontrolled. A further 21 crossings lie beyond Km 1364+775 and are outside the scope of this Contract, giving 138 crossings on the line as a whole.

3.10.6 Technical Buildings

Type-1 technical buildings (main interlocking technical building): 18 – Lot 1: 5, Lot 2: 6, Lot 3: 7

Type-2 technical buildings (GSM-R and interlocking monoblock building): 27 – Lot 1: 7, Lot 2: 10, Lot 3: 10

CTC centre building (Type-3, auxiliary interlocking technical building): 1 – in Lot 3 (Kars) only; there is no CTC building in Lot 1 or Lot 2

Auxiliary technical buildings (approximately 4.80 m × 2.50 m, ≈12 m² each): 208 – Lot 1: 54, Lot 2: 76, Lot 3: 78

3.10.7 Traction Power Substations

Traction transformer substations: 14 (each 2×25 MVA, 25 kV AC)
TM1–TM13 Km 805+450 to Km 1357+700, and additional one in Kars- Georgia border

3.10.8 Electrification and Power Supply

Design, supply and construction of 25 kV AC 50 Hz overhead contact system (OCS/catenary) along the full Divriği–Kars- Georgia border section; traction power substations (transformer centers); return current and earthing/bonding systems; auxiliary power supply; UPS and all associated electrical infrastructure.

3.10.9 Signaling, Telecommunications and DAS (Out of Scope)

Design, supply, installation and commissioning of ERTMS/ETCS Level 1 train protection system, electronic interlockings, axle counters, lineside signals, point machines, Centralized Traffic Control (CTC) system integrated with the TCDD Maltepe CTC Centre, fiber optic backbone, operational telecommunications (GSM-R ready), emergency communication, passenger information systems, and Distributed Acoustic Sensing (DAS) natural hazard detection system along the full corridor This scope will be considered under a separate tender process which means not in this scope. The system is given here just for information purposes.

The signaling, telecommunication and Distributed Acoustic Sensing works described above form part of the Works of this Contract. They are procured as corridor-wide packages covering the whole of the Divriği–Kars- Georgia border section and are not divided among the three Lots. The Contractor shall coordinate them with the civil, track and electrification works of each Lot and shall accommodate the interfaces between them.

4 LOT STRUCTURE AND GEOGRAPHIC BREAKDOWN

The Works are divided into three Lots based on geographic sections of the Divriği–Kars corridor. Each Lot comprises the full range of work disciplines (tunnel works, civil and infrastructure works, track superstructure, electrification and signaling) within its section. Lot boundaries and key quantities are defined under following headings.

The tender/reference design issued by the Employer is provided for tender-pricing and design-development purposes and should not be used directly as a construction design. The Contractor shall verify, complete and develop the tender/reference design into the detailed design required for execution of the Works and shall remain responsible for the completed design in accordance with the Conditions of Contract and the Employer's Requirements.

The Contractor may rely only on information expressly identified as Employer's Reliance Data under the Contract. Any discrepancy between the tender/reference design and the Employer's Requirements shall be referred to the Engineer and resolved in accordance with the order of precedence stated in the Contract.

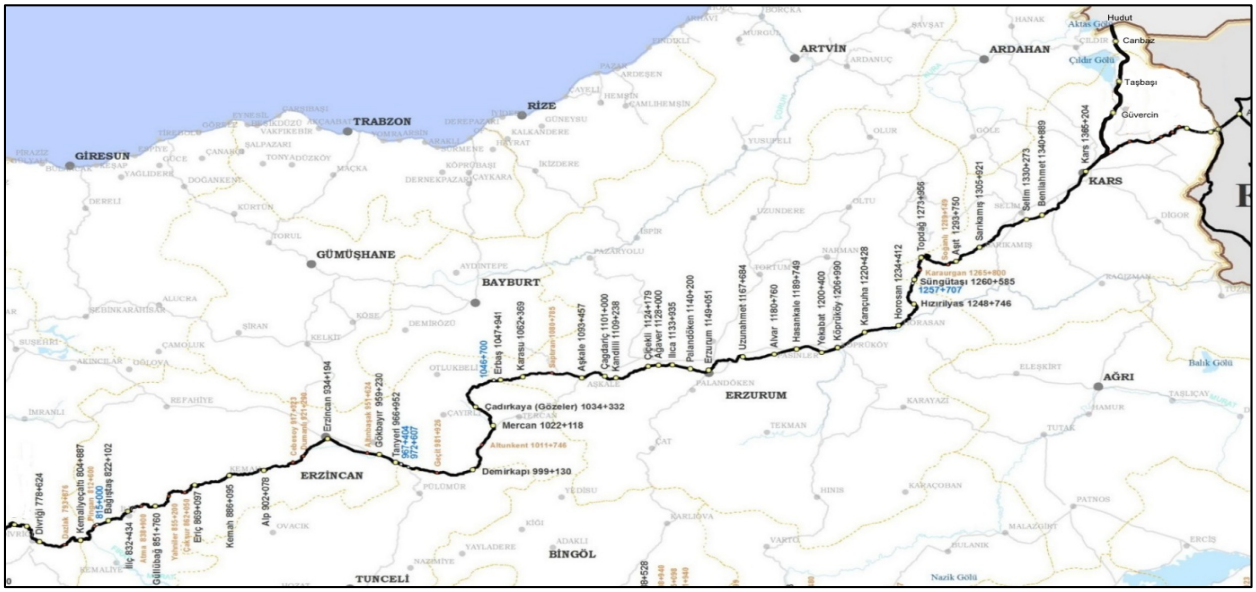
5 LOT 1 DIVRIĞI – ERZINCAN SECTION

The railway network of the Republic of Turkey consists of seven regions, and the Divriği-Erzincan Part (Lot 1) railway line is located within the 4th Region, centered between Sivas and Erzincan, in the northeastern part of Turkey.

Divriği-Erzincan Part (Lot 1) railway line, with a total length of approximately 156 km (156,076 m main line) is located between chainage Km 777+708 (Divriği) and Km 933+784 (Erzincan).



Türkiye Railway Regional Map



Project Alignment Plan

The existing line has 10 railway stations. Main stations are listed below:

- Divriği (out of scope)
- Dazlak
- Kemaliye Çaltı
- Bağıştaş
- İliç
- Güllübağ
- Eriç
- Kemah
- Alp
- Dumanlı
- Erzincan (933+784) (included in Lot 1)

The line is a non-electrified single-track railway, completed in 1961, built with standard gauge.

The project covers the establishment of signaling, telecommunication, and electrification systems aimed at increasing the existing railway operating capacity and enhancing operational safety along the Divriği–Erzincan section.

The maximum train length (including locomotive) to be operated along the entire line will be considered 700 m. In addition, stations with the potential for further extension will be adapted for 750 m or 1,050 m train sets.

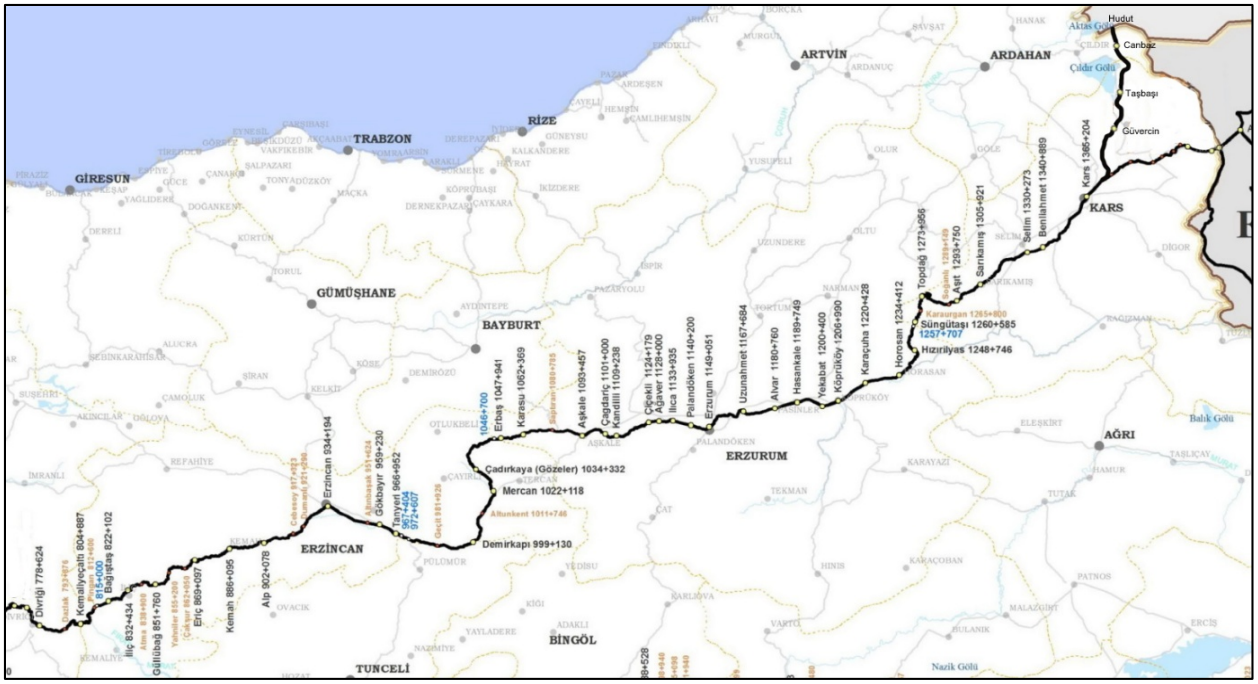
Due to the differences between the existing and newly built line sections, the project scope will be evaluated in two parts: (i) Divriği–Kars section, and (ii) Kars–Georgia border section. This lot only covers the Divriği-Erzincan lot of Divriği-Kars section.

5.1 Existing Railway Characteristics

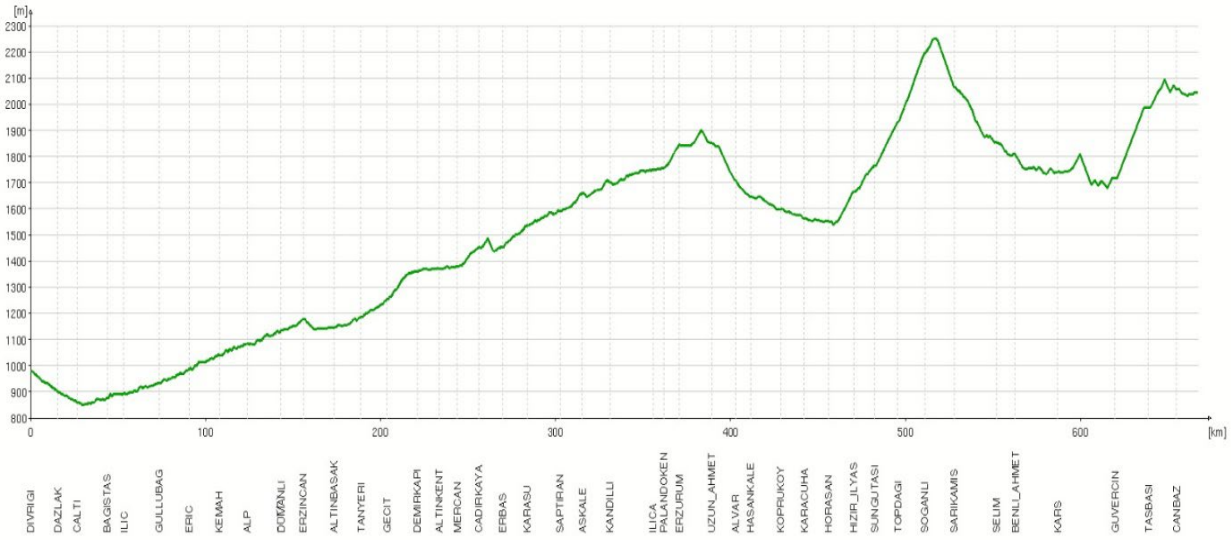
5.1.1 Alignment & Trackworks

Divriği–Erzincan route is one of the first railways of the Republican era and has been continuously operated in standard gauge since 1961. In 2014, due to the Bağıştaş Dam, a 16 km section of the line between Bağıştaş and İliç (Km ~826+000 – 842+000) was relocated, and a new line was constructed (see Annex-23 for the Relocation Project).

The railway line starts after the Divriği station, which is situated at an elevation of 980 m above sea level, descending towards İliç (approximately 850 m) and then rising again to reach 1,186 m at Erzincan. Alignment passes through the most challenging canyon terrain of the corridor, crossing the Euphrates (Fırat) and Karasu basins via successive viaducts and tunnels with restricted road access.



Project Alignment Plan



Project Alignment Profile

Between Divriği Erzincan, there are curves with radii ranging from 236–500 m. The line consists of curves with radii greater than 3,200 m and straight alignments through the entire line.

Overall, the route encounters very rugged topography. The alignment generally follows valleys and canyons in close proximity to riverbeds. Therefore, in the canyon passages of the existing railway line, continuity is achieved through successive viaducts and tunnels, with sharp curves located in these sections.

The existing cross-section profile of the Divriği–Kars line is provided in Volume 3/ Section 3-Drawings and Annexes/Annex-06.

The gradient and curve lists for the Divriği–Erzincan section are provided in Volume 3/ Section 3-Drawings and Annexes/Annex-04 and Annex-05.

The railway track superstructure is defined as a ballasted track, consisting mostly of prestressed concrete sleepers, with wooden sleepers used in certain sections.

Characteristics of Track Superstructure :

Average Speed Depending on Curve Radius and Superelevation	70-120 km/h
Minimum Curve Radius	236 m
Maximum Curve Radius	9226 m
Maximum Gradient	25 mm/m (kısa mesafede 28mm/m)
Maximum Superelevation	130 mm
Average Sleeper Spacing	62 cm
Maximum Axle Load	22,5 ton/aks (Divriği-Kars) 25 ton/aks ((Bağıştaş-İliç ve BTK))
Track Gauge	1435 mm
Rail Profile	S49 veya benzeri, 900A kalite UIC 60 E1 (Bağıştaş-İliç)
Rail Welding	CWR(Sürekli kaynaklı)
Rail Cant	1:40
Rail Fastening System	Skl-12 (Divriği-Erzincan)
Ballast Gradation	30/60 mm

On the Divriği–Erzincan route, the turnouts are generally 1:9 angle with R300 m curved turnouts (occasionally with R190 m curves), laid on either wooden or concrete sleepers, using S49 rails and UIC 60 rails on newer sections (such as Bağıştaş–İliç). The turnouts are manually operated and do not have heating systems.

In stations, the sidings are generally connected with wooden-sleeper turnouts equipped with switch handles. On the main line, concrete-sleeper turnouts are also operated with switch handles, where one wooden sleeper is used for setting up the platform, and no turnout locking devices are installed.

For the Divriği-Erzincan section, the design speed varies between 70 km/h and 120 km/h according to the alignment, the signaling design basis and target operational speed being 120 km/h, with speed restrictions down to 25 km/h applied in certain areas.

The permissible axle load is 22.5 tons between Divriği and Erzincan.

It is assumed that rail insulation exists only in the renewed sections. In other areas, rails are primarily fastened directly onto plates without elastic rail pads or sleeper pads. Overall, the condition of the lines can be classified as well-maintained.

5.1.2 Structural and Design

Tunnels, bridges, and culverts are considered the main engineering structures on the railway line. According to TCDD records, the existing structures are designed to withstand an axle load of 22.5 tons. The structures on the relocated Bağıştaş–İliç section have been designed for an axle load of 25 tons.

5.1.3 Infrastructure and Drainage

The route is a 100-year-old line, and regional infrastructure and drainage problems are present.

5.1.4 Level Crossings

Along the Divriği–Erzincan section, there are 20 level crossings. According to information provided, some of these crossings, where overpasses, underpasses and bridges are to be constructed to the points that coincide with the existing level crossings, will be eliminated through construction, leaving rest active level crossings to be evaluated.

This section corresponds to Lot 1 (Km 777+708–933+784); of the 20 level crossings,

- 10 are controlled (barriered) and
- 10 are uncontrolled.

The list of existing level crossings and details on the Divriği–Erzincan section is provided in Volume 3/ Section 3-Drawings and Annexes/Annex-22

Below, the level crossing list is provided for the reference for Lot 1.

Lot 1 – Divriği–Erzincan

Km 777+708 – 933+784 | 20 level crossings | Source: TCDD Divriği–Kars level-crossing list

No.	Level Crossing ID (KKY No)	Chainage (Km	Crossing type	Surface	Province	Connects	Road authority
1	117-H-4044-HMZ-H003	777+851	Uncontrolled (St Andrew cross)	Parke Taş	Sivas	Divriği Arazi Yolu	Özel İdare
2	117-H-4427-HMZ-H002	779+310	Automatic barrier	Toprak Balast	Sivas	Arazi Ve Kum Ocağı Yolu	Özel İdare
3	117-H-4427-HMZ-H004	804+405	Automatic barrier	Asfalt	Erzincan	Kemaliye-Divriği Yolu	Özel İdare
4	117-H-2711-HMZ-H001	812+550	Automatic barrier	Toprak Balast	Erzincan	Adatepe Köyü Yolu	Özel İdare
5	117-H-2711-HMZ-H002	820+591	Automatic barrier	Toprak Balast	Erzincan	Kemaliye-Divriği Yolu	Özel İdare
6	117-H-1181-HMZ-H004	825+819	Automatic barrier	Toprak Balast	Erzincan	Kemaliye-İliç Yolu	Tck
7	117-H-6648-HMZ-H001	852+050	Automatic barrier	Parke Taş	Erzincan	Güllübağ-Şahintepe Köy Yolu	Özel İdare
8	117-H-4899-HMZ-H001	870+721	Uncontrolled (St Andrew cross)	Toprak Balast	Erzincan	Koçkar Köyü Yolu	Özel İdare
9	117-H-4899-HMZ-H003	878+615	Uncontrolled (St Andrew cross)	Asfalt	Erzincan	Muratboynu Köyü Ve Nato Bağlanti Yolu	Özel İdare
10	117-H-4899-HMZ-H004	880+615	Uncontrolled (St Andrew cross)	Toprak Balast	Erzincan	Köy Yolu Ve Nato Bağlanti Yolu	Özel İdare
11	117-H-4899-HMZ-H005	883+707	Automatic barrier	Kauçuk	Erzincan	Beklimçay Mahallesi Yolu	Özel İdare
12	117-H-4899-HMZ-H006	885+449	Automatic barrier	Kauçuk	Erzincan	Çarşi Mahallesi Yolu	Kemah Belediyesi
13	117-H-9902-HMZ-H001	888+326	Uncontrolled (St Andrew cross)	Toprak Balast	Erzincan	Aşağigedik Mahallesi Yolu	Özel İdare
14	117-H-9902-HMZ-H002	901+617	Uncontrolled (St Andrew cross)	Toprak Balast	Erzincan	Alp Köyü Tarla Yolu	Özel İdare
15	117-H-9902-HMZ-H003	902+395	Uncontrolled (St Andrew cross)	Ahşap Travers	Erzincan	Alp Köyü Tarla Yolu	Özel İdare
16	117-H-0250-HMZ-H002	917+987	Automatic barrier	Asfalt	Erzincan	On Pare Köy Yolu	Özel İdare
17	117-H-0250-HMZ-H004	919+794	Uncontrolled (St Andrew cross)	Asfalt	Erzincan	Akyüncü Köyü Arazi Yolu	Özel İdare
18	117-H-0250-HMZ-H005	925+522	Automatic barrier	Toprak Balast	Erzincan	Söğütözü Köyü Arazi Yolu	Özel İdare
19	117-H-0250-HMZ-H007	927+708	Uncontrolled (St Andrew cross)	Toprak Balast	Erzincan	Beşsaray Köyü Arazi Yolu	Özel İdare
20	117-H-0250-HMZ-H009	931+902	Uncontrolled (St Andrew cross)	Asfalt	Erzincan	Kemah-Ulular Yolu	Erzincan Belediyesi

The level crossings on the railway line facilitate both pedestrian and vehicle passage, with and without barriers. In the Divriği–Erzincan section, 10 level crossings are equipped with automatic or mechanical barriers and are controlled, while the remainder operate either uncontrolled or under guard supervision.

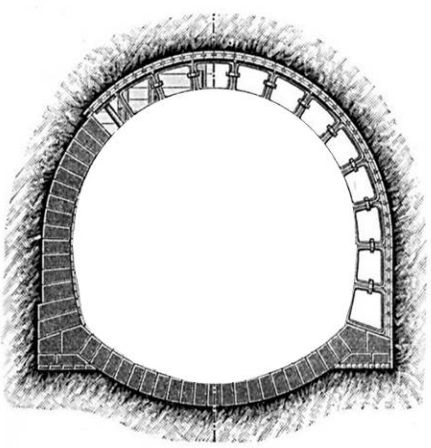
5.1.5 Tunnels

Along the Divriği–Erzincan (Lot 1) railway line, there are 79 tunnels with a total length of 21.03 km. Lot 1 carries the heaviest tunnel burden including the 2,630 m Bağıştaş variant tunnel (longest on the corridor).

Tunnel linings include reinforced concrete, shotcrete, stone masonry, and unlined rock, while the foundations are either reinforced concrete or masonry.

The tunnels were constructed with narrow cross-sections, in accordance with the construction conditions of their time. Horizontally, most tunnels do not provide sufficient space for walkways, although escape chambers are available at certain intervals.

Vertical clearance issues are observed across the tunnels along the line, with vertical tunnel clearances ranging from 4.80 m to 5.80 m.



Typical Tunnel Cross Section between Divriği-Erzincan

Based on schedule (Item Nos. 42–120; TCDD Tunnel Nos. 39–123, per the verified Tunnel Schedule), there are;

- 78 mountain tunnels in a total length of 20,681m,
- 1 snow shed and in 350 m length
- no pedestrian tunnels
- Total 79 tunnels with a total length ≈21,031 km

within this section.

Tunnel linings: reinforced concrete, shotcrete, stone masonry and unlined rock; vertical clearances 4.80–5.80 m.

Schedule Item No.	TCDD Tunnel No.	Start Chainage	End Chainage	Length (m)	Tunnel Type	Structural / Lining Type	Foundation Type
42	39	777+434	777+712	278.00	Mountain Tunnel	Stone Masonry Lining	Masonry
43	40	779+289	779+443	154.00	Mountain Tunnel	Stone Masonry Lining	Masonry
44	41	779+990	780+442	452.00	Mountain Tunnel	Stone Masonry Lining	Masonry
45	42	780+872	781+042	170.00	Mountain Tunnel	Stone Masonry Lining	Masonry
46	43	781+062	781+091	29.00	Mountain Tunnel	Stone Masonry Lining	Masonry

47	44	781+489	782+363	874.00	Mountain Tunnel	Stone Masonry Lining	Masonry
48	45	782+575	782+664	89.00	Mountain Tunnel	Stone Masonry Lining	Masonry
49	46	782+745	783+243	498.00	Mountain Tunnel	Stone Masonry Lining	Masonry
50	47	787+807	788+233	426.00	Mountain Tunnel	Stone Masonry Lining	Masonry
51	48	788+399	788+661	262.00	Mountain Tunnel	Stone Masonry Lining	Masonry
52	49	788+985	789+274	289.00	Mountain Tunnel	Stone Masonry Lining	Masonry
53	50	790+092	790+208	116.00	Mountain Tunnel	Stone Masonry Lining	Masonry
54	51	790+251	790+290	39.00	Mountain Tunnel	Stone Masonry Lining	Masonry
55	52	791+038	791+218	180.00	Mountain Tunnel	Stone Masonry Lining	Masonry
56	53	791+573	791+717	144.00	Mountain Tunnel	Stone Masonry Lining	Masonry
57	54	792+489	792+612	123.00	Mountain Tunnel	Stone Masonry Lining	Masonry
58	55	793+070	793+175	105.00	Mountain Tunnel	Stone Masonry Lining	Masonry
59	56	794+460	794+671	211.00	Mountain Tunnel	Stone Masonry Lining	Masonry
60	57	795+072	795+134	62.00	Mountain Tunnel	Stone Masonry Lining	Masonry
61	58	796+477	796+591	114.00	Mountain Tunnel	Stone Masonry Lining	Masonry
62	59	798+291	798+376	85.00	Mountain Tunnel	Stone Masonry Lining	Masonry

63	60	798+452	798+565	113.00	Mountain Tunnel	Stone Masonry Lining	Masonry
64	61	798+818	798+890	72.00	Mountain Tunnel	Stone Masonry Lining	Masonry
65	62	801+013	801+065	52.00	Mountain Tunnel	Stone Masonry Lining	Masonry
66	63	807+137	807+227	90.00	Mountain Tunnel	Stone Masonry Lining	Masonry
67	64	807+699	807+821	122.00	Mountain Tunnel	Rock Ground	Masonry
68	65	808+265	808+437	172.00	Mountain Tunnel	Stone Masonry Lining	Masonry
69	66	810+895	811+052	157.00	Mountain Tunnel	Stone Masonry Lining	Masonry
70	67	813+721	813+765	44.00	Mountain Tunnel	Stone Masonry Lining	Masonry
71	68	813+891	813+961	70.00	Mountain Tunnel	Stone Masonry Lining	Masonry
72	69	814+391	814+541	150.00	Mountain Tunnel	Rock Ground	Masonry
73	70	816+446	816+471	25.00	Mountain Tunnel	Stone Masonry Lining	Masonry
74	71	816+520	816+635	115.00	Mountain Tunnel	Stone Masonry Lining	Masonry
75	72	818+734	818+853	119.00	Mountain Tunnel	Rock Ground	Masonry
76	73	818+877	818+916	39.00	Mountain Tunnel	Rock Ground	Masonry
77	74	819+156	819+246	90.00	Mountain Tunnel	Rock Ground	Masonry
78	75	819+960	820+012	52.00	Mountain Tunnel	Stone Masonry Lining	Masonry
79	75/A	828+100	828+527	427.00	Mountain Tunnel	Reinforced Concrete	Reinforced Concrete
80	Variant tunnel (replaces No 76-84)	838+750	841+380	2630.00	Mountain Tunnel	Reinforced Concrete (Shotcrete)	Reinforced Concrete (Shotcrete)

81	85	843+177	843+247	70.00	Mountain Tunnel	Stone Masonry Lining	Masonry
82	86	843+627	843+684	57.00	Mountain Tunnel	Stone Masonry Lining	Masonry
83	87	843+750	844+175	425.00	Mountain Tunnel	Stone Masonry Lining	Masonry
84	88	844+588	844+725	137.00	Mountain Tunnel	Stone Masonry Lining	Masonry
85	89	844+946	845+016	70.00	Mountain Tunnel	Stone Masonry Lining	Masonry
86	90	846+738	847+443	705.00	Mountain Tunnel	Stone Masonry Lining	Masonry
87	91	848+032	848+341	309.00	Mountain Tunnel	Stone Masonry Lining	Masonry
88	92	848+423	848+640	217.00	Mountain Tunnel	Stone Masonry Lining	Masonry
89	93	848+740	849+814	1074.00	Mountain Tunnel	Stone Masonry Lining	Masonry
90	94	850+196	850+257	61.00	Mountain Tunnel	Stone Masonry Lining	Masonry
91	95	850+310	850+396	86.00	Mountain Tunnel	Stone Masonry Lining	Masonry
92	96	850+431	850+486	55.00	Mountain Tunnel	Stone Masonry Lining	Masonry
93	97	851+138	851+319	181.00	Mountain Tunnel	Stone Masonry Lining	Masonry
94	98	852+929	853+840	911.00	Mountain Tunnel	Stone Masonry Lining	Masonry
95	99	854+643	854+743	100.00	Mountain Tunnel	Stone Masonry Lining	Masonry
96	100	857+641	857+761	120.00	Mountain Tunnel	Stone Masonry Lining	Masonry

97	101	858+027	858+106	79.00	Mountain Tunnel	Stone Masonry Lining	Masonry
98	102	859+053	859+110	57.00	Mountain Tunnel	Stone Masonry Lining	Masonry
99	103	859+407	859+623	216.00	Mountain Tunnel	Stone Masonry Lining	Masonry
100	104	860+768	860+881	113.00	Mountain Tunnel	Stone Masonry Lining	Masonry
101	105	861+424	861+511	87.00	Mountain Tunnel	Stone Masonry Lining	Masonry
102	106	861+671	861+741	70.00	Mountain Tunnel	Stone Masonry Lining	Masonry
103	107	867+569	867+635	66.00	Mountain Tunnel	Stone Masonry Lining	Masonry
104	108	873+532	874+876	1344.00	Mountain Tunnel	Stone Masonry Lining	Masonry
105	109	882+340	882+421	81.00	Mountain Tunnel	Stone Masonry Lining	Masonry
106	110	886+439	886+582	143.00	Mountain Tunnel	Stone Masonry Lining	Masonry
107	111	889+026	889+545	519.00	Mountain Tunnel	Stone Masonry Lining	Masonry
108	112	889+839	890+113	274.00	Mountain Tunnel	Stone Masonry Lining	Masonry
109	113	891+355	892+014	659.00	Mountain Tunnel	Stone Masonry Lining	Masonry
110	114	893+877	894+490	613.00	Mountain Tunnel	Stone Masonry Lining	Masonry
111	115	896+536	896+866	330.00	Mountain Tunnel	Stone Masonry Lining	Masonry
112	116	898+437	899+166	729.00	Mountain Tunnel	Stone Masonry Lining	Masonry

113	117	907+375	907+764	389.00	Mountain Tunnel	Stone Masonry Lining	Masonry
114	118	909+995	910+161	166.00	Mountain Tunnel	Stone Masonry Lining	Masonry
115	118/A	912+263	912+613	350.00	Snow Tunnel	Reinforced Concrete	Masonry
116	119	912+613	913+073	460.00	Mountain Tunnel	Stone Masonry Lining	Masonry
117	120	919+007	919+240	233.00	Mountain Tunnel	Stone Masonry Lining	Masonry
118	121	922+625	922+731	106.00	Mountain Tunnel	Stone Masonry Lining	Masonry
119	122	923+336	923+401	65.00	Mountain Tunnel	Stone Masonry Lining	Masonry
120	123	923+424	923+489	65.00	Mountain Tunnel	Stone Masonry Lining	Masonry

One of the main problems of the tunnels is water ingress from the tunnel crown due to precipitation and groundwater content. This condition requires additional protective measures for electrification.

In the rainy winter season, rocks located above tunnel portals weaken due to freeze–thaw cycles, causing large blocks to topple and fall along steep slopes. In particular, major rockfalls onto the railway line pose significant hazards to railway operations.

In the existing tunnel cross-sections, drainage systems do not function properly. Especially in areas with heavy water ingress, excessive deterioration occurs, making water discharge necessary.

During winter, water flowing from the tunnel sidewalls freezes, creating serious problems with horizontal clearance.

5.1.6 Bridges, Culverts, Overpasses and Underpasses

Hydraulic structures are generally classified as bridges and culverts. Structures with a span of 8 m and above are defined as bridges, while structures with a span of less than 8 m are considered culverts.

Up to the Divriği–Erzincan section, there are

- 51 railway bridges (span of 8 m and above),
- 575 culverts (span of less than 8 m),
- 5 road overpasses, and

- no underpasses,

available in total along the line, built of steel, stone, or reinforced concrete.

These structures were constructed between 1899 and 2015. The longest railway bridge is 280 m on the relocated Bağıştaş–İliç section.

Some of the steel structures have ballastless tracks with wooden bridge sleepers mounted directly on the structure. Most other bridges are equipped with ballast-retaining metal plates to protect the ballast. In general, walkways for staff are not provided on bridges.

Although guard rails are generally present on bridges, they are absent on the bridges between Divriği and Erzincan.

Along the Divriği–Kars railway line, underpasses or overpasses intersecting the railway, used by road traffic and pedestrians.

Culverts made of steel or reinforced concrete are located along the Divriği–Erzincan section.

The structures along the Divriği–Erzincan railway are designed to carry axle loads of 22.5 tons.

Renewal of hydraulic structures. Within Lot 1, 17 culverts are scheduled for renewal at Km 781+151, 781+340, 781+433, 790+225, 795+623, 795+843, 796+019, 796+089, 796+208, 796+295, 818+110, 844+506, 844+795, 845+060, 845+256, 923+846 and 933+478. No bridge renewal is scheduled in Lot 1.

5.1.7 Signaling

Currently, there is no signaling system on the existing line. Railway operations are managed through the TMİ system, where train traffic is controlled by the central dispatcher via telephone communication. The remote traffic control centers for this railway line is located in Erzincan and Erzurum.

All turnouts at stations are manually operated by a switchman under the supervision of the station master. In some stations, advanced protection signals are positioned at braking distance. There is no train detection system (free/occupied track detection) along the railway line.

Certain stations are either permanently or temporarily closed, and all warning systems in these stations are deactivated. In the closed stations, lighting is either lacking or out of service, and all mainline turnouts, if present, are kept locked.

5.1.8 Telecommunication

Although the overhead line network used for the existing communication system is in good condition, the current telecommunication system is not compatible with modern requirements and has no possibility for capacity expansion.

There is no continuous passenger information system along the railway line. At roadside stations, passenger information systems (audio and visual) cannot be activated from a central operations center.

In addition, systems such as telecontrol, data transmission, alarm systems, and CCTV (closed-circuit television) have not been installed. Radio communication is also not available in the tunnels.

5.1.9 Communication Lines

Communication along the railway line is provided by an overhead line network with conductors mounted on wooden poles. Three systems are currently in operation on the existing railway line:

- 12-channel carrier system
- TMİ dispatching system
- Service distribution system

Operational communication is carried out by telephone (e.g., between dispatchers and station masters; between station masters and signalmen or gatekeepers operating mechanical barriers, etc.). No telecommunication equipment is available inside the tunnels (e.g., connectors for telephones).

Connectors for telephones are mounted on poles along the track. Additional connectors are located in switchman/signalman cabins, at level crossings, and in unmanned stations. These connectors are labeled with a telephone symbol. In case of emergencies or accidents, the connectors can be used with a portable telephone to establish communication with personnel at the next station.

The workstations of station personnel at the operational stations are equipped with the following telecommunication devices:

- Separate telephone for each track direction
- Automatic telephone (with access to the national telephone system)

In some cases, multiple telephones

5.1.10 Radio Communication System

The Wide Area Coverage Radio System, established by Aselsan, is in operation along the railway line. All communications are transmitted through a relay channel. This system is not used directly for the management of traffic services but serves as a support system to enhance the level of operational safety.

The system has a single channel for communication on operational matters. It is solely for voice transmission and is not used for data transfer. Conversations conducted with the dispatcher through the system are recorded by a voice recording system.

5.1.11 Station Passenger Information Systems

Systems with clocks and loudspeakers are considered passenger information systems. General public-address systems are currently available only at major stations while no passenger information systems exist at the other stations. Information related to train operations is mostly provided through timetables at stations or at train stops without railway staff.

5.1.12 Power Systems

The energy requirements of the stations and existing systems are supplied by local power facilities along the railway line.

Overall energy consumption consists of:

- Lighting of buildings, sidings, station areas, and level crossings
- Telecommunication installations and operation centers
- Workshops, maintenance facilities, and machinery
- Pre-heating of passenger coaches in the waiting areas of major stations

Floodlights are installed at major stations. At smaller stations, older individual lighting systems are in use. Power for floodlights is supplied by cables, while at smaller stations, lamps mounted on wooden or steel poles are connected via overhead wires.

There are numerous overhead line crossings of different types along the railway line and stations. In some stations, feeder cables for the station and other related buildings pass directly through the station area.

5.1.13 Maintenance and Rehabilitation

Since the construction of the railway, only routine maintenance works have been carried out, such as the replacement of certain specific track superstructure components, repairs of some sections of the line, infrastructure improvements, and maintenance of drainage elements and engineering structures.

According to information provided by TCDD, the track renewal works between Divriği – Erzincan were completed during the period 2012–2016.

5.1.14 Restricted Access

In particular, between Divriği and Erzincan, access by road is only possible at specific points, notably along the Divriği–Çaltı section (Km 777+708 – Km 805+000) and the canyon passage after İliç station (Km 840+000 – Km 850+000). In these two sections, access to the railway can only be achieved directly via the railway itself.

A chainage-based schedule of restricted-access locations (including the Divriği–Çaltı section, Km 777+708–805+000, and the İliç canyon passage, Km 840+000–850+000) shall be provided, together with details of any locomotives, work trains or other railway resources to be made available by TCDD for material transport, emergency access and possessions.

Sections of difficult access in this Lot are the following. Road access: the Divriği–Çaltı section, Km 777+708 – 805+000, and the İliç canyon passage, Km 840+000 – 850+000, are reachable only by rail other than at isolated points; the longest lengths between successive road access points are Km 832+434 – 851+457 (19.0 km), Km 852+050 – 868+650 (16.6 km), Km 902+395 – 917+987 (15.6 km), Km 779+310 – 793+500 (14.2 km) and Km 888+326 – 901+617 (13.3 km). Winter conditions: this Lot contains one

snow gallery, at Km 912+263 – 912+613 (350 m), and lies in Climatic Zone 1, at altitudes between approximately 850 m at İliç and 1,186 m at Erzincan. Working at the above locations shall be planned on the basis of rail-borne access and of the seasonal restrictions stated in the Seasonal Restriction Calendar.

The road access distances stated above are given for information only and do not relieve the Contractor of its obligation to satisfy itself as to the means of access to the Site.

In accordance with the Collaboration Protocol between AYGM and TCDD, TCDD will determine the applicable operational scenarios and prepare the railway traffic planning, which will be communicated to AYGM before the commencement of the relevant activities. Accordingly, prior to the commencement of work in the affected sections, a chainage-based schedule of restricted-access locations shall be prepared in coordination with TCDD, together with the corresponding access and possession arrangements. The planning shall also identify any locomotives, work trains or other railway resources required for material transportation, emergency access and execution of the Works. The availability, timing and conditions of use of such railway resources shall be subject to TCDD's approved operational and traffic planning.

The necessary arrangements for transportation of personnel, plant and materials to the tunnel and restricted-access locations of this Lot shall be ensured by AYGM (the Employer); all related permits and licenses shall be provided by AYGM.

TCDD shall make available the locomotives, work trains and railway resources required for material transport, emergency access and possessions, as set out in the Restricted-Access Schedule.

5.2 Scope of Works

The scope of the Works is classified under the headings set out below.

5.2.1 Design Works

The main design work items are listed as follows:

- Detail design work,
- Alignment final design
- Design of structures, along the line
- Design of passenger stations (civil, E-M)
- E-M items design (electrification, mechanical design)

The contractor shall be responsible for preparing the design studies and documents in accordance with the standards, specifications, and regulations given in the relevant design and construction specifications.

5.2.1.1 Alignment and Detail Design Works

The Contractor shall update all geodetic works along the railway line and gather all relevant information on existing and planned infrastructure and sub-structures which may affect or be affected by the railway alignment. Hydrological and hydraulic studies shall include catchment delineation, data review, intensity-

duration-frequency analyses, flood-frequency analyses, design discharge calculations, hydraulic modelling, scour and erosion assessment and verification of the required hydraulic capacity.

The Contractor shall identify and justify the return periods proposed for bridges, culverts, drainage structures and temporary works, taking into account the asset type, design life, operational importance and consequences of failure. The proposed return periods, IDF data and calculation methodology shall be submitted to the Engineer and the relevant national authorities for approval.

5.2.1.2 Geological and Geotechnical Designs

The Contractor shall prepare a soil investigation and laboratory programme in accordance with the Standards to be named; Ground investigation & testing (framework)TS EN 1997-2, Sampling & groundwater measurement TS EN ISO 22475-1, Field testing (SPT, CPT, pressure meter, dilatometer, etc.) TS EN ISO 22476 series (e.g. -1 CPT, -2/-3 SPT, -4/-5 pressure meter) Soil identification & classifications TS EN ISO 14688-1 / -2 Rock identification & classification TS EN ISO 14689 Laboratory testing of soil TS EN ISO 17892 series (Parts 1–12). Prior to commencing the soil investigation programme, existing infrastructure (gas lines, electrical, communication, NATO lines, sewage, water distribution lines and similar utilities) shall be identified from information to be provided by AYGM. After approval by AYGM/Consultant, investigations and laboratory tests shall be conducted and geological and geotechnical reports prepared for the alignment (cuts, fills, ground improvements) and for all structures (tunnels, bridges, stations and other structures) along the line

5.2.1.3 Civil Structure Designs

Structural designs shall be prepared for all alignment structures including tunnels, bridges and hydraulic structures in accordance with the design technical specifications provided with the tender documents. Civil, architectural and electromechanical designs shall be prepared for all passenger stations (Erzincan, Erzurum, Kars and others as defined in the Annexes) and for other structures including electromechanical buildings and substations. Station designs shall include fire scenario analysis, egress and escape routes, ventilation systems, firefighting, electromechanical installations and all associated distribution facilities.

5.2.1.4 Power Supply and Electrification Designs

A 25 kV AC 50 Hz single-phase electrification system will be adopted for the full Divriği–Kars corridor. Power requirements for target-year train operations shall be determined by the Contractor. A total of 14 traction transformer substations (each 2×25 MVA) will be installed within the Contract limits,. The catenary system shall comprise one contact wire (120 mm² CuAg0.1, in compliance with EN 50149) and one messenger wire (95 mm² Bz II 95, in compliance with DIN 48201). In tunnel sections with restricted clearance, a compact catenary configuration using reduced-height assemblies shall be applied. Maximum section length shall be 1,400 m; the number of cantilevers per half-section shall be limited to 20. The catenary wires shall be tensioned separately on the main line (regulated individually) and jointly on sidings. Each Contractor Lot shall be responsible for completing electrification works within its section, including all necessary connections and interfaces with adjacent Lot sections. Detailed supply plans, principle diagrams and single-line diagrams are provided in the Contract Drawings (Annex-17, Annex-18, Annex-19, Annex-20). All works shall comply with the Technical Specifications for Catenary Systems (2.8.1), Power Supply and Distribution (2.8.2), and Transformer Centers (2.8.3).

5.2.1.5 154 kV Grid Connection and Power Transmission Lines

The Contractor shall design and construct the complete 154 kV grid-connection infrastructure required for the energization of each traction power substation.

The scope shall include, as a minimum:

- confirmation of the TEİAŞ connection point and available short-circuit capacity;
- load-flow, short-circuit, power-quality and harmonic studies;
- route selection and topographical, geotechnical and environmental surveys;
- design of overhead transmission lines and, where required, underground cable sections;
- towers, poles, foundations, conductors, earth wires and optical ground wire;
- 154 kV connection bays, switchgear, protection, metering and control equipment;
- protection coordination between the TEİAŞ network and the traction power substations;
- revenue-metering arrangements;
- SCADA, telecontrol and telecommunications interfaces with TEİAŞ and the traction-power control system;
- earthing, bonding, lightning protection and electromagnetic compatibility;
- all applications, submissions, permits, approvals and technical agreements required by TEİAŞ and other competent authorities;
- factory tests, site tests, system-integration tests, energization tests and operational acceptance;
- as-built drawings, settings, test records, operation and maintenance manuals and training.

The Contractor shall submit a 154 kV Grid Connection Design Basis Report within 90 days after the Commencement Date. The Report shall identify the connection point for each traction power substation, the proposed route, connection-bay arrangement, protection and metering philosophy, SCADA interface, approval programme, construction programme, testing programme and planned energization date.

The 154 kV connection works shall be incorporated into the Contractor's Work Programme as contractual activities and milestones. The programme shall ensure that each connection is completed before the planned testing and commissioning of the corresponding traction power substation and associated catenary feeding section.

5.2.2 Construction Works

The main construction work items are listed as follows:

- Earth works, along the line (cuts, fills, ground improvements, retaining structures),
- Construction works of the structures along the line (NATM and TBM tunnels, construction shafts, cut and cover structures, viaducts, bridges, hydraulic structures, under passes, over passes)
- Station improvements, platform construction and associated civil and electromechanical works at active stations (Erzincan, Erzurum, Kars and others as defined in the Annexes),

- Traction power supply and electrification work,
- E-M system works, (tunnel ventilations, emergency tunnels, firefighting for the underground structures along the line),
- Track works along the line (open line, through tunnels and on structures): ballasted track renewal, slab track (tunnels ≥1000 m and designated structures (namely the bridges, viaducts and transition structures identified in the Slab-Track Schedule)), UIC 60 E1 rail supply and welding, concrete sleepers, fastening systems, switches and crossings, transition zones, rail grinding,
- Railway trial operation period,
- Signalization- communication and supporting systems work,
- Design, permitting, supply, construction, testing, commissioning and energization of all 154 kV power transmission lines, branch lines, TEİAŞ connection bays and associated grid-connection facilities required for the traction power substations;

5.2.2.1 Track Substructure and Superstructure Maintenance and Repair Works

Track substructure and superstructure works shall comprise

- All permanent way works necessary for the rehabilitation, modification, adjustment, installation, reinstatement, and maintenance of the railway track along the alignment, excluding slab track construction inside tunnels, which is included under the tunnel works.
- Station arrangements including the necessary earthworks, as well as track substructure and superstructure work.
- Installation of missing guard rails in bridges where Engineer proposes.
- Installation of sub-ballast mats where Engineer proposes.
- Installation of under-sleeper pads where Engineer proposes.
- Replacement of existing rail fastening components and sleeper fastening elements deemed necessary by the Engineer.
- All track geometry modifications required to achieve the necessary clearance envelope within tunnels and at tunnel portals. Removal of track for the purpose of gradient adjustment and reinstallation of track after invert lowering.
- All sleepers within a length of 100 meters at both tunnel portals shall be replaced with new sleepers which are compatible with the existing line.
- All necessary maintenance works shall be carried out, and track geometry measurements as well as non-destructive testing (NDT) of the rails shall be performed in the sections instructed by the Engineer along the track length.

The Works shall include all track geometry modifications required to achieve the necessary clearance envelope within tunnels and at tunnel portals.

For this purpose, all sleepers within a length of 100 meters at both tunnel portals shall be replaced with new sleepers which are compatible with the existing line.

5.2.2.2 Enlargement of Tunnel Clearance for Electrification Integration

Vertical clearance issues are observed across the tunnels along the line, with vertical tunnel clearances ranging from 4.80 m to 5.80 m.

For the installation, commissioning, and safe operation of the catenary system, the minimum vertical clearance within each tunnel shall be minimum 5.30 meters measured from the top of rail level to top of the tunnel inner lining.

Specifically, works include tunnel rehabilitation and electrification clearance enlargement where required of 79 tunnels,

- 78 mountain tunnels
- 1 snow shed
- no pedestrian tunnels
- Total 79 tunnels

Slab track construction inside tunnels, removal of track within tunnels for the purpose of invert lowering and civil and structural works related to tunnel invert lowering are included in Tunnel Clearance Enlargement scope of works.

5.2.2.3 Structural Modifications of Bridges, Culverts, Overpasses and Underpasses

Scope of works covers the extension, rehabilitation, reconstruction, strengthening and/or replacement of existing bridges, culverts, overpasses and underpasses along the alignment.

Specifically, works include;

- Construction of new bridge parallel to the existing one at İliç Station,
- Extension or renewal of 17 culverts due to station extensions,
- Inspection and clearance of stream blockages at bridges and culverts, and inspection and rehabilitation of channels and stream beds.

The structural modification works of Lot 1 include the construction of 1 new bridge and extension or renewal of 17 culverts at the chainages scheduled in the Existing Railway Characteristics Clause of this Lot.

5.2.2.4 Construction of Retaining Walls

Scope of works comprise construction of retaining walls due to station extensions or additional siding construction along the railway alignment in

- Kemah Station
- Güllübağ Station

5.2.2.5 Renewal of Station Platforms

Scope of works comprise complete renewal of the existing passenger platform at

- Kemah Station

5.2.2.6 Improvement and Upgrading of Level Crossings

Scope of works covers improvement and upgrading of existing level crossings along the alignment.

Specifically Works include improvement and upgrading of

- 20 level crossings

along the alignment.

5.2.2.7 Construction of Technical Buildings

Scope of works comprise design and construction of Technical Buildings .

Specifically works include

- Type-1 Technical Buildings – 5 No.
- Type-2 Technical Buildings – 7 No.
- Auxiliary technical buildings – 54 No. Auxiliary technical buildings are the small ancillary structures of approximately 4.80 m × 2.50 m (≈12 m²) required to support the railway systems along the alignment and at stations, including equipment shelters, relay and battery rooms, cable termination and distribution kiosks, level crossing control cabinets and similar single-storey structures, complete with their foundations, power supply, earthing, ventilation and external works.

5.2.2.8 Establishment of Electrification and Power Supply System

In order to modernize the Divriği–Erzincan railway section, which is currently operated using diesel traction, and to improve its speed, cost-efficiency, and passenger comfort, the line shall be converted to electric traction. The Works shall include the complete design, supply, installation, testing, and commissioning of the overhead contact line system and traction power substations.

Electrification and power supply works include catenary, transformer substations including all 154 kV power transmission and branch-line connections, connection bays and associated facilities required to energize the traction substations.

5.2.2.9 Establishment of Signaling and Telecommunication System

In order to modernize the Divriği–Erzincan railway section, and to improve its speed, cost-efficiency, and passenger comfort, the line shall be supplied with level 1 signaling and telecommunication system including fiber-optic systems, GSM-R and associated systems.

The signaling and telecommunication system will be procured as a single corridor-wide package under a separate Contract and is not divided among the three civil-works Lots.

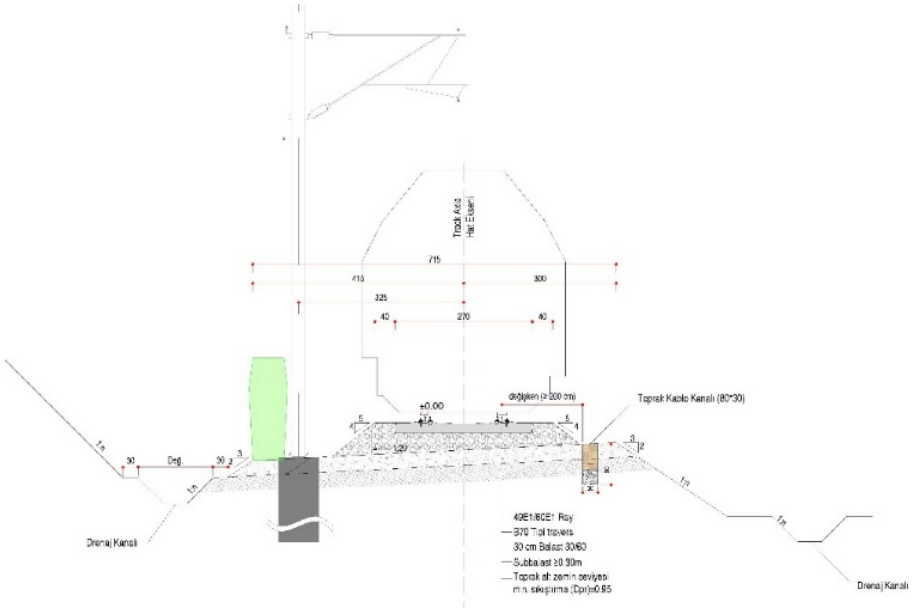
5.2.2.10 Establishment of Distributed Acoustic Sensing (DAS) System

A Distributed Acoustic Sensing (DAS) System will be established along the route to detect natural events such as rock/stone falls, landslides, and avalanches through an early warning system.

The Distributed Acoustic Sensing (DAS) System is procured as a single corridor-wide package under a separate Contract and is not divided among the three civil-works Lots.

5.2.3 Track Substructure and Superstructure Maintenance and Repair

Due to the station extensions along the Divriği–Erzincan section, the line infrastructure works for the newly constructed parts will be prepared in accordance with the typical cross-section provided below. The typical cross-section of the open line for the Divriği–Erzincan section is presented in Volume 3/ Section 3-Drawings and Annexes/ Annex-04 and Annex21.



Typical Cross-Section of Open Line for Divriği–Kars

The scope of station arrangements includes the necessary earthworks, as well as track infrastructure and superstructure work.

Station Arrangements Between Divriği-Erzincan

	İsim	**Km**	
-	Divriği	777+708	Construction of an additional siding: the station will be arranged as main line + 2 sidings to accommodate 700 m trains. Out of Scope.

1	Dazlak	793+500	Existing station will be arranged as main line + 3 sidings to accommodate 750 m trains. Dead-end track will be removed.
2	Çaltı	804+599	Existing station will be arranged as main line + 2 sidings to accommodate 750 m trains.
3	Bağıştaş	821+802	Existing station will be arranged as main line + 2 sidings to accommodate 750 m trains.
4	İliç	832+434	Existing station will be arranged as main line + 1 siding to accommodate 750 m trains. The 2nd siding will be removed.
5	Güllübağ	851+457	Existing station will be arranged as main line + 2 sidings to accommodate 750 m trains.
6	Eriç	868+650	The existing track adjacent to the main line will be extended to accommodate 750 m trains; the other track will be retained.
7	Kemah	885+765	Existing station will be arranged as main line + 2 sidings to accommodate 750 m trains.
8	Alp	901+798	Construction of an additional siding: the station will be arranged as main line + 2 sidings to accommodate 1,050 m trains.
9	Dumanlı	921+002	The main line and adjacent track will be extended to accommodate 750 m trains; all other tracks will be retained.
10	Erzincan	933+784	Construction of an additional siding: the station will be arranged as main line + 2 sidings to accommodate 1,050 m trains.

- New turnouts will be supplied for the additional sidings that do not currently exist. In addition, due to station modifications, new 1:9 turnouts will be supplied for Kemah station.

The layout plans of the existing stations between Divriği and Kars are presented in Annex-03, while the updated station and logistics center plans are provided in Annex-07, Annex-08, Annex-09, Annex-10, and Annex-11 of Scope of Works.

Track substructure and superstructure works shall comprise

- All permanent way works necessary for the rehabilitation, modification, adjustment, installation, reinstatement, and maintenance of the railway track along the alignment, excluding slab track construction inside tunnels, which is included under the tunnel works.
- Station arrangements including the necessary earthworks, as well as track substructure and superstructure work.
- Installation of missing guard rails in bridges where Engineer proposes.
- Installation of sub-ballast mats where Engineer proposes.
- Installation of under-sleeper pads where Engineer proposes.
- Replacement of existing rail fastening components and sleeper fastening elements deemed necessary by the Engineer.
- All track geometry modifications required to achieve the necessary clearance envelope within tunnels and at tunnel portals. Removal of track for the purpose of gradient adjustment and reinstallation of track after invert lowering;

- Provision of new vertical and horizontal geometry;
- All sleepers within a length of 100 meters at both tunnel portals shall be replaced with new sleepers which are compatible with the existing line.
- All necessary maintenance works shall be carried out, and track geometry measurements as well as non-destructive testing (NDT) of the rails shall be performed in the sections instructed by the Engineer along the track length.

During the rail dismantling operations required to adjust track geometry, the removed rails shall be subjected to rail grinding operations before reinstallation.

In order to achieve the required minimum vertical clearance of 5.30 m inside tunnels, The Contractor shall:

- Modify longitudinal gradients as required;
- Introduce new vertical curves;
- Introduce new horizontal curves where necessary;
- Remove existing track where required;
- Reinstall track after formation and invert works are completed;
- Perform necessary maintenance and adjustments following reinstallation.

Adjustment of track gradient, provision of vertical and horizontal curves, dismantling and reinstatement of track, and all associated alignment works shall be considered part of trackwork.

The following works are excluded from trackwork and included in Tunnel Works Lump Sum Price:

- Slab track construction inside tunnels;
- Removal of track within tunnels for the purpose of invert lowering;
- Civil and structural works related to tunnel invert lowering.

However, the following works remain within the scope of trackwork:

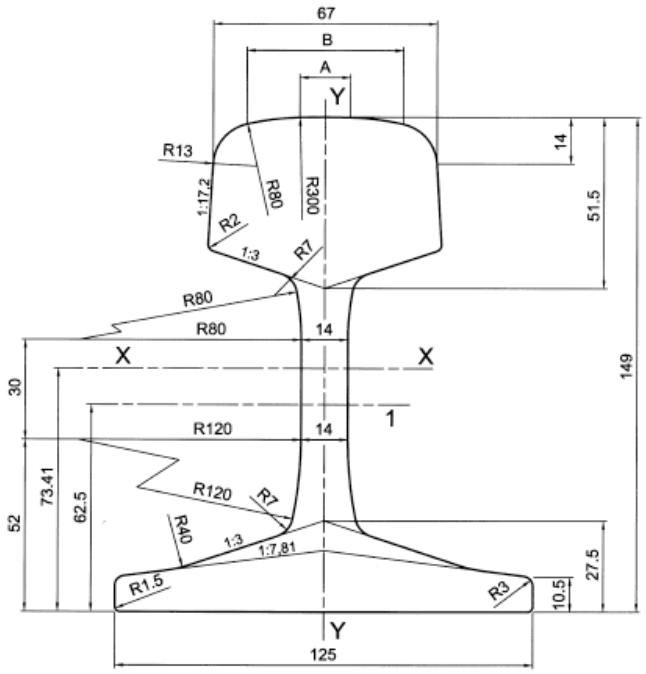
- Removal of track for the purpose of gradient adjustment;
- Reinstallation of track after invert lowering;
- Provision of new vertical and horizontal geometry;
- Track maintenance and adjustment after reinstallation of track elements;
- Renewal of all sleepers within 100 m sections at tunnel portals and inside the tunnel;
- Installation of sub-ballast mats at locations instructed by the Engineer;
- Installation of under-sleeper pads at locations instructed by the Engineer;
- Replacement of rail fastening systems and sleeper fastening components where required by the Engineer.

Rails and Fasteners :

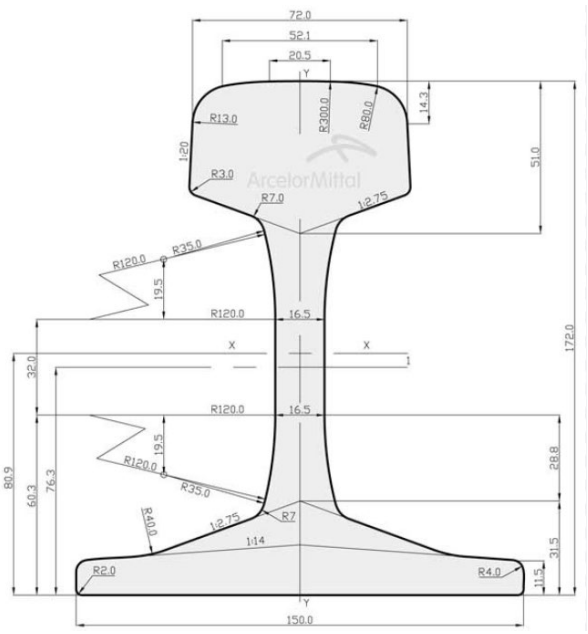
On the Divriği-Erzincan section, 49E1 and/or UIC60E1 type rails will be used depending on the track element listed on below table. Rail-profile matrix — Lot 1 – Divriği-Erzincan. (Per the General Technical Specification). The newly constructed/renewed main line is laid in 49E1 (S49-class, 49 kg/m) rail; UIC 60E1 is specified for new station sidetracks (sidings); S49 is used on station extensions to match the existing line.

Track element	Rail profile	Sleeper	Fastening
Newly constructed / renewed main line (open line)	49E1 (S49-class, 49 kg/m)	B58 monoblock concrete	W14
Station main (through-line) tracks	49E1 (as main line)	B58 monoblock concrete	W14
Secondary / new station side tracks	UIC 60E1	B58 / B70 per design	elastic / W14
Extended (existing) station tracks	S49 (to match existing)	B58 monoblock concrete	W14
Sidings (new station side tracks)	UIC 60E1	B58 / B70 per design	elastic / W14
Transition sections	Profile transition (60E1 ↔ 49E1/S49)	per design	per design

The minimum length of the rails to be supplied will be 36 m.

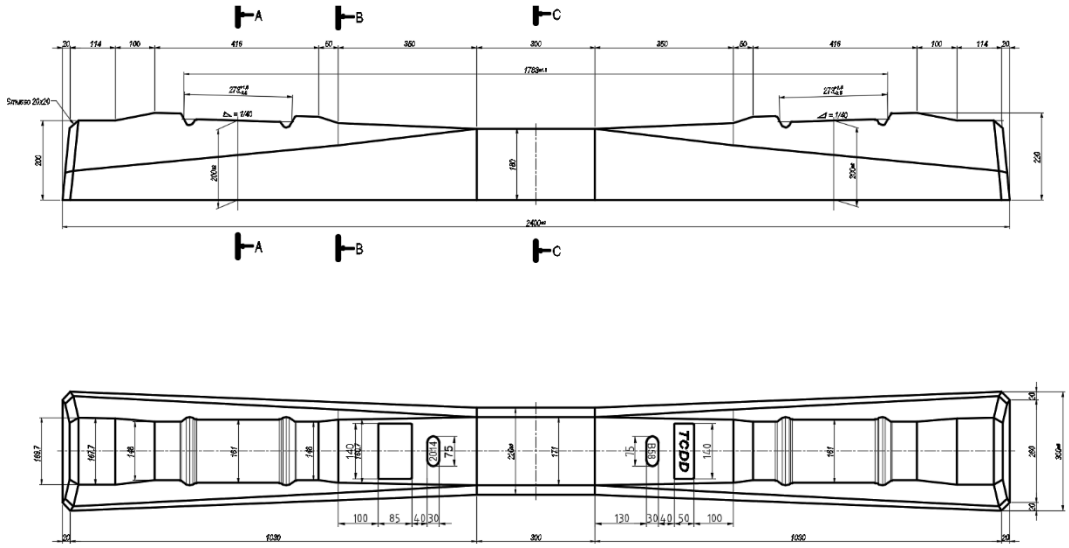


49E1 Rail Section

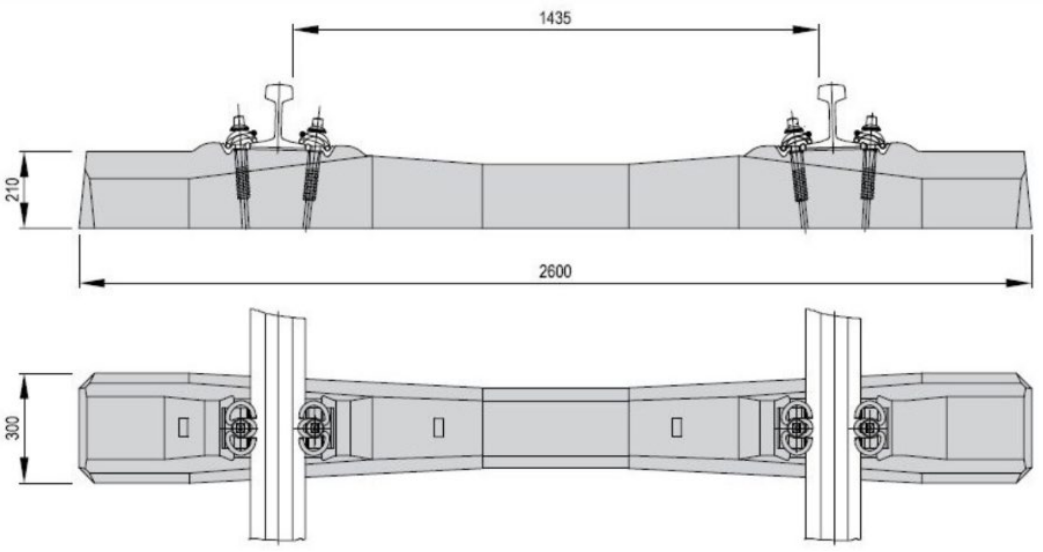


60E1 Rail Section

Sleepers : The details of the B58 Monoblock Geometry of Concrete Sleeper and B70 Monoblock Geometry of Concrete Sleeper are given below for reference ;



B58 Monoblock Geometry of Concrete Sleeper



B70 Monoblock Geometry of Concrete Sleeper

Ballast :

In the newly constructed superstructure sections, ballast will be laid in accordance with the required profile, ensuring a minimum ballast thickness of 30 cm beneath the rails.

Rail Welding :

Aluminothermic rail welding will be applied at turnouts, while flash butt welding will be used on the main line.

5.2.3.1 Technical Requirements and Execution Method

The Contractor shall:

- Carry out all necessary excavation, cut and fill, and formation embankment works;
- Construct and prepare the improved subgrade and subbase layers;
- Execute embankment construction and stabilization works;
- Ensure proper compaction of all earthworks and formation layers;
- Adjust and regulate formation levels in accordance with the revised track alignment and gradients as instructed by the Engineer.

All works shall comply with applicable TCDD standards and approved method statements.

5.2.3.2 Items Deemed Included in the Lump Sum Contract Price

The following activities shall be included under the Lump Sum item:

- Rail grinding; removal of rails for track geometry adjustment and grinding of the removed rails before reinstallation;
- Rail welding;
- Ultrasonic testing;
- Non-destructive testing;
- Track adjustment and alignment;
- Sleeper replacement;
- Rail replacement;
- Turnout removal;
- Track dismantling;
- Supply of rail fastening materials;
- Mechanical maintenance works including tamping, regulating and stabilizing;
- Track geometry measurements along the line.

Without limitation, the Lump Sum Contract Price shall include all costs for complete execution of the track substructure and superstructure works, including but not limited to:

5.2.3.2.1 Track Substructure

- TCDD-ALT-1001 – Cleavage and side borrow excavation and utilization;
- TCDD-ALT-1004 – Construction of subbase layer using selected material where required;
- TCDD-ALT-1003.1 – Quarry stone fill for soil improvement where required;

- TCDD-ALT-1005.1 – Approach embankment using granular material where required;
- TCDD-ALT-1005.2 – Cement-treated granular material for approach embankment where required.

5.2.3.2.2 Track Substructure

- TCDD-ÜST-6301 – Supply and installation of subballast;
- TCDD-ÜST-6302 – Supply and installation of BAM (Ballast Underlay Mat);
- TCDD-ÜST-6304 – Supply and laying of ballast;
- TCDD-ÜST-6403 – Track laying (S49 rail with B58 concrete sleepers); (for existing tracks)
- TCDD-ÜST-6404 – Track laying (60E1–60E2 rail with B70 concrete sleepers); (for new tracks)
- TCDD-ÜST-6504 – Supply and installation of 100 km/h turnout (1/18.5 LUK); (for new tracks)
- TCDD-ÜST-6551 – Supply and installation of rail expansion joints (≤ ±300 mm);
- ÖZEL – LUMP-SUM – Track maintenance and repair works. (along the whole track)

5.2.3.3 Measurement and Payment

The above-referenced TCDD unit price items are provided solely for technical definition purposes.

Notwithstanding the units indicated (m^3, ton, m^2, m, line-m), all such works shall be deemed included in the Lump Sum Contract Price for the Track Works.

No separate measurement, re-measurement, unit rate application, additional payment, or entitlement to extension of time shall arise from execution of these works.

The Contractor shall be deemed to have:

- Examined the track works conditions;
- Considered sequencing and phasing requirements;
- Included all risks related to excavation, groundwater, protection and access;
- Allowed for all temporary and permanent works necessary for completion.

Except as expressly provided under the Conditions of Contract, no claim for additional payment or extension of time shall be entertained in relation to the Trackwork described herein.

All work necessary to:

- Adjust gradients,
- Modify vertical or horizontal alignment,
- Dismantle and reinstall track,
- Maintain track geometry compliance,

shall be deemed included within the respective Trackworks items.

No separate payment shall be made for track removal and reinstallation required for gradient modification to achieve tunnel clearance.

Measurement shall be on a Lump Sum basis.

Track Substructure and Superstructure Maintenance and Repair described above shall be measured as:

- 1 No. Track Substructure and Superstructure Maintenance and Repair – Lump Sum for Lot 1 (Km 777+708 – 933+784, 156,076 m main line)

The listed TCDD items are provided solely to define the scope of work and shall not be measured separately.

5.2.4 Enlargement of Tunnel Clearance for Electrification Integration

The tunnels forming part of the Works shall be upgraded to accommodate the electrification of the railway system.

The existing railway operation based on solid fuel traction shall be converted to an electrically powered railway system. Accordingly, overhead catenary systems should be integrated into the tunnels.

Clearance enlargement is required where vertical clearance is below 5.30 m electrification gauge.

There are (Item Nos. 42–120; TCDD Tunnel Nos. 39–123, per the verified Tunnel Schedule),

- 78 mountain tunnels, with a total length ≈20.681 km
- 1 snow shed with a total length ≈350 m and
- no pedestrian tunnels
- Total 79 tunnels with a total length ≈21.031 km

within this section.

Tunnels ≥ 1,000 m require slab track; tunnel drainage (invert and side drains) and emergency/electromechanical provisions (lighting, walkways, handrails, signage, communications and fire protection) per the Employer's Requirements apply to all tunnels listed below.

Required clearance and the final rehabilitation category of each tunnel shall be determined by the Contractor from the laser-surveyed cross-sections provided in Annex-15 and Annex-30, in accordance with the sub-clause Tunnel Clearance Data, Verification and Measurement.

For the installation, commissioning, and safe operation of the catenary system, the minimum vertical clearance within each tunnel shall be minimum 5.30 meters measured from the top of rail level to top of the tunnel inner lining.

In order to achieve this required clearance:

- The tunnel invert shall be excavated and lowered as necessary;

- Appropriate track gradients shall be provided in accordance with railway design requirements;
- The functional continuity and operational integrity of tunnel entrance and exit zones shall be maintained;
- All necessary geometric adjustments inside the tunnel shall be implemented to ensure compliance with the required structural and operational gauge.

Adjustment of track gradient, provision of vertical and horizontal curves, dismantling and reinstatement of track, and all associated alignment works shall be considered part of track works.

The Contractor shall ensure that each tunnel is modified to achieve the required clearance envelope (gabarit) suitable for the installation and operation of the electrification, and catenary and all operational sustainability of the systems.

Construction works include,

- Enlargement of tunnel clearance for electrification integration and slab track installation where invert lowering is required
- Installation of slab track in tunnels longer than 1,000m

All works necessary to achieve the required minimum vertical clearance, including excavation/earthworks, structural adjustments, track geometry modifications, and associated civil works, shall be deemed included within the scope of the Tunnel Works and the Lump Sum Contract Price.

No separate payment shall be made in relation to achieving the required tunnel clearance for electrification purposes.

5.2.4.1 Technical Requirements and Execution Method

Prior to commencement of any excavation works, the Contractor shall locate, expose, and accurately determine the positions and levels of the existing tunnel arch foundation footings/pedestal footings (bases) at invert level.

A detailed survey shall be carried out and submitted to the Engineer for review before excavation begins.

Excavation works shall commence at a minimum sufficient and safe horizontal distance of 25 cm from the existing pedestal/footing edges.

Under no circumstances shall excavation be carried out closer than this limit during the initial phase.

Excavation shall proceed to the calculated design depth required for the lowering of the tunnel invert and construction of the slab track foundation system.

Upon reaching the pedestal/footing elevation, the previously unexcavated 25 cm portions above the pedestal/footing tops shall then be carefully exposed in a controlled manner.

Following completion of excavation to the required depth:

- Slab track foundation works and slab track construction shall be executed with necessary fixing elements in accordance with the approved drawings and specifications.
- The exposed pedestal/footing upper zones shall be brought to the required final elevation by placing C25/30 plain concrete fill.
- Necessary leveling and surface preparation works shall be completed to ensure that the structural system operates as a monolithic and integral unit.

All concrete works shall comply with the relevant Specification sections and applicable standards.

5.2.4.2 Contractor's Responsibilities

The Contractor shall be fully responsible for:

- Preparation of the excavation methodology;
- Design and implementation of safe excavation procedures;
- Ensuring structural stability of the tunnel during all stages of the works.

The excavation methodology shall be submitted to the Engineer for approval prior to commencement of excavation works.

5.2.4.3 Temporary and Permanent Works

All measures necessary to safely lower the tunnel invert level shall be deemed included in the Lump Sum price. These shall include, but not be limited to:

- Any and all excavation works required to achieve the new invert level;
- Provision, installation, monitoring, and removal (where applicable) of temporary and permanent shoring and support systems;
- Additional stabilization measures required during excavation;
- Waterproofing systems;
- Drainage systems;
- Dewatering works;
- Protective measures against potential tunnel lining spalling or falling debris, including:
- Measures to prevent damage to tunnel lining, structures, utilities, and surrounding areas (both internal and external to the tunnel);
- Repair, rehabilitation, and reinstatement of any damaged tunnel elements;
- Removal and reinstatement of dismantled tunnel lining elements;
- All access arrangements required for tunnel works;
- Rectification of any damage occurring at tunnel portals (entrances and exits);
- All testing, monitoring, supervision, and safety measures required to complete the works for the intended purpose of lowering the tunnel invert level.

- Installation of protective shields,
- Protective mesh systems,
- Protective cabins or platforms
- Any other required safety systems

5.2.4.4 Tunnel Construction Schedule

The Tunnel Works shall be completed strictly in accordance with the Tunnel Construction Schedule attached as Annex-1- Tunnel Time Schedule in which the maximum each tunnel completion duration is specified. However, the total duration of tunnel completion for lot 1 is 240 days excluding design period and the total duration of tunnel completion for lot 1 is 960 days.

The Contractor acknowledges that:

- The works are to be executed within a confined and operational tunnel environment;
- Access constraints, protection measures, phased excavation requirements and support installations have been fully considered in the Tunnel Construction Schedule;
- The durations indicated therein are deemed sufficient for proper and safe completion of the Works.

All risks associated with sequencing, staging, access constraints, protection measures, groundwater control, temporary support systems, and tunnel operational limitations shall be deemed included in the Contract Price and the Time for Completion.

No claim for additional payment or extension of time shall be made on the grounds of difficulties arising from staged construction, restricted working areas, protection requirements, or excavation sequencing, except as expressly provided under the Conditions of Contract.

In the event that the number of days allocated for the Tunnel Works or any tunnel-specific milestone is exceeded, the delay damages provisions set out in the Particular Conditions of Contract shall apply.

Delay Damages shall be calculated and applied in accordance with Sub-Clause 8.7 [Delay Damages] (or the corresponding Sub-Clause under the applicable edition of FIDIC), as amended by the Particular Conditions.

The application of Delay Damages shall not relieve the Contractor from its obligation to complete the Works, nor shall it prejudice the Employer's other rights and remedies under the Contract.

No additional notice shall be required for the imposition of Delay Damages once the relevant Time for Completion or sectional completion period has expired.

5.2.4.5 Items Deemed Included in the Lump Sum Contract Price

Without limitation, the Lump Sum Contract Price shall include all costs for complete execution of the Tunnel Works, including but not limited to:

5.2.4.5.1 Excavation Works

Including:

- TCDD-ALT-3001.2 – Excavation in tunnels with theoretical excavation area less than 50 m²;
- Controlled excavation adjacent to existing structures;
- Overbreak management;
- Loading, hauling and disposal;
- Restricted access working conditions.

5.2.4.5.2 Concrete Works

Including:

- TCDD-ALT-2002.1 – Plain concrete (C16/20);
- TCDD-ALT-2003.1.2 – Reinforced concrete (C30/37);
- Özel – Self-Compacting Concrete (SCC);
- C25/30 pedestal/footing adjustment concrete;
- Formwork, curing, finishing and testing.

5.2.4.5.3 Reinforcement Works

Including:

- TCDD-ALT-2005 – Ribbed reinforcing steel;
- TCDD-ALT-3003 – Welded wire mesh reinforcement in tunnels;
- Cutting, bending, fixing and accessories.

5.2.4.5.4 Shotcrete Works (if required)

Including:

- TCDD-ALT-3002 – Shotcrete application in tunnels;
- Surface preparation, additives, rebound removal and thickness control.

5.2.4.5.5 Piling/Shoring Works (if required)

Including:

- TCDD-ALT-2014.2.1 – Various diameter cast-in-place bored piles;
- Drilling, casing, reinforcement, concreting and testing.

5.2.4.5.6 Waterproofing and Geotechnical Works

Including:

- TCDD-ALT-3015 – Waterproofing in tunnels and cut-and-cover sections;
- Geotextile installation over blinding concrete;
- Membranes, drainage layers and joint detailing;
- Dewatering systems.

5.2.4.5.7 Track Works

Including:

- TCDD-ÜST-6406 – Ballastless railway track (60E1 or 60E2 rail, single line);
- TCDD-ÜST-6403 - Ballastless railway track (49E1, single line);Alignment, fastening systems and adjustments.
- Fiber reinforced Hybrid Ballastless sections: In locations where deemed necessary and as instructed by the Engineer, some slab track sections shall be implemented as fiber-reinforced and conventionally reinforced (hybrid).
- Mass-Spring System: In railway tunnels, where Engineer specifies, a Mass-Spring System (MSS) will be implemented at locations deemed necessary to reduce vibration and structure-borne noise generated by passing trains.

5.2.4.5.8 Removal of Existing Railway

- Including:
- TCDD-ÜST-6001 – Dismantling and stacking of existing railway line;
- Transportation to storage areas;
- Protection of reusable materials.

5.2.4.5.9 Temporary Works and Protection Measures

Including but not limited to:

- Temporary and permanent support systems;
- Shoring and stabilization;
- Protective shields, safety screens, protection cabins and platforms;
- Measures against falling debris and lining spalling;
- Repair and reinstatement of tunnel lining;
- Protection of tunnel portals;
- Ventilation, lighting and safety systems.

5.2.4.5.10 Access, Logistics and Operational Constraints

Including:

- All access arrangements;

- Working in confined spaces;
- Shift work, night work and acceleration measures if required;
- Compliance with operational restrictions.

5.2.4.6 Measurement and Payment

The above-referenced TCDD unit price items are provided solely for technical methodology definition purposes.

Notwithstanding the units indicated (m^3, ton, m^2, m, lineal-m), all such works shall be deemed included in the Lump Sum Contract Price for the Tunnel Works.

No separate measurement, re-measurement, unit rate application, additional payment, or entitlement to extension of time shall arise from execution of these works.

The Contractor shall be deemed to have:

- Examined the tunnel conditions;
- Considered sequencing and phasing requirements;
- Included all risks related to excavation, groundwater, protection and access;
- Allowed for all temporary and permanent works necessary for completion.

Except as expressly provided under the Conditions of Contract, no claim for additional payment or extension of time shall be entertained in relation to the Tunnel Works described herein.

All costs related to the works described above, including but not limited to:

- Excavation,
- Temporary and permanent support systems,
- Dewatering,
- Waterproofing,
- Drainage,
- Protective measures,
- Repairs and reinstatement,
- Access provisions,
- Safety measures,
- Method statements and engineering design,

shall be deemed to be included in the Contractor's Lump Sum Contract Price.

No separate payment shall be made for these works.

No additional payment, claim, or extension of time shall be granted on the grounds of difficulties associated with excavation, support systems, groundwater control, tunnel protection, repair works, or any other matter related to achieving the required tunnel invert lowering.

Measurement shall be on a Lump Sum basis.

Enlargement of Tunnel Clearance for Electrification Integration described above shall be measured as:

- 1 No. Enlargement of Tunnel Clearance for Electrification Integration – Lump Sum for Lot 1 (79 tunnels, 21,031 m)

The listed TCDD items are provided solely to define the scope of work and shall not be measured separately.

5.2.5 Structural Modification of Bridges, Culverts, Overpasses & Underpasses

This Section covers the extension, rehabilitation, reconstruction, strengthening and/or replacement of existing bridges and culverts along the Project alignment.

The Works shall include all civil, geotechnical, structural, drainage, protection and ancillary works necessary to ensure full structural, hydraulic and operational performance in accordance with the Contract Documents and applicable TCDD standards.

Where required to accommodate revised track geometry, tunnel clearance adjustments or alignment modifications, bridge and culvert structures shall be modified accordingly.

Where bridge or culvert modifications are required due to:

- Revised longitudinal gradients,
- Introduction of vertical curves,
- Horizontal alignment changes,
- Tunnel clearance adjustments,

the Contractor shall modify substructure and superstructure elements accordingly. All such modifications shall be considered within the scope of this Section.

Construction works include,

- Construction of new bridge parallel to the existing one at İliç Station,
- Extension or renewal of 17 culverts due to station extensions,
- Inspection and clearance of stream blockages at bridges and culverts, and inspection and rehabilitation of channels and stream beds.

5.2.5.1 Items Deemed Included in the Lump Sum Contract Price

The Works shall include, but not be limited to:

- Demolition and removal of existing structural elements where required;
- Foundation excavation;
- Soil improvement works;
- Construction of new foundations, substructures and superstructures;
- Drainage systems;
- Waterproofing;
- Bearing installation;
- Structural steel works;
- Slope stabilization and protection;
- Reinstatement and approach works.

5.2.5.1.1 Foundation and Earthworks

- TCDD-ALT-2001.2 – Bridge foundation excavation
- TCDD-ALT-1003 – Quarry stone fill for ground improvement
- TCDD-ALT-1005.1 – Granular material approach embankment
- TCDD-ALT-1005.2 – Cement-treated granular approach embankment
- TCDD-ALT-2012 – Crushed stone fill

The Contractor shall ensure proper excavation stability, shoring (if required), compaction, and bearing capacity verification.

5.2.5.1.2 Concrete and Reinforcement Works

- TCDD-ALT-2002.1 – Plain concrete (C16/20)
- TCDD-ALT-2003.1.3 – Reinforced concrete in bridges (C30/37)
- TCDD-ALT-2005 – Ribbed reinforcing steel supply and installation

All concrete works shall comply with structural design requirements, curing standards, testing and quality control procedures.

5.2.5.1.3 Drainage Works

- TCDD-ALT-2011 – Variable diameter PVC drainage pipe supply and installation
- TCDD-ALT-2013 – Precast drainage and inspection manhole (C30/37)

Proper surface and subsurface drainage shall be ensured to prevent structural deterioration.

5.2.5.1.4 Cast-in-Place Bored Piles

- TCDD-ALT-2014.3.3 – Cast-in-place bored piles

Piles shall be constructed in accordance with approved method statements in all soil classes, in dry or underwater conditions.

For measurement purposes:

- In piles constructed with casing, the internal casing diameter shall govern.
- In piles without casing, the project-specified diameter shall govern.

If the measured pile diameter is smaller than the design diameter within tolerances accepted by the Administration, the applicable unit price shall be multiplied by the following factors:

- 80 cm diameter: 1.15 × measured diameter (m)
- 100 cm diameter: 0.90 × measured diameter (m)
- 120 cm diameter: 0.80 × measured diameter (m)
- 165 cm diameter: 0.55 × measured diameter (m)

If the constructed diameter exceeds the required diameter, no adjustment to the unit price shall be made. The unit price corresponding to the specified diameter shall apply.

5.2.5.1.5 Soil Improvement

- TCDD-ALT-2018.3 – Jet grout columns
- TCDD-ALT-2019.1 – DSM (Deep Soil Mixing) columns
- TCDD-ALT-2021.1 – Geotextile supply and installation

Ground improvement design, execution and verification testing shall be the responsibility of the Contractor.

5.2.5.1.6 Waterproofing

- TCDD-ALT-2041 – Polymer bituminous membrane waterproofing
- TCDD-ALT-2043 – Neoprene bearing supply and installation

Waterproofing shall ensure long-term durability of structural elements.

5.2.5.1.7 Bearings

- TCDD-ALT-2043 – Neoprene bearing supply and installation

5.2.5.1.8 Structural Steel Works

- 151.651.003 – Structural steel fabrication and installation

All structural steel shall be fabricated, protected and installed in accordance with approved shop drawings and applicable standards.

5.2.5.1.9 Ancillary and Protection Works

- TCDD-ALT-2044 – Bridge pedestrian guardrails
- TCDD-ALT-2031.1 – Rockfall protection using steel mesh for slope protection
- TCDD-ALT-2032.1 – Soil nails (Ø 28 mm)
- TCDD-ALT-2004.2 – Shotcrete application

- TCDD-ALT-2020.1 – Geocell confinement system

Slope stabilization and rockfall protection shall be implemented where required to ensure long-term operational safety upon Engineer's approval.

5.2.5.2 Measurement and Payment

The above-referenced TCDD unit price items are provided solely for technical definition purposes.

Notwithstanding the units indicated (m^3, ton, m^2, m, hat-m), all such works shall be deemed included in the Lump Sum Contract Price for the Civil Works.

No separate measurement, re-measurement, unit rate application, additional payment, or entitlement to extension of time shall arise from execution of these works.

The Contractor shall be deemed to have:

- Examined all structural conditions;
- Considered sequencing and phasing requirements;
- Included all risks related to excavation, groundwater, protection and access;
- Allowed for all temporary and permanent works necessary for completion.

Except as expressly provided under the Conditions of Contract, no claim for additional payment or extension of time shall be entertained in relation to the Civil Works described herein.

Measurement shall be on a Lump Sum basis.

Structural Modification of Bridges, Culverts, Overpasses & Underpasses described above shall be measured as:

- 1 No. Structural Modification of Bridges, Culverts, Overpasses & Underpasses – Lump Sum for Lot 1 (631 structures, of which 18 are scheduled for renewal, extension or new construction)

The listed TCDD items are provided solely to define the scope of work and shall not be measured separately.

5.2.6 Construction of Retaining Walls

There are numerous retaining walls along the railway line, constructed in various structural types (e.g., stone slope walls and reinforced concrete walls).

The Works comprise the construction of retaining walls due to station extensions or additional siding construction along the railway alignment in

- Kemah Station
- Güllübağ Station

in accordance with the approved drawings, TCDD technical specifications and applicable engineering standards.

The retaining wall system shall include all excavation, ground improvement, structural works, drainage, slope stabilization measures, and ancillary works required to ensure long-term structural stability and protection of the railway infrastructure.

The Works shall be executed as a Lump Sum item per structure.

5.2.6.1 Technical Requirements and Execution Method

The Contractor shall:

- Ensure structural stability during excavation and construction;
- Implement temporary support measures where necessary;
- Maintain drainage functionality during construction;
- Protect the railway infrastructure and ensure operational safety;
- Perform all works in accordance with approved method statements by the Engineer.

All works shall comply with relevant structural design requirements and geotechnical recommendations/calculations.

5.2.6.2 Items Deemed Included in the Lump Sum Contract Price

The retaining wall construction shall include, but not be limited to:

- Excavation for foundations and structural elements
- Ground improvement and foundation preparation
- Reinforced concrete retaining wall construction
- Drainage systems behind the wall
- Backfilling works
- Protective coatings
- Slope stabilization works
- Rockfall protection systems where required

All works shall comply with TCDD technical specifications and approved structural designs.

The following TCDD items define the technical components of the Works and are included within the Lump Sum scope.

5.2.6.2.1 Excavation Works

TCDD-ALT-2001.1 – Structural Excavation (Excluding Bridge Foundations)

Including:

- Excavation for retaining wall foundations
- Loading, hauling and disposal of excavated materials
- Formation trimming and leveling
- Temporary safety measures

5.2.6.2.2 Ground Improvement and Fill Works

TCDD-ALT-1003.1 – Quarry Stone Fill for Ground Improvement

TCDD-ALT-2012 – Crushed Stone Fill

Including:

- Ground stabilization beneath foundations
- Backfill behind the retaining wall
- Layered compaction to specified density

5.2.6.2.3 Concrete Works

TCDD-ALT-2002.1 – Plain Concrete (C16/20)

Including:

- Lean concrete layers

TCDD-ALT-2003.1 – Reinforced Concrete

Including:

- Retaining wall structure and foundation slab

5.2.6.2.4 Reinforcement Works

TCDD-ALT-2005 – Ribbed Reinforcing Steel Supply and Installation

Including:

- Cutting, bending and fixing reinforcement
- Spacers, supports and binding wires

5.2.6.2.5 Waterproofing and Protective Coating

TCDD-ALT-2009 – Bituminous Protective Coating

Including:

- Protective coating on concrete surfaces exposed to soil and moisture.

5.2.6.2.6 Drainage Works

TCDD-ALT-2011.2 – 200 mm PVC Drainage Pipe Installation

TCDD-ALT-2033 – Weep Holes (Barbakan)

Including:

- Drainage system behind the retaining wall
- Installation of drainage pipes and filters
- Weep holes to relieve hydrostatic pressure

5.2.6.2.7 Slope Stabilization Works

Where required, slope stabilization measures shall include:

- TCDD-ALT-2031.1 – Rockfall Protection Using Steel Mesh
- TCDD-ALT-2031.2 – Crest Anchors for Rockfall Protection
- TCDD-ALT-2032.1 – Soil Nails Installation (Ø28 mm)
- TCDD-ALT-2004 – Shotcrete Application

These works shall ensure long-term slope stability adjacent to the retaining wall.

5.2.6.2.8 Cellular Confinement System

TCDD-ALT-2020 – Cellular Confinement Fill System

Including:

- Installation of geocell systems for slope reinforcement
- Filling and compaction of confinement cells

5.2.6.3 Measurement and Payment

The above-referenced TCDD unit price items are provided solely for technical definition purposes.

Notwithstanding the units indicated (m^3, ton, m^2, m, hat-m), all such works shall be deemed included in the Lump Sum Contract Price for the Retaining Wall Works.

No separate measurement, re-measurement, unit rate application, additional payment, or entitlement to extension of time shall arise from execution of these works.

The Contractor shall be deemed to have:

- Examined the retaining wall conditions;

- Considered sequencing and phasing requirements;
- Included all risks related to excavation, groundwater, protection and access;
- Allowed for all temporary and permanent works necessary for completion.

Except as expressly provided under the Conditions of Contract, no claim for additional payment or extension of time shall be entertained in relation to the Retaining Wall Works described herein.

Payment shall be made at the Contractor's Lump Sum price for the retaining wall construction.

The Lump Sum price shall constitute full compensation for all works described in this specification.

No separate payment shall be made for individual sub-items necessary to complete the retaining wall work.

The Lump Sum price shall include:

- All excavation and disposal
- Ground improvement works
- Concrete and reinforcement works
- Drainage installations
- Slope stabilization measures
- Rockfall protection systems
- Temporary works and safety measures
- Access roads and site preparation
- Testing, inspection and quality control
- Contractor's overheads and profit

No additional payment shall be made for works necessary for the proper completion and stability of the retaining wall.

Measurement shall be on a Lump Sum basis.

The retaining wall construction described above shall be measured as:

- 1 No. Retaining Wall Construction Kemah Station
- 1 No. Retaining Wall Construction Güllübağ Station

The listed TCDD items are provided solely to define the scope of work and shall not be measured separately.

5.2.7 Renewal of Station Platforms

The Divriği–Erzincan line has a total of 10 railway stations, 2 of which are abandoned and not currently in operation. The existing railway stations, excluding the main line, together with the number of tracks and maximum useful lengths, are provided in the table below.

The layout plans of the existing stations between Divriği and Erzincan are presented in "Drawings" Part , while the updated station and logistics center plans are provided in Volume 3/ Section 3-Drawings and Annexes/Annex-9-10-11.

Available Station List

	Name	**Km**	**Siding Nos.**	**Maximum Useful Length**	**NOTES**
-	Divriği	777+708	9	950	Station. Not included in the scope
1	Dazlak	793+500	-		Abandoned Stop/Station
2	Çaltı	804+599	3	498	Station
3	Bağıştaş	821+802	2	424	Station
4	İliç	832+434	2	432	Station
5	Güllübağ	851+457	2	424	Station
6	Eriç	868+650	2	709	Station
7	Kemah	885+765	2	410	Station
8	Alp	901+798	2	406	Station
9	Dumanlı	921+002	-		Abandoned Stop/Station
10	Erzincan	933+784	8	893	Station

Passenger platforms are generally constructed either in front of station buildings or as narrow island platforms between two tracks with a track spacing of 4.5 m. The platform lengths are not sufficient to accommodate the full train length. In addition, due to low platform elevations, boarding and alighting from trains is difficult.

Since there are no pedestrian underpasses or overpasses, passengers cross the tracks directly to board and alight from trains. At larger stations such as Erzincan, wider central platforms have been constructed in front of the station buildings by decommissioning one track. The platform lengths at these stations are adequate to accommodate trains.

The Works comprise the complete renewal of the existing passenger platform at;

- Kemah Station

in accordance with the approved drawings, technical specifications and applicable TCDD standards. The Contractor shall determine the dimensions, geometry and structural arrangement through its own detailed design, in accordance with the applicable codes, standards and TCDD technical specifications, and shall submit the design to the Engineer for approval.

The Works shall include demolition (if required), excavation, ground improvement, structural works, drainage, platform superstructure construction, protective works, and full reinstatement to deliver a safe, durable, and fully operational passenger platform.

5.2.7.1 Technical Requirements and Execution Method

The Contractor shall:

- Maintain safe station operation during works (if operational);
- Provide temporary access and passenger safety arrangements;
- Protect existing railway infrastructure;
- Ensure proper interface with track and drainage systems;
- Maintain required platform height and alignment tolerance as per TCDD standards;
- Deliver the platform fully functional and ready for passenger use.

5.2.7.2 Items Deemed Included in the Lump Sum Contract Price

The passenger platform renewal Lump Sum price shall include, but not be limited to, the following:

- All excavation and disposal;
- Ground improvement works;
- Concrete and reinforcement works;
- Structural steel fabrication and erection;
- Drainage systems;
- Protective coatings;
- Mortared stone pitching;
- Temporary works;
- Access arrangements;
- Construction staging;
- Safety measures;
- Testing and quality control;
- Contractor's overheads and profit.

No separate payment shall be made for:

- Working under operational railway conditions;
- Restricted access;
- Night works or phased construction;
- Temporary traffic arrangements;
- Minor design adjustments required for proper integration.

5.2.7.2.1 Excavation and Ground Works

- TCDD-ALT-2001.1 – Structural excavation (excluding bridges);

- Formation and trimming of subgrade;
- Compaction and bearing capacity verification.

5.2.7.2.2 Ground Improvement and Fill

- TCDD-ALT-1003.1 – Quarry stone fill for ground improvement;
- TCDD-ALT-2012 – Crushed stone fill;
- Compaction in layers to specified density;
- Stabilization of weak zones where required.

5.2.7.2.3 Concrete Works

- TCDD-ALT-2002.1 – Plain concrete (C16/20 ready-mix);
- TCDD-ALT-2003.1 – Reinforced concrete works;
- Proper curing, finishing, surface treatment and testing.

5.2.7.2.4 Reinforcement Works

- TCDD-ALT-2005 – Ribbed reinforcing steel supply and installation;
- Cutting, bending, fixing, spacers and supports.

5.2.7.2.5 Steel Structural Frame

- 151.651.003 – Structural steel fabrication and installation;

Including:

- Platform supporting frame (where applicable);
- Beams, headers, connection plates;
- Welding, bolting, anchorage;
- Shop drawings and installation tolerances.

5.2.7.2.6 Drainage Works

- TCDD-ALT-2011.2 – 200 mm PVC drainage pipe supply and installation;
- Proper slope and discharge arrangement;
- Integration with existing drainage systems.

5.2.7.2.7 Protective Works

- TCDD-ALT-2009 – Bituminous protective coating (tar coating);
- TCDD-ALT-2028.2.3-Ö – 40 cm thick mortared stone pitching (pere);
- Edge protection and erosion control.

5.2.7.3 Measurement and Payment

All listed TCDD items are included within this Lump Sum scope and shall not be measured separately.

The quantities stated in this Part are indicative and serve for scope definition only. The Contract is a lump sum design-build contract and there is no bill of quantities; the Contractor shall satisfy itself as to the quantities required to complete the Works and shall be deemed to have included them in the Accepted Contract Amount.

Measurement shall be on a Lump Sum basis.

Payment shall be made against the single Lump Sum item for:

- 1 No. Passenger Platform Renewal at Kemah Station

No remeasurement shall apply.

All TCDD unit price references are provided solely to define the scope and technical content of the Works.

The following are excluded unless otherwise specified:

- Electrification systems;
- Lighting systems;
- CCTV and communication systems;
- Architectural cladding beyond structural platform works;
- Landscaping and external site works unless shown on drawings.

5.2.8 Improvement and Upgrading of Level Crossings

Of the 20 existing level crossings on the railway line, most are not equipped with protective devices. The current protection status of the level crossings is as follows:

10 with automatic barriers

10 uncontrolled and unprotected crossings

Level crossings equipped with flashing lights and electric barriers are operated automatically by trains, while mechanical barriers are operated manually by gatekeepers employed by the road authority.

Although the current operation can be considered adequate for safe working under the existing traffic load and operating conditions, the high number of unprotected level crossings means that if the line speed or the number of trains is to be increased, the current operating system will not be sufficient.

The list of existing level crossings on the Divriği–Erzincan section is provided in Annex-22 of Scope of Works.

All of the Level-crossings should be upgraded and will be Automatic Barrier. All construction works, paving, refuge areas, environmental arragements and road traffic arrangements, cable/cable conduit supply and installation, under-rail crossings, power supply and distribution works, etc.The crossings concerned

within this Lot, and the disposition of each crossing, are set out in the Level Crossing Schedule (Annex-22). The Contractor shall carry out the improvement and upgrading of the crossings that remain in use.

The Works comprise the improvement and upgrading of existing level crossings along the railway line in accordance with the approved drawings, TCDD technical specifications, and applicable standards.

The scope includes all civil works required to rehabilitate and standardize the level crossings, including excavation, subbase construction, pavement works, installation of rubber crossing panels, drainage works, and associated protection measures.

The Works shall be priced and paid on a Lump Sum basis per square meter (m²) of level crossing area.

5.2.8.1 Items Deemed Included in the Lump Sum Contract Price

The Lump Sum rate per m² shall include, without limitation:

- All materials and transportation;
- Labor, plant and equipment;
- Site establishment and temporary works;
- Traffic management and safety arrangements;
- Working under operational railway constraints;
- Quality control testing and laboratory works;
- Surveying and setting out;
- Protection of existing railway infrastructure.

The following are excluded unless expressly stated:

- Rail or sleeper replacement;
- Signaling systems;
- Barrier systems and electro-mechanical equipment;
- Land acquisition works;
- Major track realignment outside the crossing limits.

The following items form part of the scope and shall not be measured separately:

5.2.8.1.1 Construction of Subbase Layer with Selected Material

ALT 1004 Construction of Subbase Layer with Selected Material

- Supply, placement and compaction of selected material;
- Formation and leveling works;
- All transportation and handling included.

5.2.8.1.2 Structural Excavation (Excluding Bridge Foundations)

TCDD-ALT-2001.1 Structural Excavation (Excluding Bridge Foundations)

- Excavation within the level crossing area;
- Loading, hauling, disposal or reuse of excavated material;
- Shaping and trimming of formation;
- All temporary safety measures and traffic precautions.

5.2.8.1.3 Supply and Installation of Rubber Panels

SPECIAL-HG.3 Supply and Installation of Rubber (Elastomeric) Panels (Including Transport)

- Supply of railway rubber crossing panels;
- Installation between rails and outside rail zones;
- Fastening systems, connection elements and support profiles;
- Adjustment to rail level and surface alignment;
- Works carried out under operational railway conditions.

5.2.8.1.4 Construction of Plant-Mix Road Base

TCDD-ALT-4002 Construction of Plant-Mix Road Base

- Supply and placement of plant-mix base material;
- Compaction and quality control.

5.2.8.1.5 Construction of Bituminous Hot Base Layer

TCDD-ALT-4003 Construction of Bituminous Hot Base Layer

- Production, transportation and laying;
- Compaction and surface finishing.

5.2.8.1.6 Construction of Binder Course

TCDD-ALT-4004 Construction of Binder Course

- Placement of asphalt binder layer;
- Compaction to required density.

5.2.8.1.7 Construction of Wearing Course

TCDD-ALT-4005 Construction of Wearing Course

- Placement of asphalt wearing layer;

- Final leveling and surface finishing.

5.2.8.1.8 Rock Cleaning Works

SPECIAL-HG.5 Rock Cleaning Works

- Removal of loose rock and unstable material along crossing approaches;
- Manual or mechanical cleaning;
- Implementation of safety precautions;
- Disposal of removed material.

5.2.8.2 Measurement and Payment

Measurement shall be based on the actual plan area (m²) of the improved level crossing as shown on the approved drawings.

No separate measurement shall be made for the individual sub-items listed above.

Payment shall be made at the Contractor's tendered Lump Sum unit rate per m² for Level Crossing Improvement Works.

The above-referenced TCDD unit price items are provided solely for technical definition purposes.

Notwithstanding the units indicated (m³, ton, m², m, line-m), all such works shall be deemed included in the Lump Sum Contract Price for the Level Crossing Works.

No separate measurement, re-measurement, unit rate application, additional payment, or entitlement to extension of time shall arise from execution of these works.

The Contractor shall be deemed to have:

- Examined the Level Crossing conditions;
- Considered sequencing and phasing requirements;
- Included all risks related to excavation, groundwater, protection and access;
- Allowed for all temporary and permanent works necessary for completion.

Except as expressly provided under the Conditions of Contract, no claim for additional payment or extension of time shall be entertained in relation to the Level Crossings described herein.

Measurement shall be on a Lump Sum basis.

Improvement and Upgrading of Level Crossings described above shall be measured as:

- 20 No. Improvement and Upgrading of Level Crossings

The listed TCDD items are provided solely to define the scope of work and shall not be measured separately.

5.2.9 Construction of Technical Buildings

Scope of works includes design, construction, installation and commissioning of;

- Type-1 Technical Building – 5 No Main signaling interlocking building – ≈100 m²
- Type-2 Technical Building – 7 No Secondary signaling building – ≈80 m²
- Auxiliary technical buildings – 54 No., as described in the Key Quantities.

required for railway signaling, telecommunication, power supply and operational control systems.

The Contractor shall design and construct the buildings in accordance with Reference Drawings:

- ANNEX – Technical Buildings Reference Plan – Type-1
- ANNEX – Technical Buildings Reference Plan – Type-2
- This Technical Specification
- Applicable Turkish Standards and building regulations.

Where discrepancies occur, the Employer's Requirements and approved drawings shall prevail.

The Contractor shall carry out all works necessary for the complete delivery of the technical buildings including:

- Architectural design
- Structural design
- Mechanical systems
- Electrical systems
- HVAC installations
- Cable infrastructure
- Equipment rooms preparation
- External works and landscaping
- Testing and commissioning

The works shall be completed on a turn-key basis including all materials, labor, equipment, transport, installation and documentation

Type-1 Technical Building :

Type-1 buildings are main interlocking and signaling equipment buildings installed along the railway alignment.

According to the reference drawings, the Type-1 building shall include the following main areas:

- Signaling equipment room
- Telecommunication equipment room
- Battery room
- Power distribution room
- System maintenance room
- Cable entrance room
- HVAC equipment space

Approximate internal usage area is 100 m²

Room sizes and arrangement shall follow the Type-1 DWG reference layout.

- Building Dimensions

  Approximate dimensions according to reference drawings:

  - Building footprint: ~10 m × 10 m
  - Total usable area: ≥100 m²
  - Clear internal height: ≥3.50 m
  - Raised floor height: 40–60 cm

- Room Layout
  - Signaling Equipment Room – 40 m² – Interlocking equipment
  - Telecommunication Room – 15 m² – Telecom racks
  - Battery Room – 12 m² – Battery banks
  - Power Distribution Room – 10 m² – Electrical panels
  - Maintenance Room – 10 m² – Workshop
  - Cable Entrance Room – 8 m² – Cable ducts and trays

  All rooms shall allow minimum 40% future expansion capacity.

- Equipment Rack Zones

  The signaling equipment room shall include standard rack zones.

  Typical rack configuration:

  - Rack width: 600 mm
  - Rack depth: 800 mm
  - Rack height: 2,200 mm
  - Rack spacing: ≥1,200 mm aisle

- Maximum racks per building: 16 racks (expandable)

The rack layout shall follow the equipment rack arrangement shown in the DWG layout.

- Equipment Loads

Typical loads for equipment design:

- Signaling racks: 1.5–2.0 kW per rack
- Telecom racks: 1.2 kW per rack
- Battery system: 5–10 kW
- Auxiliary systems: 3 kW
- Estimated total equipment load: 25–40 kW

HVAC capacity shall be designed accordingly.

The building shall include:

- Underground cable ducts
- Cable entry pit/manhole
- HDPE pipe connections from external cable routes

All cables shall enter through a dedicated cable entrance chamber connected to internal cable trays beneath the raised floor.

Type-2 Technical Building :

Type-2 buildings are secondary signaling equipment shelters used for block signaling or communication equipment.

According to the reference drawings, the building shall include:

- Equipment room
- Battery room
- Electrical panel area
- Cable entry point
- HVAC equipment area

Approximate internal usage area is 80 m²

The layout shall follow the Type-2 reference DWG plan.

- Building Dimensions

Approximate dimensions:

- Building footprint: ~10 m × 8 m
- Total usable area: ≥80 m²
- Clear internal height: ≥3.30 m
- Raised floor height: 40–50 cm

- Room Layout
  - Equipment Room – 35 m²
  - Battery Room – 10 m²
  - Electrical Panel Room – 8 m²
  - Cable Entrance Area – 7 m²
  - Maintenance Area – 8 m²

- Equipment Capacity

  Maximum racks: 10 racks

  Estimated equipment load: 15–25 kW

5.2.9.1 Measurement and Payment

The construction of Type-1 Technical Buildings, Type-2 Technical Buildings and the Auxillary Technical Building shall be paid on a lump sum basis per building, against the corresponding item of the Schedule of Payments.

The Lump-Sum price shall include the complete design, construction, installation, testing and commissioning of the buildings, fully operational and ready for installation of signaling, telecommunication, electrification and control systems.

No additional payment shall be made for:

- Design and engineering works,
- Ground investigations,
- Obtaining permits and approvals,
- Site preparation and temporary works,
- Adaptation to soil conditions,
- Relocation of utility lines if required within the building area,
- All works required to deliver the building ready for installation of technical equipment.

All such costs shall be deemed to be included in the Lump-Sum Contract Price per Building.

No additional measurement shall be made for individual components, works or materials required for the completion of the buildings unless otherwise stated in the Contract.

Measurement for payment purposes shall be based on the number of completed buildings, constructed in accordance with the approved drawings, technical specifications and Employer's Requirements.

The following items shall be measured:

- Type-1 Technical Building – 5 No. – L.S / Building
- Type-2 Technical Building – 7 No. – L.S / Building
- Auxiliary Technical Building – 54 No. – L.S / Building

A building shall be considered complete when:

- All civil works are finished,
- Mechanical and electrical installations are completed,
- HVAC systems are installed and operational,
- Grounding and lightning protection systems are installed,
- External works and landscaping are completed,
- The building is ready for equipment installation and operation,
- All inspections and approvals by the Engineer are completed.

Partial measurements shall not apply unless otherwise approved by the Engineer.

Final payment for each building shall be made only after:

- Completion of all works,
- Successful inspections by the Employer,
- Submission of as-built drawings,
- Delivery of operation and maintenance documentation.

Payment shall be made at the lump sum price per building stated in the Schedule of Payments.

Measurement shall be on a Lump Sum basis.

Payment shall be made against the single Lump Sum item for:

- 5 No. Type-1 Technical Building – L.S / Building
- 7 No. Type-2 Technical Building – L.S / Building
- 54 No. Auxiliary Technical Buildings – L.S / Building

No remeasurement shall apply.

All TCDD unit price references are provided solely to define the scope and technical content of the Works.

5.2.10 Establishment of Electrification and Power Supply System

To modernize the Divriği–Erzincan railway section, which is currently operated using diesel traction, and to improve its speed, cost-efficiency, and passenger comfort, the line shall be converted to electric traction.

The Works include the complete design, supply, construction, installation, testing, commissioning and energization of the 25 kV AC, 50 Hz traction power and overhead contact system along the Divriği–Erzincan corridor. The scope includes the overhead contact system, traction power substations, sectioning and paralleling facilities, return-current system, earthing and bonding, auxiliary power supplies, UPS systems, protection, metering, control and SCADA systems, together with all associated electrical, civil and structural works.

The Works also include all 154 kV power transmission lines, branch lines, connection bays and associated facilities required to connect and energize each traction power substation from the TEİAŞ national transmission grid. The Contractor shall be fully responsible for all surveys, route studies, system studies, connection applications, detailed designs, approvals, supply, construction, testing, commissioning and energization required for the 154 kV connections.

The Contractor shall coordinate directly with TEİAŞ, the Employer, TCDD and the Engineer in relation to connection points, transmission-line routes, protection coordination, revenue metering, telecommunications, SCADA and telecontrol interfaces, earthing, operational procedures, testing, acceptance and energization.

The Employer shall provide institutional assistance and shall execute applications or agreements that, under applicable law, can only be executed by the Employer. Such assistance shall not relieve the Contractor of its responsibility for timely preparation, submission, follow-up and completion of all technical documentation and approval processes.

Statutory expropriation and compensation, where required, shall remain the responsibility of the Employer. The Contractor shall provide all route, design, survey, land-take and programme information required for such processes in a timely manner.

All costs associated with the 154 kV power transmission connections, except statutory expropriation and compensation costs expressly allocated to the Employer, shall be deemed included in the Contract Price. No traction power substation shall be considered complete until its 154 kV connection has been constructed, tested, energized and accepted in accordance with the requirements of TEİAŞ, TCDD, the Employer and the Engineer, as applicable.

5.2.10.1 Technical Requirements and Execution Method

All electrification works shall comply with the standards listed in the table below and with the technical specifications for electrification works.

Standards of Electrification and Power System

Standart No	Title

TS EN 50119	Railway applications – Fixed installations – Electric traction overhead contact lines
TS EN 50121	Railway applications – Electromagnetic compatibility – All parts of the standard series: Part 1: General Part 2: Emission of the whole railway system to the outside world Part 3-1: Rolling stock – Train and complete vehicle Part 3-2: Rolling stock – Apparatus Part 4: Emission and immunity of signalling and telecommunications apparatus Part 5: Emission and immunity of fixed power supply installations and apparatus
TS EN 50122-1	Railway applications – Fixed installations – Electrical safety, earthing and the return circuit – Part 1: Protective provisions against electric shock
TS EN 50124-1	Railway applications – Insulation coordination – Part 1: Basic requirements – Clearances and creepage distances for all electrical and electronic equipment
TS EN 50124-2	Railway applications – Insulation coordination – Part 2: Overvoltages and related protection
TS EN 50163	Railway applications – Supply voltages of traction systems
TS EN 50388	Railway applications – Fixed installations and rolling stock – Technical criteria for the coordination between electric traction power supply systems and rolling stock to achieve interoperability

For the Divriği–Erzincan section, the Supply Plan, Principle Diagram, Typical Single-Line Diagram, and Single-Line Diagram are provided for information in Volume 3, Section 3—Drawings and Annexes, Annexes 17, 18, 19, and 20. The electrification works shall be designed and executed in accordance with the alignment plan set out in Annex 01.

- For the stations (existing and extended) and additional sidings prepared in accordance with the line plan, catenary works will be carried out in compliance with the Line Plan drawing provided in Volume 3/ Section 3-Drawings and Annexes/ Annex-01.
- A total of 4 traction substations (2 × 25 MVA each) will be installed.

Traction Substations

Transformer Substation	Location	**Km**
TM1	Çaltı	805+450
TM2	İliç	834+075
TM3	Kemah	883+660
TM4	Beşsaray	929+950

- The works include the installation of 4 neutral sections.

- The design, supply, construction, testing, commissioning and energization of the 154 kV power transmission lines, branch lines, TEİAŞ connection bays and associated grid-connection facilities required to supply energy to the traction power substations are included in the scope, as set out in the sub-clause 154 kV Grid Connection and Power Transmission Lines. Statutory expropriation and compensation costs for the transmission line corridors remain with the Employer.
- In the electrification system, the classical feeding system commonly used on TCDD lines will be adopted. The catenary system will be supplied from transformer substations installed at a mean spacing of 46.0 km and a maximum spacing of 52.3 km. The electrical characteristics of the system will comply with the TS EN 50163 standard.
  - The permissible voltage levels of the system are specified below.

Electrification System	Lowest Non-Permanent Voltage (Umin2, V)	Lowest Permanent Voltage (Umin1, V)	Nominal Voltage (Un, V)	Highest Permanent Voltage (Umaks1, V)	Highest Non-Permanent Voltage (Umaks2, V)
AC (RMS Values (Root Mean Square	17500	19000	25000	27500	29000

- The catenary lines will be installed with a configuration of one contact wire (120 mm² CuAg0.1 in compliance with EN 50149) and one messenger wire (95 mm² Bz II 95 in compliance with DIN 48201). In tunnel sections with restricted clearance indicated in the project, a double contact wire will be used, and no messenger wire will be applied in these areas.

  The wires to be used in the catenary system are as follows:
  Wires for Catenary System

Conductor	Type	Section Area (mm2)	Standart
Contact Wire	CuAg0,1	120,0	EN 50149
Messenger Wire	Bz II	95,0	DIN 48201
Feeder Wire	Hawk	280,0	TS EN 50182
Return Conductor	Ostrich	176,9	TS EN 50182
Dropper Wire	Bz II	16,0	DIN 43138
Supply Wire	E-Cu	95,0	DIN 43138
Mast-to-Rail Bond	Bakır (NYY)	50,0	TS IEC 60502-1
Earthing Conductor	Galvanizli Çelik	70	TS EN 50182 TS EN 50189
Aluminum Rod	Al	50,0	EN AW 1370

- The catenary wires will be tensioned separately on the main line (regularized individually) and jointly on the sidings.
- Catenary masts will be made of steel profiles. Depending on the system calculations, they will be installed either as lattice-type or H-profile structures.

- The maximum section length will be 1,400 m. The number of cantilevers in a half-section will be limited to 20. Where the section length does not exceed 700 m, the section will be tensioned with an automatic tensioning system used on one side only. For open lines, a pulley system with a 1:3 ratio and a concrete counterweight will be applied, while special spring-type tensioning systems without counterweights will be used in tunnels and other required areas.
- A complete static analysis of the cantilever–stay rod assembly will be performed, and no permanent deformation shall occur in the assembly under loads up to 1.5 times the working load. The pipes specified in the table below will be used for the cantilever–stay rod assembly.

Cantilever–Stay Rod Assembly Pipe Types

Pipe Type	Wall Thickness (mm)	Alloy Type
Ø70	6	6082 EN AW
Ø55	6	6082 EN AW
Ø42	4	6082 EN AW

Standard type cantilever assemblies will be used in the system. Special type cantilevers will be applied in structures such as tunnels with restricted clearance.

- Portals will be of lattice structure and will be manufactured in at least two parts depending on their length. A roof will be formed to ensure that the portal remains horizontally stable under load. The portals will be placed on supports mounted on the masts.
- Steel materials and welding consumables will comply with EN 1993-1-1, EN 10025 series, EN 10149 series, and EN 10164 requirements. According to the EN 10025 series, structural steel grades S235J0, S235J2G3/G4, S355J0, and S355J2G3/G4, or equivalent qualities, will be preferred. For bolts, strength classes 4.6, 5.6, 6.8, 8.8, and 10.9 will be used in accordance with EN ISO 898-1 (for nuts, grades 5 and 8 in accordance with EN 20898-2).
- Structural parts made of aluminum or aluminum alloys will comply with the EN 1999 series. For aluminum sheets and profiles, EN 755-1 and EN 755-2 standards will be taken into account, while for aluminum sheets, strips, and plates, EN 485-1 standards will apply.
- Concrete structures will comply with TS 500. The concrete used for foundations will be of at least class C20/25.
- Electrification technical buildings will be reinforced concrete with a minimum area of 10 m². The building will rest on a two-stage concrete foundation cast at least 800 mm above ground level, depending on snow height. A grounding installation will be provided for the building foundation, the building equipment will be connected to this grounding, and this grounding will in turn be integrated with the electrification grounding system.

5.2.10.2 Measurement and Payment

The electrification and power supply works shall be paid on a lump sum basis for the Lot as a whole, against the corresponding item of the Schedule of Payments. The lump sum shall be deemed to include design, supply, installation, testing, commissioning and energization of the overhead contact system, the traction power substations and their 154 kV grid connections, return current and earthing/bonding systems, auxiliary power supply and all associated electrical infrastructure, together with all temporary works, possessions and interface works required. No re-measurement shall apply.

5.3 Testing and Commissioning Requirements

This Clause shall be read with the Key Technical and Operational Performance Requirements of this Part. Testing, commissioning and trial operation shall demonstrate, by measurement and by simulation where measurement is not practicable, that the completed Works achieve the journey time, headway, line capacity, axle load, train length and energy performance values stated in those Requirements, and that the RAMS targets of the applicable RAMS specifications (EN 50126, EN 50128 and EN 50129) are met. The Contractor shall submit the simulation models, input assumptions and results to the Engineer for approval before the commencement of trial operation.

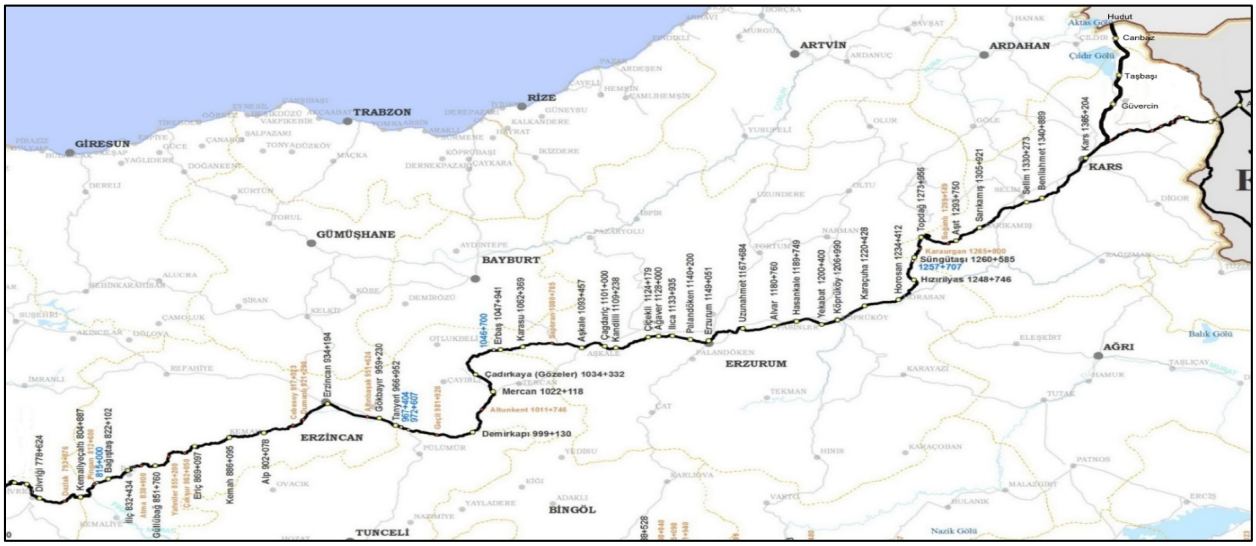
6 LOT 2 ERZINCAN–ERZURUM SECTION

The railway network of the Republic of Turkey consists of seven regions, and the Erzincan–Erzurum Part (Lot 2) railway line is located within the 4th Region, centered between Sivas and Erzurum, in the northeastern part of Turkey.

Erzincan-Erzurum Part (Lot 2) railway line, with a total length of approximately 215 km (214,888 m main line) is located between chainage: Km 933+784 (Erzincan) and Km 1148+672 (Erzurum)



Türkiye Railway Regional Map



Project Alignment Plan

The existing line has 16 railway stations. Main stations are listed below:

- Erzincan (included in Lot 1)
- Altınbaşak
- Tanyeri
- Geçit
- Demirkapı
- Altınkent
- Mercan
- Çadırkaya
- Erbaş
- Karasu
- Saptıran
- Aşkale
- Kandilli
- Çiçekli
- Kaplıca (Ilıca)
- Palandöken
- Erzurum (included in Lot 2)

The line is a non-electrified single-track railway, completed in 1961, built with standard gauge.

The project covers the establishment of signaling, telecommunication, and electrification systems aimed at increasing the existing railway operating capacity and enhancing operational safety along the Erzincan-Erzurum section.

The maximum train length (including locomotive) to be operated along the entire line will be considered 700 m. In addition, stations with the potential for further extension will be adapted for 750 m or 1,050 m train sets.

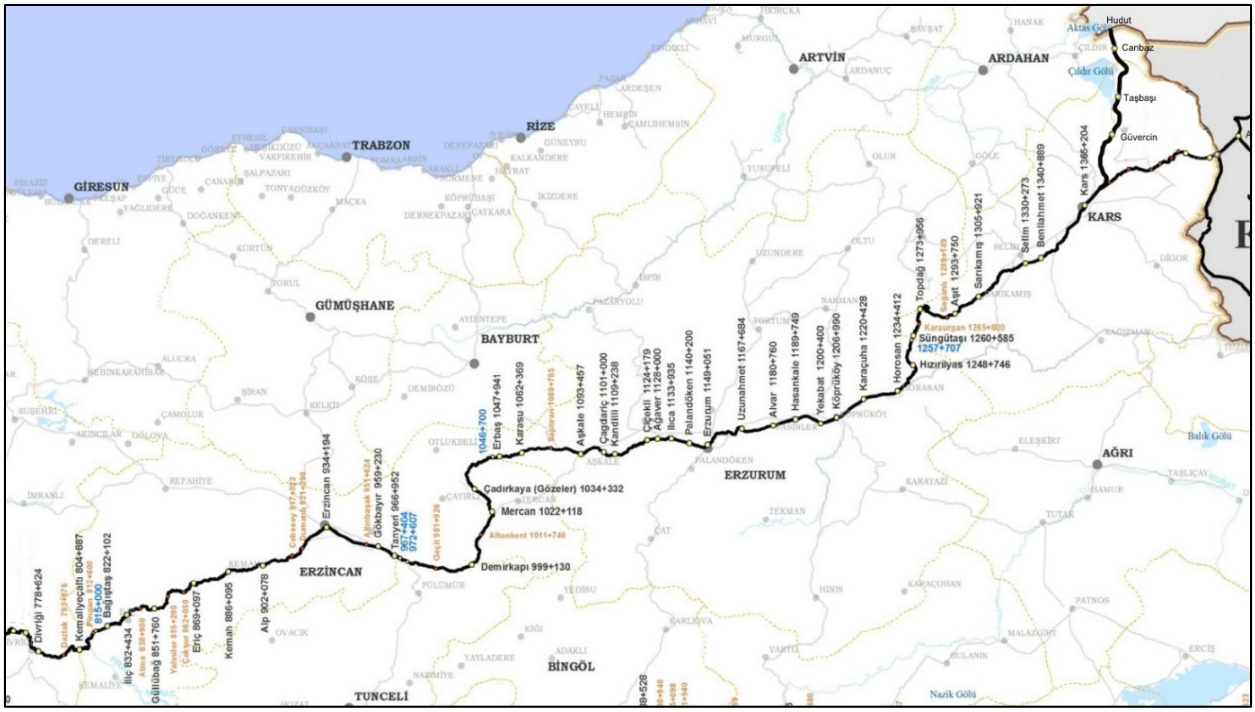
Due to the differences between the existing and newly built line sections, the project scope will be evaluated in two parts: (i) Divriği–Kars section, and (ii) Kars–Georgia border section. This lot only covers the Erzincan-Erzurum lot of Divriği-Kars section.

6.1 Existing Railway Characteristics

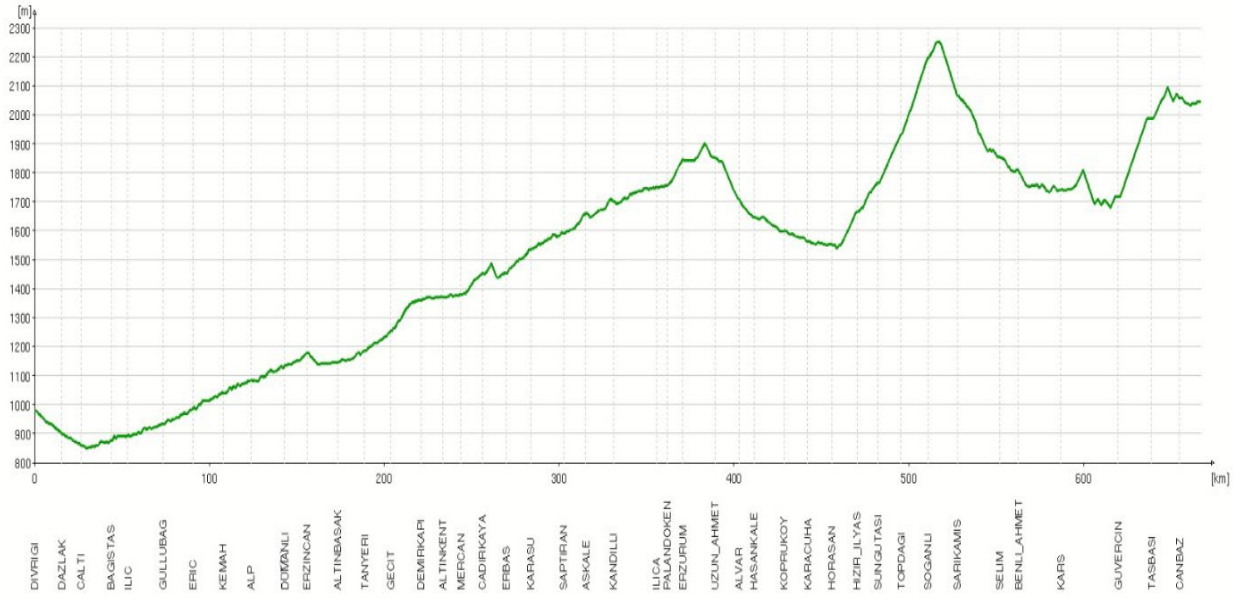
6.1.1 Alignment & Trackworks

Erzincan-Erzurum route is one of the first railways of the Republican era and has been continuously operated in standard gauge since 1961.

This section begins after Erzincan station at an elevation of approximately 1,186 m above sea level. The route continues at a similar elevation as far as Tanyeri and then proceed from canyon terrain to high plateau, climbing through the critical gradient zone toward Erzurum at approximately 1,750 m elevation.



Project Alignment Plan



Project Alignment Profile

Between Erzincan and Erzurum, there are curves with radii ranging from 236–500 m. The line consists of curves with radii greater than 3,200 m and straight alignments through the entire line.

Overall, the route encounters very rugged topography. The line generally follows valleys and canyons in close proximity to riverbeds. Therefore, in the canyon passages of the existing railway line, continuity is achieved through successive viaducts and tunnels, with sharp curves located in these sections.

The existing cross-section profile of the Erzincan-Erzurum line is provided in Volume 3/ Section 3-Drawings and Annexes/Annex-06.

The gradient and curve lists for the Erzincan-Erzurum section are provided in Volume 3/ Section 3-Drawings and Annexes/ Annex-04 and Annex-05.

The railway track superstructure is defined as a ballasted track, consisting mostly of prestressed concrete sleepers, with wooden sleepers used in certain sections.

Characteristics of Track Superstructure :

Average Speed Depending on Curve Radius and Superelevation	70-120 km/h
Minimum Curve Radius	236 m
Maximum Curve Radius	9226 m
Maximum Gradient	25 mm/m (kısa mesafede 28mm/m)
Maximum Superelevation	130 mm
Average Sleeper Spacing	62 cm
Maximum Axle Load	22,5 ton/aks (Divriği-Kars) 25 ton/aks ((Bağıştaş-İliç ve BTK))
Track Gauge	1435 mm
Rail Profile	S49 veya benzeri, 900A kalite
Rail Welding	CWR(Sürekli kaynaklı)
Rail Cant	1:40
Rail Fastening System	Skl-12 () Erzincan-Erzurum
Ballast Gradation	30/60 mm

On the Erzincan-Erzurum route, the turnouts are generally 1:9 angle with R300 m curved turnouts (occasionally with R190 m curves), laid on either wooden or concrete sleepers, using S49 rails. The turnouts are manually operated and do not have heating systems.

In stations, the sidings are generally connected with wooden-sleeper turnouts equipped with switch handles. On the main line, concrete-sleeper turnouts are also operated with switch handles, where one wooden sleeper is used for setting up the platform, and no turnout locking devices are installed.

For the Erzincan-Erzurum section, the design speed varies between 70 km/h and 120 km/h according to the alignment, the signaling design basis and target operational speed being 120 km/h, with speed restrictions down to 25 km/h applied in certain areas.

The permissible axle load is 22.5 tons between Erzincan and Erzurum.

It is assumed that rail insulation exists only in the renewed sections. In other areas, rails are primarily fastened directly onto plates without elastic rail pads or sleeper pads. Overall, the condition of the lines can be classified as well-maintained.

6.1.2 Structural and Design

Tunnels, bridges, and culverts are considered the main engineering structures on the railway line. According to TCDD records, the existing structures are designed to withstand an axle load of 22.5 tons.

6.1.3 Infrastructure and Drainage

The route is a 100-year-old line, and regional infrastructure and drainage problems are present.

6.1.4 Level Crossings

Along the Erzincan-Erzurum section, there are 49 level crossings. According to information provided, some of these crossings, where overpasses, underpasses and bridges are to be constructed to the points coinciding with the existing level crossings, will be eliminated, leaving rest active level crossings to be evaluated.

This section corresponds to Lot 2 (Km 933+784–1148+672); of the 49 level crossings,

- 18 with automatic barriers
- 1 with a mechanical barrier
- 2 with barriers controlled by gatekeepers
- 28 uncontrolled and unprotected crossings

The list of existing level crossings on the Erzincan-Erzurum section is provided in Volume 3/ Section 3-Drawings and Annexes/ Annex-22

Below, the level crossing list is provided for the reference for Lot 2.

Lot 2 – Erzincan–Erzurum

Km 933+784 – 1156+919 | 51 level crossings | Source: TCDD Divriği–Kars level-crossing list

No.	Level Crossing ID (KKY No)	Chainage (Km	Crossing type	Surface	Province	Connects	Road authority
1	117-H-5050-HMZ-H002	936+135	Automatic barrier	Asfalt	Erzincan	Bariş Mahallesi Yolu	Erzincan Belediyesi
2	117-H-5050-HMZ-H003	937+588	Automatic barrier	Kauçuk	Erzincan	Askeri Ve Sivl Hava Alani Yolu	Erzincan Belediyesi
3	117-H-5050-HMZ-H004	938+525	Automatic barrier	Kauçuk	Erzincan	Yoğurtlu Beldesi Yolu	Yoğurtlu Beldesi
4	117-H-5050-HMZ-H005	943+388	Automatic barrier	Kauçuk	Erzincan	Karadiğin-Balibay Köyleri Yolu	Dsi Genel Müdürlüğü
5	117-H-5050-HMZ-H006	946+135	Automatic barrier	Asfalt	Erzincan	Dsi Hizmet Yolu Ve Çevre Köy Yollari	Özel İdare
6	117-H-5033-HMZ-H011	948+365	Uncontrolled (St Andrew cross)	Parke Taş	Erzincan	Denizdami Köyü Arazi Yolu	Özel İdare
7	117-H-5050-HMZ-H007	952+296	Automatic barrier	Kauçuk	Erzincan	Altinbaşak Beldesi Yolu	Altinbaşak Beldesi
8	117-H-5050-HMZ-H008	957+530	Automatic barrier	Kauçuk	Erzincan	Altinbaşak Beldesi Yolu	Özel İdare
9	117-H-5050-HMZ-H012	966+110	Uncontrolled (St Andrew cross)	Toprak Balast	Erzincan	Avcilar Köyü Arazi Yolu	Özel İdare
10	117-H-5033-HMZ-H012	989+610	Uncontrolled (St Andrew cross)	Parke Taş	Erzincan	Sansa Köyü Yolu	Özel İdare
11	117-H-5033-HMZ-H013	992+340	Uncontrolled (St Andrew cross)	Toprak Balast	Erzincan	Bağlar Köyü Yolu	Özel İdare
12	117-H-3356-HMZ-H001	999+479	Uncontrolled (St Andrew cross)	Toprak Balast	Erzincan	Demirkapi İst. İçi Şantiye Binasi Yolu	Özel İdare
13	117-H-3356-HMZ-H002	1004+868	Automatic barrier	Kauçuk	Erzincan	Köy Yollari	Özel İdare
14	117-H-3356-HMZ-H003	1006+684	Uncontrolled (St Andrew cross)	Ahşap Travers	Erzincan	Altunkent Beldesi Arazi Yolu	Özel İdare
15	117-H-3356-HMZ-H004	1010+685	Automatic barrier	Kauçuk	Erzincan	Altunkent Beldesi Yolu	Özel İdare
16	117-H-3356-HMZ-H005	1011+004	Uncontrolled (St Andrew cross)	Ahşap Travers	Erzincan	Altunkent Beldesi Yolu	Özel İdare
17	117-H-3356-HMZ-H007	1014+810	Uncontrolled (St Andrew cross)	Toprak Balast	Erzincan	Altunkent Beldesi Arazi Yolu	Özel İdare
18	117-H-3356-HMZ-H008	1017+565	Uncontrolled (St Andrew cross)	Ahşap Travers	Erzincan	Köprübaşi Köyü Yolu	Özel İdare
19	117-H-3356-HMZ-H010	1021+775	Uncontrolled (St Andrew cross)	Ahşap Travers	Erzincan	Mercan İst. Girişi	Özel İdare
20	117-H-5626-HMZ-H001	1024+700	Automatic barrier	Ahşap Travers	Erzincan	Gökçe Köyü Yolu	Özel İdare
21	117-H-5626-HMZ-H003	1027+546	Uncontrolled (St Andrew cross)	Ahşap Travers	Erzincan	Gökçe Köyü Yolu	Özel İdare
22	117-H-5626-HMZ-H004	1030+401	Uncontrolled (St Andrew cross)	Toprak Balast	Erzincan	Gökçe Köyü, Çadirkaya Beldesi Arazi Yolu	Özel İdare
23	117-H-5626-HMZ-H005	1033+758	Automatic barrier	Kauçuk	Erzincan	Çadirkaya İst. Girişi Ve Diğer Köy Yollari	Özel İdare
24	117-H-2647-HMZ-H001	1035+594	Automatic barrier	Kauçuk	Erzincan	Çadirkaya Köy Yolu	Özel İdare
25	117-H-2647-HMZ-H003	1041+995	Automatic barrier	Ahşap Travers	Erzincan	Dolhaci Köyü Yolu	Özel İdare
26	117-H-2647-HMZ-H006	1046+626	Uncontrolled (St Andrew cross)	Toprak Balast	Erzincan	Mirzeoğlu Köyü Yolu	Özel İdare
27	117-H-4790-HMZ-H001	1048+405	Uncontrolled (St Andrew cross)	Asfalt	Erzincan	Erbaş İst. Çikiş Makasindaki Geçit	Özel İdare
28	117-H-4790-HMZ-H002	1049+573	Uncontrolled (St Andrew cross)	Asfalt	Erzincan	Arazi Ve Kelvez Köyü Yolu	Özel İdare
29	117-H-4790-HMZ-H003	1050+750	Uncontrolled (St Andrew cross)	Asfalt	Erzincan	Cancik Köyü Arazi Yolu	Özel İdare
30	117-H-4790-HMZ-H004	1053+676	Uncontrolled (St Andrew cross)	Asfalt	Erzincan	Tecer Köyü Yolu	Özel İdare
31	117-H-9009-HMZ-H001	1063+715	Uncontrolled (St Andrew cross)	Asfalt	Erzincan	Yaziören Köyü Arazi Yolu	Özel İdare
32	117-H-9009-HMZ-H002	1068+217	Uncontrolled (St Andrew cross)	Asfalt	Erzurum	Özler-Altuntaş Köy Yolu	Erzurum Büyükşehir Belediyesi
33	117-H-9009-HMZ-H003	1076+133	Uncontrolled (St Andrew cross)	Asfalt	Erzurum	Dalli-Özler Köyü Bağlanti Yolu	Erzurum Büyükşehir Belediyesi
34	117-H-9009-HMZ-H004	1079+110	Uncontrolled (St Andrew cross)	Asfalt	Erzurum	Saptiran Köyü Arazi Yolu	Erzurum Büyükşehir Belediyesi
35	117-H-9009-HMZ-H005	1080+109	Uncontrolled (St Andrew cross)	Asfalt	Erzurum	Saptiran Köy Yolu-Kum Ocağı Yolu	Erzurum Büyükşehir Belediyesi
36	117-H-9009-HMZ-H007	1086+530	Uncontrolled (St Andrew cross)	Ahşap Travers	Erzurum	Topalçavuş Ve Çomoğlu Köyü Arazi Yolu	Erzurum Büyükşehir Belediyesi
37	117-H-0984-HMZ-H001	1095+132	Automatic barrier	Kauçuk	Erzurum	Aşkale Şehir İçi	Aşkale Belediyesi
38	117-H-0984-HMZ-H002	1097+172	Uncontrolled (St Andrew cross)	Asfalt	Erzurum	Demirkiran Köyü Yolu	Aşkale Belediyesi
39	117-H-0984-HMZ-H004	1108+641	Uncontrolled (St Andrew cross)	Asfalt	Erzurum	Askeri Birlik Ve Kandilli Bld. Girişi	Erzurum Büyükşehir Belediyesi
40	117-H-8486-HMZ-H001	1109+677	Automatic barrier	Asfalt	Erzurum	Kandilli Belediyesi Şehir İçi Yolu	Kandilli Belediyesi
41	117-H-8486-HMZ-H002	1110+580	Automatic barrier	Asfalt	Erzurum	Erzurum Kayak Tesisleri Yol Ayrimi	Kandilli Belediyesi
42	117-H-8486-HMZ-H004	1121+210	Automatic barrier	Asfalt	Erzurum	Alaca Köyü Yolu	Özel İdare
43	117-H-8486-HMZ-H005	1123+410	Uncontrolled (St Andrew cross)	Toprak Balast	Erzurum	Alaca Köyü Arazi Yolu	Erzurum Büyükşehir Belediyesi
44	117-H-8486-HMZ-H006	1127+750	Uncontrolled (St Andrew cross)	Asfalt	Erzurum	Agaver Köyü Girişi	Erzurum Büyükşehir Belediyesi
45	117-H-8486-HMZ-H009	1133+630	Mechanical barrier (staff)	Asfalt	Erzurum	Ilica İlçesi İstasyon İçi	Ilica Belediyesi
46	117-H-8624-HMZ-H001	1135+420	Uncontrolled (St Andrew cross)	Asfalt	Erzurum	Ilica İlçe Yolu	Ilica Belediyesi
47	117-H-2452-HMZ-H003	1143+148	Automatic barrier	Asfalt	Erzurum	Erzurum Hava Alani-Palandöken Yolu	Tck
48	117-H-2452-HMZ-H001	1147+630	Guarded barrier	Asfalt	Erzurum	Erzurum Şehir Otogar Yolu	Erzurum Büyükşehir Belediyesi
49	117-H-2452-HMZ-H002	1148+652	Guarded barrier	Kauçuk	Erzurum	Erzurum Şehir İçi Yolu	Erzurum Büyükşehir Belediyesi
50	117-I-4552-HMZ-H001	1150+225	Guarded barrier	Kauçuk	Erzurum	Erzurum Şehir İçi Yolu	Erzurum Büyükşehir Belediyesi
51	117-I-4552-HMZ-H002	1151+530	Automatic barrier	Kauçuk	Erzurum	Erzurum Şehir İçi Yolu	Erzurum Büyükşehir Belediyesi

The level crossings on the railway line facilitate both pedestrian and vehicle passage.

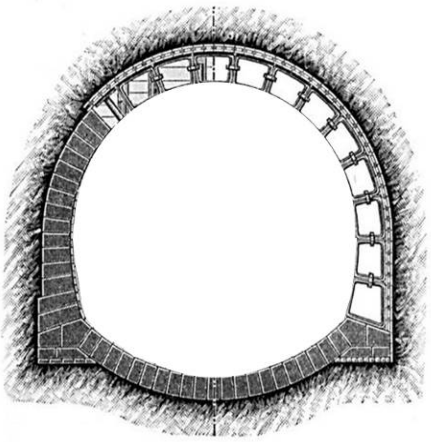
6.1.5 Tunnels

Along the Erzincan-Erzurum railway line, there are 33 tunnels with a total length of 6.91 km. The longest tunnel is 1,078 m.

Tunnel linings include reinforced concrete, shotcrete, stone masonry, and unlined rock, while the foundations are either reinforced concrete or masonry.

The tunnels were constructed with narrow cross-sections, in accordance with the construction conditions of their time. Horizontally, most tunnels do not provide sufficient space for walkways, although escape chambers are available at certain intervals.

Vertical clearance issues are observed across the tunnels along the line, with vertical tunnel clearances ranging from 4.80 m to 5.80 m.



Typical Tunnel Cross Section between Erzincan-Erzurum

Based on schedule (Item Nos. 121–153; TCDD Tunnel Nos. 123/A–137, per the verified Tunnel Schedule), there are;

- 13 mountain tunnels, in total length of 3,329 m
- 19 snow sheds in total length of 3,554 m
- 1 Pedestrian tunnel in total length of 30 m
- Total 33 tunnels with a total length ≈6.913 m

within this section.

Tunnel linings: reinforced concrete, shotcrete, stone masonry and unlined rock; vertical clearances 4.80–5.80 m.

Schedule Item No.	TCDD Tunnel No.	Start Chainage	End Chainage	Length (m)	Tunnel Type	Structural / Lining Type	Foundation Type
121	123/A	969+900	969+990	90.00	Snow Tunnel	Reinforced Concrete	Reinforced Concrete
122	124	969+990	970+202	212.00	Mountain Tunnel	Stone Masonry Lining	Masonry
123	124/A	970+202	970+775	573.00	Snow Tunnel	Reinforced Concrete	Reinforced Concrete
124	124/B	970+972	971+114	142.00	Snow Tunnel	Reinforced Concrete	Masonry
125	124/C	971+279	971+362	83.00	Snow Tunnel	Reinforced Concrete	Masonry
126	124/D	971+197	971+257	60.00	Snow Tunnel	Reinforced Concrete	Masonry
127	125	971+582	971+654	72.00	Mountain Tunnel	Stone Masonry Lining	Masonry
128	125/A	971+654	971+727	73.00	Snow Tunnel	Reinforced Concrete	Masonry
129	125/B	971+727	972+024	297.00	Snow Tunnel	Reinforced Concrete	Masonry
130	126/B	972+440	972+560	120.00	Snow Tunnel	Reinforced Concrete	Reinforced Concrete
131	126	972+915	973+033	118.00	Mountain Tunnel	Stone Masonry Lining	Masonry
132	126/A	982+460	982+700	240.00	Snow Tunnel	Reinforced Concrete	Masonry
133	127/B	984+170	984+620	450.00	Snow Tunnel	Reinforced Concrete	Reinforced Concrete
134	127	984+620	984+650	30.00	Pedestrian Tunnel	Stone Masonry Lining	Masonry
135	127/A	984+650	984+980	330.00	Snow Tunnel	Reinforced Concrete	Masonry
136	128	988+372	988+651	279.00	Mountain Tunnel	Stone Masonry Lining	Masonry
137	128/A	988+651	988+809	158.00	Snow Tunnel	Reinforced Concrete	Concrete
138	129	988+809	988+887	78.00	Mountain Tunnel	Stone Masonry Lining	Masonry
139	130/A	990+690	990+820	130.00	Snow Tunnel	Reinforced Concrete	Masonry
140	130	990+820	991+040	220.00	Mountain Tunnel	Stone Masonry Lining	Masonry

141	130/B	994+800	994+880	80.00	Snow Tunnel	Reinforced Concrete	Masonry
142	131	994+880	994+915	35.00	Mountain Tunnel	Stone Masonry Lining	Masonry
143	131/B	994+915	995+000	85.00	Snow Tunnel	Reinforced Concrete	Masonry
144	131/A	1001+345	1001+575	230.00	Snow Tunnel	Reinforced Concrete	Masonry
145	132	1004+374	1004+448	74.00	Mountain Tunnel	Stone Masonry Lining	Masonry
146	132/A	1004+448	1004+488	40.00	Snow Tunnel	Reinforced Concrete	Masonry
147	132/B	1015+200	1015+375	175.00	Snow Tunnel	Reinforced Concrete	Masonry
148	132/C	1016+286	1016+484	198.00	Snow Tunnel	Reinforced Concrete	Masonry
149	133	1039+284	1039+448	164.00	Mountain Tunnel	Stone Masonry Lining	Masonry
150	134	1054+958	1055+552	594.00	Mountain Tunnel	Stone Masonry Lining	Masonry
151	135	1056+403	1056+647	244.00	Mountain Tunnel	Stone Masonry Lining	Masonry
152	136	1060+180	1061+258	1078.00	Mountain Tunnel	Stone Masonry Lining	Masonry
153	137	1100+588	1100+749	161.00	Mountain Tunnel	Stone Masonry Lining	Masonry

One of the main problems of the tunnels is water ingress from the tunnel crown due to precipitation and groundwater content. This condition requires additional protective measures for electrification. During winter, water flowing from the tunnel sidewalls freezes, creating serious problems with horizontal clearance.

In the rainy winter season, rocks located above tunnel portals weaken due to freeze–thaw cycles, causing large blocks to topple and fall along steep slopes. In particular, major rockfalls onto the railway line pose significant hazards to railway operations.

In the existing tunnel cross-sections, drainage systems do not function properly. Especially in areas with heavy water ingress, excessive deterioration occurs, making water discharge necessary.

During winter, water flowing from the tunnel sidewalls freezes, creating serious problems with horizontal clearance.

6.1.6 Bridges, Culverts, Overpasses and Underpasses

Hydraulic structures are generally classified as bridges and culverts. Structures with a span of 8 m and above are defined as bridges, while structures with a span of less than 8 m are considered culverts.

Up to the Erzincan-Erzurum section, there are

- 66 railway bridges (span of 8 m and above),
- 747 culverts (span of less than 8 m),
- 9 road overpasses and 2 underpasses,

available in total along the line, built of steel, stone, or reinforced concrete.

These structures were constructed between 1899 and 2015. The longest railway bridge is 130 m.

Some of the steel structures have ballastless tracks with wooden bridge sleepers mounted directly on the structure. Most other bridges are equipped with ballast-retaining metal plates to protect the ballast. In general, walkways for staff are not provided on bridges.

Although guard rails are generally present on bridges, they are absent on the bridges between Erzincan-Erzurum.

Along the Erzincan-Erzurum railway line, there are underpasses or overpasses intersecting the railway, used by road traffic and pedestrians.

Culverts made of steel or reinforced concrete are located along the Erzincan-Erzurum section.

The structures along the Erzincan-Erzurum railway are designed to carry axle loads of 22.5 tons.

Renewal of hydraulic structures. Within Lot 2, 3 bridges are scheduled for renewal at Km 993+322, 1059+532 and 1144+680, and 35 culverts at Km 1015+496, 1043+283, 1043+693, 1043+924, 1045+166, 1045+180, 1045+589, 1045+669, 1045+720, 1045+771, 1046+234, 1047+011, 1047+120, 1047+197, 1047+601, 1047+870, 1048+542, 1053+051, 1053+136, 1053+267, 1053+429, 1053+506, 1053+760, 1054+713, 1054+922, 1055+818, 1056+870, 1057+541, 1058+683, 1059+585, 1059+748, 1059+876, 1081+419, 1115+214 and 1119+217.

6.1.7 Signaling

Currently, there is no signaling system on the existing line. Railway operations are managed through the TMİ system, where train traffic is controlled by the central dispatcher via telephone communication. The remote traffic control centers for this railway line is located in Erzurum.

All turnouts at stations are manually operated by a switchman under the supervision of the station master. In some stations, advanced protection signals are positioned at braking distance. There is no train detection system (free/occupied track detection) along the railway line.

Certain stations are either permanently or temporarily closed, and all warning systems in these stations are deactivated. In the closed stations, lighting is either lacking or out of service, and all mainline turnouts, if present, are kept locked.

6.1.8 Telecommunication

Although the overhead line network used for the existing communication system is in good condition, the current telecommunication system is not compatible with modern requirements and has no possibility for capacity expansion.

There is no continuous passenger information system along the railway line. At roadside stations, passenger information systems (audio and visual) cannot be activated from a central operations center.

In addition, systems such as telecontrol, data transmission, alarm systems, and CCTV (closed-circuit television) have not been installed. Radio communication is also not available in the tunnels.

6.1.9 Communication Lines

Communication along the railway line is provided by an overhead line network with conductors mounted on wooden poles. Three systems are currently in operation on the existing railway line:

- 12-channel carrier system
- TMİ dispatching system
- Service distribution system

Operational communication is carried out by telephone (e.g., between dispatchers and station masters; between station masters and signalmen or gatekeepers operating mechanical barriers, etc.). No telecommunication equipment is available inside the tunnels (e.g., connectors for telephones).

Connectors for telephones are mounted on poles along the track. Additional connectors are located in switchman/signalman cabins, at level crossings, and in unmanned stations. These connectors are labeled with a telephone symbol. In case of emergencies or accidents, the connectors can be used with a portable telephone to establish communication with personnel at the next station.

The workstations of station personnel at the operational stations are equipped with the following telecommunication devices:

- Separate telephone for each track direction
- Automatic telephone (with access to the national telephone system)

In some cases, multiple telephones

6.1.10 Radio Communication System

The Wide Area Coverage Radio System, established by Aselsan, is in operation along the railway line. All communications are transmitted through a relay channel. This system is not used directly for the management of traffic services but serves as a support system to enhance the level of operational safety.

The system has a single channel for communication on operational matters. It is solely for voice transmission and is not used for data transfer. Conversations conducted with the dispatcher through the system are recorded by a voice recording system.

6.1.11 Station Passenger Information Systems

Systems with clocks and loudspeakers are considered passenger information systems. General public-address systems are currently available only at major stations while no passenger information systems exist at the other stations. Information related to train operations is mostly provided through timetables at stations or at train stops without railway staff.

6.1.12 Power Systems

The energy requirements of the stations and existing systems are supplied by local power facilities along the railway line.

Overall energy consumption consists of:

- Lighting of buildings, sidings, station areas, and level crossings
- Telecommunication installations and operation centers
- Workshops, maintenance facilities, and machinery
- Pre-heating of passenger coaches in the waiting areas of major stations

Floodlights are installed at major stations. At smaller stations, older individual lighting systems are in use. Power for floodlights is supplied by cables, while at smaller stations, lamps mounted on wooden or steel poles are connected via overhead wires.

There are numerous overhead line crossings of different types along the railway line and stations. In some stations, feeder cables for the station and other related buildings pass directly through the station area.

6.1.13 Maintenance and Rehabilitation

Since the construction of the railway, only routine maintenance works have been carried out, such as the replacement of certain specific track superstructure components, repairs of some sections of the line, infrastructure improvements, and maintenance of drainage elements and engineering structures.

According to information provided by TCDD, the track renewal works between Erzincan-Erzurum were completed during the period 2012–2016.

6.1.14 Restricted Access

Some parts of this Lot are difficult to reach because of winter conditions and mountainous terrain. Those parts are the following. Winter and avalanche conditions: the Tanyeri–Mercan mountain section between Km 969+900 and Km 1016+484 contains 19 snow tunnels and galleries totalling 3,554 m, in six groups — Km 969+900 – 972+560 (8 structures, 1,438 m), Km 982+460 – 984+980 (3 structures, 1,020 m), Km 988+651 – 990+820 (2 structures, 288 m), Km 994+800 – 995+000 (2 structures, 165 m), Km 1001+345 – 1004+488 (2 structures, 270 m) and Km 1015+200 – 1016+484 (2 structures, 373 m). These are the lengths most exposed to snow drift and avalanche in this Lot. Road access: the longest lengths between successive road access points are Km 966+648 – 981+650 (15.0 km), Km 1097+172 – 1108+641 (11.5 km), Km 1110+580 – 1121+210 (10.6 km), Km 957+530 – 966+110 (8.6 km) and Km 1053+676 – 1061+852 (8.2 km). Altitude: this Lot lies in Climatic Zone 2, rising from approximately 1,186 m at Erzincan to approximately 1,750 m at Erzurum. Working at the above locations shall be planned on the basis of rail-borne access where road access is not available, and of the seasonal restrictions stated in the Seasonal Restriction Calendar.

The road access distances stated above are given for information only and do not relieve the Contractor of its obligation to satisfy itself as to the means of access to the Site.

In accordance with the Collaboration Protocol between AYGM and TCDD, TCDD will determine the applicable operational scenarios and prepare the railway traffic planning, which will be communicated to AYGM before the commencement of the relevant activities. Accordingly, prior to the commencement of work in the affected sections, a chainage-based schedule of restricted-access locations shall be prepared in coordination with TCDD, together with the corresponding access and possession arrangements. The planning shall also identify any locomotives, work trains or other railway resources required for material transportation, emergency access and execution of the Works. The availability, timing and conditions of use of such railway resources shall be subject to TCDD's approved operational and traffic planning.

The necessary arrangements for transportation of personnel, plant and materials to the tunnel and restricted-access locations of this Lot shall be ensured by AYGM (the Employer); all related permits and licenses shall be provided by AYGM.

TCDD shall make available the locomotives, work trains and railway resources required for material transport, emergency access and possessions, as set out in the Restricted-Access Schedule.

6.2 Scope of Works

The scope of the Works is classified under the headings set out below.

6.2.1 Design Works

The main design work items are listed as follows:

- Detail design work,
- Alignment final design

- Design of structures, along the line
- Design of passenger stations (civil, E-M)
- E-M items design (electrification, mechanical design)

The contractor shall be responsible for preparing the design studies and documents in accordance with the standards, specifications, and regulations given in the relevant design and construction specifications.

6.2.1.1 Alignment and Detail Design Works

The Contractor shall update all geodetic works along the railway line and gather all relevant information on existing and planned infrastructure and sub-structures which may affect or be affected by the railway alignment. Hydrological and hydraulic studies shall include catchment delineation, data review, intensity-duration-frequency analyses, flood-frequency analyses, design discharge calculations, hydraulic modelling, scour and erosion assessment and verification of the required hydraulic capacity.

The Contractor shall identify and justify the return periods proposed for bridges, culverts, drainage structures and temporary works, taking into account the asset type, design life, operational importance and consequences of failure. The proposed return periods, IDF data and calculation methodology shall be submitted to the Engineer and the relevant national authorities for approval.

6.2.1.2 Geological and Geotechnical Designs

The Contractor shall prepare a soil investigation and laboratory programme in accordance with the Standards to be named; Ground investigation & testing (framework)TS EN 1997-2, Sampling & groundwater measurement TS EN ISO 22475-1, Field testing (SPT, CPT, pressure meter, dilatometer, etc.) TS EN ISO 22476 series (e.g. -1 CPT, -2/-3 SPT, -4/-5 pressure meter) Soil identification & classifications TS EN ISO 14688-1 / -2 Rock identification & classification TS EN ISO 14689 Laboratory testing of soil TS EN ISO 17892 series (Parts 1–12). Prior to commencing the soil investigation programme, existing infrastructure (gas lines, electrical, communication, NATO lines, sewage, water distribution lines and similar utilities) shall be identified from information to be provided by AYGM. After approval by AYGM/Consultant, investigations and laboratory tests shall be conducted and geological and geotechnical reports prepared for the alignment (cuts, fills, ground improvements) and for all structures (tunnels, bridges, stations and other structures) along the line

6.2.1.3 Civil Structure Designs

Structural designs shall be prepared for all alignment structures including tunnels, bridges and hydraulic structures in accordance with the design technical specifications provided with the tender documents. Civil, architectural and electromechanical designs shall be prepared for all passenger stations (Erzincan, Erzurum, Kars and others as defined in the Annexes) and for other structures including electromechanical buildings and substations. Station designs shall include fire scenario analysis, egress and escape routes, ventilation systems, firefighting, electromechanical installations and all associated distribution facilities.

6.2.1.4 Power Supply and Electrification Designs

A 25 kV AC 50 Hz single-phase electrification system will be adopted for the full Divriği–Kars corridor. Power requirements for target-year train operations shall be determined by the Contractor. A total of 14 traction transformer substations (each 2×25 MVA) will be installed within the Contract limits. The catenary system shall comprise one contact wire (120 mm² CuAg0.1, in compliance with EN 50149) and one messenger wire (95 mm² Bz II 95, in compliance with DIN 48201). In tunnel sections with restricted clearance, a compact catenary configuration using reduced-height assemblies shall be applied. Maximum section length shall be 1,400 m; the number of cantilevers per half-section shall be limited to 20. The catenary wires shall be tensioned separately on the main line (regulated individually) and jointly on sidings. Each Contractor Lot shall be responsible for completing electrification works within its section, including all necessary connections and interfaces with adjacent Lot sections. Detailed supply plans, principle diagrams and single-line diagrams are provided in the Contract Drawings (Annex-17, Annex-18, Annex-19, Annex-20). All works shall comply with the Technical Specifications for Catenary Systems (2.8.1), Power Supply and Distribution (2.8.2), and Transformer Centers (2.8.3).

6.2.1.5 154 kV Grid Connection and Power Transmission Lines

The Contractor shall design and construct the complete 154 kV grid-connection infrastructure required for the energization of each traction power substation.

The scope shall include, as a minimum:

- confirmation of the TEİAŞ connection point and available short-circuit capacity;
- load-flow, short-circuit, power-quality and harmonic studies;
- route selection and topographical, geotechnical and environmental surveys;
- design of overhead transmission lines and, where required, underground cable sections;
- towers, poles, foundations, conductors, earth wires and optical ground wire;
- 154 kV connection bays, switchgear, protection, metering and control equipment;
- protection coordination between the TEİAŞ network and the traction power substations;
- revenue-metering arrangements;
- SCADA, telecontrol and telecommunications interfaces with TEİAŞ and the traction-power control system;
- earthing, bonding, lightning protection and electromagnetic compatibility;
- all applications, submissions, permits, approvals and technical agreements required by TEİAŞ and other competent authorities;
- factory tests, site tests, system-integration tests, energization tests and operational acceptance;
- as-built drawings, settings, test records, operation and maintenance manuals and training.

The Contractor shall submit a 154 kV Grid Connection Design Basis Report within 90 days after the Commencement Date. The Report shall identify the connection point for each traction power substation,

the proposed route, connection-bay arrangement, protection and metering philosophy, SCADA interface, approval programme, construction programme, testing programme and planned energization date.

The 154 kV connection works shall be incorporated into the Contractor's Work Programme as contractual activities and milestones. The programme shall ensure that each connection is completed before the planned testing and commissioning of the corresponding traction power substation and associated catenary feeding section.

6.2.2 Construction Works

The main construction work items are listed as follows:

- Earth works, along the line (cuts, fills, ground improvements, retaining structures),
- Construction works of the structures along the line (NATM and TBM tunnels, construction shafts, cut and cover structures, viaducts, bridges, hydraulic structures, under passes, over passes)
- Station improvements, platform construction and associated civil and electromechanical works at active stations (Erzincan, Erzurum, Kars and others as defined in the Annexes),
- Traction power supply and electrification work,
- E-M system works, (tunnel ventilations, emergency tunnels, firefighting for the underground structures along the line),
- Track works along the line (open line, through tunnels and on structures): ballasted track renewal, slab track (tunnels ≥1000 m and designated structures (namely the bridges, viaducts and transition structures identified in the Slab-Track Schedule)), UIC 60 E1 rail supply and welding, concrete sleepers, fastening systems, switches and crossings, transition zones, rail grinding,
- Railway trial operation period,
- Signalization- communication and supporting systems work,
- Design, permitting, supply, construction, testing, commissioning and energization of all 154 kV power transmission lines, branch lines, TEİAŞ connection bays and associated grid-connection facilities required for the traction power substations;
- The physical and functional contract boundary at Kars (the interface with the existing BTK infrastructure) shall be defined by reference to the boundary signal, boundary turnout, catenary section, fiber-optic termination point, ETCS level-transition point, power interface and earthing interface.

The scope of the Works is classified under the headings set out below.

6.2.2.1 Track Substructure and Superstructure Maintenance and Repair Works

Track substructure and superstructure works shall comprise

- All permanent way works necessary for the rehabilitation, modification, adjustment, installation, reinstatement, and maintenance of the railway track along the alignment, excluding slab track construction inside tunnels, which is included under the tunnel works.
- Station arrangements including the necessary earthworks, as well as track substructure and superstructure work.

- Installation of missing guard rails in bridges where Engineer proposes.
- Installation of sub-ballast mats where Engineer proposes.
- Installation of under-sleeper pads where Engineer proposes.
- Replacement of existing rail fastening components and sleeper fastening elements deemed necessary by the Engineer.
- All track geometry modifications required to achieve the necessary clearance envelope within tunnels and at tunnel portals. Removal of track for the purpose of gradient adjustment and reinstallation of track after invert lowering.
- All sleepers within a length of 100 meters at both tunnel portals shall be replaced with new sleepers which are compatible with the existing line.
- All necessary maintenance works shall be carried out, and track geometry measurements as well as non-destructive testing (NDT) of the rails shall be performed in the sections instructed by the Engineer along the track length.

The Works shall include all track geometry modifications required to achieve the necessary clearance envelope within tunnels and at tunnel portals.

For this purpose, all sleepers within a length of 100 meters at both tunnel portals shall be replaced with new sleepers which are compatible with the existing line.

6.2.2.2 Enlargement of Tunnel Clearance for Electrification Integration

Vertical clearance issues are observed across the tunnels along the line, with vertical tunnel clearances ranging from 4.80 m to 5.80 m.

For the installation, commissioning, and safe operation of the catenary system, the minimum vertical clearance within each tunnel shall be minimum 5.30 meters measured from the top of rail level to top of the tunnel inner lining.

Specifically, work includes tunnel rehabilitation and electrification clearance enlargement where required of 33 tunnels,

- 13 mountain tunnels,
- 19 snow sheds and
- 1 pedestrian tunnel
- Total 33 tunnels

Slab track construction inside tunnels, removal of track within tunnels for the purpose of invert lowering and civil and structural works related to tunnel invert lowering are included in Tunnel Clearance Enlargement scope of works.

6.2.2.3 Structural Modifications of Bridges, Culverts, Overpasses and Underpasses

Scope of works covers the extension, rehabilitation, reconstruction, strengthening and/or replacement of existing bridges, culverts, overpasses and underpasses along the alignment.

Specifically, works include;

- Construction of new bridge parallel to the existing one at Geçit Station,
- Renewal of 3 bridges at Km 993+322, 1059+532 and 1144+680
- Extension or renewal of 35 culverts due to station extensions,
- Demolition and re-construction of 2 overpasses at Erzurum

  (Km 1088+044: L = 20.00 m; reinforced concrete; h = 4.90 m)
  (Km 1092+278: L = 20.00 m; reinforced concrete; h = 4.80 m)
- Inspection and clearance of stream blockages at bridges and culverts, and inspection and rehabilitation of channels and stream beds.

The structural modification works of Lot 2 include the construction of 1 new bridge, renewal of 3 bridges, extension or renewal of 35 and demolition and re-construction of 2 overpasses at the chainages scheduled in the Existing Railway Characteristics Clause of this Lot.

6.2.2.4 Construction of Retaining Walls

Scope of works comprise construction of retaining walls due to station extensions or additional siding construction along the railway alignment in

- Erbaş Station

in accordance with the approved drawings, TCDD technical specifications and applicable engineering standards. The Contractor shall determine the dimensions, geometry and structural arrangement through its own detailed design, in accordance with the applicable codes, standards and TCDD technical specifications, and shall submit the design to the Engineer for approval.

6.2.2.5 Renewal of Station Platforms

Scope of works comprise complete renewal of the existing passenger platform at

- Demirkapı Station

in accordance with the approved drawings, technical specifications and applicable TCDD standards. The Contractor shall determine the dimensions, geometry and structural arrangement through its own detailed design, in accordance with the applicable codes, standards and TCDD technical specifications, and shall submit the design to the Engineer for approval.

6.2.2.6 Improvement and Upgrading of Level Crossings

Scope of works covers improvement and upgrading of existing level crossings along the alignment.

Specifically Works include improvement and upgrading of

- 49 level crossings

along the alignment.

6.2.2.7 Construction of Technical Buildings

Scope of works comprise design and construction of Technical Buildings.

Specifically works include

- Type-1 Technical Buildings – 6 No.
- Type-2 Technical Buildings – 10 No.
- Auxiliary technical buildings – 76 No. Auxiliary technical buildings are the small ancillary structures of approximately 4.80 m × 2.50 m (≈12 m²) required to support the railway systems along the alignment and at stations, including equipment shelters, relay and battery rooms, cable termination and distribution kiosks, level crossing control cabinets and similar single-storey structures, complete with their foundations, power supply, earthing, ventilation and external works.

6.2.2.8 Establishment of Electrification and Power Supply System

In order to modernize the Erzincan-Erzurum railway section, which is currently operated using diesel traction, and to improve its speed, cost-efficiency, and passenger comfort, the line shall be converted to electric traction. The Works shall include the complete design, supply, installation, testing, and commissioning of the overhead contact line system and traction power substations.

Electrification and power supply works include catenary, transformer substations including all 154 kV power transmission and branch-line connections, connection bays and associated facilities required to energize the traction substations.

6.2.2.9 Establishment of Signaling and Telecommunication System

In order to modernize the Erzincan-Erzurum railway section, and to improve its speed, cost-efficiency, and passenger comfort, the line shall be supplied with level 1 signaling and telecommunication system including fiber-optic systems, GSM-R and associated systems.

The signaling and telecommunication system will be procured as a single corridor-wide package under a separate Contract and is not divided among the three civil-works Lots.

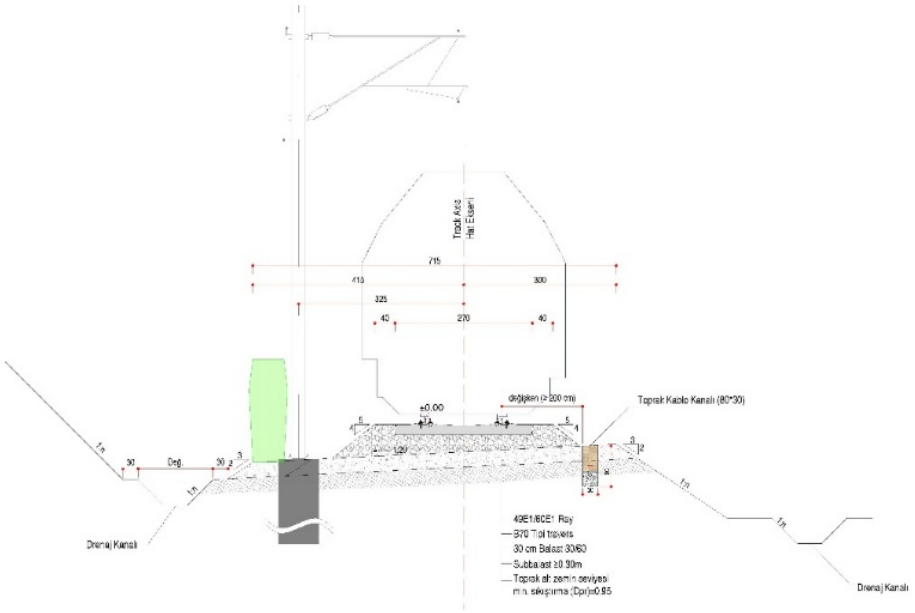
6.2.2.10 Establishment of Distributed Acoustic Sensing (DAS) System

A Distributed Acoustic Sensing (DAS) System will be established along the route to detect natural events such as rock/stone falls, landslides, and avalanches through an early warning system.

The Distributed Acoustic Sensing (DAS) System is procured as a single corridor-wide package under a separate Contract and is not divided among the three civil-works Lots.

6.2.3 Track Substructure and Superstructure Maintenance and Repair

Due to the station extensions along the Erzincan-Erzurum section, the line infrastructure works for the newly constructed parts will be prepared in accordance with the typical cross-section provided below. The typical cross-section of the open line for the Divriği–Erzincan section is presented in Volume 3/ Section 3-Drawings and Annexes/ Annex-04 and Annex21.



Typical Cross-Section of Open Line for Divriği–Kars

The scope of station arrangements includes the necessary earthworks, as well as track infrastructure and superstructure work.

Station Arrangements Between Erzincan-Erzurum

	İsim	Km	
1	Erzincan	933+784	Construction of an additional siding: the station will be arranged as main line + 2 sidings to accommodate 1,050 m trains. Out of Scope.
2	Altınbaşak	951+338	Existing station will be arranged as main line + 1 siding to accommodate 1,050 m trains. The 2nd siding will be removed.
3	Tanyeri	966+648	Existing station will be arranged as main line + 1 siding to accommodate 700 m trains. The 2nd siding will be removed.
4	Geçit	981+650	Existing station will be arranged as main line + 2 sidings to accommodate 1,050 m trains.
5	Demirkapı	998+831	Construction of an additional siding: the station will be arranged as main line + 1 siding to accommodate 1,050 m trains.
6	Altınkent	1011+460	Existing station will be arranged as main line + 3 sidings to accommodate 750 m trains. Dead-end track will be removed.

7	Mercan	1021+812	Existing station will be arranged as main line + 2 sidings to accommodate 750 m trains; one siding will be removed.
8	Çadırkaya	1033+998	The single siding adjacent to the main line will be arranged to accommodate 750 m trains; the other two sidings will be retained.
9	Erbaş	1047+637	Station not suitable for extension. All tracks will be retained.
10	Karasu	1061+852	Construction of an additional siding: the station will be arranged as main line + 1 siding to accommodate 750 m trains.
11	Saptıran	1080+463	Main line + 2 sidings will be extended to accommodate 700 m trains; the 3rd siding, connection tracks, and dead-end tracks will be retained.
12	Aşkale	1093+221	Existing station will be arranged as main line + 2 sidings to accommodate 750 m trains; dead-end track will be removed.
13	Kandilli	1108+989	Construction of an additional siding: the station will be arranged as main line + 1 siding to accommodate 750 m trains.
14	Çiçekli	1124+500	Existing station will be arranged as main line + 3 sidings to accommodate 750 m trains; dead-end tracks will be removed.
15	Kaplıca(Ilıca)	1133+496	No changes – left as is.
16	Palandöken	1139+800	At km increase direction, two tracks on the left of the main line will be arranged to accommodate 750 m trains.
17	Erzurum	1148+672	Existing station will be arranged as main line + 3 sidings to accommodate 750 m trains; dead-end track will be removed.

- New turnouts will be supplied for the additional sidings that do not currently exist. In addition, due to station modifications, new 1:9 turnouts will be supplied for Aşkale and Erzurum station.

The layout plans of the existing stations between Divriği and Kars are presented in Annex-03, while the updated station and logistics center plans are provided in Annex-07, Annex-08, Annex-09, Annex-10, and Annex-11 of Scope of Works.

Track substructure and superstructure works shall comprise

- All permanent way works necessary for the rehabilitation, modification, adjustment, installation, reinstatement, and maintenance of the railway track along the alignment, excluding slab track construction inside tunnels, which is included under the tunnel works.
- Station arrangements including the necessary earthworks, as well as track substructure and superstructure work.
- Installation of missing guard rails in bridges where Engineer proposes.
- Installation of sub-ballast mats where Engineer proposes.
- Installation of under-sleeper pads where Engineer proposes.
- Replacement of existing rail fastening components and sleeper fastening elements deemed necessary by the Engineer.

- All track geometry modifications required to achieve the necessary clearance envelope within tunnels and at tunnel portals. Removal of track for the purpose of gradient adjustment and reinstallation of track after invert lowering;
- Provision of new vertical and horizontal geometry;
- All sleepers within a length of 100 meters at both tunnel portals shall be replaced with new sleepers which are compatible with the existing line.
- All necessary maintenance works shall be carried out, and track geometry measurements as well as non-destructive testing (NDT) of the rails shall be performed in the sections instructed by the Engineer along the track length.

During the rail dismantling operations required to adjust the track geometry, the removed rails shall be subjected to rail grinding operations before reinstallation.

In order to achieve the required minimum vertical clearance of 5.30 m inside tunnels, The Contractor shall:

- Modify longitudinal gradients as required;
- Introduce new vertical curves;
- Introduce new horizontal curves where necessary;
- Remove existing track where required;
- Reinstall track after formation and invert works are completed;
- Perform necessary maintenance and adjustments following reinstallation.

Adjustment of track gradient, provision of vertical and horizontal curves, dismantling and reinstatement of track, and all associated alignment works shall be considered part of trackwork.

The following works are excluded from track works and included in Tunnel Works Lump Sum Price:

- Slab track construction inside tunnels;
- Removal of track within tunnels for the purpose of invert lowering;
- Civil and structural works related to tunnel invert lowering.

However, the following works remain within the scope of track works:

- Removal of track for the purpose of gradient adjustment;
- Reinstallation of track after invert lowering;
- Provision of new vertical and horizontal geometry;
- Track maintenance and adjustment after reinstallation of track elements;
- Renewal of all sleepers within 100 m sections at tunnel portals and inside the tunnel;
- Installation of sub-ballast mats at locations instructed by the Engineer;
- Installation of under-sleeper pads at locations instructed by the Engineer;

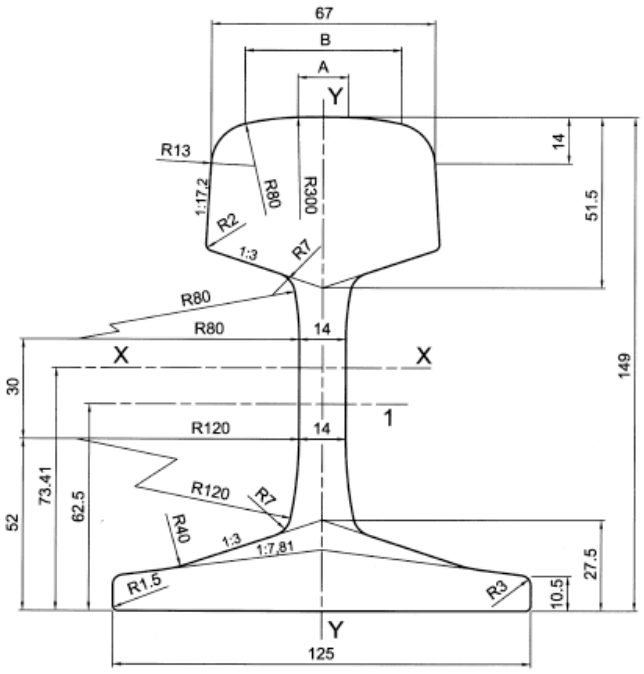
- Replacement of rail fastening systems and sleeper fastening components where required by the Engineer.

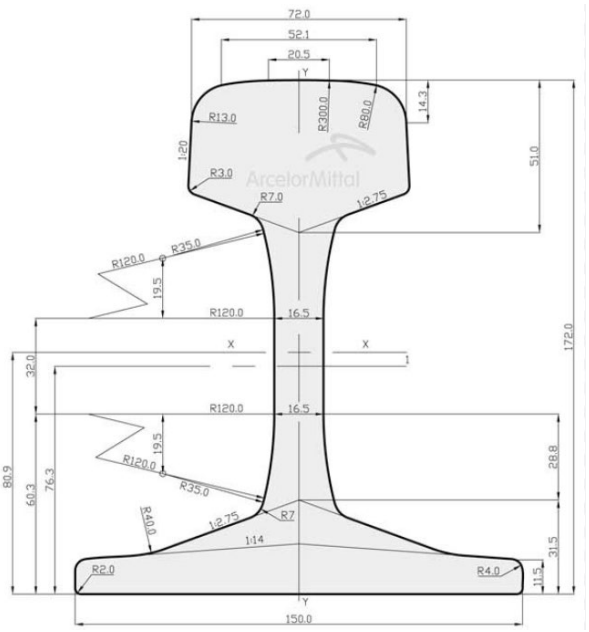
Rails and Fasteners :

On the Erzincan-Erzurum section, 49E1 and/or UIC60E1 type rails will be used depending on the track element listed on below table. Rail-profile matrix — Lot 2 – Erzincan-Erzurum (Per the General Technical Specification). The newly constructed/renewed main line is laid in 49E1 (S49-class, 49 kg/m) rail; UIC 60E1 is specified for new station sidetracks (sidings); S49 is used on station extensions to match the existing line.

Track element	Rail profile	Sleeper	Fastening
Newly constructed / renewed main line (open line)	49E1 (S49-class, 49 kg/m)	B58 monoblock concrete	W14
Station main (through-line) tracks	49E1 (as main line)	B58 monoblock concrete	W14
Secondary / new station side tracks	UIC 60E1	B58 / B70 per design	elastic / W14
Extended (existing) station tracks	S49 (to match existing)	B58 monoblock concrete	W14
Sidings (new station side tracks)	UIC 60E1	B58 / B70 per design	elastic / W14
Transition sections	Profile transition (60E1 ↔ 49E1/S49)	per design	per design

The minimum length of the rails to be supplied will be 36 m.

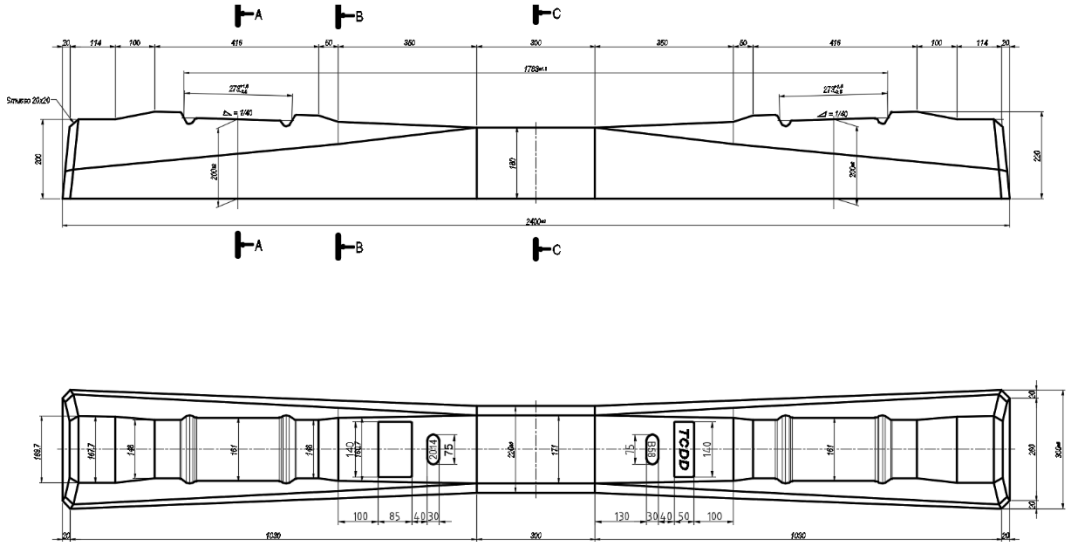




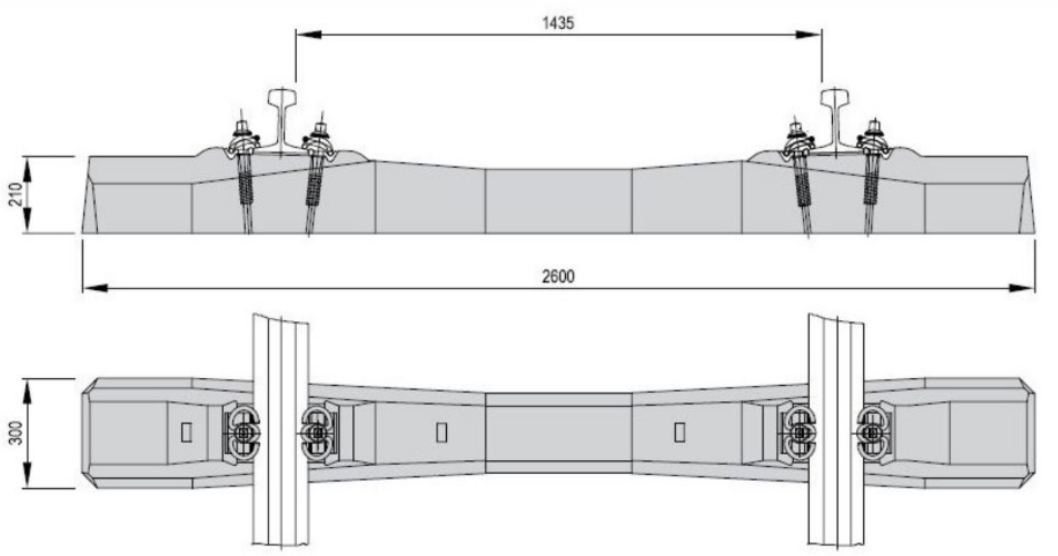
49E1 Rail Section **60E1 Rail Section**

Sleepers :

The details of the B58 Monoblock Geometry of Concrete Sleeper and B70 Monoblock Geometry of Concrete Sleeper are given below for reference ;



B58 Monoblock Geometry of Concrete Sleeper



B70 Monoblock Geometry of Concrete Sleeper

Ballast :

In the newly constructed superstructure sections, ballast will be laid in accordance with the required profile, ensuring a minimum ballast thickness of 30 cm beneath the rails.

Rail Welding :

Aluminothermic rail welding will be applied at turnouts, while flash butt welding will be used on the main line.

6.2.3.1 Technical Requirements and Execution Method

The Contractor shall:

- Carry out all necessary excavation, cut and fill, and formation embankment works;
- Construct and prepare the improved subgrade and subbase layers;
- Execute embankment construction and stabilization works;
- Ensure proper compaction of all earthworks and formation layers;
- Adjust and regulate formation levels in accordance with the revised track alignment and gradients as instructed by the Engineer.

All works shall comply with applicable TCDD standards and approved method statements.

6.2.3.2 Items Deemed Included in the Lump Sum Contract Price

The following activities shall be included under the Lump Sum item:

- Rail grinding; removal of rails for track geometry adjustment and grinding of the removed rails before reinstallation;
- Rail welding;
- Ultrasonic testing;
- Non-destructive testing;
- Track adjustment and alignment;
- Sleeper replacement;
- Rail replacement;
- Turnout removal;
- Track dismantling;
- Supply of rail fastening materials;
- Mechanical maintenance works including tamping, regulating and stabilizing;
- Track geometry measurements along the line.

Without limitation, the Lump Sum Contract Price shall include all costs for complete execution of the track substructure and superstructure works, including but not limited to:

6.2.3.2.1 Track Substructure

- TCDD-ALT-1001 – Cleavage and side borrow excavation and utilization;
- TCDD-ALT-1004 – Construction of subbase layer using selected material where required;
- TCDD-ALT-1003.1 – Quarry stone fill for soil improvement where required;
- TCDD-ALT-1005.1 – Approach embankment using granular material where required;
- TCDD-ALT-1005.2 – Cement-treated granular material for approach embankment where required.

6.2.3.2.2 Track Substructure

- TCDD-ÜST-6301 – Supply and installation of subballast;
- TCDD-ÜST-6302 – Supply and installation of BAM (Ballast Underlay Mat);
- TCDD-ÜST-6304 – Supply and laying of ballast;
- TCDD-ÜST-6403 – Track laying (S49 rail with B58 concrete sleepers); (for existing tracks)
- TCDD-ÜST-6404 – Track laying (60E1–60E2 rail with B70 concrete sleepers); (for new tracks)
- TCDD-ÜST-6504 – Supply and installation of 100 km/h turnout (1/18.5 LUK); (for new tracks)
- TCDD-ÜST-6551 – Supply and installation of rail expansion joints (≤ ±300 mm);
- ÖZEL – LUMP-SUM – Track maintenance and repair works. (along the whole track)

6.2.3.3 Measurement and Payment

The above-referenced TCDD unit price items are provided solely for technical definition purposes.

Notwithstanding the units indicated (m³, ton, m², m, line-m), all such works shall be deemed included in the Lump Sum Contract Price for the Track Works.

No separate measurement, re-measurement, unit rate application, additional payment, or entitlement to extension of time shall arise from execution of these works.

The Contractor shall be deemed to have:

- Examined the track works conditions;
- Considered sequencing and phasing requirements;
- Included all risks related to excavation, groundwater, protection and access;
- Allowed for all temporary and permanent works necessary for completion.

Except as expressly provided under the Conditions of Contract, no claim for additional payment or extension of time shall be entertained in relation to the Track Works described herein.

All work necessary to:

- Adjust gradients,
- Modify vertical or horizontal alignment,
- Dismantle and reinstall track,
- Maintain track geometry compliance,

shall be deemed included within the respective Trackworks items.

No separate payment shall be made for track removal and reinstallation required for gradient modification to achieve tunnel clearance.

Measurement shall be on a Lump Sum basis.

Track Substructure and Superstructure Maintenance and Repair described above shall be measured as:

- 1 No. Track Substructure and Superstructure Maintenance and Repair – Lump Sum for Lot 2 (Km 933+784 – 1148+672, 214,888 m main line)

The listed TCDD items are provided solely to define the scope of work and shall not be measured separately.

6.2.4 Enlargement of Tunnel Clearance for Electrification Integration

The tunnels forming part of the Works shall be upgraded to accommodate the electrification of the railway system.

The existing railway operation based on solid fuel traction shall be converted to an electrically powered railway system. Accordingly, overhead catenary systems should be integrated into the tunnels.

Clearance enlargement is required where vertical clearance is below 5.30 m electrification gauge.

There are (Item Nos. 121–153; TCDD Tunnel Nos. 123/A–137, per the verified Tunnel Schedule),

- 13 mountain tunnels, with a total length ≈3.329 km
- 19 snow sheds with a total length ≈3.554 km and
- 1 pedestrian tunnel with a total length ≈30 m
- Total 33 tunnels with a total length ≈6.913 km

within this section.

Tunnels ≥ 1,000 m require slab track; tunnel drainage (invert and side drains) and emergency/electromechanical provisions (lighting, walkways, handrails, signage, communications and fire protection) per the Employer's Requirements apply to all tunnels listed below.

Required clearance and the final rehabilitation category of each tunnel shall be determined by the Contractor from the laser-surveyed cross-sections provided in Annex-15 and Annex-30, in accordance with the sub-clause Tunnel Clearance Data, Verification and Measurement.

For the installation, commissioning, and safe operation of the catenary system, the minimum vertical clearance within each tunnel shall be minimum 5.30 meters measured from the top of rail level to top of the tunnel inner lining.

In order to achieve this required clearance:

- The tunnel invert shall be excavated and lowered as necessary;
- Appropriate track gradients shall be provided in accordance with railway design requirements;
- The functional continuity and operational integrity of tunnel entrance and exit zones shall be maintained;
- All necessary geometric adjustments inside the tunnel shall be implemented to ensure compliance with the required structural and operational gauge.

Adjustment of track gradient, provision of vertical and horizontal curves, dismantling and reinstatement of track, and all associated alignment works shall be considered part of trackwork.

The Contractor shall ensure that each tunnel is modified to achieve the required clearance envelope (gabarit) suitable for the installation and operation of the electrification, and catenary and all operational sustainability of the systems.

Construction works include,

- Enlargement of tunnel clearance for electrification integration and slab track installation where invert lowering is required
- Installation of slab track in tunnels longer than 1,000m

All works necessary to achieve the required minimum vertical clearance, including excavation/earthworks, structural adjustments, track geometry modifications, and associated civil works, shall be deemed included within the scope of the Tunnel Works and the Lump Sum Contract Price.

No separate payment shall be made in relation to achieving the required tunnel clearance for electrification purposes.

6.2.4.1 Technical Requirements and Execution Method

Prior to commencement of any excavation works, the Contractor shall locate, expose, and accurately determine the positions and levels of the existing tunnel arch foundation footings/pedestal footings (bases) at invert level.

A detailed survey shall be carried out and submitted to the Engineer for review before excavation begins.

Excavation works shall commence at a minimum sufficient and safe horizontal distance of 25 cm from the existing pedestal/footing edges.

Under no circumstances shall excavation be carried out closer than this limit during the initial phase.

Excavation shall proceed to the calculated design depth required for the lowering of the tunnel invert and construction of the slab track foundation system.

Upon reaching the pedestal/footing elevation, the previously unexcavated 25 cm portions above the pedestal/footing tops shall then be carefully exposed in a controlled manner.

Following completion of excavation to the required depth:

- Slab track foundation works and slab track construction shall be executed with necessary fixing elements in accordance with the approved drawings and specifications.
- The exposed pedestal/footing upper zones shall be brought to the required final elevation by placing C25/30 plain concrete fill.
- Necessary leveling and surface preparation works shall be completed to ensure that the structural system operates as a monolithic and integral unit.

All concrete works shall comply with the relevant Specification sections and applicable standards.

6.2.4.2 Contractor's Responsibilities

The Contractor shall be fully responsible for:

- Preparation of the excavation methodology;
- Design and implementation of safe excavation procedures;
- Ensuring structural stability of the tunnel during all stages of the works.

The excavation methodology shall be submitted to the Engineer for approval prior to commencement of excavation works.

6.2.4.3 Temporary and Permanent Works

All measures necessary to safely lower the tunnel invert level shall be deemed included in the Lump Sum price. These shall include, but not be limited to:

- Any and all excavation works required to achieve the new invert level;
- Provision, installation, monitoring, and removal (where applicable) of temporary and permanent shoring and support systems;
- Additional stabilization measures required during excavation;
- Waterproofing systems;
- Drainage systems;
- Dewatering works;
- Protective measures against potential tunnel lining spalling or falling debris, including:
- Measures to prevent damage to tunnel lining, structures, utilities, and surrounding areas (both internal and external to the tunnel);
- Repair, rehabilitation, and reinstatement of any damaged tunnel elements;
- Removal and reinstatement of dismantled tunnel lining elements;
- All access arrangements required for tunnel works;
- Rectification of any damage occurring at tunnel portals (entrances and exits);
- All testing, monitoring, supervision, and safety measures required to complete the works for the intended purpose of lowering the tunnel invert level.
    - Installation of protective shields,
    - Protective mesh systems,
    - Protective cabins or platforms
    - Any other required safety systems

6.2.4.4 Tunnel Construction Schedule

The Tunnel Works shall be completed strictly in accordance with the Tunnel Construction Schedule attached as Annex-1- Tunnel Time Schedule in which the maximum each tunnel completion duration is specified. However, the total duration of tunnel completion for lot 2 is 240 days excluding design period and the total duration of tunnel completion for lot 2 is 960 days.

The Contractor acknowledges that:

- The works are to be executed within a confined and operational tunnel environment;
- Access constraints, protection measures, phased excavation requirements and support installations have been fully considered in the Tunnel Construction Schedule;
- The durations indicated therein are deemed sufficient for proper and safe completion of the Works.

All risks associated with sequencing, staging, access constraints, protection measures, groundwater control, temporary support systems, and tunnel operational limitations shall be deemed included in the Contract Price and the Time for Completion.

No claim for additional payment or extension of time shall be made on the grounds of difficulties arising from staged construction, restricted working areas, protection requirements, or excavation sequencing, except as expressly provided under the Conditions of Contract.

In the event that the number of days allocated for the Tunnel Works or any tunnel-specific milestone is exceeded, the delay damages provisions set out in the Particular Conditions of Contract shall apply.

Delay Damages shall be calculated and applied in accordance with Sub-Clause 8.7 [Delay Damages] (or the corresponding Sub-Clause under the applicable edition of FIDIC), as amended by the Particular Conditions.

The application of Delay Damages shall not relieve the Contractor from its obligation to complete the Works, nor shall it prejudice the Employer's other rights and remedies under the Contract.

No additional notice shall be required for the imposition of Delay Damages once the relevant Time for Completion or sectional completion period has expired.

6.2.4.5 Items Deemed Included in the Lump Sum Contract Price

Without limitation, the Lump Sum Contract Price shall include all costs for complete execution of the Tunnel Works, including but not limited to:

6.2.4.5.1 Excavation Works

Including:

- TCDD-ALT-3001.2 – Excavation in tunnels with theoretical excavation area less than 50 m²;
- Controlled excavation adjacent to existing structures;
- Overbreak management;
- Loading, hauling and disposal;
- Restricted access working conditions.

6.2.4.5.2 Concrete Works

Including:

- TCDD-ALT-2002.1 – Plain concrete (C16/20);
- TCDD-ALT-2003.1.2 – Reinforced concrete (C30/37);
- Özel – Self-Compacting Concrete (SCC);
- C25/30 pedestal/footing adjustment concrete;

- Formwork, curing, finishing and testing.

6.2.4.5.3 Reinforcement Works

Including:

- TCDD-ALT-2005 – Ribbed reinforcing steel;
- TCDD-ALT-3003 – Welded wire mesh reinforcement in tunnels;
- Cutting, bending, fixing and accessories.

6.2.4.5.4 Shotcrete Works (if required)

Including:

- TCDD-ALT-3002 – Shotcrete application in tunnels;
- Surface preparation, additives, rebound removal and thickness control.

6.2.4.5.5 Piling/Shoring Works (if required)

Including:

- TCDD-ALT-2014.2.1 – Various diameter cast-in-place bored piles;
- Drilling, casing, reinforcement, concreting and testing.

6.2.4.5.6 Waterproofing and Geotechnical Works

Including:

- TCDD-ALT-3015 – Waterproofing in tunnels and cut-and-cover sections;
- Geotextile installation over blinding concrete;
- Membranes, drainage layers and joint detailing;
- Dewatering systems.

6.2.4.5.7 Track Works

Including:

- TCDD-ÜST-6406 – Ballastless railway track (60E1 or 60E2 rail, single line);
- TCDD-ÜST-6403 - Ballastless railway track (49E1, single line);Alignment, fastening systems and adjustments.
- Fiber reinforced Hybrid Ballastless sections: In locations where deemed necessary and as instructed by the Engineer, some slab track sections shall be implemented as fiber-reinforced and conventionally reinforced (hybrid).
- Mass-Spring System: In railway tunnels, where Engineer specifies, a Mass-Spring System (MSS) will be implemented at locations deemed necessary to reduce vibration and structure-borne noise generated by passing trains.

6.2.4.5.8 Removal of Existing Railway

- Including:
- TCDD-ÜST-6001 – Dismantling and stacking of existing railway line;
- Transportation to storage areas;
- Protection of reusable materials.

6.2.4.5.9 Temporary Works and Protection Measures

Including but not limited to:

- Temporary and permanent support systems;
- Shoring and stabilization;
- Protective shields, safety screens, protection cabins and platforms;
- Measures against falling debris and lining spalling;
- Repair and reinstatement of tunnel lining;
- Protection of tunnel portals;
- Ventilation, lighting and safety systems.

6.2.4.5.10 Access, Logistics and Operational Constraints

Including:

- All access arrangements;
- Working in confined spaces;
- Shift work, night work and acceleration measures if required;
- Compliance with operational restrictions.

6.2.4.6 Measurement and Payment

The above-referenced TCDD unit price items are provided solely for technical methodology definition purposes.

Notwithstanding the units indicated (m^3, ton, m^2, m, lineal-m), all such works shall be deemed included in the Lump Sum Contract Price for the Tunnel Works.

No separate measurement, re-measurement, unit rate application, additional payment, or entitlement to extension of time shall arise from execution of these works.

The Contractor shall be deemed to have:

- Examined the tunnel conditions;
- Considered sequencing and phasing requirements;

- Included all risks related to excavation, groundwater, protection and access;
- Allowed for all temporary and permanent works necessary for completion.

Except as expressly provided under the Conditions of Contract, no claim for additional payment or extension of time shall be entertained in relation to the Tunnel Works described herein.

All costs related to the works described above, including but not limited to:

- Excavation,
- Temporary and permanent support systems,
- Dewatering,
- Waterproofing,
- Drainage,
- Protective measures,
- Repairs and reinstatement,
- Access provisions,
- Safety measures,
- Method statements and engineering design,

shall be deemed to be included in the Contractor's Lump Sum Contract Price.

No separate payment shall be made for these works.

No additional payment, claim, or extension of time shall be granted on the grounds of difficulties associated with excavation, support systems, groundwater control, tunnel protection, repair works, or any other matter related to achieving the required tunnel invert lowering.

Measurement shall be on a Lump Sum basis.

Enlargement of Tunnel Clearance for Electrification Integration described above shall be measured as:

- 1 No. Enlargement of Tunnel Clearance for Electrification Integration – Lump Sum for Lot 2 (33 tunnels, 6,913 m)

The listed TCDD items are provided solely to define the scope of work and shall not be measured separately.

6.2.5 Structural Modification of Bridges, Culverts, Overpasses & Underpasses

This Section covers the extension, rehabilitation, reconstruction, strengthening and/or replacement of existing bridges and culverts along the Project alignment.

The Works shall include all civil, geotechnical, structural, drainage, protection and ancillary works necessary to ensure full structural, hydraulic and operational performance in accordance with the Contract Documents and applicable TCDD standards.

Where required to accommodate revised track geometry, tunnel clearance adjustments or alignment modifications, bridge and culvert structures shall be modified accordingly.

Where bridge or culvert modifications are required due to:

- Revised longitudinal gradients,
- Introduction of vertical curves,
- Horizontal alignment changes,
- Tunnel clearance adjustments,

the Contractor shall modify substructure and superstructure elements accordingly. All such modifications shall be considered within the scope of this Section.

Construction works include,

- Construction of new bridge parallel to the existing one at Geçit Station,
- Renewal of 3 bridges at Km 993+322, 1059+532 and 1144+680
- Extension or renewal of 35 culverts due to station extensions,
- Demolition and re-construction of 2 overpasses at Erzurum
    - Km 1088+044: L = 20.00 m; reinforced concrete; h = 4.90 m
    - Km 1092+278: L = 20.00 m; reinforced concrete; h = 4.80 m
- Inspection and clearance of stream blockages at bridges and culverts, and inspection and rehabilitation of channels and stream beds.

6.2.5.1 Items Deemed Included in the Lump Sum Contract Price

The Works shall include, but not be limited to:

- Demolition and removal of existing structural elements where required;
- Foundation excavation;
- Soil improvement works;
- Construction of new foundations, substructures and superstructures;
- Drainage systems;
- Waterproofing;
- Bearing installation;
- Structural steel works;
- Slope stabilization and protection;

- Reinstatement and approach works.

6.2.5.1.1 Foundation and Earthworks

- TCDD-ALT-2001.2 – Bridge foundation excavation
- TCDD-ALT-1003 – Quarry stone fill for ground improvement
- TCDD-ALT-1005.1 – Granular material approach embankment
- TCDD-ALT-1005.2 – Cement-treated granular approach embankment
- TCDD-ALT-2012 – Crushed stone fill

The Contractor shall ensure proper excavation stability, shoring (if required), compaction, and bearing capacity verification.

6.2.5.1.2 Concrete and Reinforcement Works

- TCDD-ALT-2002.1 – Plain concrete (C16/20)
- TCDD-ALT-2003.1.3 – Reinforced concrete in bridges (C30/37)
- TCDD-ALT-2005 – Ribbed reinforcing steel supply and installation

All concrete works shall comply with structural design requirements, curing standards, testing and quality control procedures.

6.2.5.1.3 Drainage Works

- TCDD-ALT-2011 – Variable diameter PVC drainage pipe supply and installation
- TCDD-ALT-2013 – Precast drainage and inspection manhole (C30/37)

Proper surface and subsurface drainage shall be ensured to prevent structural deterioration.

6.2.5.1.4 Cast-in-Place Bored Piles

- TCDD-ALT-2014.3.3 – Cast-in-place bored piles

Piles shall be constructed in accordance with approved method statements in all soil classes, in dry or underwater conditions.

For measurement purposes:

- In piles constructed with casing, the internal casing diameter shall govern.
- In piles without casing, the project-specified diameter shall govern.

If the measured pile diameter is smaller than the design diameter within tolerances accepted by the Administration, the applicable unit price shall be multiplied by the following factors:

- 80 cm diameter: 1.15 × measured diameter (m)
- 100 cm diameter: 0.90 × measured diameter (m)
- 120 cm diameter: 0.80 × measured diameter (m)

- 165 cm diameter: 0.55 × measured diameter (m)

If the constructed diameter exceeds the required diameter, no adjustment to the unit price shall be made. The unit price corresponding to the specified diameter shall apply.

6.2.5.1.5 Soil Improvement

- TCDD-ALT-2018.3 – Jet grout columns
- TCDD-ALT-2019.1 – DSM (Deep Soil Mixing) columns
- TCDD-ALT-2021.1 – Geotextile supply and installation

Ground improvement design, execution and verification testing shall be the responsibility of the Contractor.

6.2.5.1.6 Waterproofing

- TCDD-ALT-2041 – Polymer bituminous membrane waterproofing
- TCDD-ALT-2043 – Neoprene bearing supply and installation

Waterproofing shall ensure long-term durability of structural elements.

6.2.5.1.7 Bearings

- TCDD-ALT-2043 – Neoprene bearing supply and installation

6.2.5.1.8 Structural Steel Works

- 151.651.003 – Structural steel fabrication and installation

All structural steel shall be fabricated, protected and installed in accordance with approved shop drawings and applicable standards.

6.2.5.1.9 Ancillary and Protection Works

- TCDD-ALT-2044 – Bridge pedestrian guardrails
- TCDD-ALT-2031.1 – Rockfall protection using steel mesh for slope protection
- TCDD-ALT-2032.1 – Soil nails (Ø 28 mm)
- TCDD-ALT-2004.2 – Shotcrete application
- TCDD-ALT-2020.1 – Geocell confinement system

Slope stabilization and rockfall protection shall be implemented where required to ensure long-term operational safety upon Engineer's approval.

6.2.5.2 Measurement and Payment

The above-referenced TCDD unit price items are provided solely for technical definition purposes.

Notwithstanding the units indicated (m^3, ton, m^2, m, hat-m), all such works shall be deemed included in the Lump Sum Contract Price for the Civil Works.

No separate measurement, re-measurement, unit rate application, additional payment, or entitlement to extension of time shall arise from execution of these works.

The Contractor shall be deemed to have:

- Examined all structural conditions;
- Considered sequencing and phasing requirements;
- Included all risks related to excavation, groundwater, protection and access;
- Allowed for all temporary and permanent works necessary for completion.

Except as expressly provided under the Conditions of Contract, no claim for additional payment or extension of time shall be entertained in relation to the Civil Works described herein.

Measurement shall be on a Lump Sum basis.

Structural Modification of Bridges, Culverts, Overpasses & Underpasses described above shall be measured as:

- 1 No. Structural Modification of Bridges, Culverts, Overpasses & Underpasses – Lump Sum for Lot 2 (824 structures, of which 41 are scheduled for renewal, extension or new construction)

The listed TCDD items are provided solely to define the scope of work and shall not be measured separately.

6.2.6 Construction of Retaining Walls

There are numerous retaining walls along the railway line, constructed in various structural types (e.g., stone slope walls and reinforced concrete walls).

The Works comprise the construction of retaining walls due to station extensions or additional siding construction along the railway alignment in

- Demirkapı Station

in accordance with the approved drawings, TCDD technical specifications and applicable engineering standards. The Contractor shall determine the dimensions, geometry and structural arrangement through its own detailed design, in accordance with the applicable codes, standards and TCDD technical specifications, and shall submit the design to the Engineer for approval.

The retaining wall system shall include all excavation, ground improvement, structural works, drainage, slope stabilization measures, and ancillary works required to ensure long-term structural stability and protection of the railway infrastructure.

The Works shall be executed as a Lump Sum item per structure.

6.2.6.1 Technical Requirements and Execution Method

The Contractor shall:

- Ensure structural stability during excavation and construction;
- Implement temporary support measures where necessary;
- Maintain drainage functionality during construction;
- Protect the railway infrastructure and ensure operational safety;
- Perform all works in accordance with approved method statements by the Engineer.

All works shall comply with relevant structural design requirements and geotechnical recommendations/calculations.

6.2.6.2 Items Deemed Included in the Lump Sum Contract Price

The retaining wall construction shall include, but not be limited to:

- Excavation for foundations and structural elements
- Ground improvement and foundation preparation
- Reinforced concrete retaining wall construction
- Drainage systems behind the wall
- Backfilling works
- Protective coatings
- Slope stabilization works
- Rockfall protection systems where required

All works shall comply with TCDD technical specifications and approved structural designs.

The following TCDD items define the technical components of the Works and are included within the Lump Sum scope.

6.2.6.2.1 Excavation Works

TCDD-ALT-2001.1 – Structural Excavation (Excluding Bridge Foundations)

Including:

- Excavation for retaining wall foundations
- Loading, hauling and disposal of excavated materials
- Formation trimming and leveling
- Temporary safety measures

6.2.6.2.2 Ground Improvement and Fill Works

TCDD-ALT-1003.1 – Quarry Stone Fill for Ground Improvement

TCDD-ALT-2012 – Crushed Stone Fill

Including:

- Ground stabilization beneath foundations
- Backfill behind the retaining wall
- Layered compaction to specified density

6.2.6.2.3 Concrete Works

TCDD-ALT-2002.1 – Plain Concrete (C16/20)

Including:

- Lean concrete layers

TCDD-ALT-2003.1 – Reinforced Concrete

Including:

- Retaining wall structure and foundation slab

6.2.6.2.4 Reinforcement Works

TCDD-ALT-2005 – Ribbed Reinforcing Steel Supply and Installation

Including:

- Cutting, bending and fixing reinforcement
- Spacers, supports and binding wires

6.2.6.2.5 Waterproofing and Protective Coating

TCDD-ALT-2009 – Bituminous Protective Coating

Including:

- Protective coating on concrete surfaces exposed to soil and moisture.

6.2.6.2.6 Drainage Works

TCDD-ALT-2011.2 – 200 mm PVC Drainage Pipe Installation

TCDD-ALT-2033 – Weep Holes (Barbakan)

Including:

- Drainage system behind the retaining wall
- Installation of drainage pipes and filters
- Weep holes to relieve hydrostatic pressure

6.2.6.2.7 Slope Stabilization Works

Where required, slope stabilization measures shall include:

- TCDD-ALT-2031.1 – Rockfall Protection Using Steel Mesh
- TCDD-ALT-2031.2 – Crest Anchors for Rockfall Protection
- TCDD-ALT-2032.1 – Soil Nails Installation (Ø28 mm)
- TCDD-ALT-2004 – Shotcrete Application

These works shall ensure long-term slope stability adjacent to the retaining wall.

6.2.6.2.8 Cellular Confinement System

TCDD-ALT-2020 – Cellular Confinement Fill System

Including:

- Installation of geocell systems for slope reinforcement
- Filling and compaction of confinement cells

6.2.6.3 Measurement and Payment

The above-referenced TCDD unit price items are provided solely for technical definition purposes.

Notwithstanding the units indicated (m^3, ton, m^2, m, hat-m), all such works shall be deemed included in the Lump Sum Contract Price for the Retaining Wall Works.

No separate measurement, re-measurement, unit rate application, additional payment, or entitlement to extension of time shall arise from execution of these works.

The Contractor shall be deemed to have:

- Examined the retaining wall conditions;
- Considered sequencing and phasing requirements;
- Included all risks related to excavation, groundwater, protection and access;
- Allowed for all temporary and permanent works necessary for completion.

Except as expressly provided under the Conditions of Contract, no claim for additional payment or extension of time shall be entertained in relation to the Retaining Wall Works described herein.

Payment shall be made at the Contractor's Lump Sum price for the retaining wall construction.

The Lump Sum price shall constitute full compensation for all works described in this specification.

No separate payment shall be made for individual sub-items necessary to complete the retaining wall work.

The Lump Sum price shall include:

- All excavation and disposal
- Ground improvement works
- Concrete and reinforcement works
- Drainage installations
- Slope stabilization measures
- Rockfall protection systems
- Temporary works and safety measures
- Access roads and site preparation
- Testing, inspection and quality control
- Contractor's overheads and profit

No additional payment shall be made for works necessary for the proper completion and stability of the retaining wall.

Measurement shall be on a Lump Sum basis.

The retaining wall construction described above shall be measured as:

- 1 No. Retaining Wall Construction – Erbaş Station

The listed TCDD items are provided solely to define the scope of work and shall not be measured separately.

6.2.7 Renewal of Station Platforms

The Erzincan-Erzurum line has a total of 16 railway stations, 4 of which are abandoned and not currently in operation. The existing railway stations, excluding the main line, together with the number of tracks and maximum useful lengths, are provided in the table below.

The layout plans of the existing stations between Erzincan and Erzurum are presented in Annex-03, while the updated station and logistics center plans are provided in Annex-07, Annex-08, Annex-09, Annex-10, and Annex-11.

Available Station List

	Name	Km	Siding Nos.	Maximum Useful Length	NOTES
10	Erzincan	933+784	8	893	Station
11	Altınbaşak	951+338	-		Abandoned Stop/Station
12	Tanyeri	966+648	2	428	Station
13	Geçit	981+650	2	430	Station
14	Demirkapı	998+831	2	430	Station
15	Altınkent	1011+460	-		Abandoned Stop/Station
16	Mercan	1021+812	3	436	Station
17	Çadırkaya	1033+998	3	436	Station
18	Erbaş	1047+637	3	429	Station
19	Karasu	1061+852	4	590	Station
20	Saptıran	1080+463	-		Abandoned Stop/Station
21	Aşkale	1093+221	3	617	Station
22	Kandilli	1108+989	2	427	Station
23	Çiçekli	1124+500	-	417	Abandoned Stop/Station
24	Kaplıca(Ilıca)	1133+496	3	752	Station

Passenger platforms are generally constructed either in front of station buildings or as narrow island platforms between two tracks with a track spacing of 4.5 m. The platform lengths are not sufficient to accommodate the full train length. In addition, due to low platform elevations, boarding and alighting from trains is difficult.

Since there are no pedestrian underpasses or overpasses, passengers cross the tracks directly to board and alight from trains. At larger stations such as Erzurum, wider central platforms have been constructed in front of the station buildings by decommissioning one track. The platform lengths at these stations are adequate to accommodate trains.

The Works comprise the complete renewal of the existing passenger platform at;

- Demirkapı Station

in accordance with the approved drawings, technical specifications and applicable TCDD standards. The Contractor shall determine the dimensions, geometry and structural arrangement through its own detailed design, in accordance with the applicable codes, standards and TCDD technical specifications, and shall submit the design to the Engineer for approval.

The Works shall include demolition (if required), excavation, ground improvement, structural works, drainage, platform superstructure construction, protective works, and full reinstatement to deliver a safe, durable, and fully operational passenger platform.

6.2.7.1 Technical Requirements and Execution Method

The Contractor shall:

- Maintain safe station operation during works (if operational);
- Provide temporary access and passenger safety arrangements;
- Protect existing railway infrastructure;
- Ensure proper interface with track and drainage systems;
- Maintain required platform height and alignment tolerance as per TCDD standards;
- Deliver the platform fully functional and ready for passenger use.

6.2.7.2 Items Deemed Included in the Lump Sum Contract Price

The passenger platform renewal Lump Sum price shall include, but not be limited to, the following:

- All excavation and disposal;
- Ground improvement works;
- Concrete and reinforcement works;
- Structural steel fabrication and erection;
- Drainage systems;
- Protective coatings;
- Mortared stone pitching;
- Temporary works;
- Access arrangements;
- Construction staging;
- Safety measures;
- Testing and quality control;
- Contractor's overheads and profit.

No separate payment shall be made for:

- Working under operational railway conditions;
- Restricted access;
- Night works or phased construction;
- Temporary traffic arrangements;
- Minor design adjustments required for proper integration.

6.2.7.2.1 Excavation and Ground Works

- TCDD-ALT-2001.1 – Structural excavation (excluding bridges);

- Formation and trimming of subgrade;
- Compaction and bearing capacity verification.

6.2.7.2.2 Ground Improvement and Fill

- TCDD-ALT-1003.1 – Quarry stone fill for ground improvement;
- TCDD-ALT-2012 – Crushed stone fill;
- Compaction in layers to specified density;
- Stabilization of weak zones where required.

6.2.7.2.3 Concrete Works

- TCDD-ALT-2002.1 – Plain concrete (C16/20 ready-mix);
- TCDD-ALT-2003.1 – Reinforced concrete works;
- Proper curing, finishing, surface treatment and testing.

6.2.7.2.4 Reinforcement Works

- TCDD-ALT-2005 – Ribbed reinforcing steel supply and installation;
- Cutting, bending, fixing, spacers and supports.

6.2.7.2.5 Steel Structural Frame

- 151.651.003 – Structural steel fabrication and installation;

Including:

- Platform supporting frame (where applicable);
- Beams, headers, connection plates;
- Welding, bolting, anchorage;
- Shop drawings and installation tolerances.

6.2.7.2.6 Drainage Works

- TCDD-ALT-2011.2 – 200 mm PVC drainage pipe supply and installation;
- Proper slope and discharge arrangement;
- Integration with existing drainage systems.

6.2.7.2.7 Protective Works

- TCDD-ALT-2009 – Bituminous protective coating (tar coating);
- TCDD-ALT-2028.2.3-Ö – 40 cm thick mortared stone pitching (pere);
- Edge protection and erosion control.

6.2.7.3 Measurement and Payment

All listed TCDD items are included within this Lump Sum scope and shall not be measured separately.

The quantities stated in this Part are indicative and serve for scope definition only. The Contract is a lump sum design-build contract and there is no bill of quantities; the Contractor shall satisfy itself as to the quantities required to complete the Works and shall be deemed to have included them in the Accepted Contract Amount.

Measurement shall be on a Lump Sum basis.

Payment shall be made against the single Lump Sum item for:

- 1 No. Passenger Platform Renewal at Demirkapı Station

No remeasurement shall apply.

All TCDD unit price references are provided solely to define the scope and technical content of the Works.

The following are excluded unless otherwise specified:

- Electrification systems;
- Lighting systems;
- CCTV and communication systems;
- Architectural cladding beyond structural platform works;
- Landscaping and external site works unless shown on drawings.

6.2.8 Improvement and Upgrading of Level Crossings

Of the 49 existing level crossings on the railway line, most are not equipped with protective devices. The current protection status of the level crossings is as follows:

- 18 with automatic barriers
- 1 with a mechanical barrier
- 2 with barriers controlled by gatekeepers
- 28 uncontrolled and unprotected crossings

Level crossings equipped with flashing lights and electric barriers are operated automatically by trains, while mechanical barriers are operated manually by gatekeepers employed by the road authority.

Although the current operation can be considered adequate for safe working under the existing traffic load and operating conditions, the high number of unprotected level crossings means that if the line speed or the number of trains is to be increased, the current operating system will not be sufficient.

The list of existing level crossings on the Erzincan-Erzurum section is provided in Annex-22 of Scope of Works.

All of the Level-crossings should be upgraded and will be Automatic Barrier. All construction works, paving, refuge areas, environmental arragements and road traffic arrangements, cable/cable conduit supply and installation, under-rail crossings, power supply and distribution works, etc.The crossings concerned within this Lot, and the disposition of each crossing, are set out in the Level Crossing Schedule (Annex-22). The Contractor shall carry out the improvement and upgrading of the crossings that remain in use.

The Works comprise the improvement and upgrading of existing level crossings along the railway line in accordance with the approved drawings, TCDD technical specifications, and applicable standards.

The scope includes all civil works required to rehabilitate and standardize the level crossings, including excavation, subbase construction, pavement works, installation of rubber crossing panels, drainage works, and associated protection measures.

The Works shall be priced and paid on a Lump Sum basis per square meter (m²) of level crossing area.

6.2.8.1 Items Deemed Included in the Lump Sum Contract Price

The Lump Sum rate per m² shall include, without limitation:

- All materials and transportation;
- Labor, plant and equipment;
- Site establishment and temporary works;
- Traffic management and safety arrangements;
- Working under operational railway constraints;
- Quality control testing and laboratory works;
- Surveying and setting out;
- Protection of existing railway infrastructure.

The following are excluded unless expressly stated:

- Rail or sleeper replacement;
- Signaling systems;
- Barrier systems and electro-mechanical equipment;
- Land acquisition works;
- Major track realignment outside the crossing limits.

The following items form part of the scope and shall not be measured separately:

6.2.8.1.1 Construction of Subbase Layer with Selected Material

ALT 1004 Construction of Subbase Layer with Selected Material

- Supply, placement and compaction of selected material;

- Formation and leveling works;
- All transportation and handling included.

6.2.8.1.2 Structural Excavation (Excluding Bridge Foundations)

TCDD-ALT-2001.1 Structural Excavation (Excluding Bridge Foundations)

- Excavation within the level crossing area;
- Loading, hauling, disposal or reuse of excavated material;
- Shaping and trimming of formation;
- All temporary safety measures and traffic precautions.

6.2.8.1.3 Supply and Installation of Rubber Panels

SPECIAL-HG.3 Supply and Installation of Rubber (Elastomeric) Panels (Including Transport)

- Supply of railway rubber crossing panels;
- Installation between rails and outside rail zones;
- Fastening systems, connection elements and support profiles;
- Adjustment to rail level and surface alignment;
- Works carried out under operational railway conditions.

6.2.8.1.4 Construction of Plant-Mix Road Base

TCDD-ALT-4002 Construction of Plant-Mix Road Base

- Supply and placement of plant-mix base material;
- Compaction and quality control.

6.2.8.1.5 Construction of Bituminous Hot Base Layer

TCDD-ALT-4003 Construction of Bituminous Hot Base Layer

- Production, transportation and laying;
- Compaction and surface finishing.

6.2.8.1.6 Construction of Binder Course

TCDD-ALT-4004 Construction of Binder Course

- Placement of asphalt binder layer;
- Compaction to required density.

6.2.8.1.7 Construction of Wearing Course

TCDD-ALT-4005 Construction of Wearing Course

- Placement of asphalt wearing layer;
- Final leveling and surface finishing.

6.2.8.1.8 Rock Cleaning Works

SPECIAL-HG.5 Rock Cleaning Works

- Removal of loose rock and unstable material along crossing approaches;
- Manual or mechanical cleaning;
- Implementation of safety precautions;
- Disposal of removed material.

6.2.8.2 Measurement and Payment

Measurement shall be based on the actual plan area (m^2) of the improved level crossing as shown on the approved drawings.

No separate measurement shall be made for the individual sub-items listed above.

Payment shall be made at the Contractor's tendered Lump Sum unit rate per m^2 for Level Crossing Improvement Works.

The above-referenced TCDD unit price items are provided solely for technical definition purposes.

Notwithstanding the units indicated (m^3, ton, m^2, m, line-m), all such works shall be deemed included in the Lump Sum Contract Price for the Level Crossing Works.

No separate measurement, re-measurement, unit rate application, additional payment, or entitlement to extension of time shall arise from execution of these works.

The Contractor shall be deemed to have:

- Examined the Level Crossing conditions;
- Considered sequencing and phasing requirements;
- Included all risks related to excavation, groundwater, protection and access;
- Allowed for all temporary and permanent works necessary for completion.

Except as expressly provided under the Conditions of Contract, no claim for additional payment or extension of time shall be entertained in relation to the Level Crossings described herein.

Measurement shall be on a Lump Sum basis.

Improvement and Upgrading of Level Crossings described above shall be measured as:

- No. Improvement and Upgrading of Level Crossings

The listed TCDD items are provided solely to define the scope of work and shall not be measured separately.

6.2.9 Construction of Technical Buildings

Scope of works includes design, construction, installation and commissioning of;

- Type-1 Technical Building – 6 No. Main signaling interlocking building – ≈100 m²
- Type-2 Technical Building – 10. No Secondary signaling building – ≈80 m²
- Auxiliary technical buildings – 76 No., as described in the Key Quantities.

required for railway signaling, telecommunication, power supply and operational control systems.

The Contractor shall design and construct the buildings in accordance with Reference Drawings:

- ANNEX – Technical Buildings Reference Plan – Type-1
- ANNEX – Technical Buildings Reference Plan – Type-2
- ANNEX – CTC Building Drawings
- This Technical Specification
- Applicable Turkish Standards and building regulations.

Where discrepancies occur, the Employer's Requirements and approved drawings shall prevail.

The Contractor shall carry out all works necessary for the complete delivery of the technical buildings including:

- Architectural design
- Structural design
- Mechanical systems
- Electrical systems
- HVAC installations
- Cable infrastructure
- Equipment rooms preparation
- External works and landscaping
- Testing and commissioning

The works shall be completed on a turn-key basis including all materials, labor, equipment, transport, installation and documentation

Type-1 Technical Building :

Type-1 buildings are main interlocking and signaling equipment buildings installed along the railway alignment.

According to the reference drawings, the Type-1 building shall include the following main areas:

- Signaling equipment room
- Telecommunication equipment room
- Battery room
- Power distribution room
- System maintenance room
- Cable entrance room
- HVAC equipment space

Approximate internal usage area is 100 m²

Room sizes and arrangement shall follow the Type-1 DWG reference layout.

- Building Dimensions

  Approximate dimensions according to reference drawings:

  - Building footprint: ~10 m × 10 m
  - Total usable area: ≥100 m²
  - Clear internal height: ≥3.50 m
  - Raised floor height: 40–60 cm
- Room Layout
  - Signaling Equipment Room – 40 m² – Interlocking equipment
  - Telecommunication Room – 15 m² – Telecom racks
  - Battery Room – 12 m² – Battery banks
  - Power Distribution Room – 10 m² – Electrical panels
  - Maintenance Room – 10 m² – Workshop
  - Cable Entrance Room – 8 m² – Cable ducts and trays

  All rooms shall allow minimum 40% future expansion capacity.

- Equipment Rack Zones

  The signaling equipment room shall include standard rack zones.

  Typical rack configuration:

  - Rack width: 600 mm
  - Rack depth: 800 mm
  - Rack height: 2,200 mm

- Rack spacing: ≥1,200 mm aisle
- Maximum racks per building: 16 racks (expandable)

The rack layout shall follow the equipment rack arrangement shown in the DWG layout.

- Equipment Loads

Typical loads for equipment design:

- Signaling racks: 1.5–2.0 kW per rack
- Telecom racks: 1.2 kW per rack
- Battery system: 5–10 kW
- Auxiliary systems: 3 kW
- Estimated total equipment load: 25–40 kW

HVAC capacity shall be designed accordingly.

The building shall include:

- Underground cable ducts
- Cable entry pit/manhole
- HDPE pipe connections from external cable routes

All cables shall enter through a dedicated cable entrance chamber connected to internal cable trays beneath the raised floor.

Type-2 Technical Building :

Type-2 buildings are secondary signaling equipment shelters used for block signaling or communication equipment.

According to the reference drawings, the building shall include:

- Equipment room
- Battery room
- Electrical panel area
- Cable entry point
- HVAC equipment area

Approximate internal usage area is 80 m²

The layout shall follow the Type-2 reference DWG plan.

- Building Dimensions

Approximate dimensions:

- Building footprint: ~10 m × 8 m
- Total usable area: ≥80 m²
- Clear internal height: ≥3.30 m
- Raised floor height: 40–50 cm

- Room Layout
  - Equipment Room – 35 m²
  - Battery Room – 10 m²
  - Electrical Panel Room – 8 m²
  - Cable Entrance Area – 7 m²
  - Maintenance Area – 8 m²

- Equipment Capacity

  Maximum racks: 10 racks

  Estimated equipment load: 15–25 kW

6.2.9.1 Measurement and Payment

The construction of Type-1 Technical Buildings, Type-2 Technical Buildings and the Auxiallary Technical Buildings shall be paid on a lump sum basis per building, against the corresponding item of the Schedule of Payments.

The Lump-Sum price shall include the complete design, construction, installation, testing and commissioning of the buildings, fully operational and ready for installation of signaling, telecommunication, electrification and control systems.

No additional payment shall be made for:

- Design and engineering works,
- Ground investigations,
- Obtaining permits and approvals,
- Site preparation and temporary works,
- Adaptation to soil conditions,
- Relocation of utility lines if required within the building area,
- All works required to deliver the building ready for installation of technical equipment.

All such costs shall be deemed to be included in the Lump-Sum Contract Price per Building.

No additional measurement shall be made for individual components, works or materials required for the completion of the buildings unless otherwise stated in the Contract.

Measurement for payment purposes shall be based on the number of completed buildings, constructed in accordance with the approved drawings, technical specifications and Employer's Requirements.

The following items shall be measured:

- Type-1 Technical Building – 6 No - L.S / Building
- Type-2 Technical Building – 10 No - L.S / Building
- Auxiliary Technical Building – 76 No. – L.S / Building

A building shall be considered complete when:

- All civil works are finished,
- Mechanical and electrical installations are completed,
- HVAC systems are installed and operational,
- Grounding and lightning protection systems are installed,
- External works and landscaping are completed,
- The building is ready for equipment installation and operation,
- All inspections and approvals by the Engineer are completed.

Partial measurements shall not apply unless otherwise approved by the Engineer.

Final payment for each building shall be made only after:

- Completion of all works,
- Successful inspections by the Employer,
- Submission of as-built drawings,
- Delivery of operation and maintenance documentation.

Payment shall be made at the lump sum price per building stated in the Schedule of Payments.

Measurement shall be on a Lump Sum basis.

Payment shall be made against the single Lump Sum item for:

- 6 No. Type-1 Technical Building – L.S / Building
- 10 No. Type-2 Technical Building – L.S / Building
- 76 No. Auxiliary Technical Buildings – L.S / Building

No remeasurement shall apply.

All TCDD unit price references are provided solely to define the scope and technical content of the Works.

6.2.10 Establishment of Electrification and Power Supply System

To modernize the Erzincan-Erzurum railway section, which is currently operated using diesel traction, and to improve its speed, cost-efficiency, and passenger comfort, the line shall be converted to electric traction.

The Works include the complete design, supply, construction, installation, testing, commissioning and energization of the 25 kV AC, 50 Hz traction power and overhead contact system along the Erzincan-Erzurum corridor. The scope includes the overhead contact system, traction power substations, sectioning and paralleling facilities, return-current system, earthing and bonding, auxiliary power supplies, UPS systems, protection, metering, control and SCADA systems, together with all associated electrical, civil and structural works.

The Works also include all 154 kV power transmission lines, branch lines, connection bays and associated facilities required to connect and energize each traction power substation from the TEİAŞ national transmission grid. The Contractor shall be fully responsible for all surveys, route studies, system studies, connection applications, detailed designs, approvals, supply, construction, testing, commissioning and energization required for the 154 kV connections.

The Contractor shall coordinate directly with TEİAŞ, the Employer, TCDD and the Engineer in relation to connection points, transmission-line routes, protection coordination, revenue metering, telecommunications, SCADA and telecontrol interfaces, earthing, operational procedures, testing, acceptance and energization.

The Employer shall provide institutional assistance and shall execute applications or agreements that, under applicable law, can only be executed by the Employer. Such assistance shall not relieve the Contractor of its responsibility for timely preparation, submission, follow-up and completion of all technical documentation and approval processes.

Statutory expropriation and compensation, where required, shall remain the responsibility of the Employer. The Contractor shall provide all route, design, survey, land-take and programme information required for such processes in a timely manner.

All costs associated with the 154 kV power transmission connections, except statutory expropriation and compensation costs expressly allocated to the Employer, shall be deemed included in the Contract Price. No traction power substation shall be considered complete until its 154 kV connection has been constructed, tested, energized and accepted in accordance with the requirements of TEİAŞ, TCDD, the Employer and the Engineer, as applicable.

6.2.10.1 Technical Requirements and Execution Method

All electrification works shall comply with the standards listed in the table below and with the technical specifications for electrification works.

Standards of Electrification and Power System

Standart No	Title

TS EN 50119	Railway applications – Fixed installations – Electric traction overhead contact lines
TS EN 50121	Railway applications – Electromagnetic compatibility – All parts of the standard series: Part 1: General Part 2: Emission of the whole railway system to the outside world Part 3-1: Rolling stock – Train and complete vehicle Part 3-2: Rolling stock – Apparatus Part 4: Emission and immunity of signalling and telecommunications apparatus Part 5: Emission and immunity of fixed power supply installations and apparatus
TS EN 50122-1	Railway applications – Fixed installations – Electrical safety, earthing and the return circuit – Part 1: Protective provisions against electric shock
TS EN 50124-1	Railway applications – Insulation coordination – Part 1: Basic requirements – Clearances and creepage distances for all electrical and electronic equipment
TS EN 50124-2	Railway applications – Insulation coordination – Part 2: Overvoltages and related protection
TS EN 50163	Railway applications – Supply voltages of traction systems
TS EN 50388	Railway applications – Fixed installations and rolling stock – Technical criteria for the coordination between electric traction power supply systems and rolling stock to achieve interoperability

For the Erzincan-Erzurum section, the Supply Plan, Principle Diagram, Typical Single-Line Diagram, and Single-Line Diagram are provided for information in Volume 3, Section 3—Drawings and Annexes, Annexes 17, 18, 19, and 20. The electrification works shall be designed and executed in accordance with the alignment plan set out in Annex 01.

- For the stations (existing and extended) and additional sidings prepared in accordance with the line plan, catenary works will be carried out in compliance with the Line Plan drawing provided in Volume 3/ Section 3-Drawings and Annexes/ Annex-01.
- A total of 4 traction substations (2 × 25 MVA each) will be installed.

  Traction Substations

Transformer Substation	**Location**	**Km**
TM5	Geçit	981+775
TM6	Gökçe	1027+500
TM7	Güneyçam	1077+580
TM8	Alaca	1119+750

- The works include the installation of 4 neutral sections.

- The design, supply, construction, testing, commissioning and energization of the 154 kV power transmission lines, branch lines, TEİAŞ connection bays and associated grid-connection facilities required to supply energy to the traction power substations are included in the scope, as set out in the sub-clause 154 kV Grid Connection and Power Transmission Lines. Statutory expropriation and compensation costs for the transmission line corridors remain with the Employer.
- In the electrification system, the classical feeding system commonly used on TCDD lines will be adopted. The catenary system will be supplied from transformer substations installed at a mean spacing of 46.0 km and a maximum spacing of 52.3 km. The electrical characteristics of the system will comply with the TS EN 50163 standard.
    - The permissible voltage levels of the system are specified below.

Electrification System	Lowest Non-Permanent Voltage (Umin2, V)	Lowest Permanent Voltage (Umin1, V)	Nominal Voltage (Un, V)	Highest Permanent Voltage (Umaks1, V)	Highest Non-Permanent Voltage (Umaks2, V)
AC (RMS Values (Root Mean Square	17500	19000	25000	27500	29000

- The catenary lines will be installed with a configuration of one contact wire (120 mm² CuAg0.1 in compliance with EN 50149) and one messenger wire (95 mm² Bz II 95 in compliance with DIN 48201). In tunnel sections with restricted clearance indicated in the project, a double contact wire will be used, and no messenger wire will be applied in these areas.

  The wires to be used in the catenary system are as follows:
  Wires for Catenary System

Conductor	Type	Section Area (mm2)	Standart
Contact Wire	CuAg0,1	120,0	EN 50149
Messenger Wire	Bz II	95,0	DIN 48201
Feeder Wire	Hawk	280,0	TS EN 50182
Return Conductor	Ostrich	176,9	TS EN 50182
Dropper Wire	Bz II	16,0	DIN 43138
Supply Wire	E-Cu	95,0	DIN 43138
Mast-to-Rail Bond	Bakır (NYY)	50,0	TS IEC 60502-1
Earthing Conductor	Galvanizli Çelik	70	TS EN 50182 TS EN 50189
Aluminum Rod	Al	50,0	EN AW 1370

- The catenary wires will be tensioned separately on the main line (regularized individually) and jointly on the sidings.
- Catenary masts will be made of steel profiles. Depending on the system calculations, they will be installed either as lattice-type or H-profile structures.
- The maximum section length will be 1,400 m. The number of cantilevers in a half-section will be limited to 20. Where the section length does not exceed 700 m, the section will be tensioned with an

automatic tensioning system used on one side only. For open lines, a pulley system with a 1:3 ratio and a concrete counterweight will be applied, while special spring-type tensioning systems without counterweights will be used in tunnels and other required areas.

- A complete static analysis of the cantilever–stay rod assembly will be performed, and no permanent deformation shall occur in the assembly under loads up to 1.5 times the working load. The pipes specified in the table below will be used for the cantilever–stay rod assembly.

Cantilever–Stay Rod Assembly Pipe Types

Pipe Type	Wall Thickness (mm)	Alloy Type
Ø70	6	6082 EN AW
Ø55	6	6082 EN AW
Ø42	4	6082 EN AW

Standard type cantilever assemblies will be used in the system. Special type cantilevers will be applied in structures such as tunnels with restricted clearance.

- Portals will be of lattice structure and will be manufactured in at least two parts depending on their length. A roof will be formed to ensure that the portal remains horizontally stable under load. The portals will be placed on supports mounted on the masts.
- Steel materials and welding consumables will comply with EN 1993-1-1, EN 10025 series, EN 10149 series, and EN 10164 requirements. According to the EN 10025 series, structural steel grades S235J0, S235J2G3/G4, S355J0, and S355J2G3/G4, or equivalent qualities, will be preferred. For bolts, strength classes 4.6, 5.6, 6.8, 8.8, and 10.9 will be used in accordance with EN ISO 898-1 (for nuts, grades 5 and 8 in accordance with EN 20898-2).
- Structural parts made of aluminum or aluminum alloys will comply with the EN 1999 series. For aluminum sheets and profiles, EN 755-1 and EN 755-2 standards will be taken into account, while for aluminum sheets, strips, and plates, EN 485-1 standards will apply.
- Concrete structures will comply with TS 500. The concrete used for foundations will be of at least class C20/25.
- Electrification technical buildings will be reinforced concrete with a minimum area of 10 m². The building will rest on a two-stage concrete foundation cast at least 800 mm above ground level, depending on snow height. A grounding installation will be provided for the building foundation, the building equipment will be connected to this grounding, and this grounding will in turn be integrated with the electrification grounding system.

6.2.10.2 Measurement and Payment

The electrification and power supply works shall be paid on a lump sum basis for the Lot as a whole, against the corresponding item of the Schedule of Payments. The lump sum shall be deemed to include design, supply, installation, testing, commissioning and energization of the overhead contact system, the traction power substations and their 154 kV grid connections, return current and earthing/bonding systems, auxiliary power supply and all associated electrical infrastructure, together with all temporary works, possessions and interface works required. No re-measurement shall apply.

6.3 Testing and Commissioning Requirements

This Clause shall be read with the Key Technical and Operational Performance Requirements of this Part. Testing, commissioning and trial operation shall demonstrate, by measurement and by simulation where measurement is not practicable, that the completed Works achieve the journey time, headway, line capacity, axle load, train length and energy performance values stated in those Requirements, and that the RAMS targets of the applicable RAMS specifications (EN 50126, EN 50128 and EN 50129) are met. The Contractor shall submit the simulation models, input assumptions and results to the Engineer for approval before the commencement of trial operation.

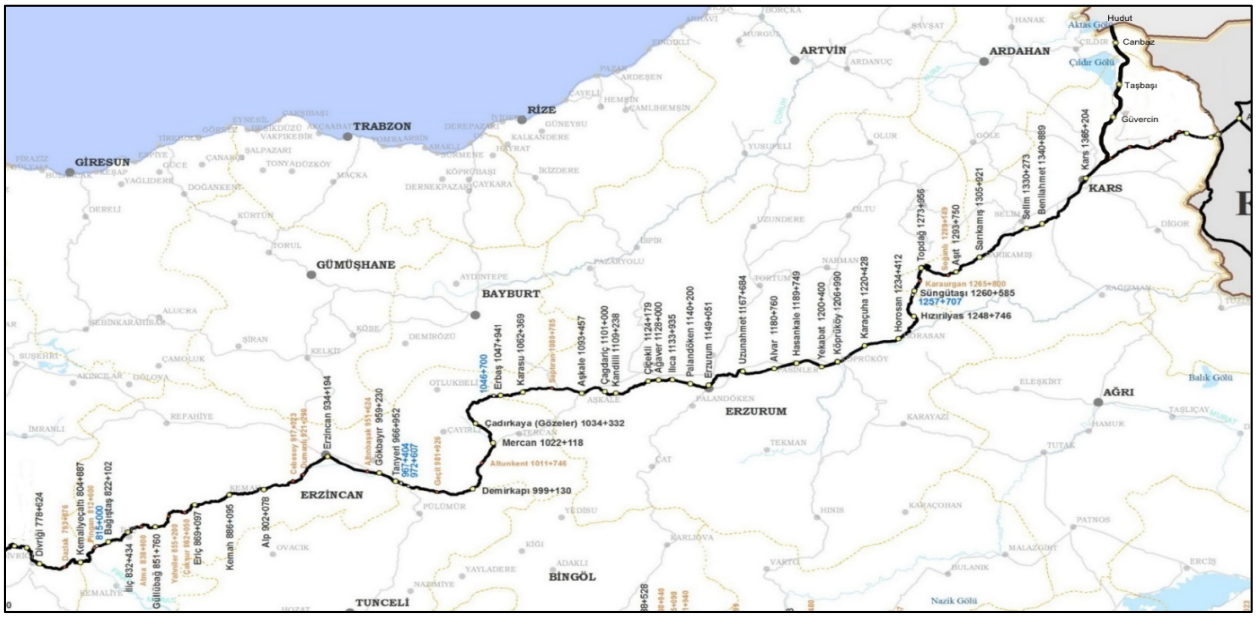
7 LOT 3 ERZURUM-KARS SECTION

The railway network of the Republic of Turkey consists of seven regions, and the Erzurum-Kars Part (Lot 3) railway line is located within the 4th Region, centered between Sivas and Erzurum, in the northeastern part of Turkey.

Erzurum-Kars Part (Lot 3) railway line, with a total length of approximately 216 km (216,103 m main line) is located between chainage: Km 1148+672 (Erzurum) – Km 1364+775 (Kars)



Türkiye Railway Regional Map



Project Alignment Plan

The existing line has 18 railway stations. Main stations are listed below:

- Uzun Ahmet
- Alvar
- Hasankale
- Köprüköy
- Karaçuha
- Horosan
- Hızır İlyas
- Süngütaşı
- Topdağı
- Sayding
- Soğanlı
- Aşit
- Sarıkamış
- Çatak
- Selim
- Benli Ahmet
- Dikme
- Kars (included in Lot 3)

The line is a non-electrified single-track railway, completed in 1961, built with standard gauge.

The project covers the establishment of signaling, telecommunication, and electrification systems aimed at increasing the existing railway operating capacity and enhancing operational safety along the Erzurum-Kars section.

The maximum train length (including locomotive) to be operated along the entire line will be considered 700 m. In addition, stations with the potential for further extension will be adapted for 750 m or 1,050 m train sets.

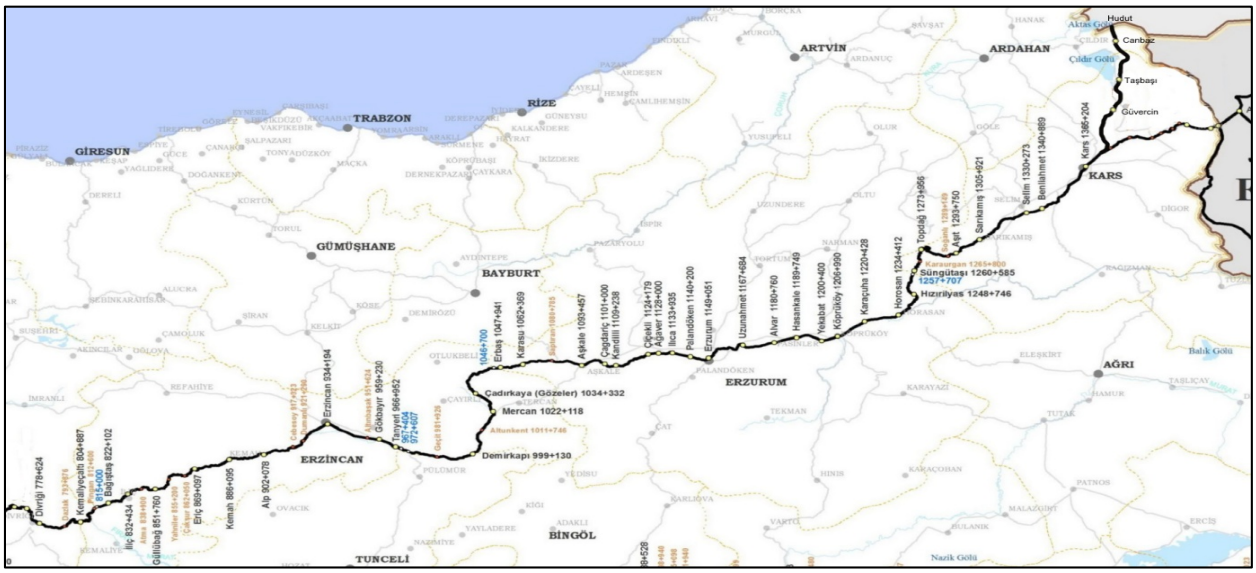
Due to the differences between the existing and newly built line sections, the project scope will be evaluated in two parts: (i) Divriği–Kars section, and (ii) Kars–Georgia border section. This lot covers the Erzurum-Kars lot of Divriği-Kars section and only electrification of Kars–Georgia border section.

7.1 Existing Railway Characteristics

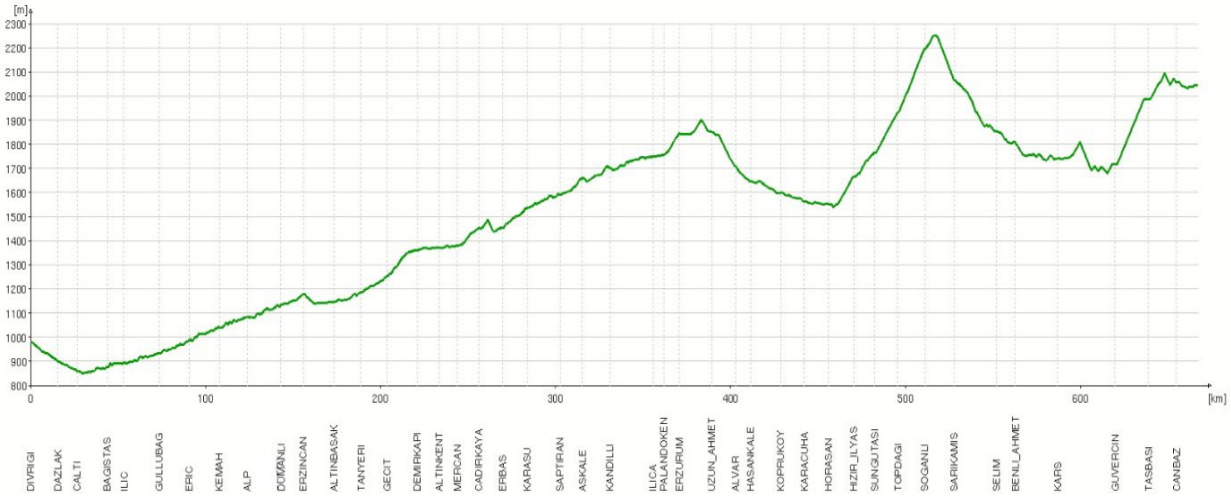
7.1.1 Alignment & Trackworks

Erzurum-Kars route is one of the first railways of the Republican era and has been continuously operated in standard gauge since 1961.

This section begins after Erzurum station, at an elevation of approximately 1,750 m above sea level, climbs through the Topdağı–Soğanlı–Sarıkamış critical gradient zone to its highest point of approximately 2,260 m near Sarıkamış, and then descends to 1,756 m at Kars.



Project Alignment Plan



Project Alignment Profile

Between Erzurum and Kars, there are curves with radii ranging from 236–500 m. The line consists of curves with radii greater than 3,200 m and straight alignments through the entire line.

Overall, the route encounters very rugged and also a straight topography both. The line generally follows valleys and canyons in close proximity to riverbeds as well as wide plains. Therefore, in the canyon passages of the existing railway line, continuity is achieved through successive viaducts and tunnels, with sharp curves located in these sections.

The existing cross-section profile of the Erzurum-Kars line is provided in Annex-06. 2.1.1. Track Superstructure

The gradient and curve lists for the Erzurum-Kars section are provided in Volume 3/ Section 3-Drawings and Annexes/ Annex-04 and Annex-05.

The railway track superstructure is defined as a ballasted track, consisting mostly of prestressed concrete sleepers, with wooden sleepers used in certain sections.

Characteristics of Track Superstructure :

Average Speed Depending on Curve Radius and Superelevation	70-120 km/h
Minimum Curve Radius	236 m
Maximum Curve Radius	9226 m
Maximum Gradient	25 mm/m (kısa mesafede 28mm/m)
Maximum Superelevation	130 mm
Average Sleeper Spacing	62 cm
Maximum Axle Load	22,5 ton/aks (Erzurum-Kars)
Track Gauge	1435 mm
Rail Profile	S49 veya benzeri, 900A kalite
Rail Welding	CWR(Sürekli kaynaklı)
Rail Cant	1:40
Rail Fastening System	Skl-12 (Erzurum-Kars)
Ballast Gradation	30/60 mm

On the Erzurum-Kars route, the turnouts are generally 1:9 angle with R300 m curved turnouts (occasionally with R190 m curves), laid on either wooden or concrete sleepers, using S49 rails. The turnouts are manually operated and do not have heating systems.

In stations, the sidings are generally connected with wooden-sleeper turnouts equipped with switch handles. On the main line, concrete-sleeper turnouts are also operated with switch handles, where one wooden sleeper is used for setting up the platform, and no turnout locking devices are installed.

For the Erzurum-Kars section, the design speed varies between 70 km/h and 120 km/h according to the alignment, the signaling design basis and target operational speed being 120 km/h, with speed restrictions down to 25 km/h applied in certain areas.

The permissible axle load is 22.5 tons between Erzurum and Kars.

It is assumed that rail insulation exists only in the renewed sections. In other areas, rails are primarily fastened directly onto plates without elastic rail pads or sleeper pads. Overall, the condition of the lines can be classified as well-maintained.

7.1.2 Structural and Design

Tunnels, bridges, and culverts are considered the main engineering structures on the railway line. According to TCDD records, the existing structures are designed to withstand an axle load of 22.5 tons.

7.1.3 Infrastructure and Drainage

The route is a 100-year-old line, and regional infrastructure and drainage problems are present.

7.1.4 Level Crossings

Along the Erzurum-Kars section, there are 48 level crossings. According to information provided, some of these crossings, where overpasses, underpasses and bridges are to be constructed to the points coincide with the existing level crossings, will be eliminated, leaving rest active level crossings to be evaluated.

This section corresponds to Lot 3 (Km 1148+672–1364+775); of the 48 level crossings,

- 11 are equipped with automatic or mechanical barriers,
- 3 are supervised by a guard
- 34 are unprotected;

The list of existing level crossings on the Erzurum-Kars section is provided in Volume 3/ Section 3-Drawings and Annexes/Annex-22.

Lot 3 – Erzurum–Kars

Km 1148+672 – 1364+775 | 46 level crossings | Source: TCDD Divriği–Kars level-crossing list

N	Level Crossing ID (KKY N	Chainage (K	Crossing type	Surface	Province	Connects	Road authorit
1	117-I-4552-HMZ-H001	1150+225	Guarded barrier	Kauçuk	Erzurum	Erzurum Şehir İçi Yolu	Erzurum Büyükşehir Belediyesi
2	117-I-4552-HMZ-H002	1151+530	Automatic barrier	Kauçuk	Erzurum	Erzurum Şehir İçi Yolu	Erzurum Büyükşehir Belediyesi
3	117-I-4552-HMZ-H004	1167+200	Uncontrolled (St Andrew cross)	Asfalt	Erzurum	Uzunahmet Köyü Yolu	Erzurum Büyükşehir Belediyesi
4	117-I-4663-HMZ-H002	1173+691	Uncontrolled (St Andrew cross)	Parke Taş	Erzurum	Korucuk Köyü Yolu	Erzurum Büyükşehir Belediyesi
5	117-I-4663-HMZ-H003	1174+556	Uncontrolled (St Andrew cross)	Parke Taş	Erzurum	Korucuk Köyü Yolu	Erzurum Büyükşehir Belediyesi
6	117-I-4663-HMZ-H005	1178+586	Uncontrolled (St Andrew cross)	Asfalt	Erzurum	Alvar Köyü Yolu	Erzurum Büyükşehir Belediyesi
7	117-I-4663-HMZ-H006	1183+584	Uncontrolled (St Andrew cross)	Toprak Balast	Erzurum	Alvar Köyü Arazi Yolu	Erzurum Büyükşehir Belediyesi
8	117-I-4663-HMZ-H008	1188+628	Automatic barrier	Kauçuk	Erzurum	Pasinler Şehir İçi Yolu	Pasinler Belediyesi
9	117-I-4663-HMZ-H009	1188+980	Automatic barrier	Kauçuk	Erzurum	Pasinler Şehir İçi Yolu	Pasinler Belediyesi
10	117-I-4663-HMZ-H010	1189+342	Guarded barrier	Kauçuk	Erzurum	Pasinler Şehir İçi Yolu	Pasinler Belediyesi
11	117-I-4573-HMZ-H001	1190+096	Uncontrolled (St Andrew cross)	Asfalt	Erzurum	Üğümü Ve Epsemce Köyleri Arazi Yolu	Erzurum Büyükşehir Belediyesi
12	117-I-4573-HMZ-H003	1192+040	Uncontrolled (St Andrew cross)	Parke Taş	Erzurum	Üğümü Ve Epsemce Köyleri Arazi Yolu	Erzurum Büyükşehir Belediyesi
13	117-I-4573-HMZ-H004	1196+400	Automatic barrier	Asfalt	Erzurum	Üğümü Ve Epsemce Köyleri Arazi Yolu	Erzurum Büyükşehir Belediyesi
14	117-I-4573-HMZ-H005	1200+317	Uncontrolled (St Andrew cross)	Parke Taş	Erzurum	Çakirtaş Köyü Arazi Yolu	Erzurum Büyükşehir Belediyesi
15	117-I-4573-HMZ-H006	1203+590	Uncontrolled (St Andrew cross)	Asfalt	Erzurum	Köy Yolu	Erzurum Büyükşehir Belediyesi
16	117-I-4612-HMZ-H001	1207+250	Automatic barrier	Kauçuk	Erzurum	Köprüköy Şehir İçi Yolu	Köprüköy Belediyesi
17	117-I-4612-HMZ-H003	1214+123	Uncontrolled (St Andrew cross)	Asfalt	Erzurum	Yukarisöğütlü Köyü Arazi Yolu	Erzurum Büyükşehir Belediyesi
18	117-I-4612-HMZ-H004	1216+310	Uncontrolled (St Andrew cross)	Asfalt	Erzurum	Karaçuha Köyü Arazi Yolu	Erzurum Büyükşehir Belediyesi
19	117-I-4612-HMZ-H006	1218+604	Uncontrolled (St Andrew cross)	Asfalt	Erzurum	Karaçuha Köyü Arazi Yolu	Erzurum Büyükşehir Belediyesi
20	117-I-4612-HMZ-H008	1221+508	Uncontrolled (St Andrew cross)	Asfalt	Erzurum	Kirikdikme Köyü Arazi Yolu	Erzurum Büyükşehir Belediyesi
21	117-I-4612-HMZ-H009	1227+892	Uncontrolled (St Andrew cross)	Asfalt	Erzurum	Azap Köyü Arazi Yolu	Erzurum Büyükşehir Belediyesi
22	117-I-4612-HMZ-H011	1232+500	Uncontrolled (St Andrew cross)	Parke Taş	Erzurum	Dalbaşi Köyü Arazi Yolu	Horasan Belediyesi
23	117-I-4612-HMZ-H012	1233+809	Uncontrolled (St Andrew cross)	Kauçuk	Erzurum	Dalbaşi Köyü Arazi Yolu	Horasan Belediyesi
24	117-I-4578-HMZ-H001	1234+752	Guarded barrier	Kauçuk	Erzurum	Horasan Şehir İçi Yolu	Horasan Belediyesi
25	117-I-4578-HMZ-H002	1235+330	Uncontrolled (St Andrew cross)	Parke Taş	Erzurum	Horasan Şehir İçi Yolu	Horasan Belediyesi
26	117-I-4578-HMZ-H003	1239+429	Uncontrolled (St Andrew cross)	Stabilize	Erzurum	Hizirllyas Köy Yolu	Erzurum Büyükşehir Belediyesi
27	117-I-4578-HMZ-H004	1245+020	Uncontrolled (St Andrew cross)	Toprak Balast	Erzurum	Hizirllyas Köy Yolu	Erzurum Büyükşehir Belediyesi
28	117-I-4578-HMZ-H005	1249+287	Uncontrolled (St Andrew cross)	Stabilize	Erzurum	Hizirllyas Köy Yolu	Erzurum Büyükşehir Belediyesi
29	117-I-4645-HMZ-H001	1269+553	Uncontrolled (St Andrew cross)	Toprak Balast	Kars	Yeniköy Arazi Yolu	Özel İdare
30	117-I-4645-HMZ-H002	1272+772	Uncontrolled (St Andrew cross)	Toprak Balast	Kars	Yeniköy Arazi Yolu	Özel İdare
31	117-I-4669-HMZ-H002	1290+828	Uncontrolled (St Andrew cross)	Stabilize	Kars	Yeniköy Arazi Yolu	Özel İdare
32	117-I-4669-HMZ-H003	1300+393	Uncontrolled (St Andrew cross)	Toprak Balast	Kars	Sarikamiş Belediyesi Çöplük Yolu	Sarikamiş Belediyesi
33	117-I-4669-HMZ-H004	1303+050	Uncontrolled (St Andrew cross)	Toprak Balast	Kars	Kayak Tesisleri Yolu	Sarikamiş Belediyesi
34	117-I-4669-HMZ-H005	1304+912	Uncontrolled (St Andrew cross)	Asfalt	Kars	Sarikamiş Şehir İçi Yolu	Sarikamiş Belediyesi
35	117-I-4636-HMZ-H002	1313+586	Uncontrolled (St Andrew cross)	Toprak Balast	Kars	Yağbasan Arazi Yolu	Özel İdare
36	117-I-4636-HMZ-H003	1324+320	Uncontrolled (St Andrew cross)	Toprak Balast	Kars	Sarikamiş-Kars Yolu	Özel İdare
37	117-I-4636-HMZ-H004	1327+286	Uncontrolled (St Andrew cross)	Toprak Balast	Kars	Karahamza-Kirkpinar Köyü Yolu	Özel İdare
38	117-I-4636-HMZ-H006	1329+810	Automatic barrier	Kauçuk	Kars	Selim-Kirkpinar Köyü Yolu	Özel İdare
39	117-I-4640-HMZ-H001	1333+886	Uncontrolled (St Andrew cross)	Toprak Balast	Kars	Alisofu-Akpinar Köyü Yolu	Özel İdare
40	117-I-4640-HMZ-H002	1334+984	Uncontrolled (St Andrew cross)	Toprak Balast	Kars	Alisofu-Karaçayir Köyü Yolu	Özel İdare
41	117-I-4516-HMZ-H001	1341+402	Automatic barrier	Toprak Balast	Kars	Kars-Kağizman Yolu	Tck
42	117-I-4516-HMZ-H003	1345+492	Uncontrolled (St Andrew cross)	Toprak Balast	Kars	Ardos-Değirmenköy Yolu	Özel İdare
43	117-H-1694-HMZ-H004	1347+917	Uncontrolled (St Andrew cross)	Toprak Balast	Kars	Arazi Yolu	Özel İdare
44	117-I-4516-HMZ-H006	1352+542	Uncontrolled (St Andrew cross)	Toprak Balast	Kars	Ardos-Değirmenköy Yolu	Özel İdare
45	117-I-4516-HMZ-H008	1356+961	Automatic barrier	Toprak Balast	Kars	Yolaçan Köyü Arazi Yolu	Özel İdare
46	117-I-4516-HMZ-H010	1364+017	Automatic barrier	Kauçuk	Kars	Kars-Azat Köyü Yolu	Özel İdare
47	117-I-4516-HMZ-H011	1364+454	Automatic barrier	Kauçuk	Kars	Kars-Mağaracik Köyü Yolu	Özel İdare
48	117-I-4516-HMZ-H012	1364+731	Automatic barrier	Kauçuk	Kars	Kars-Digor Yolu	Kars Belediyesi

The level crossings on the railway line facilitate both pedestrian and vehicle passage.

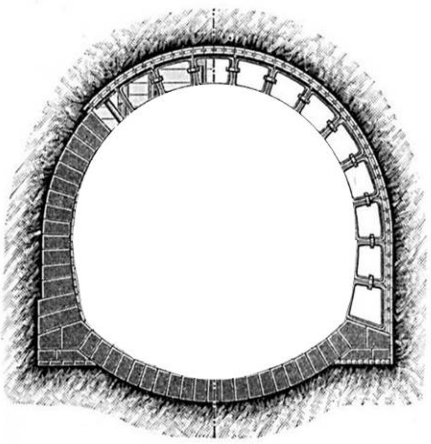
7.1.5 Tunnels

Along the Erzurum-Kars railway line, there are 46 tunnels with a total length of 11.90 km. The longest tunnel is 2,073 m.

Tunnel linings include reinforced concrete, shotcrete, stone masonry, and unlined rock, while the foundations are either reinforced concrete or masonry.

The tunnels were constructed with narrow cross-sections, in accordance with the construction conditions of their time.

Vertical clearance issues are observed across the tunnels along the line, with vertical tunnel clearances ranging from 4.80 m to 5.80 m.



Typical Tunnel Cross Section between Erzurum-Kars

Based on schedule (Item Nos. 154–199; TCDD Tunnel Nos. 138–173/A, per the verified Tunnel Schedule), there are;

- 33 mountain tunnels, in total length of 10,230 m
- 12 snow sheds, in total length of 1,651 m
- 1 pedestrian tunnel, in total length of 18m.

Total 46 tunnels with a total length ≈11.899 km

Tunnel linings: reinforced concrete, shotcrete, stone masonry and unlined rock; vertical clearances 4.80–5.80 m.

Schedule Item No.	TCDD Tunnel No	Start Chainage	End Chainage	Length (m)	Tunnel Type	Structural / Lining Type	Foundation Type

154	138	1156+558	1156+919	361.00	Mountain Tunnel	Stone Masonry Lining	Masonry
155	138/A	1157+180	1157+340	160.00	Snow Tunnel	Reinforced Concrete	Masonry
156	139	1159+963	1161+540	1,577.00	Mountain Tunnel	Stone Masonry Lining	Masonry
157	140	1166+471	1166+601	130.00	Mountain Tunnel	Stone Masonry Lining	Masonry
158	141	1238+309	1238+399	90.00	Mountain Tunnel	Stone Masonry Lining	Masonry
159	142	1238+745	1238+815	70.00	Mountain Tunnel	Stone Masonry Lining	Masonry
160	143	1245+738	1245+780	42.00	Mountain Tunnel	Stone Masonry Lining	Masonry
161	144	1246+399	1246+519	120.00	Mountain Tunnel	Stone Masonry Lining	Masonry
162	145	1247+357	1247+467	110.00	Mountain Tunnel	Stone Masonry Lining	Masonry
163	146	1251+170	1251+265	95.00	Mountain Tunnel	Stone Masonry Lining	Masonry
164	147	1251+709	1251+820	111.00	Mountain Tunnel	Stone Masonry Lining	Masonry
165	148	1253+233	1253+327	94.00	Mountain Tunnel	Stone Masonry Lining	Masonry
166	149	1253+452	1253+645	193.00	Mountain Tunnel	Stone Masonry Lining	Masonry
167	150	1253+808	1254+259	451.00	Mountain Tunnel	Stone Masonry Lining	Masonry
168	151	1254+914	1255+105	191.00	Mountain Tunnel	Stone Masonry Lining	Masonry
169	151/A	1258+353	1258+371	18.00	Pedestrian Tunnel	Reinforced Concrete	Masonry
170	152	1261+547	1261+712	165.00	Mountain Tunnel	Stone Masonry Lining	Masonry

171	153	1262+467	1262+794	327.00	Mountain Tunnel	Stone Masonry Lining	Masonry
172	154	1263+188	1263+288	100.00	Mountain Tunnel	Stone Masonry Lining	Masonry
173	155	1263+345	1263+406	61.00	Mountain Tunnel	Stone Masonry Lining	Masonry
174	156	1264+393	1264+503	110.00	Mountain Tunnel	Stone Masonry Lining	Masonry
175	157	1264+732	1264+847	115.00	Mountain Tunnel	Stone Masonry Lining	Masonry
176	158	1265+134	1265+223	89.00	Mountain Tunnel	Stone Masonry Lining	Masonry
177	159	1266+028	1266+306	278.00	Mountain Tunnel	Stone Masonry Lining	Masonry
178	160	1266+499	1266+568	69.00	Mountain Tunnel	Stone Masonry Lining	Masonry
179	161	1267+190	1267+365	175.00	Mountain Tunnel	Stone Masonry Lining	Masonry
180	162	1271+244	1271+616	372.00	Mountain Tunnel	Stone Masonry Lining	Masonry
181	162/A	1275+000	1275+340	340.00	Snow Tunnel	Reinforced Concrete	Masonry
182	163	1275+994	1276+236	242.00	Mountain Tunnel	Stone Masonry Lining	Masonry
183	164	1277+623	1277+728	105.00	Mountain Tunnel	Stone Masonry Lining	Masonry
184	165	1278+093	1279+313	1,220.00	Mountain Tunnel	Stone Masonry Lining	Masonry
185	166	1279+682	1279+822	140.00	Snow Tunnel	Stone Masonry Lining	Masonry
186	166/A	1279+822	1279+836	14.00	Snow Tunnel	Reinforced Concrete	Masonry
187	166/B	1280+113	1280+204	91.00	Snow Tunnel	Reinforced Concrete	Masonry
188	166/C	1280+306	1280+475	169.00	Snow Tunnel	Reinforced Concrete	Masonry

189	167	1280+363	1280+488	125.00	Mountain Tunnel	Stone Masonry Lining	Masonry
190	168	1280+658	1281+313	655.00	Mountain Tunnel	Stone Masonry Lining	Masonry
191	169	1281+811	1282+020	209.00	Mountain Tunnel	Stone Masonry Lining	Masonry
192	169/A	1282+020	1282+055	35.00	Snow Tunnel	Reinforced Concrete	Masonry
193	170	1282+055	1282+160	105.00	Mountain Tunnel	Stone Masonry Lining	Masonry
194	170/A	1282+160	1282+407	247.00	Snow Tunnel	Reinforced Concrete	Reinforced Concrete
195	170/B	1282+575	1282+726	151.00	Snow Tunnel	Reinforced Concrete	Reinforced Concrete
196	171	1294+233	1296+306	2,073.00	Mountain Tunnel	Stone Masonry Lining	Masonry
197	172	1302+128	1302+217	89.00	Snow Tunnel	Stone Masonry Lining	Masonry
198	173	1302+582	1302+697	115.00	Snow Tunnel	Reinforced Concrete	Masonry
199	173/A	1304+550	1304+650	100.00	Snow Tunnel	Reinforced Concrete	Masonry

One of the main problems of the tunnels is water ingress from the tunnel crown due to precipitation and groundwater content. This condition requires additional protective measures for electrification. During winter, water flowing from the tunnel sidewalls freezes, creating serious problems with horizontal clearance.

In the rainy winter season, rocks located above tunnel portals weaken due to freeze–thaw cycles, causing large blocks to topple and fall along steep slopes. In particular, major rockfalls onto the railway line pose significant hazards to railway operations.

In the existing tunnel cross-sections, drainage systems do not function properly. Especially in areas with heavy water ingress, excessive deterioration occurs, making water discharge necessary.

Terrain transitions from canyon to high plateau; gradient critical zone Topdağı–Soğanlı–Sarıkamış (max 2.5%–2.8%) tunnel water ingress and freeze-thaw portal deterioration conditions apply. During winter, water flowing from the tunnel sidewalls freezes, creating serious problems with horizontal clearance.

7.1.6 Bridges, Culverts, Overpasses and Underpasses

Hydraulic structures are generally classified as bridges and culverts. Structures with a span of 8 m and above are defined as bridges, while structures with a span of less than 8 m are considered culverts.

Up to the Erzurum-Kars junction, there are

- 45 railway bridges (span of 8 m and above),
- 534 culverts (span of less than 8 m),
- 11 road overpasses and 5 underpasses,

available in total along the line, built of steel, stone, or reinforced concrete.

These structures were constructed between 1899 and 2015. The longest railway bridge is 71 m.

Some of the steel structures have ballastless tracks with wooden bridge sleepers mounted directly on the structure. Most other bridges are equipped with ballast-retaining metal plates to protect the ballast. In general, walkways for staff are not provided on bridges.

Along the Erzurum-Kars railway line, there are underpasses or overpasses intersecting the railway, used by road traffic and pedestrians.

Culverts made of steel or reinforced concrete are located along the Erzincan-Erzurum section.

The structures along the Erzurum-Kars railway are designed to carry axle loads of 22.5 tons.

Renewal of hydraulic structures. Within Lot 3, 2 bridges are scheduled for renewal at Km 1194+847 and 1199+219, and 33 culverts at Km 1175+683, 1187+380, 1188+060, 1190+338, 1198+782, 1205+300, 1213+993, 1216+294, 1219+942, 1230+999, 1257+999, 1261+371, 1264+615, 1267+757, 1268+114, 1274+276, 1284+203, 1301+494, 1312+702, 1313+728, 1314+220, 1314+828, 1316+531, 1319+220, 1319+931, 1320+411, 1321+484, 1322+505, 1323+205, 1323+716, 1323+990, 1332+717 and 1335+949. A further 1 bridge and 6 culverts listed in the same schedule lie beyond Km 1364+775, in the excluded Kars–Georgia Border (BTK) section, and are outside the scope of this Contract.

7.1.7 Signaling

Currently, there is no signaling system on the existing line. Railway operations are managed through the TMİ system, where train traffic is controlled by the central dispatcher via telephone communication. The remote traffic control centers for this railway line is located in Erzurum.

All turnouts at stations are manually operated by a switchman under the supervision of the station master. In some stations, advanced protection signals are positioned at braking distance. There is no train detection system (free/occupied track detection) along the railway line.

Certain stations are either permanently or temporarily closed, and all warning systems in these stations are deactivated. In the closed stations, lighting is either lacking or out of service, and all mainline turnouts, if present, are kept locked.

7.1.8 Telecommunication

Although the overhead line network used for the existing communication system is in good condition, the current telecommunication system is not compatible with modern requirements and has no possibility for capacity expansion.

There is no continuous passenger information system along the railway line. At roadside stations, passenger information systems (audio and visual) cannot be activated from a central operations center.

In addition, systems such as telecontrol, data transmission, alarm systems, and CCTV (closed-circuit television) have not been installed. Radio communication is also not available in the tunnels.

7.1.9 Communication Lines

Communication along the railway line is provided by an overhead line network with conductors mounted on wooden poles. Three systems are currently in operation on the existing railway line:

- 12-channel carrier system
- TMİ dispatching system
- Service distribution system

Operational communication is carried out by telephone (e.g., between dispatchers and station masters; between station masters and signalmen or gatekeepers operating mechanical barriers, etc.). No telecommunication equipment is available inside the tunnels (e.g., connectors for telephones).

Connectors for telephones are mounted on poles along the track. Additional connectors are located in switchman/signalman cabins, at level crossings, and in unmanned stations. These connectors are labeled with a telephone symbol. In case of emergencies or accidents, the connectors can be used with a portable telephone to establish communication with personnel at the next station.

The workstations of station personnel at the operational stations are equipped with the following telecommunication devices:

- Separate telephone for each track direction
- Automatic telephone (with access to the national telephone system)

In some cases, multiple telephones

7.1.10 Radio Communication System

The Wide Area Coverage Radio System, established by Aselsan, is in operation along the railway line. All communications are transmitted through a relay channel. This system is not used directly for the management of traffic services but serves as a support system to enhance the level of operational safety.

The system has a single channel for communication on operational matters. It is solely for voice transmission and is not used for data transfer. Conversations conducted with the dispatcher through the system are recorded by a voice recording system.

7.1.11 Station Passenger Information Systems

Systems with clocks and loudspeakers are considered passenger information systems. General public-address systems are currently available only at major stations (e.g., Erzincan), while no passenger information systems exist at the other stations. Information related to train operations is mostly provided through timetables at stations or at train stops without railway staff.

7.1.12 Power Systems

The energy requirements of the stations and existing systems are supplied by local power facilities along the railway line.

Overall energy consumption consists of:

- Lighting of buildings, sidings, station areas, and level crossings
- Telecommunication installations and operation centers
- Workshops, maintenance facilities, and machinery
- Pre-heating of passenger coaches in the waiting areas of major stations

Floodlights are installed at major stations. At smaller stations, older individual lighting systems are in use. Power for floodlights is supplied by cables, while at smaller stations, lamps mounted on wooden or steel poles are connected via overhead wires.

There are numerous overhead line crossings of different types along the railway line and stations. In some stations, feeder cables for the station and other related buildings pass directly through the station area.

7.1.13 Maintenance and Rehabilitation

Since the construction of the railway, only routine maintenance works have been carried out, such as the replacement of certain specific track superstructure components, repairs of some sections of the line, infrastructure improvements, and maintenance of drainage elements and engineering structures.

7.1.14 Restricted Access

In particular, between Erzurum and Kars, access by road is mostly possible to the points, however, for some of the parts access to the railway may only be achieved directly via the railway itself. The Contractor shall check the accessibility accordingly.

The parts of this Lot that are difficult to reach are the following. Winter and avalanche conditions: this Lot contains 12 snow tunnels and galleries totalling 1,651 m, in four groups — Km 1157+180 – 1157+340 (1 structure, 160 m), Km 1275+000 – 1275+340 (1 structure, 340 m), Km 1279+682 – 1282+726 (7 structures,

847 m) in the Topdağı–Soğanlı zone, and Km 1302+128 – 1304+650 (3 structures, 304 m) on the approach to Sarıkamış. These are the lengths most exposed to snow drift and avalanche in this Lot. Road access: the longest lengths between successive road access points are Km 1151+530 – 1167+200 (15.7 km), Km 1249+287 – 1260+280 (11.0 km), Km 1273+531 – 1283+000 (9.5 km) and Km 1260+280 – 1269+553 (9.3 km). Altitude and gradient: this Lot lies in Climatic Zone 3 and contains the critical gradient zone Topdağı–Soğanlı–Sarıkamış, where the ruling gradient reaches 25 per mille and the line rises to approximately 2,260 m near Sarıkamış before descending to 1,756 m at Kars; snow cover is continuous for approximately four months. Working at the above locations shall be planned on the basis of rail-borne access where road access is not available, and of the seasonal restrictions stated in the Seasonal Restriction Calendar.

The road access distances stated above are given for information only and do not relieve the Contractor of its obligation to satisfy itself as to the means of access to the Site.

In accordance with the Collaboration Protocol between AYGM and TCDD, TCDD will determine the applicable operational scenarios and prepare the railway traffic planning, which will be communicated to AYGM before the commencement of the relevant activities. Accordingly, prior to the commencement of work in the affected sections, a chainage-based schedule of restricted-access locations shall be prepared in coordination with TCDD, together with the corresponding access and possession arrangements. The planning shall also identify any locomotives, work trains or other railway resources required for material transportation, emergency access and execution of the Works. The availability, timing and conditions of use of such railway resources shall be subject to TCDD's approved operational and traffic planning.

The necessary arrangements for transportation of personnel, plant and materials to the tunnel and restricted-access locations of this Lot shall be ensured by AYGM (the Employer); all related permits and licenses shall be provided by AYGM.

TCDD shall make available the locomotives, work trains and railway resources required for material transport, emergency access and possessions, as set out in the Restricted-Access Schedule.

7.2 Scope of Works

The scope of the Works is classified under the headings set out below.

7.2.1 Design Works

The main design work items are listed as follows:

- Detail design work,
- Alignment final design
- Design of structures, along the line
- Design of passenger stations (civil, E-M)
- E-M items design (electrification, mechanical design)
- Signalization- communication and supporting system designs.

The contractor shall be responsible for preparing the design studies and documents in accordance with the standards, specifications, and regulations given in the relevant design and construction specifications.

7.2.1.1 Alignment and Detail Design Works

The Contractor shall update all geodetic works along the railway line and gather all relevant information on existing and planned infrastructure and sub-structures which may affect or be affected by the railway alignment. Hydrological and hydraulic studies shall include catchment delineation, data review, intensity-duration-frequency analyses, flood-frequency analyses, design discharge calculations, hydraulic modelling, scour and erosion assessment and verification of the required hydraulic capacity.

The Contractor shall identify and justify the return periods proposed for bridges, culverts, drainage structures and temporary works, taking into account the asset type, design life, operational importance and consequences of failure. The proposed return periods, IDF data and calculation methodology shall be submitted to the Engineer and the relevant national authorities for approval.

7.2.1.2 Geological and Geotechnical Designs

The Contractor shall prepare a soil investigation and laboratory programme in accordance with the Standards to be named; Ground investigation & testing (framework)TS EN 1997-2, Sampling & groundwater measurement TS EN ISO 22475-1, Field testing (SPT, CPT, pressure meter, dilatometer, etc.) TS EN ISO 22476 series (e.g. -1 CPT, -2/-3 SPT, -4/-5 pressure meter) Soil identification & classifications TS EN ISO 14688-1 / -2 Rock identification & classification TS EN ISO 14689 Laboratory testing of soil TS EN ISO 17892 series (Parts 1–12). Prior to commencing the soil investigation programme, existing infrastructure (gas lines, electrical, communication, NATO lines, sewage, water distribution lines and similar utilities) shall be identified from information to be provided by AYGM. After approval by AYGM/Consultant, investigations and laboratory tests shall be conducted and geological and geotechnical reports prepared for the alignment (cuts, fills, ground improvements) and for all structures (tunnels, bridges, stations and other structures) along the line

7.2.1.3 Civil Structure Designs

Structural designs shall be prepared for all alignment structures including tunnels, bridges and hydraulic structures in accordance with the design technical specifications provided with the tender documents. Civil, architectural and electromechanical designs shall be prepared for all passenger stations (Erzincan, Erzurum, Kars and others as defined in the Annexes) and for other structures including electromechanical buildings and substations. Station designs shall include fire scenario analysis, egress and escape routes, ventilation systems, firefighting, electromechanical installations and all associated distribution facilities.

7.2.1.4 Power Supply and Electrification Designs

A 25 kV AC 50 Hz single-phase electrification system will be adopted for the full Divriği–Kars-Georgia border corridor. Power requirements for target-year train operations shall be determined by the Contractor. A total of 14 traction transformer substations (each 2×25 MVA) will be installed within the Contract limits,. The catenary system shall comprise one contact wire (120 mm² CuAg0.1, in compliance with EN 50149) and one messenger wire (95 mm² Bz II 95, in compliance with DIN 48201). In tunnel sections with

restricted clearance, a compact catenary configuration using reduced-height assemblies shall be applied. Maximum section length shall be 1,400 m; the number of cantilevers per half-section shall be limited to 20. The catenary wires shall be tensioned separately on the main line (regulated individually) and jointly on sidings. Each Contractor Lot shall be responsible for completing electrification works within its section, including all necessary connections and interfaces with adjacent Lot sections. Detailed supply plans, principle diagrams and single-line diagrams are provided in the Contract Drawings (Annex-17, Annex-18, Annex-19, Annex-20). All works shall comply with the Technical Specifications for Catenary Systems (2.8.1), Power Supply and Distribution (2.8.2), and Transformer Centers (2.8.3).

7.2.1.5 154 kV Grid Connection and Power Transmission Lines

The Contractor shall design and construct the complete 154 kV grid-connection infrastructure required for the energization of each traction power substation.

The scope shall include, as a minimum:

- confirmation of the TEİAŞ connection point and available short-circuit capacity;
- load-flow, short-circuit, power-quality and harmonic studies;
- route selection and topographical, geotechnical and environmental surveys;
- design of overhead transmission lines and, where required, underground cable sections;
- towers, poles, foundations, conductors, earth wires and optical ground wire;
- 154 kV connection bays, switchgear, protection, metering and control equipment;
- protection coordination between the TEİAŞ network and the traction power substations;
- revenue-metering arrangements;
- SCADA, telecontrol and telecommunications interfaces with TEİAŞ and the traction-power control system;
- earthing, bonding, lightning protection and electromagnetic compatibility;
- all applications, submissions, permits, approvals and technical agreements required by TEİAŞ and other competent authorities;
- factory tests, site tests, system-integration tests, energization tests and operational acceptance;
- as-built drawings, settings, test records, operation and maintenance manuals and training.

The Contractor shall submit a 154 kV Grid Connection Design Basis Report within 90 days after the Commencement Date. The Report shall identify the connection point for each traction power substation, the proposed route, connection-bay arrangement, protection and metering philosophy, SCADA interface, approval programme, construction programme, testing programme and planned energization date.

The 154 kV connection works shall be incorporated into the Contractor's Work Programme as contractual activities and milestones. The programme shall ensure that each connection is completed before the planned testing and commissioning of the corresponding traction power substation and associated catenary feeding section.

7.2.2 Construction Works

The main construction work items are listed as follows:

- Earth works, along the line (cuts, fills, ground improvements, retaining structures),
- Construction works of the structures along the line (NATM and TBM tunnels, construction shafts, cut and cover structures, viaducts, bridges, hydraulic structures, under passes, over passes)
- Station improvements, platform construction and associated civil and electromechanical works at active stations (Erzincan, Erzurum, Kars and others as defined in the Annexes),
- Traction power supply and electrification work,
- E-M system works, (tunnel ventilations, emergency tunnels, firefighting for the underground structures along the line),
- Track works along the line (open line, through tunnels and on structures): ballasted track renewal, slab track (tunnels ≥1000 m and designated structures (namely the bridges, viaducts and transition structures identified in the Slab-Track Schedule)), UIC 60 E1 rail supply and welding, concrete sleepers, fastening systems, switches and crossings, transition zones, rail grinding,
- Railway trial operation period,
- Signalization- communication and supporting systems work,
- Design, permitting, supply, construction, testing, commissioning and energization of all 154 kV power transmission lines, branch lines, TEİAŞ connection bays and associated grid-connection facilities required for the traction power substations;

The scope of the Works is classified under the headings set out below.

7.2.2.1 Track Substructure and Superstructure Maintenance and Repair Works

Track substructure and superstructure works shall comprise

- All permanent way works necessary for the rehabilitation, modification, adjustment, installation, reinstatement, and maintenance of the railway track along the alignment, excluding slab track construction inside tunnels, which is included under the tunnel works.
- Station arrangements including the necessary earthworks, as well as track substructure and superstructure work.
- Installation of missing guard rails in bridges where Engineer proposes.
- Installation of sub-ballast mats where Engineer proposes.
- Installation of under-sleeper pads where Engineer proposes.
- Replacement of existing rail fastening components and sleeper fastening elements deemed necessary by the Engineer.
- All track geometry modifications required to achieve the necessary clearance envelope within tunnels and at tunnel portals. Removal of track for the purpose of gradient adjustment and reinstallation of track after invert lowering.

- All sleepers within a length of 100 meters at both tunnel portals shall be replaced with new sleepers which are compatible with the existing line.
- All necessary maintenance works shall be carried out, and track geometry measurements as well as non-destructive testing (NDT) of the rails shall be performed in the sections instructed by the Engineer along the track length.

The Works shall include all track geometry modifications required to achieve the necessary clearance envelope within tunnels and at tunnel portals.

For this purpose, all sleepers within a length of 100 meters at both tunnel portals shall be replaced with new sleepers which are compatible with the existing line.

7.2.2.2 Enlargement of Tunnel Clearance for Electrification Integration

Vertical clearance issues are observed across the tunnels along the line, with vertical tunnel clearances ranging from 4.80 m to 5.80 m.

For the installation, commissioning, and safe operation of the catenary system, the minimum vertical clearance within each tunnel shall be minimum 5.30 meters measured from the top of rail level to top of the tunnel inner lining.

Specifically, work includes tunnel rehabilitation and electrification clearance enlargement where required of 46 tunnels,

- 33 mountain tunnels,
- 12 snow sheds and
- 1 pedestrian tunnel
- Total 46 tunnels

Slab track construction inside tunnels, removal of track within tunnels for the purpose of invert lowering and civil and structural works related to tunnel invert lowering are included in Tunnel Clearance Enlargement scope of works.

7.2.2.3 Structural Modifications of Bridges, Culverts, Overpasses and Underpasses

Scope of works covers the extension, rehabilitation, reconstruction, strengthening and/or replacement of existing bridges, culverts, overpasses and underpasses along the alignment.

Specifically, works include;

- Extension or renewal of 33 culverts due to station extensions,
- Demolition and re-construction of 2 overpasses at Kars

  (Km 1284+244: L = 10.00 m; reinforced concrete; h = 4.50 m)
  (Km 1291+232: L = 16 .00 m (2x8m); reinforced concrete; h = 4.50 m)

- Inspection and clearance of stream blockages at bridges and culverts, and inspection and rehabilitation of channels and stream beds.

The structural modification works of Lot 3 include the extension or renewal of 33 culverts and demolition and re-construction of 2 overpasses at the chainages scheduled in the Existing Railway Characteristics Clause of this Lot.

7.2.2.4 Construction of Retaining Walls

No retaining wall construction for Lot 3.

7.2.2.5 Renewal of Station Platforms

No station platform renewal for Lot 3.

7.2.2.6 Improvement and Upgrading of Level Crossings

Scope of works covers improvement and upgrading of existing level crossings along the alignment.

Specifically Works include improvement and upgrading of

- 48 level crossings

along the alignment.

7.2.2.7 Construction of Technical Buildings

Scope of works comprise design and construction of Technical Buildings.

Specifically works include

- Type-1 Technical Building – 7 No.
- Type-2 Technical Building – 10 No.
- CTC Building – 1 No. (the only CTC building on the corridor is in Lot 3, at Kars).
- Auxiliary technical buildings – 78 No. Auxiliary technical buildings are the small ancillary structures of approximately 4.80 m × 2.50 m (≈12 m²) required to support the railway systems along the alignment and at stations, including equipment shelters, relay and battery rooms, cable termination and distribution kiosks, level crossing control cabinets and similar single-storey structures, complete with their foundations, power supply, earthing, ventilation and external works.

7.2.2.8 Establishment of Electrification and Power Supply System

In order to modernize the Erzurum-Kars-Georgia border railway section, which is currently operated using diesel traction, and to improve its speed, cost-efficiency, and passenger comfort, the line shall be converted to electric traction. The Works shall include the complete design, supply, installation, testing, and commissioning of the overhead contact line system and traction power substations.

Electrification and power supply works include catenary, transformer substations including all 154 kV power transmission and branch-line connections, connection bays and associated facilities required to energize the traction substations.

7.2.2.9 Establishment of Signaling and Telecommunication System

In order to modernize the Erzurum-Kars-Georgia border railway section, and to improve its speed, cost-efficiency, and passenger comfort, the line shall be supplied with level 1 signaling and telecommunication system including fiber-optic systems, GSM-R and associated systems.

The signaling and telecommunication system will be procured as a single corridor-wide package under a separate Contract and is not divided among the three civil-works Lots.

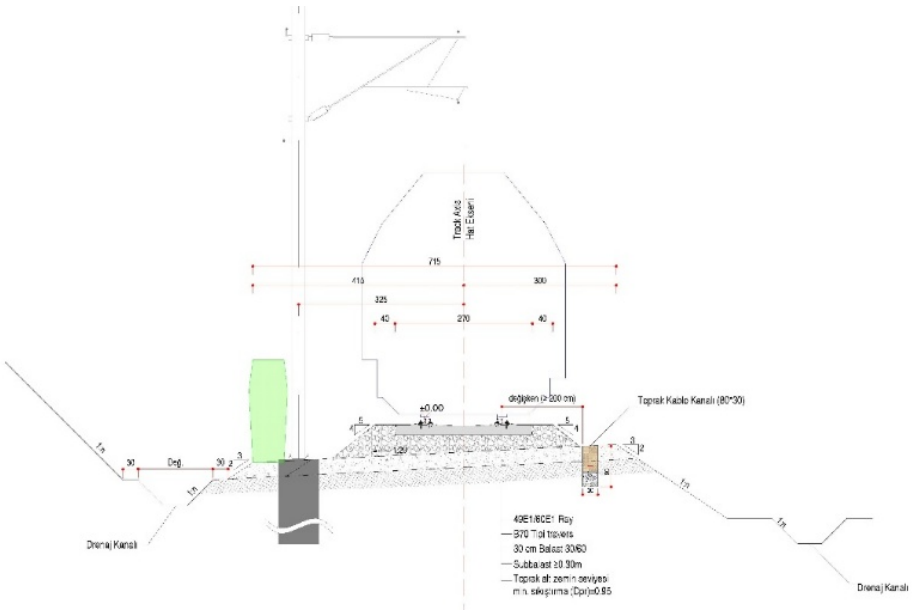
7.2.2.10 Establishment of Distributed Acoustic Sensing (DAS) System

Distributed Acoustic Sensing (DAS) System will be established along the route to detect natural events such as rock/stone falls, landslides, and avalanches through an early warning system.

The Distributed Acoustic Sensing (DAS) System is procured as a single corridor-wide package under a separate Contract and is not divided among the three civil-works Lots.

7.2.3 Track Substructure and Superstructure Maintenance and Repair

Due to the station extensions along the Erzurum-Kars section, the line infrastructure works for the newly constructed parts will be prepared in accordance with the typical cross-section provided below. The typical cross-section of the open line for the Divriği–Erzincan section is presented in Volume 3/ Section 3-Drawings and Annexes/ Annex-04 and Annex21.



Typical Cross-Section of Open Line for Divriği–Kars

The scope of station arrangements includes the necessary earthworks, as well as track infrastructure and superstructure work.

Station Arrangements Between Erzurum-Kars

	İsim	**Km**	
26	Erzurum	1148+672	Existing station will be arranged as main line + 3 sidings to accommodate 750 m trains; dead-end track will be removed. Out of Scope.
27	Uzun Ahmet	1167+219	Construction of an additional siding: the station will be arranged as main line + 1 siding to accommodate 750 m trains.
28	Alvar	1180+762	Existing station will be arranged as main line + 2 sidings to accommodate 750 m trains; dead-end tracks will be removed.
29	Hasankale	1189+298	Existing station will be arranged as main line + 2 sidings to accommodate 1,050 m trains; dead-end track will be removed.
30	Köprüköy	1206+485	Construction of an additional siding: the station will be arranged as main line + 1 siding to accommodate 1,050 m trains.
31	Karaçuha	1219+943	Existing station will be arranged as main line + 4 sidings to accommodate 750 m trains; one dead-end track will be removed.
32	Horasan	1233+879	Construction of an additional siding: the station will be arranged as main line + 1 siding to accommodate 750 m trains.
33	Hızır İlyas	1248+408	Existing station will be arranged as main line + 1 siding to accommodate 750 m trains; one siding and the dead-end track will be removed.
34	Süngütaşı	1260+280	Station not suitable for extension. All tracks will be retained.
35	Topdağı	1273+531	No works will be carried out.
36	Sayding	1283+000	Existing station will be arranged as main line + 2 sidings to accommodate 700 m trains.
37	Soğanlı	1288+850	No works will be carried out.
38	Aşit	1293+750	Existing station will be arranged as main line + 5 sidings to accommodate 750 m trains; dead-end tracks and connections will be removed.
39	Sarıkamış	1305+615	No works will be carried out.
40	Çatak	1319+875	Existing station will be arranged as main line + 2 sidings to accommodate 750 m trains; the 3rd siding will be removed.
41	Selim	1329+945	Existing station will be arranged as main line + 1 siding to accommodate 750 m trains; the 2nd and 3rd sidings will be removed.
42	Benli Ahmet	1340+550	Construction of an additional siding: the station will be arranged as main line + 2 sidings to accommodate 700 m trains.
43	Dikme	1352+150	Within the existing station, a double main line arrangement will be provided as a continuation of the BTK double track. One of the double tracks continuing at decreasing km will be extended to form the Kars Logistics connection.

44	Kars	1364+775	Out of Scope.

- New turnouts will be supplied for the additional sidings that do not currently exist. In addition, due to station modifications, new 1:9 turnouts will be supplied for Erzurum and Kars station and Kars Logistics Center.

The layout plans of the existing stations between Divriği and Kars are presented in Annex-03, while the updated station and logistics center plans are provided in Annex-07, Annex-08, Annex-09, Annex-10, and Annex-11 of Scope of Works.

Track substructure and superstructure works shall comprise

- All permanent way works necessary for the rehabilitation, modification, adjustment, installation, reinstatement, and maintenance of the railway track along the alignment, excluding slab track construction inside tunnels, which is included under the tunnel works.
- Station arrangements including the necessary earthworks, as well as track substructure and superstructure work.
- Installation of missing guard rails in bridges where Engineer proposes.
- Installation of sub-ballast mats where Engineer proposes.
- Installation of under-sleeper pads where Engineer proposes.
- Replacement of existing rail fastening components and sleeper fastening elements deemed necessary by the Engineer.
- All track geometry modifications required to achieve the necessary clearance envelope within tunnels and at tunnel portals. Removal of track for the purpose of gradient adjustment and reinstallation of track after invert lowering;
- Provision of new vertical and horizontal geometry;
- All sleepers within a length of 100 meters at both tunnel portals shall be replaced with new sleepers which are compatible with the existing line.
- All necessary maintenance works shall be carried out, and track geometry measurements as well as non-destructive testing (NDT) of the rails shall be performed in the sections instructed by the Engineer along the track length.

During the rail dismantling operations required to adjust the track geometry, the removed rails shall be subjected to rail grinding operations before reinstallation.

In order to achieve the required minimum vertical clearance of 5.30 m inside tunnels, The Contractor shall:

- Modify longitudinal gradients as required;
- Introduce new vertical curves;
- Introduce new horizontal curves where necessary;
- Remove existing track where required;
- Reinstall track after formation and invert works are completed;

- Perform necessary maintenance and adjustments following reinstallation.

Adjustment of track gradient, provision of vertical and horizontal curves, dismantling and reinstatement of track, and all associated alignment works shall be considered part of trackwork.

The following works are excluded from track works and included in Tunnel Works Lump Sum Price:

- Slab track construction inside tunnels;
- Removal of track within tunnels for the purpose of invert lowering;
- Civil and structural works related to tunnel invert lowering.

However, the following works remain within the scope of track works:

- Removal of track for the purpose of gradient adjustment;
- Reinstallation of track after invert lowering;
- Provision of new vertical and horizontal geometry;
- Track maintenance and adjustment after reinstallation of track elements;
- Renewal of all sleepers within 100 m sections at tunnel portals and inside the tunnel;
- Installation of sub-ballast mats at locations instructed by the Engineer;
- Installation of under-sleeper pads at locations instructed by the Engineer;
- Replacement of rail fastening systems and sleeper fastening components where required by the Engineer.

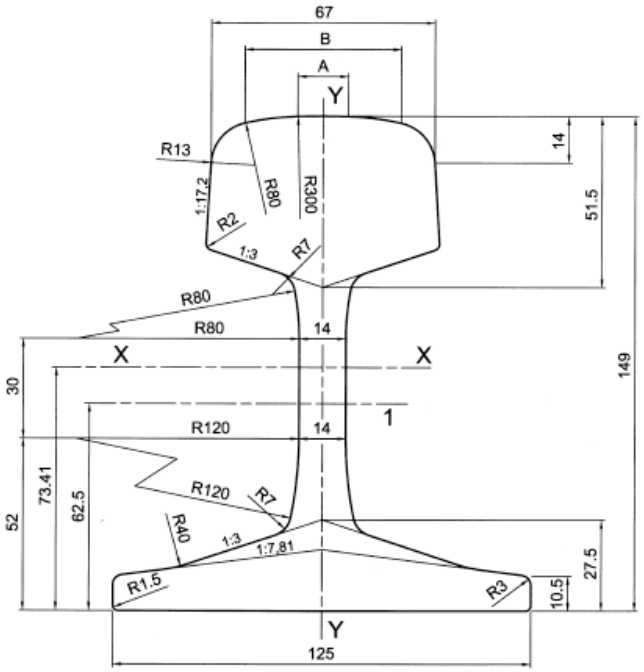
Rails and Fasteners :

On the Erzurum-Kars section, 49E1 and/or UIC60E1 type rails will be used depending on the track element listed on the table below. Rail-profile matrix — Lot 3 Erzurum-Kars (Per the General Technical Specification). The newly constructed/renewed main line is laid in 49E1 (S49-class, 49 kg/m) rail; UIC 60E1 is specified for new station sidetracks (sidings); S49 is used on station extensions to match the existing line.

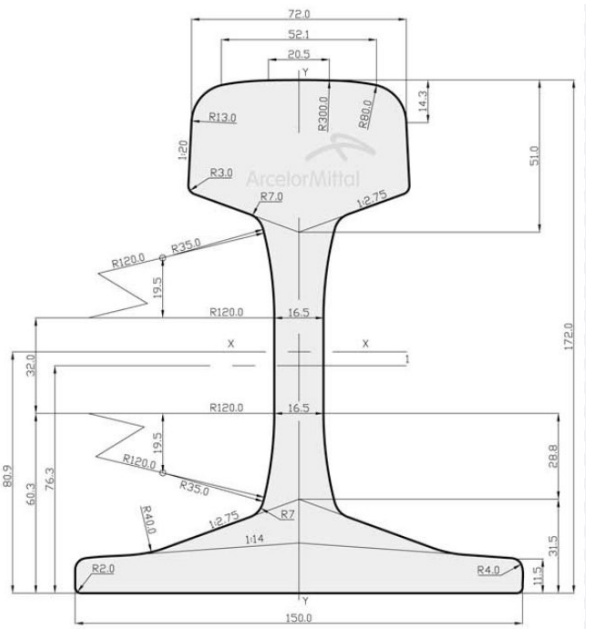
Track element	Rail profile	Sleeper	Fastening
Newly constructed / renewed main line (open line)	49E1 (S49-class, 49 kg/m)	B58 monoblock concrete	W14
Station main (through-line) tracks	49E1 (as main line)	B58 monoblock concrete	W14
Secondary / new station side tracks	UIC 60E1	B58 / B70 per design	elastic / W14
Extended (existing) station tracks	S49 (to match existing)	B58 monoblock concrete	W14
Sidings (new station side tracks)	UIC 60E1	B58 / B70 per design	elastic / W14

Track element	Rail profile	Sleeper	Fastening
Transition sections	Profile transition (60E1 ↔ 49E1/S49)	per design	per design

The minimum length of the rails to be supplied will be 36 m.



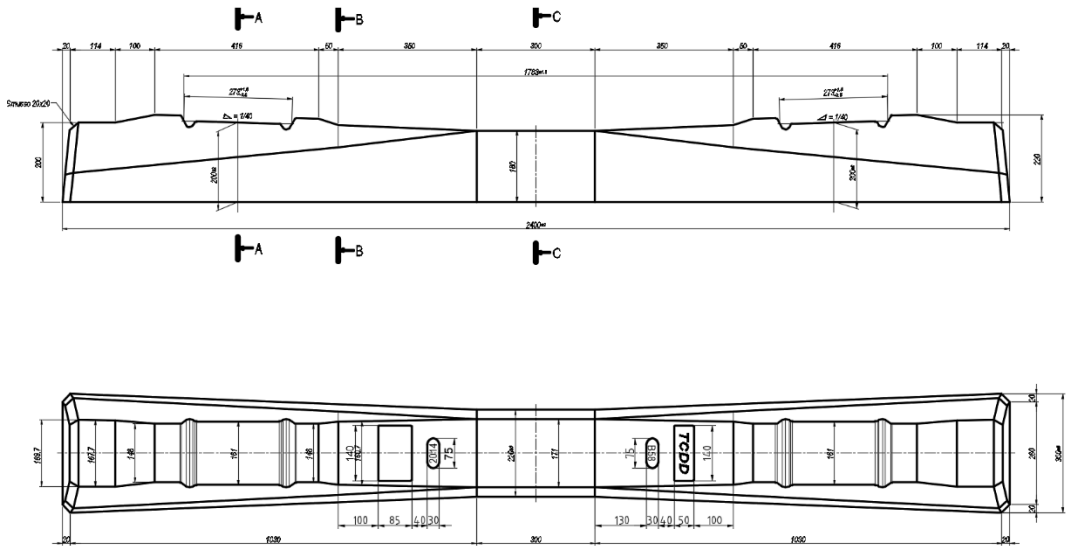
49E1 Rail Section



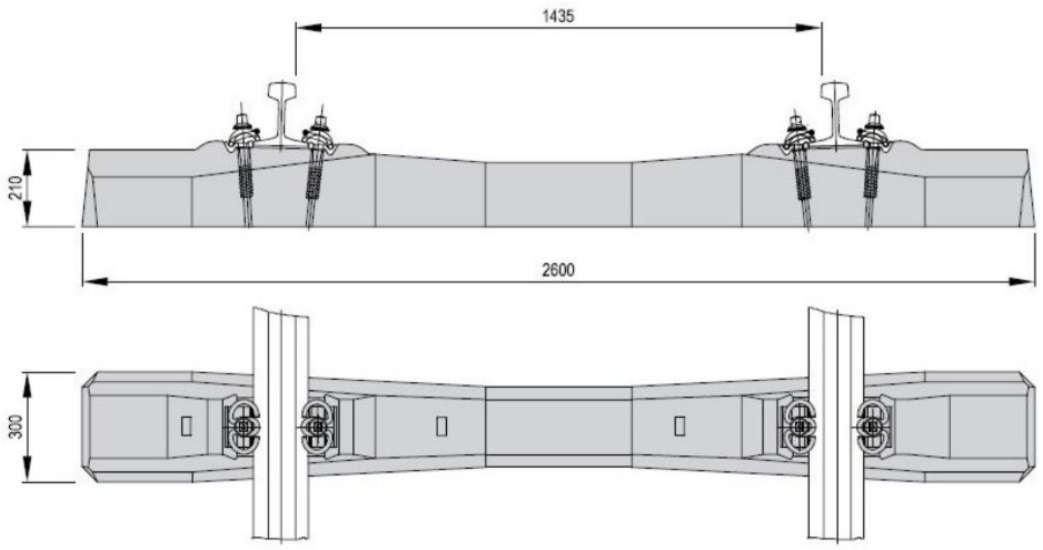
60E1 Rail Section

Sleepers :

The details of the B58 Monoblock Geometry of Concrete Sleeper and B70 Monoblock Geometry of Concrete Sleeper are given below for reference ;



B58 Monoblock Geometry of Concrete Sleeper



B70 Monoblock Geometry of Concrete Sleeper

Ballast :

In the newly constructed superstructure sections, ballast will be laid in accordance with the required profile, ensuring a minimum ballast thickness of 30 cm beneath the rails.

Rail Welding :

Aluminothermic rail welding will be applied at turnouts, while flash butt welding will be used on the main line.

7.2.3.1 Technical Requirements and Execution Method

The Contractor shall:

- Carry out all necessary excavation, cut and fill, and formation embankment works;
- Construct and prepare the improved subgrade and subbase layers;
- Execute embankment construction and stabilization works;
- Ensure proper compaction of all earthworks and formation layers;
- Adjust and regulate formation levels in accordance with the revised track alignment and gradients as instructed by the Engineer.

All works shall comply with applicable TCDD standards and approved method statements.

7.2.3.2 Items Deemed Included in the Lump Sum Contract Price

The following activities shall be included under the Lump Sum item:

- Rail grinding; removal of rails for track geometry adjustment and grinding of the removed rails before reinstallation;
- Rail welding;
- Ultrasonic testing;
- Non-destructive testing;
- Track adjustment and alignment;
- Sleeper replacement;
- Rail replacement;
- Turnout removal;
- Track dismantling;
- Supply of rail fastening materials;
- Mechanical maintenance works including tamping, regulating and stabilizing;
- Track geometry measurements along the line.

Without limitation, the Lump Sum Contract Price shall include all costs for complete execution of the track substructure and superstructure works, including but not limited to:

7.2.3.2.1 Track Substructure

- TCDD-ALT-1001 – Cleavage and side borrow excavation and utilization;
- TCDD-ALT-1004 – Construction of subbase layer using selected material where required;
- TCDD-ALT-1003.1 – Quarry stone fill for soil improvement where required;
- TCDD-ALT-1005.1 – Approach embankment using granular material where required;
- TCDD-ALT-1005.2 – Cement-treated granular material for approach embankment where required.

7.2.3.2.2 Track Substructure

- TCDD-ÜST-6301 – Supply and installation of subballast;
- TCDD-ÜST-6302 – Supply and installation of BAM (Ballast Underlay Mat);
- TCDD-ÜST-6304 – Supply and laying of ballast;
- TCDD-ÜST-6403 – Track laying (S49 rail with B58 concrete sleepers); (for existing tracks)
- TCDD-ÜST-6404 – Track laying (60E1–60E2 rail with B70 concrete sleepers); (for new tracks)
- TCDD-ÜST-6504 – Supply and installation of 100 km/h turnout (1/18.5 LUK); (for new tracks)
- TCDD-ÜST-6551 – Supply and installation of rail expansion joints (≤ ±300 mm);
- ÖZEL – LUMP-SUM – Track maintenance and repair works. (along the whole track)

7.2.3.3 Measurement and Payment

The above-referenced TCDD unit price items are provided solely for technical definition purposes.

Notwithstanding the units indicated (m³, ton, m², m, line-m), all such works shall be deemed included in the Lump Sum Contract Price for the Track Works.

No separate measurement, re-measurement, unit rate application, additional payment, or entitlement to extension of time shall arise from execution of these works.

The Contractor shall be deemed to have:

- Examined the track works conditions;
- Considered sequencing and phasing requirements;
- Included all risks related to excavation, groundwater, protection and access;
- Allowed for all temporary and permanent works necessary for completion.

Except as expressly provided under the Conditions of Contract, no claim for additional payment or extension of time shall be entertained in relation to the Track Works described herein.

All work necessary to:

- Adjust gradients,
- Modify vertical or horizontal alignment,
- Dismantle and reinstall track,
- Maintain track geometry compliance,

shall be deemed included within the respective Trackworks items.

No separate payment shall be made for track removal and reinstallation required for gradient modification to achieve tunnel clearance.

Measurement shall be on a Lump Sum basis.

Track Substructure and Superstructure Maintenance and Repair described above shall be measured as:

- 1 No. Track Substructure and Superstructure Maintenance and Repair – Lump Sum for Lot 3 (Km 1148+672 – 1364+775, 216,103 m main line)

The listed TCDD items are provided solely to define the scope of work and shall not be measured separately.

7.2.4 Enlargement of Tunnel Clearance for Electrification Integration

The tunnels forming part of the Works shall be upgraded to accommodate the electrification of the railway system.

The existing railway operation based on solid fuel traction shall be converted to an electrically powered railway system. Accordingly, overhead catenary systems should be integrated into the tunnels.

Clearance enlargement is required where vertical clearance is below 5.30 m electrification gauge.

There are (Item Nos. 154–199; TCDD Tunnel Nos. 138–173/A, per the verified Tunnel Schedule),

- 33 mountain tunnels, with a total length ≈10.230 km
- 12 snow sheds with a total length ≈1.651 km and
- 1 pedestrian tunnel with a total length ≈18 m
- Total 46 tunnels with a total length ≈11.899 km

within this section.

Tunnels ≥ 1,000 m require slab track; tunnel drainage (invert and side drains) and emergency/electromechanical provisions (lighting, walkways, handrails, signage, communications and fire protection) per the Employer's Requirements apply to all tunnels listed below.

Required clearance and the final rehabilitation category of each tunnel shall be determined by the Contractor from the laser-surveyed cross-sections provided in Annex-15 and Annex-30, in accordance with the sub-clause Tunnel Clearance Data, Verification and Measurement.

For the installation, commissioning, and safe operation of the catenary system, the minimum vertical clearance within each tunnel shall be minimum 5.30 meters measured from the top of rail level to top of the tunnel inner lining.

In order to achieve this required clearance:

- The tunnel invert shall be excavated and lowered as necessary;
- Appropriate track gradients shall be provided in accordance with railway design requirements;

- The functional continuity and operational integrity of tunnel entrance and exit zones shall be maintained;
- All necessary geometric adjustments inside the tunnel shall be implemented to ensure compliance with the required structural and operational gauge.

Adjustment of track gradient, provision of vertical and horizontal curves, dismantling and reinstatement of track, and all associated alignment works shall be considered part of trackwork.

The Contractor shall ensure that each tunnel is modified to achieve the required clearance envelope (gabarit) suitable for the installation and operation of the electrification, and catenary and all operational sustainability of the systems.

Construction works include,

- Enlargement of tunnel clearance for electrification integration and slab track installation where invert lowering is required
- Installation of slab track in tunnels longer than 1,000m

All works necessary to achieve the required minimum vertical clearance, including excavation/earthworks, structural adjustments, track geometry modifications, and associated civil works, shall be deemed included within the scope of the Tunnel Works and the Lump Sum Contract Price.

No separate payment shall be made in relation to achieving the required tunnel clearance for electrification purposes.

7.2.4.1 Technical Requirements and Execution Method

Prior to commencement of any excavation works, the Contractor shall locate, expose, and accurately determine the positions and levels of the existing tunnel arch foundation footings/pedestal footings (bases) at invert level.

A detailed survey shall be carried out and submitted to the Engineer for review before excavation begins.

Excavation works shall commence at a minimum sufficient and safe horizontal distance of 25 cm from the existing pedestal/footing edges.

Under no circumstances shall excavation be carried out closer than this limit during the initial phase.

Excavation shall proceed to the calculated design depth required for the lowering of the tunnel invert and construction of the slab track foundation system.

Upon reaching the pedestal/footing elevation, the previously unexcavated 25 cm portions above the pedestal/footing tops shall then be carefully exposed in a controlled manner.

Following completion of excavation to the required depth:

- Slab track foundation works and slab track construction shall be executed with necessary fixing elements in accordance with the approved drawings and specifications.
- The exposed pedestal/footing upper zones shall be brought to the required final elevation by placing C25/30 plain concrete fill.
- Necessary leveling and surface preparation works shall be completed to ensure that the structural system operates as a monolithic and integral unit.

All concrete works shall comply with the relevant Specification sections and applicable standards.

7.2.4.2 Contractor's Responsibilities

The Contractor shall be fully responsible for:

- Preparation of the excavation methodology;
- Design and implementation of safe excavation procedures;
- Ensuring structural stability of the tunnel during all stages of the works.

The excavation methodology shall be submitted to the Engineer for approval prior to commencement of excavation works.

7.2.4.3 Temporary and Permanent Works

All measures necessary to safely lower the tunnel invert level shall be deemed included in the Lump Sum price. These shall include, but not be limited to:

- Any and all excavation works required to achieve the new invert level;
- Provision, installation, monitoring, and removal (where applicable) of temporary and permanent shoring and support systems;
- Additional stabilization measures required during excavation;
- Waterproofing systems;
- Drainage systems;
- Dewatering works;
- Protective measures against potential tunnel lining spalling or falling debris, including:
- Measures to prevent damage to tunnel lining, structures, utilities, and surrounding areas (both internal and external to the tunnel);
- Repair, rehabilitation, and reinstatement of any damaged tunnel elements;
- Removal and reinstatement of dismantled tunnel lining elements;
- All access arrangements required for tunnel works;
- Rectification of any damage occurring at tunnel portals (entrances and exits);
- All testing, monitoring, supervision, and safety measures required to complete the works for the intended purpose of lowering the tunnel invert level.

- Installation of protective shields,
- Protective mesh systems,
- Protective cabins or platforms
- Any other required safety systems

7.2.4.4 Tunnel Construction Schedule

The Tunnel Works shall be completed strictly in accordance with the Tunnel Construction Schedule attached as Annex-1- Tunnel Time Schedule in which the maximum each tunnel completion duration is specified. However, the total duration of tunnel completion for lot 3 is 240 days excluding design period and the total duration of tunnel completion for lot 3 is 960 days.

The Contractor acknowledges that:

- The works are to be executed within a confined and operational tunnel environment;
- Access constraints, protection measures, phased excavation requirements and support installations have been fully considered in the Tunnel Construction Schedule;
- The durations indicated therein are deemed sufficient for proper and safe completion of the Works.

All risks associated with sequencing, staging, access constraints, protection measures, groundwater control, temporary support systems, and tunnel operational limitations shall be deemed included in the Contract Price and the Time for Completion.

No claim for additional payment or extension of time shall be made on the grounds of difficulties arising from staged construction, restricted working areas, protection requirements, or excavation sequencing, except as expressly provided under the Conditions of Contract.

In the event that the number of days allocated for the Tunnel Works or any tunnel-specific milestone is exceeded, the delay damages provisions set out in the Particular Conditions of Contract shall apply.

Delay Damages shall be calculated and applied in accordance with Sub-Clause 8.7 [Delay Damages] (or the corresponding Sub-Clause under the applicable edition of FIDIC), as amended by the Particular Conditions.

The application of Delay Damages shall not relieve the Contractor from its obligation to complete the Works, nor shall it prejudice the Employer's other rights and remedies under the Contract.

No additional notice shall be required for the imposition of Delay Damages once the relevant Time for Completion or sectional completion period has expired.

7.2.4.5 Items Deemed Included in the Lump Sum Contract Price

Without limitation, the Lump Sum Contract Price shall include all costs for complete execution of the Tunnel Works, including but not limited to:

7.2.4.5.1 Excavation Works

Including:

- TCDD-ALT-3001.2 – Excavation in tunnels with theoretical excavation area less than 50 m²;
- Controlled excavation adjacent to existing structures;
- Overbreak management;
- Loading, hauling and disposal;
- Restricted access working conditions.

7.2.4.5.2 Concrete Works

Including:

- TCDD-ALT-2002.1 – Plain concrete (C16/20);
- TCDD-ALT-2003.1.2 – Reinforced concrete (C30/37);
- Özel – Self-Compacting Concrete (SCC);
- C25/30 pedestal/footing adjustment concrete;
- Formwork, curing, finishing and testing.

7.2.4.5.3 Reinforcement Works

Including:

- TCDD-ALT-2005 – Ribbed reinforcing steel;
- TCDD-ALT-3003 – Welded wire mesh reinforcement in tunnels;
- Cutting, bending, fixing and accessories.

7.2.4.5.4 Shotcrete Works (if required)

Including:

- TCDD-ALT-3002 – Shotcrete application in tunnels;
- Surface preparation, additives, rebound removal and thickness control.

7.2.4.5.5 Piling/Shoring Works (if required)

Including:

- TCDD-ALT-2014.2.1 – Various diameter cast-in-place bored piles;
- Drilling, casing, reinforcement, concreting and testing.

7.2.4.5.6 Waterproofing and Geotechnical Works

Including:

- TCDD-ALT-3015 – Waterproofing in tunnels and cut-and-cover sections;
- Geotextile installation over blinding concrete;
- Membranes, drainage layers and joint detailing;
- Dewatering systems.

7.2.4.5.7 Track Works

Including:

- TCDD-ÜST-6406 – Ballastless railway track (60E1 or 60E2 rail, single line);
- TCDD-ÜST-6403 - Ballastless railway track (49E1, single line);Alignment, fastening systems and adjustments.
- Fiber reinforced Hybrid Ballastless sections: In locations where deemed necessary and as instructed by the Engineer, some slab track sections shall be implemented as fiber-reinforced and conventionally reinforced (hybrid).
- Mass-Spring System: In railway tunnels, where Engineer specifies, a Mass-Spring System (MSS) will be implemented at locations deemed necessary to reduce vibration and structure-borne noise generated by passing trains.

7.2.4.5.8 Removal of Existing Railway

- Including:
- TCDD-ÜST-6001 – Dismantling and stacking of existing railway line;
- Transportation to storage areas;
- Protection of reusable materials.

7.2.4.5.9 Temporary Works and Protection Measures

Including but not limited to:

- Temporary and permanent support systems;
- Shoring and stabilization;
- Protective shields, safety screens, protection cabins and platforms;
- Measures against falling debris and lining spalling;
- Repair and reinstatement of tunnel lining;
- Protection of tunnel portals;
- Ventilation, lighting and safety systems.

7.2.4.5.10 Access, Logistics and Operational Constraints

Including:

- All access arrangements;

- Working in confined spaces;
- Shift work, night work and acceleration measures if required;
- Compliance with operational restrictions.

7.2.4.6 Measurement and Payment

The above-referenced TCDD unit price items are provided solely for technical methodology definition purposes.

Notwithstanding the units indicated (m^3, ton, m^2, m, lineal-m), all such works shall be deemed included in the Lump Sum Contract Price for the Tunnel Works.

No separate measurement, re-measurement, unit rate application, additional payment, or entitlement to extension of time shall arise from execution of these works.

The Contractor shall be deemed to have:

- Examined the tunnel conditions;
- Considered sequencing and phasing requirements;
- Included all risks related to excavation, groundwater, protection and access;
- Allowed for all temporary and permanent works necessary for completion.

Except as expressly provided under the Conditions of Contract, no claim for additional payment or extension of time shall be entertained in relation to the Tunnel Works described herein.

All costs related to the works described above, including but not limited to:

- Excavation,
- Temporary and permanent support systems,
- Dewatering,
- Waterproofing,
- Drainage,
- Protective measures,
- Repairs and reinstatement,
- Access provisions,
- Safety measures,
- Method statements and engineering design,

shall be deemed to be included in the Contractor's Lump Sum Contract Price.

No separate payment shall be made for these works.

No additional payment, claim, or extension of time shall be granted on the grounds of difficulties associated with excavation, support systems, groundwater control, tunnel protection, repair works, or any other matter related to achieving the required tunnel invert lowering.

Measurement shall be on a Lump Sum basis.

Enlargement of Tunnel Clearance for Electrification Integration described above shall be measured as:

- 1 No. Enlargement of Tunnel Clearance for Electrification Integration – Lump Sum for Lot 3 (46 tunnels, 11,899 m)

The listed TCDD items are provided solely to define the scope of work and shall not be measured separately.

7.2.5 Structural Modification of Bridges, Culverts, Overpasses & Underpasses

This Section covers the extension, rehabilitation, reconstruction, strengthening and/or replacement of existing bridges and culverts along the Project alignment.

The Works shall include all civil, geotechnical, structural, drainage, protection and ancillary works necessary to ensure full structural, hydraulic and operational performance in accordance with the Contract Documents and applicable TCDD standards.

Where required to accommodate revised track geometry, tunnel clearance adjustments or alignment modifications, bridge and culvert structures shall be modified accordingly.

Where bridge or culvert modifications are required due to:

- Revised longitudinal gradients,
- Introduction of vertical curves,
- Horizontal alignment changes,
- Tunnel clearance adjustments,

the Contractor shall modify substructure and superstructure elements accordingly. All such modifications shall be considered within the scope of this Section.

Construction works include,

- Renewal of 2 bridges at Km 1194+847 and 1199+219
- Extension or renewal of 33 culverts due to station extensions,
- Demolition and re-construction of 2 overpasses at Kars
    - Km 1284+244: L = 10 m; reinforced concrete; built in 1959; h=4.50 m
    - Km 1291+232: L = 16 m (2x8); reinforced concrete; built in 1960; h=4.50 m
- Inspection and clearance of stream blockages at bridges and culverts, and inspection and rehabilitation of channels and stream beds.

7.2.5.1 Items Deemed Included in the Lump Sum Contract Price

The Works shall include, but not be limited to:

- Demolition and removal of existing structural elements where required;
- Foundation excavation;
- Soil improvement works;
- Construction of new foundations, substructures and superstructures;
- Drainage systems;
- Waterproofing;
- Bearing installation;
- Structural steel works;
- Slope stabilization and protection;
- Reinstatement and approach work.

7.2.5.1.1 Foundation and Earthworks

- TCDD-ALT-2001.2 – Bridge foundation excavation
- TCDD-ALT-1003 – Quarry stone fill for ground improvement
- TCDD-ALT-1005.1 – Granular material approach embankment
- TCDD-ALT-1005.2 – Cement-treated granular approach embankment
- TCDD-ALT-2012 – Crushed stone fill

The Contractor shall ensure proper excavation stability, shoring (if required), compaction, and bearing capacity verification.

7.2.5.1.2 Concrete and Reinforcement Works

- TCDD-ALT-2002.1 – Plain concrete (C16/20)
- TCDD-ALT-2003.1.3 – Reinforced concrete in bridges (C30/37)
- TCDD-ALT-2005 – Ribbed reinforcing steel supply and installation

All concrete works shall comply with structural design requirements, curing standards, testing and quality control procedures.

7.2.5.1.3 Drainage Works

- TCDD-ALT-2011 – Variable diameter PVC drainage pipe supply and installation
- TCDD-ALT-2013 – Precast drainage and inspection manhole (C30/37)

Proper surface and subsurface drainage shall be ensured to prevent structural deterioration.

7.2.5.1.4 Cast-in-Place Bored Piles

- TCDD-ALT-2014.3.3 – Cast-in-place bored piles

Piles shall be constructed in accordance with approved method statements in all soil classes, in dry or underwater conditions.

For measurement purposes:

- In piles constructed with casing, the internal casing diameter shall govern.
- In piles without casing, the project-specified diameter shall govern.

If the measured pile diameter is smaller than the design diameter within tolerances accepted by the Administration, the applicable unit price shall be multiplied by the following factors:

- 80 cm diameter: 1.15 × measured diameter (m)
- 100 cm diameter: 0.90 × measured diameter (m)
- 120 cm diameter: 0.80 × measured diameter (m)
- 165 cm diameter: 0.55 × measured diameter (m)

If the constructed diameter exceeds the required diameter, no adjustment to the unit price shall be made. The unit price corresponding to the specified diameter shall apply.

7.2.5.1.5 Soil Improvement

- TCDD-ALT-2018.3 – Jet grout columns
- TCDD-ALT-2019.1 – DSM (Deep Soil Mixing) columns
- TCDD-ALT-2021.1 – Geotextile supply and installation

Ground improvement design, execution and verification testing shall be the responsibility of the Contractor.

7.2.5.1.6 Waterproofing

- TCDD-ALT-2041 – Polymer bituminous membrane waterproofing
- TCDD-ALT-2043 – Neoprene bearing supply and installation

Waterproofing shall ensure long-term durability of structural elements.

7.2.5.1.7 Bearings

- TCDD-ALT-2043 – Neoprene bearing supply and installation

7.2.5.1.8 Structural Steel Works

- 151.651.003 – Structural steel fabrication and installation

All structural steel shall be fabricated, protected and installed in accordance with approved shop drawings and applicable standards.

7.2.5.1.9 Ancillary and Protection Works

- TCDD-ALT-2044 – Bridge pedestrian guardrails
- TCDD-ALT-2031.1 – Rockfall protection using steel mesh for slope protection
- TCDD-ALT-2032.1 – Soil nails (Ø 28 mm)
- TCDD-ALT-2004.2 – Shotcrete application
- TCDD-ALT-2020.1 – Geocell confinement system

Slope stabilization and rockfall protection shall be implemented where required to ensure long-term operational safety upon Engineer's approval.

7.2.5.2 Measurement and Payment

The above-referenced TCDD unit price items are provided solely for technical definition purposes.

Notwithstanding the units indicated (m^3, ton, m^2, m, hat-m), all such works shall be deemed included in the Lump Sum Contract Price for the Civil Works.

No separate measurement, re-measurement, unit rate application, additional payment, or entitlement to extension of time shall arise from execution of these works.

The Contractor shall be deemed to have:

- Examined all structural conditions;
- Considered sequencing and phasing requirements;
- Included all risks related to excavation, groundwater, protection and access;
- Allowed for all temporary and permanent works necessary for completion.

Except as expressly provided under the Conditions of Contract, no claim for additional payment or extension of time shall be entertained in relation to the Civil Works described herein.

Measurement shall be on a Lump Sum basis.

Structural Modification of Bridges, Culverts, Overpasses & Underpasses described above shall be measured as:

- 1 No. Structural Modification of Bridges, Culverts, Overpasses & Underpasses – Lump Sum for Lot 3 (595 structures, of which 61 are scheduled for renewal, extension or new construction)

The listed TCDD items are provided solely to define the scope of work and shall not be measured separately.

7.2.6 Construction of Retaining Walls

There are numerous retaining walls along the railway line, constructed in various structural types (e.g., stone slope walls and reinforced concrete walls).

No retaining wall construction for Lot 3.

7.2.7 Renewal of Station Platforms

The Erzurum-Kars line has a total of 18 railway stations, 7 of which are abandoned and not currently in operation. The existing railway stations, excluding the main line, together with the number of tracks and maximum useful lengths, are provided in the table below.

The layout plans of the existing stations between Erzurum-Kars are presented in Annex-03, while the updated station and logistics center plans are provided in Volume 3/ Section 3-Drawings and Annexes/Annex-07, Annex-08, Annex-09, Annex-10, and Annex-11.

Available Station List

	Name	**Km**	**Siding Nos.**	**Maximum Useful Length**	**NOTES**
26	Erzurum	1148+672	10	749	Station (not included)
27	Uzun Ahmet	1167+219	3	679	Station
28	Alvar	1180+762	-		Abandoned Stop/Station
29	Hasankale	1189+298	2	555	Station
30	Köprüköy	1206+485	2	528	Station
31	Karaçuha	1219+943	-		Abandoned Stop/Station
32	Horasan	1233+879	4	696	Station
33	Hızır İlyas	1248+408	-		Abandoned Stop/Station
34	Süngütaşı	1260+280	2	591	Station
35	Topdağı	1273+531	2	575	Station
36	Sayding	1283+000	-	-	This siding does not exist.
37	Soğanlı	1288+850	2	455	Station
38	Aşit	1293+750	-	417	Abandoned Stop/Station
39	Sarıkamış	1305+615	6	650	Station
40	Çatak	1319+875	-	417	Abandoned Stop/Station
41	Selim	1329+945	3	529	Station
42	Benli Ahmet	1340+550	3	547	Station
43	Dikme	1352+150	-	417	Abandoned Stop/Station
44	Kars	1364+775	6	765	Station (included)

No station platform renewal for Lot 3.

7.2.8 Improvement and Upgrading of Level Crossings

Of the 48 existing level crossings on the railway line, most are not equipped with protective devices. The current protection status of the level crossings is as follows:

- 11 with automatic barriers
- none with a mechanical barrier
- 3 with barriers controlled by gatekeepers
- 34 uncontrolled and unprotected crossings

Level crossings equipped with flashing lights and electric barriers are operated automatically by trains, while mechanical barriers are operated manually by gatekeepers employed by the road authority.

Although the current operation can be considered adequate for safe working under the existing traffic load and operating conditions, the high number of unprotected level crossings means that if the line speed or the number of trains is to be increased, the current operating system will not be sufficient.

The list of existing level crossings on the Erzurum-Kars section is provided in Annex-22 of Scope of Works.

All of the Level-crossings should be upgraded and will be Automatic Barrier. All construction works, paving, refuge areas, environmental arrangements and road traffic arrangements, cable/cable conduit supply and installation, under-rail crossings, power supply and distribution works, etc. The crossings concerned within this Lot, and the disposition of each crossing, are set out in the Level Crossing Schedule (Annex-22). The Contractor shall carry out the improvement and upgrading of the crossings that remain in use.

The Works comprise the improvement and upgrading of existing level crossings along the railway line in accordance with the approved drawings, TCDD technical specifications, and applicable standards.

The scope includes all civil works required to rehabilitate and standardize the level crossings, including excavation, subbase construction, pavement works, installation of rubber crossing panels, drainage works, and associated protection measures.

The Works shall be priced and paid on a Lump Sum basis per square meter (m²) of level crossing area.

7.2.8.1 Items Deemed Included in the Lump Sum Contract Price

The Lump Sum rate per m² shall include, without limitation:

- All materials and transportation;
- Labor, plant and equipment;
- Site establishment and temporary works;
- Traffic management and safety arrangements;
- Working under operational railway constraints;
- Quality control testing and laboratory works;
- Surveying and setting out;
- Protection of existing railway infrastructure.

The following are excluded unless expressly stated:

- Rail or sleeper replacement;
- Signaling systems;
- Barrier systems and electro-mechanical equipment;
- Land acquisition works;
- Major track realignment outside the crossing limits.

The following items form part of the scope and shall not be measured separately:

7.2.8.1.1 Construction of Subbase Layer with Selected Material

ALT 1004 Construction of Subbase Layer with Selected Material

- Supply, placement and compaction of selected material;
- Formation and leveling works;
- All transportation and handling included.

7.2.8.1.2 Structural Excavation (Excluding Bridge Foundations)

TCDD-ALT-2001.1 Structural Excavation (Excluding Bridge Foundations)

- Excavation within the level crossing area;
- Loading, hauling, disposal or reuse of excavated material;
- Shaping and trimming of formation;
- All temporary safety measures and traffic precautions.

7.2.8.1.3 Supply and Installation of Rubber Panels

SPECIAL-HG.3 Supply and Installation of Rubber (Elastomeric) Panels (Including Transport)

- Supply of railway rubber crossing panels;
- Installation between rails and outside rail zones;
- Fastening systems, connection elements and support profiles;
- Adjustment to rail level and surface alignment;
- Works carried out under operational railway conditions.

7.2.8.1.4 Construction of Plant-Mix Road Base

TCDD-ALT-4002 Construction of Plant-Mix Road Base

- Supply and placement of plant-mix base material;
- Compaction and quality control.

7.2.8.1.5 Construction of Bituminous Hot Base Layer

TCDD-ALT-4003 Construction of Bituminous Hot Base Layer

- Production, transportation and laying;
- Compaction and surface finishing.

7.2.8.1.6 Construction of Binder Course

TCDD-ALT-4004 Construction of Binder Course

- Placement of asphalt binder layer;
- Compaction to required density.

7.2.8.1.7 Construction of Wearing Course

TCDD-ALT-4005 Construction of Wearing Course

- Placement of asphalt wearing layer;
- Final leveling and surface finishing.

7.2.8.1.8 Rock Cleaning Works

SPECIAL-HG.5 Rock Cleaning Works

- Removal of loose rock and unstable material along crossing approaches;
- Manual or mechanical cleaning;
- Implementation of safety precautions;
- Disposal of removed material.

7.2.8.2 Measurement and Payment

Measurement shall be based on the actual plan area (m²) of the improved level crossing as shown on the approved drawings.

No separate measurement shall be made for the individual sub-items listed above.

Payment shall be made at the Contractor's tendered Lump Sum unit rate per m² for Level Crossing Improvement Works.

The above-referenced TCDD unit price items are provided solely for technical definition purposes.

Notwithstanding the units indicated (m³, ton, m², m, line-m), all such works shall be deemed included in the Lump Sum Contract Price for the Level Crossing Works.

No separate measurement, re-measurement, unit rate application, additional payment, or entitlement to extension of time shall arise from execution of these works.

The Contractor shall be deemed to have:

- Examined the Level Crossing conditions;
- Considered sequencing and phasing requirements;
- Included all risks related to excavation, groundwater, protection and access;
- Allowed for all temporary and permanent works necessary for completion.

Except as expressly provided under the Conditions of Contract, no claim for additional payment or extension of time shall be entertained in relation to the Level Crossings described herein.

Measurement shall be on a Lump Sum basis.

Improvement and Upgrading of Level Crossings described above shall be measured as:

- 48 No. Improvement and Upgrading of Level Crossings

The listed TCDD items are provided solely to define the scope of work and shall not be measured separately.

7.2.9 Construction of Technical Buildings

Scope of works includes design, construction, installation and commissioning of;

- Type-1 Technical Building – 7 No. Main signaling interlocking building – ≈100 m²
- Type-2 Technical Building – 10 No. Secondary signaling building – ≈80 m²
- Auxiliary technical buildings – 78 No., as described in the Key Quantities.
- CTC Building – Central Traffic Control building – Multi-storey

required for railway signaling, telecommunication, power supply and operational control systems.

The Contractor shall design and construct the buildings in accordance with Reference Drawings:

- ANNEX – Technical Buildings Reference Plan – Type-1
- ANNEX – Technical Buildings Reference Plan – Type-2
- ANNEX – CTC Building Drawings
- This Technical Specification
- Applicable Turkish Standards and building regulations.

Where discrepancies occur, the Employer's Requirements and approved drawings shall prevail.

The Contractor shall carry out all works necessary for the complete delivery of the technical buildings including:

- Architectural design

- Structural design
- Mechanical systems
- Electrical systems
- HVAC installations
- Cable infrastructure
- Equipment rooms preparation
- External works and landscaping
- Testing and commissioning

The works shall be completed on a turn-key basis including all materials, labor, equipment, transport, installation and documentation

Type-1 Technical Building :

Type-1 buildings are main interlocking and signaling equipment buildings installed along the railway alignment.

According to the reference drawings, the Type-1 building shall include the following main areas:

- Signaling equipment room
- Telecommunication equipment room
- Battery room
- Power distribution room
- System maintenance room
- Cable entrance room
- HVAC equipment space

Approximate internal usage area is 100 m²

Room sizes and arrangement shall follow the Type-1 DWG reference layout.

- Building Dimensions

  Approximate dimensions according to reference drawings:

  - Building footprint: ~10 m × 10 m
  - Total usable area: ≥100 m²
  - Clear internal height: ≥3.50 m
  - Raised floor height: 40–60 cm
- Room Layout

- Signaling Equipment Room – 40 m² – Interlocking equipment
- Telecommunication Room – 15 m² – Telecom racks
- Battery Room – 12 m² – Battery banks
- Power Distribution Room – 10 m² – Electrical panels
- Maintenance Room – 10 m² – Workshop
- Cable Entrance Room – 8 m² – Cable ducts and trays

All rooms shall allow minimum 40% future expansion capacity.

- Equipment Rack Zones

  The signaling equipment room shall include standard rack zones.

  Typical rack configuration:

  - Rack width: 600 mm
  - Rack depth: 800 mm
  - Rack height: 2,200 mm
  - Rack spacing: ≥1,200 mm aisle
  - Maximum racks per building: 16 racks (expandable)

  The rack layout shall follow the equipment rack arrangement shown in the DWG layout.

- Equipment Loads

  Typical loads for equipment design:

  - Signaling racks: 1.5–2.0 kW per rack
  - Telecom racks: 1.2 kW per rack
  - Battery system: 5–10 kW
  - Auxiliary systems: 3 kW
  - Estimated total equipment load: 25–40 kW

  HVAC capacity shall be designed accordingly.

The building shall include:

- Underground cable ducts
- Cable entry pit/manhole
- HDPE pipe connections from external cable routes

All cables shall enter through a dedicated cable entrance chamber connected to internal cable trays beneath the raised floor.

Type-2 Technical Building :

Type-2 buildings are secondary signaling equipment shelters used for block signaling or communication equipment.

According to the reference drawings, the building shall include:

- Equipment room
- Battery room
- Electrical panel area
- Cable entry point
- HVAC equipment area

Approximate internal usage area is 80 m²

The layout shall follow the Type-2 reference DWG plan.

- Building Dimensions

  Approximate dimensions:

  - Building footprint: ~10 m × 8 m
  - Total usable area: ≥80 m²
  - Clear internal height: ≥3.30 m
  - Raised floor height: 40–50 cm

- Room Layout

  - Equipment Room – 35 m²
  - Battery Room – 10 m²
  - Electrical Panel Room – 8 m²
  - Cable Entrance Area – 7 m²
  - Maintenance Area – 8 m²

- Equipment Capacity

  Maximum racks: 10 racks

  Estimated equipment load: 15–25 kW

CTC Building :

The Central Traffic Control (CTC) Building is the main operational control building for the railway.

Location : Kars

The CTC building shall house the following functional areas as indicated in the drawings:

- Basement Floor
    - Generator room
    - Fuel storage room
    - Furnace room
    - Electrical room
    - Cable distribution area
    - Storage rooms
    - Technical workshops
- Ground Floor
    - Electrification telecommand room
    - System room
    - Telephone exchange room
    - Communication workshop
    - Administrative rooms
    - WC and service areas
- First Floor
    - CTC Command and Monitoring Room
    - Operator desks and control panels
    - Meeting rooms
    - Technical support rooms

The CTC command room layout shall allow operator desks, control panels and monitoring systems to be installed in accordance with signaling system supplier requirements.

The Central Traffic Control Building shall serve as the main operational control center of the railway.

Location: Kars

- Building Structure
    - Basement – Generator room, cable room, fuel storage
    - Ground Floor – Telecommunication rooms, workshops
    - 1st Floor – CTC Control Room
    - Additional Areas – Office, maintenance and technical rooms
- Control Room Layout

    The control room shall accommodate:

- Operator consoles
- Video walls
- Monitoring panels
- Control servers

Typical control room area: ≈120–150 m²

Noise level: ≤ 60 dB(A)

Lighting: 300–500 lux adjustable

- Cable Duct System

Cable ducts shall be installed according to DWG cable routing plans.

Cable Entry System
- External cable trench
- HDPE cable ducts
- Concrete cable manhole
- Cable entry chamber

Typical configuration:

- HDPE pipe: Ø110–160 mm
- Cable trench width: 60–80 cm
- Cable manhole size: 1.5 × 1.5 m

Cable ducts shall connect to raised floor cable trays inside the building.

- Raised Floor System

All equipment rooms shall include a raised floor system.

Typical specifications:

- Height: 40–60 cm
- Panel load capacity: ≥1,500 kg/m²
- Material: Antistatic panels
- Cable routing: Sheet metal cable trays

- HVAC Requirements

HVAC shall maintain equipment room conditions:

- Temperature: 20–24 °C

- Relative humidity: 40–60%
- Redundancy: N+1 system

Air conditioning units shall be industrial split or precision cooling systems.

- Electrical Load Capacity

  Each building shall provide:

  - Type-1: ≥60 kVA
  - Type-2: ≥40 kVA
  - CTC: ≥250 kVA

  Buildings shall include:

  - Main electrical panel
  - UPS connection
  - Backup generator
  - Lightning protection
- Grounding System

  Ground resistance: ≤ 5 Ohm

  Grounding system components:

  - Copper grounding rods
  - Copper ring conductor
  - Foundation grounding
  - Equipment grounding bars

  Minimum conductor: 70 mm² copper

7.2.9.1 Technical Requirements and Execution Method

The buildings shall be constructed as reinforced concrete framed structures with masonry infill walls.

7.2.9.1.1 Floor Finishes

According to building usage:

- Battery Rooms – Ceramic tiles
- Equipment Rooms – Raised floor system
- Service Rooms – Mosaic
- Offices – Artificial marble

Raised floor systems allow cable routing and ventilation.

7.2.9.1.2 Wall Finishes

- Wet areas: ceramic tiles up to ceiling
- Technical rooms: plaster + paint
- Battery rooms: full ceramic covering

7.2.9.1.3 Windows

Windows shall be:

- PVC framed
- Double glazed
- Protected with steel bars

7.2.9.1.4 Doors

Interior doors:

- 100 × 220 cm single leaf
- Wooden panel doors

Exterior doors:

- Steel security doors
- Opening angle ≥ 90°

Doors shall allow transport of technical equipment racks.

7.2.9.1.5 Roof System

The roof structure shall consist of:

- Reinforced concrete slab
- Thermal insulation layer
- Wooden roof structure
- Tile roof covering

Minimum roof eave: 50 cm

Rainwater drainage shall be provided through gutters and downpipes.

7.2.9.1.6 Structural System

Structures shall be designed in accordance with:

- Turkish Earthquake Regulations
- TS 500 Reinforced Concrete Design Code
- TS 498 Structural Load Code

Minimum concrete class: C30/37

Reinforcement steel: S420

Foundation design shall be based on geotechnical investigation results performed by the Contractor.

7.2.9.1.7 Mechanical Systems

Buildings shall include the following mechanical systems:

- Heating

  Central heating system with:

  - Hot water 90/70 °C
  - Cast iron radiators
  - Furnace located in basement or external building
- Fuel type:
  - Natural gas (if available)
  - Fuel-oil system
- Plumbing

  Plumbing systems shall include:

  - Fresh water network
  - Wastewater system
  - Drainage pipes
  - Solar hot water system
- HVAC Systems

  Technical rooms shall be equipped with industrial type split air-conditioning systems.

  Requirements:

  - Redundant cooling units
  - Automatic temperature control
  - Cooling capacity according to equipment load
  - Noise level: Internal unit ≤ 46 dB, External unit ≤ 52 dB

Battery rooms shall have forced ventilation systems with Ex-proof fans.

7.2.9.1.8 Electrical Systems

Buildings shall include the following electrical systems:

- Electrical installations:
    - Main distribution board
    - Emergency generator
    - Low voltage system
    - Weak current systems
    - Fire alarm system
    - Communication network
    - Lightning protection system
- Lighting levels:
    - Equipment Rooms – 500 lux
    - Control Rooms – 300–500 lux adjustable
    - Corridors – 200 lux
- Grounding System

  The buildings shall include a complete earthing system.

  Requirements:

    - Ground resistance < 5 ohm
    - Copper grounding conductor ≥ 70 mm²
    - Copper grounding rods
    - Foundation grounding

  Grounding shall be connected to catenary grounding system where required.

7.2.9.1.9 External Works

External works shall include:

- Equipment unloading ramps
- Access roads
- Drainage systems
- Gravel surfaces
- Perimeter fencing

- Exterior lighting

Buildings shall be located and graded to avoid flooding and surface water accumulation.

7.2.9.1.10 Equipment Installation Works

Technical rooms shall include:

- Raised floor systems
- Cable trays
- Equipment mounting bases
- LED lighting
- Fire protection systems
- Access space for maintenance

Rooms shall be designed to allow future system expansion up to 40% additional equipment capacity.

7.2.9.2 Contractor's Responsibilities

The Contractor shall be responsible for:

- Ground investigations
- Preparation of all design drawings
- Obtaining all permits and approvals
- Construction of buildings
- Installation of all systems
- Testing and commissioning
- Submission of as-built drawings

All works shall be completed on a turn-key basis.

7.2.9.3 Items Deemed Included in the Lump Sum Contract Price

All costs related to the works described above, including but not limited to:

- Labor
- Materials
- Equipment
- Transportation
- Temporary works
- Contractor overhead and profit

- Taxes, duties and fees
- All other works necessary for the complete execution of the building.

The Lump-Sum price shall include, but not be limited to, the following works:

7.2.9.3.1 Design Works

- Architectural design
- Structural design
- Mechanical design
- Electrical design
- Preparation of shop drawings
- Approval procedures

7.2.9.3.2 Civil Works

- Site clearing and preparation
- Excavation and backfilling
- Foundations and reinforced concrete works
- Structural works
- Masonry and finishing works
- Roof construction
- Waterproofing and insulation
- External landscaping and drainage

7.2.9.3.3 Mechanical Works

- Heating systems
- Plumbing systems
- Drainage systems
- Ventilation systems
- Solar water heating systems where required

7.2.9.3.4 Electrical Works

- Main electrical panels
- Low voltage systems
- Weak current systems
- Lighting systems
- Fire alarm systems
- Backup generator systems

- Cable routing infrastructure

7.2.9.3.5 HVAC Systems

- Split or industrial air conditioning systems
- Ventilation systems for battery rooms
- Equipment room cooling systems

7.2.9.3.6 Grounding and Lightning Protection

- Foundation grounding
- Copper grounding systems
- Lightning protection installations

7.2.9.3.7 External Works

- Access ramps
- External lighting
- Fencing
- Gravel surfaces
- Drainage systems

7.2.9.3.8 Other Works

- Cable entry ducts
- Raised floor systems
- Equipment mounting bases
- Identification plates
- Testing and commissioning
- As-built drawings
- Operation and maintenance manuals

7.2.9.4 Measurement and Payment

The construction of Type-1 Technical Buildings, Type-2 Technical Buildings, Auxiallary Technical Buildings and the CTC Building shall be paid on a lump sum basis per building, against the corresponding item of the Schedule of Payments.

The Lump-Sum price shall include the complete design, construction, installation, testing and commissioning of the buildings, fully operational and ready for installation of signaling, telecommunication, electrification and control systems.

No additional payment shall be made for:

- Design and engineering works,

- Ground investigations,
- Obtaining permits and approvals,
- Site preparation and temporary works,
- Adaptation to soil conditions,
- Relocation of utility lines if required within the building area,
- All works required to deliver the building ready for installation of technical equipment.

All such costs shall be deemed to be included in the Lump-Sum Contract Price per Building.

No additional measurement shall be made for individual components, works or materials required for the completion of the buildings unless otherwise stated in the Contract.

Measurement for payment purposes shall be based on the number of completed buildings, constructed in accordance with the approved drawings, technical specifications and Employer's Requirements.

The following items shall be measured:

- Type-1 Technical Building – 7 No. - L.S / Building
- Type-2 Technical Building – 10 No. - L.S / Building
- Auxiliary Technical Building – 78 No. – L.S / Building
- CTC Building – 1 No. - L.S / Building

A building shall be considered complete when:

- All civil works are finished,
- Mechanical and electrical installations are completed,
- HVAC systems are installed and operational,
- Grounding and lightning protection systems are installed,
- External works and landscaping are completed,
- The building is ready for equipment installation and operation,
- All inspections and approvals by the Engineer are completed.

Partial measurements shall not apply unless otherwise approved by the Engineer.

Final payment for each building shall be made only after:

- Completion of all works,
- Successful inspections by the Employer,
- Submission of as-built drawings,
- Delivery of operation and maintenance documentation.

Payment shall be made at the lump sum price per building stated in the Schedule of Payments.

Measurement shall be on a Lump Sum basis.

Payment shall be made against the single Lump Sum item for:

- 7 No. Type-1 Technical Building – L.S / Building
- 10 No. Type-2 Technical Building – L.S / Building
- 1 No. CTC Building – L.S / Building
- 78 No. Auxiliary Technical Buildings – L.S / Building

No remeasurement shall apply.

All TCDD unit price references are provided solely to define the scope and technical content of the Works.

7.2.10 Establishment of Electrification and Power Supply System

To modernize the Erzurum-Kars- Georgia border railway section, which is currently operated using diesel traction, and to improve its speed, cost-efficiency, and passenger comfort, the line shall be converted to electric traction.

The Works include the complete design, supply, construction, installation, testing, commissioning and energization of the 25 kV AC, 50 Hz traction power and overhead contact system along the Erzurum–Kars-Georgia border corridor. The scope includes the overhead contact system, traction power substations, sectioning and paralleling facilities, return-current system, earthing and bonding, auxiliary power supplies, UPS systems, protection, metering, control and SCADA systems, together with all associated electrical, civil and structural works.

The Works also include all 154 kV power transmission lines, branch lines, connection bays and associated facilities required to connect and energize each traction power substation from the TEİAŞ national transmission grid. The Contractor shall be fully responsible for all surveys, route studies, system studies, connection applications, detailed designs, approvals, supply, construction, testing, commissioning and energization required for the 154 kV connections.

The Contractor shall coordinate directly with TEİAŞ, the Employer, TCDD and the Engineer in relation to connection points, transmission-line routes, protection coordination, revenue metering, telecommunications, SCADA and telecontrol interfaces, earthing, operational procedures, testing, acceptance and energization.

The Employer shall provide institutional assistance and shall execute applications or agreements that, under applicable law, can only be executed by the Employer. Such assistance shall not relieve the Contractor of its responsibility for timely preparation, submission, follow-up and completion of all technical documentation and approval processes.

Statutory expropriation and compensation, where required, shall remain the responsibility of the Employer. The Contractor shall provide all route, design, survey, land-take and programme information required for such processes in a timely manner.

All costs associated with the 154 kV power transmission connections, except statutory expropriation and compensation costs expressly allocated to the Employer, shall be deemed included in the Contract Price. No traction power substation shall be considered complete until its 154 kV connection has been constructed, tested, energized and accepted in accordance with the requirements of TEİAŞ, TCDD, the Employer and the Engineer, as applicable.

7.2.10.1 Technical Requirements and Execution Method

All electrification works shall comply with the standards listed in the table below and with the technical specifications for electrification works.

Standards of Electrification and Power System

Standart No	**Title**
TS EN 50119	Railway applications – Fixed installations – Electric traction overhead contact lines
TS EN 50121	Railway applications – Electromagnetic compatibility – All parts of the standard series: Part 1: General Part 2: Emission of the whole railway system to the outside world Part 3-1: Rolling stock – Train and complete vehicle Part 3-2: Rolling stock – Apparatus Part 4: Emission and immunity of signalling and telecommunications apparatus Part 5: Emission and immunity of fixed power supply installations and apparatus
TS EN 50122-1	Railway applications – Fixed installations – Electrical safety, earthing and the return circuit – Part 1: Protective provisions against electric shock
TS EN 50124-1	Railway applications – Insulation coordination – Part 1: Basic requirements – Clearances and creepage distances for all electrical and electronic equipment
TS EN 50124-2	Railway applications – Insulation coordination – Part 2: Overvoltages and related protection
TS EN 50163	Railway applications – Supply voltages of traction systems
TS EN 50388	Railway applications – Fixed installations and rolling stock – Technical criteria for the coordination between electric traction power supply systems and rolling stock to achieve interoperability

For the Erzurum-Kars- Georgia border section, the Supply Plan, Principle Diagram, Typical Single-Line Diagram, and Single-Line Diagram are provided for information in Volume 3, Section 3—Drawings and Annexes, Annexes 17, 18, 19, and 20. The electrification works shall be designed and executed in accordance with the alignment plan set out in Annex 01.

- For the stations (existing and extended) and additional sidings prepared in accordance with the line plan, catenary works will be carried out in compliance with the Line Plan drawing provided in Volume 3/ Section 3-Drawings and Annexes/ Annex-01.
- A total of 5 traction substations (2 × 25 MVA each) will be installed.

  Traction Substations

Transformer Substation	**Location**	**Km**
TM9	Korucuk	1172+075
TM10	Köprüköy	1212+980
TM11	Süngütaş	1260+150
TM12	Sarıkamış	1310+550
TM13	Yolaçan	1357+700

  - Additional one Traction Substation will be established in Kars- Georgia border section.
  - The works include the installation of 6 neutral sections.
- The design, supply, construction, testing, commissioning and energization of the 154 kV power transmission lines, branch lines, TEİAŞ connection bays and associated grid-connection facilities required to supply energy to the traction power substations are included in the scope, as set out in the sub-clause 154 kV Grid Connection and Power Transmission Lines. Statutory expropriation and compensation costs for the transmission line corridors remain with the Employer.
- In the electrification system, the classical feeding system commonly used on TCDD lines will be adopted. The catenary system will be supplied from transformer substations installed at a mean spacing of 46.0 km and a maximum spacing of 52.3 km. The electrical characteristics of the system will comply with the TS EN 50163 standard.
  - The permissible voltage levels of the system are specified below.

Electrification System	**Lowest Non-Permanent Voltage (Umin2, V)**	**Lowest Permanent Voltage (Umin1, V)**	**Nominal Voltage (Un, V)**	**Highest Permanent Voltage (Umaks1, V)**	**Highest Non-Permanent Voltage (Umaks2, V)**
AC (RMS Values (Root Mean Square	17500	19000	25000	27500	29000

- The catenary lines will be installed with a configuration of one contact wire (120 mm² CuAg0.1 in compliance with EN 50149) and one messenger wire (95 mm² Bz II 95 in compliance with DIN 48201). In tunnel sections with restricted clearance indicated in the project, a double contact wire will be used, and no messenger wire will be applied in these areas.

  The wires to be used in the catenary system are as follows:

Wires for Catenary System

Conductor	Type	Section Area (mm2)	Standart
Contact Wire	CuAg0,1	120,0	EN 50149
Messenger Wire	Bz II	95,0	DIN 48201
Feeder Wire	Hawk	280,0	TS EN 50182
Return Conductor	Ostrich	176,9	TS EN 50182
Dropper Wire	Bz II	16,0	DIN 43138
Supply Wire	E-Cu	95,0	DIN 43138
Mast-to-Rail Bond	Bakır (NYY)	50,0	TS IEC 60502-1
Earthing Conductor	Galvanizli Çelik	70	TS EN 50182 TS EN 50189
Aluminum Rod	Al	50,0	EN AW 1370

- The catenary wires will be tensioned separately on the main line (regularized individually) and jointly on the sidings.
- Catenary masts will be made of steel profiles. Depending on the system calculations, they will be installed either as lattice-type or H-profile structures.
- The maximum section length will be 1,400 m. The number of cantilevers in a half-section will be limited to 20. Where the section length does not exceed 700 m, the section will be tensioned with an automatic tensioning system used on one side only. For open lines, a pulley system with a 1:3 ratio and a concrete counterweight will be applied, while special spring-type tensioning systems without counterweights will be used in tunnels and other required areas.
- A complete static analysis of the cantilever–stay rod assembly will be performed, and no permanent deformation shall occur in the assembly under loads up to 1.5 times the working load. The pipes specified in the table below will be used for the cantilever–stay rod assembly.

Cantilever–Stay Rod Assembly Pipe Types

Pipe Type	Wall Thickness (mm)	Alloy Type
Ø70	6	6082 EN AW
Ø55	6	6082 EN AW
Ø42	4	6082 EN AW

Standard type cantilever assemblies will be used in the system. Special type cantilevers will be applied in structures such as tunnels with restricted clearance.

- Portals will be of lattice structure and will be manufactured in at least two parts depending on their length. A roof will be formed to ensure that the portal remains horizontally stable under load. The portals will be placed on supports mounted on the masts.
- Steel materials and welding consumables will comply with EN 1993-1-1, EN 10025 series, EN 10149 series, and EN 10164 requirements. According to the EN 10025 series, structural steel grades S235J0, S235J2G3/G4, S355J0, and S355J2G3/G4, or equivalent qualities, will be preferred. For bolts, strength classes 4.6, 5.6, 6.8, 8.8, and 10.9 will be used in accordance with EN ISO 898-1 (for nuts, grades 5 and 8 in accordance with EN 20898-2).

- Structural parts made of aluminum or aluminum alloys will comply with the EN 1999 series. For aluminum sheets and profiles, EN 755-1 and EN 755-2 standards will be taken into account, while for aluminum sheets, strips, and plates, EN 485-1 standards will apply.
- Concrete structures will comply with TS 500. The concrete used for foundations will be of at least class C20/25.
- Electrification technical buildings will be reinforced concrete with a minimum area of 10 m². The building will rest on a two-stage concrete foundation cast at least 800 mm above ground level, depending on snow height. A grounding installation will be provided for the building foundation, the building equipment will be connected to this grounding, and this grounding will in turn be integrated with the electrification grounding system.

7.2.10.2 Measurement and Payment

The electrification and power supply works shall be paid on a lump sum basis for the Lot as a whole, against the corresponding item of the Schedule of Payments. The lump sum shall be deemed to include design, supply, installation, testing, commissioning and energization of the overhead contact system, the traction power substations and their 154 kV grid connections, return current and earthing/bonding systems, auxiliary power supply and all associated electrical infrastructure, together with all temporary works, possessions and interface works required. No re-measurement shall apply.

7.3 Testing and Commissioning Requirements

This Clause shall be read with the Key Technical and Operational Performance Requirements of this Part. Testing, commissioning and trial operation shall demonstrate, by measurement and by simulation where measurement is not practicable, that the completed Works achieve the journey time, headway, line capacity, axle load, train length and energy performance values stated in those Requirements, and that the RAMS targets of the applicable RAMS specifications (EN 50126, EN 50128 and EN 50129) are met. The Contractor shall submit the simulation models, input assumptions and results to the Engineer for approval before the commencement of trial operation.

8 APPLICABLE STANDARDS AND REGULATIONS

8.1 General

The Works shall comply with the latest editions at Base Date. The more stringent requirement shall apply. Compliance does not relieve fitness-for-purpose obligations.

8.2 RAMS and Interoperability

- EN 50126 – RAMS
- EN 50128 – Software
- EN 50129 – Safety-Related Systems
- TSIs (INF, CCS)

8.3 UIC Leaflets (Explicit)

- UIC 700, 703 – Track Geometry
- UIC 719, 720, 722 – Track & Formation
- UIC 774-3 – OCS
- UIC 776 – Earthing

8.4 Track and Civil

- EN 13674, EN 13230, EN 13232, EN 13450
- EN 13250–13256
- Eurocodes EN 1990–1999
- EN 13250: Geotextiles and geotextile-related products. Characteristics required for use in the construction of railways
- EN 13251: Geotextiles and geotextile-related products. Characteristics required for use in earthworks, foundations and retaining structures
- EN 13252: Geotextiles and geotextile-related products. Characteristics required for use in drainage systems
- EN 13253: Geotextiles and geotextile-related products. Characteristics required for use in erosion control works (coastal protection, bank revetments)
- EN 13256: Geotextiles and geotextile-related products. Characteristics required for use in the construction of tunnels and underground structures
- Standards from CEN/TC 256/SC 1:
- EN 13674: Rail
- EN 14587: Flash butt welding of rails
- EN 14730: Aluminothermic welding of rails

- EN 14811: Special purpose rail
- EN 15594: Restoration of rails by electric arc welding
- EN 13977: Safety requirements for portable machines and trolleys for construction and maintenance
- EN 14033: Rail bound construction and maintenance machines
- EN 15746: Road-rail machines and associated equipment
- EN 13803: Track alignment design parameters – Track gauges 1435 mm and wider
- EN 13145: Wood sleepers and bearers
- EN 13230: Concrete sleepers and bearers
- EN 13146: Test methods for fastening systems
- EN 13481: Performance requirements for fastening systems
- EN 13232: Switches and crossings
- EN 15689: Crossing components made of cast austenitic manganese steel
- EN 13231: Acceptance of works
- EN 13848: Track geometry quality
- EN 14969: Qualification system for railway track work contractors
- Standard from CEN/TC 154/SC 4:
- EN 13450: Aggregates for railway ballast
- UIC 860 R: 2008, Rail Technical Specifications
- EN 1002-1, Metallic Materials – Tensile Test – Section 1: Test method at ambient temperature
- EN 10163-1, Hot rolled steel plates, surface conditions requirements of wide flat products and profiles – Section 1: General requirements
- EN 10276-1, Chemical analysis of iron materials – Oxygen determination in steel and iron – Section 1: Taking and preparing steel sample for oxygen determination
- EN ISO 6506-1, Metal materials – Brinell hardness test – Section 1: Test method (ISO 6506-1:1999)
- ISO 1099:1975, Metals – Axial load fatigue test
- ISO 4968:1979, Steel – Macrographic examination with sulphur printing(Baumann print)
- BS 6835-1:1988, Method for determining fatigue crack growth rate in metallic materials – fatigue crack growth rates above 10-8 m/cycle
- DIN 50602:1985, Microscopic examination of special steels using standard diagrams to assess the content of non-metallic impurities
- ASTM E399: 1991, Standard test method for fracture toughness of metallic materials

8.5 Signaling & Telecom

- EN 50121, EN 50122-1, EN 50125-3, EN 50159
- IEC 61508, IEC 60812, IEC 61025

- 2004/447/EC: Decision of the Commission dated 29 April 2004 and entitled 2004/447/EC which determines main characteristics of Level A system (ERTMS) of control and signalization sub system of Europe-transit conventional railway system
- 2006/679/EC: Decision of the Commission dated 28 March 2006 and entitled 2006/679/EC about technical specifications regarding control and signalization sub system of Europe-transit conventional railway system
- 2004/49/EC: Directive of Europe Parliament and Europe Council dated 29 April 2004 and entitled 2004/49/EC regarding safety of railways of the Union
- EN 54-1: Fire detection and Fire Alarm System, Introduction
- EN 54-2: Fire detection and Fire Alarm System, Control and Indicating Equipment
- EN 54-3: Fire detection and Fire Alarm System, Devices
- EN 54-4: Fire detection and Fire Alarm System, Power Supply Equipment
- EN 54-5: Fire detection and Fire Alarm System, Heat Detectors
- EN 54-7: Fire detection and Fire Alarm System, Point Smoke Detectors using scattered Light, transmitted Light or Ionization
- EN 54-11: Fire detection and Fire Alarm System, Manual Call Points
- EN 54-12: Fire detection and Fire Alarm System, Smoke Detectors using an optical Light Beam
- BS EN 50121-3-2: Railway applications – Electromagnetic compatibility - Part 3-2: Rolling stock – Apparatus
- EN 50121-4: Railway applications - Electromagnetic compatibility - Part 4: Emission and immunity of the signaling and telecommunications apparatus
- BS EN 50122-1: Railway applications. Fixed installations. Protective provisions relating to electrical safety and earthing, Part 1: Protective provisions against electric shock
- EN 50125-1: Railway applications – Environmental conditions for equipment – Part 1: equipment on board rolling stock
- BS EN 50125-3: Railway applications. Environmental conditions for equipment – Part 3: Equipment for signaling and telecommunications
- EN 50126: Railway applications – The specification and demonstration of reliability, availability, maintainability and safety (RAMS)
- EN 50128: Railway applications – Communication, signaling and processing systems – Software for railway control and protection systems
- EN 50129: Railway applications – Communication, signaling and processing systems – Safety related electronic systems for signaling
- EN 50153: Railway applications. Rolling stock. Protective provisions relating to electrical hazards
- BS EN 50155: Railway applications. Electronic equipment used on rolling stock
- BS EN 50159: Railway applications. Communication, signaling and processing systems. Safety-related communication in transmission systems
- EN 50178: Electronic equipment for use in power installations

- EN 50238: Railway applications – Compatibility between rolling stock and train detection systems
- EN 50261: Railway applications. Mounting of electronic equipment
- EN50310: Application of equipotential bonding and earthing in buildings with information technology equipment
- BS EN 50173-2: Information technology. Generic cabling systems. Office premises
- BS EN 50174: Information technology. Cabling installation
- EN 50272: Safety requirements for secondary batteries and battery installations. Traction batteries
- BS EN 60950-1: Information technology equipment Safety General Requirements
- EN 61000-4-2: Electromagnetic Compatibility (EMC), Testing and Measurement Techniques Electrostatic discharge immunity tests
- EN 61000-4-3: Electromagnetic Compatibility (EMC), Testing and Measurement Techniques, Radiated radio-frequency, electromagnetic field immunity test
- EN 61000-4-4: Electromagnetic Compatibility (EMC), Testing and measurement techniques Electrical fast transient/burst immunity test
- EN 61000-4-5 Electromagnetic Compatibility (EMC), Testing and Measurement Techniques Surge immunity test
- EN 61000-4-6 Electromagnetic Compatibility (EMC), Testing and measurement techniques, Immunity to conducted disturbances, induced by radio-frequency fields
- EN 61000-4-8 Electromagnetic Compatibility (EMC), Testing and Measurement Techniques Power frequency magnetic field immunity test
- BS EN 61508-1: Functional safety of electrical/electronic/ programmable electronic safety-related systems. General requirements
- EN 62040-1-1: Uninterrupted power systems (UPS), General and Safety requirements for UPS used in operator access areas
- EN 62040-1-2: Specification for uninterrupted power systems (UPS), General and Safety requirements for UPS used in restricted access locations
- IEC 60571: Electronic equipment used on rail vehicles
- IEC 60077-1: Railway applications - Electric equipment for rolling stock - Part 1: General service conditions and general rules
- IEC 60794-1-1: Optical fibre cables - Part 1-1: Generic specification – General
- IEC 60812: Analysis techniques for system reliability - Procedure for failure mode and effects analysis (FMEA)
- IEC 61000: Electromagnetic compatibility (EMC)Part 4-3: Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test
- IEC 61025: Fault tree analysis (FTA)
- IEC 61078: Analysis techniques for dependability - Reliability block diagram and Boolean methods
- IEC 61508: Functional safety of electrical/electronic/programmable electronic safety-related systems – Parts 1-7

- ISO 9000: Quality Management Standards
- UIC 780: Ed. 1 Remote Control of Signaling Installations
- UIC 781: Ed. 1 Transmission Systems and Methods of Remote Control For Signaling Installations
- UL-1778: Standards for uninterrupted power systems (UPS), Protecting UPSs Against Damaging Fault Currents
- The latest versions of the standards, specifications, European Union directives and European Union decisions mentioned in the Employer's Requirements as updated at the Base Date shall be taken into account.
- After signature of the Contract, the Contractor shall provide an electronic copy of each concerned Standards mentioned above (Article 11.1 and 11.2) within 60 days. All expenses for such copies will be deemed to be included in Accepted Contract Amount.
- Standard operational life of the system's components shall be 30 years as minimum, unless otherwise specified.

8.6 Power

- EN 50155, IEC 60077, IEC 60571, EN 62040

154 kV Grid Connections and Transmission Lines :

The 154 kV connection works shall comply with the latest applicable TEİAŞ specifications, connection requirements and approval procedures, the applicable Turkish electricity market and transmission-system legislation, and the relevant IEC and EN standards.

Applicable standards shall include, without limitation:

- IEC 60071 – Insulation coordination;
- IEC 60076 – Power transformers;
- IEC 60826 – Design criteria for overhead transmission lines;
- IEC 61850 – Communication networks and systems for power utility automation;
- IEC 62271 series – High-voltage switchgear and controlgear;
- EN 50522 – Earthing of power installations exceeding 1 kV AC;
- applicable TEİAŞ protection, metering, SCADA, telecommunication and energization requirements.

8.7 National

- TCDD regulations
- Turkish Standards (TS)
- Environmental Law No. 2872

8.8 Standards Prevail Over Drawings

Standards and ER prevail over drawings. In case of discrepancies, the requirement more favorable to the Employer shall prevail

8.9 Design Life

Minimum **30-year design life** for all permanent works, demonstrated by standards compliance, RAMS and lifecycle analysis.

9 CONSTRUCTION WORKS PROGRAMME

The project route shall remain operational throughout the construction period due to both freight traffic and passenger services, including the Eastern Express. The Contractor shall plan and programme all works to maintain uninterrupted railway operations, in compliance with the requirements of TCDD as the Infrastructure Manager and in accordance with the applicable railway operating regulations.

Existing daily train operations on the corridor, taken from the working timetable in Annex-12 and the operator graphs in Annex-13 (Timetable Book No. 6), are as follows: Divriği–Erzincan: 12 freight and passenger trains per day; Erzincan–Erzurum: 10 trains per day; Erzurum–Kars: 8 trains per day. Train services include 4 daily transit freight trains, local freight workings, and passenger services including the Eastern Express and Tourist Eastern Express, both of which run through to Kars. There are 117 in-scope existing level crossings (Lot 1: 20; Lot 2: 49; Lot 3: 48) on the Divriği–Kars section; all 117 shall be assessed and upgraded in accordance with the Level Crossing requirements of this Contract. A further 21 level crossings on the annexed list lie beyond Km 1364+775, in the excluded Kars–BTK section, and are out of scope;

For any construction works affecting railway operations, the Contractor shall submit a request to TCDD (the Operator) at least 48 hours in advance. No later than 10 hours before the request is due to take effect, the Contractor shall confirm the required track closure or possession to TCDD. For works beginning on a Monday, or during weekends, notifications shall be submitted no later than 09:00 on the preceding Friday. Requests for track closures and possessions shall be prepared by a technically qualified, sufficiently experienced engineer employed by the Contractor.

9.1 TCDD Collaboration Protocol

The Implementation Protocol on the Rehabilitation, Electrification and Signalling of the Divriği–Kars Border Railway Construction, concluded between TCDD and AYGM (the "Collaboration Protocol"), is reproduced in Annex-32 in its signed Turkish original together with the English translation, and forms part of the Site Information, classified as Employer's Reliance Data. In the event of a discrepancy between the two language versions, the Turkish original prevails. The Protocol describes the line as the Divriği–Kars border railway; for the purposes of this Contract the corridor is Km 777+708 to Km 1364+775, a length of 587.067 km, as stated in the Definition of Project Lengths. Under Protocol Article 2.5, TCDD has made available the existing information on the technical condition and geometry of the line, the superstructure and substructure designs, the engineering structures, the tunnel cross-sections and the existing signalling and energy infrastructure; that information is disclosed in the Annexes to these Employer's Requirements and classified in the Site Information table. Where it is inconsistent with the Employer's Requirements, the Employer's Requirements prevail. It creates no contractual relationship between TCDD and the Contractor and does not relieve the Employer of its obligations under the Contract. Its key terms are disclosed below and may be relied upon for programming and pricing.

Key term	Disclosed position
Possession authority	TCDD approves full or partial line closures, possession periods, operational scenarios and reopening to traffic. Those decisions, and the operating rules and principles applying at any location, rest exclusively with TCDD (Protocol Articles 2.3 and 2.4).

Key term	Disclosed position
Traffic planning	TCDD determines the operational scenarios and notifies the resulting traffic plan to AYGM in writing; the Works may commence only after TCDD has approved that plan (Protocol Article 2.6).
Planning horizon	Annual Possession Plan by [1 October] for the following year; [8]-week confirmed rolling plan; 48-hour request; 10-hour confirmation.
Railway resources	Locomotives, work trains, train paths, drivers and traffic staff per the Restricted-Access Schedule (Annex-33), provided [free of charge to the Contractor]. That basis does not extend to TCDD training and escort services: the cost of General Order No. 551 and other TCDD training, and the cost of TCDD escort personnel attending the opening of the line, are recovered from AYGM or its Contractor and shall be borne by the Contractor (Protocol Articles 2.1, 2.2 and 3.5).
Safety authority	TCDD rulebooks, safety instructions and personnel certification apply to all work on or adjacent to the operational line. TCDD reviews the safety plans and notifies any deficiency to AYGM or the Contractor (Protocol Articles 2.7, 3.14 and 3.17).
Amendment	Any amendment materially reducing possession availability shall be notified by the Employer within [14] days and dealt with under Clause 4.9.5. The Protocol is valid for five years from its date of signature and, where required within the construction period, may be extended at the request of either institution (Protocol Article 6).

The Contractor shall prepare a detailed Construction Works Programme in accordance with the work schedule requirements of the Contract, setting out how all works will be sequenced and executed without disruption to train services. The programme shall identify critical track possession windows, construction staging for each Lot, phased commissioning activities, and all interfaces with TCDD operational requirements. The programme shall be submitted to the Engineer for approval prior to commencement of any works affecting the operational railway.

9.2 Possession Types and Availability Baseline

Possessions are of four types: Type A, night interval possession between the last and first booked train; Type B, extended weekend possession of 8 to 24 hours; Type C, blockade of 72 hours or more with passenger services road-substituted and freight embargoed or diverted; Type D, emergency possession granted at short notice, including following a DAS alarm. Possessions are taken between station limits; crossing movements at intermediate stations are maintained except under a Type C possession.

The Possession Availability Baseline below is Employer's Reliance Data. Proposers shall programme and price on this basis; the month-by-month baseline is given in Annex-34.

Lot	Type	Nominal window	Effective time	Frequency (open season)	Typical work content
Lot 1 Divriği–Erzincan (777+708–933+784) 12 trains/day	A	20:40–04:40 8.0 h	7.0 h	7 nights/week	Tamping, welding, fastening renewal, level crossings, OCS foundations
	B	[08:00–20:00] 12 h	[10.0] h	[2]/month	Turnouts, culvert and bridge works, OCS wiring
	C	[72 h – 10 days]	[90]%	[2]/year, 1 Apr–15 Nov only	Tunnel invert lowering with track removal, structure reconstruction
Lot 2 Erzincan–Erzurum (933+784–1148+672) 10 trains/day	A	21:30–03:30 6 h	5.0 h	7 nights/week	Track renewal, tamping, stressing, OCS erection
	B	[08:00–20:00] 12 h	[10.0] h	[3]/month	Turnouts, station track extension, structures
	C	[72 h – 14 days]	[90]%	[2]/year, 1 Apr–31 Oct only	Tunnel clearance enlargement, slab track, snow sheds
Lot 3 Erzurum–Kars (1148+672–1364+775) 8 trains/day	A	09:30–17:30 8 h	7.0 h	7 days/week	Track renewal, earthworks, OCS, level crossings
	B	[24 h weekend]	[21.0] h	[2]/month	Turnouts, snow sheds, overpass reconstruction
	C	[72 h – 14 days]	[90]%	[2]/year, 1 May–31 Oct only	Tunnel invert lowering, slab track, Sarıkamış gradient zone

Effective time is net of the time to take and hand back the possession. The Contractor shall allow a minimum of [30] minutes for protection and issue of the line-blocked authority and [30] minutes for handback, track inspection, removal of on-track plant and imposition of any temporary speed restriction. In the rail-only access sections Km 777+708–805+000 (Divriği–Çaltı) and Km 840+000–850+000 (İliç canyon), a further [60] minutes per possession shall be allowed for the work train movement, for which TCDD shall provide the paths in accordance with Annex-33. The possession windows stated above are derived from TCDD Timetable Book No. 6. The interval during which no train occupies a worksite is 11 hours 19 minutes at İliç (19:02 to 06:21), 10 hours 1 minute at Aşkale (19:15 to 05:16) and 8 hours 59 minutes at Sarıkamış (08:57 to 17:56). The interval during which the whole Lot is clear of trains, which governs a Type C

blockade, is 9 hours 1 minute in Lot 1 (20:09 to 05:10), 7 hours 6 minutes in Lot 2 (20:56 to 04:02) and 3 hours 37 minutes in Lot 3 (11:38 to 15:15). Proposers shall note that in Lot 3 the night hours are occupied by the transit freight services and by the Tourist Eastern Express, so that possessions in that Lot are available during the day and not at night, and that a Type C blockade in Lot 3 cannot be accommodated within the existing timetable without the re-timing or cancellation of trains by TCDD.

9.3 Possession Planning and Confirmation Cycle

Stage	Timing	Action
Annual Plan	By [1 October]	TCDD issues the annual traffic plan and the possession windows available to the Project, by Lot and by month.
Quarterly Plan	T–[13] weeks	Contractor submits its possession requirement, aligned with the approved Construction Works Programme.
Confirmed Rolling Plan	T–[8] weeks	TCDD confirms the possessions to be granted. A possession confirmed at this stage is a Confirmed Possession and is binding for the purposes of Clause 4.9.5.
Detailed request	T–48 hours	Contractor submits the possession request, prepared by a technically qualified and sufficiently experienced engineer.
Final confirmation	T–10 hours	Contractor confirms the required track closure or possession. For works starting on a Monday or during a weekend, by 09:00 on the preceding Friday.
Handback	T + duration	Contractor hands back the line and certifies it fit for traffic at line speed, or notifies the required temporary speed restriction.

The Contractor shall record, and report monthly to the Engineer, the possessions requested, confirmed, granted, curtailed and cancelled, together with the effective working time achieved. This record shall be the basis for the assessment of any entitlement under Clause 4.9.5. A Possession Management Procedure shall be submitted within [28] days of the Commencement Date as part of the Railway Safety Plan.

9.4 Seasonal Restrictions and Blackout Periods

The corridor rises from approximately 850 m at İliç to approximately 2,260 m near Sarıkamış and descends to 1,756 m at Kars. Seasonal restrictions are therefore defined by climatic zone.

Zone	Altitude	Winter restriction	Open season
Zone 1 – Lot 1 Divriği–Erzincan	850–1,186 m	[15 December – 15 March]	[1 April – 30 November]; works within the riverbed influence zone additionally restricted during the snowmelt flood period [1 April – 15 June]
Zone 2 – Lot 2 Erzincan–Erzurum	1,186–1,750 m	[1 December – 31 March]	[1 April – 30 November]
Zone 3 – Lot 3 Erzurum–Kars	1,750–2,260 m	[15 November – 15 April]	[1 May – 31 October]; works in avalanche corridors only [1 June – 30 September]

The Contractor shall be deemed to have allowed in the Accepted Contract Amount and in the Programme for these restriction periods and for the climatic baseline in Annex-35: mean January temperature approximately −10 °C at Erzurum and −9 °C at Kars, mean January daily minima approximately −16 °C and −15 °C, recorded minima approximately −37 °C, temperatures regularly below −20 °C in the Sarıkamış and Kars areas, and approximately four months of continuous snow cover in Zone 3.

No possession shall be requested or granted during the following blackout periods without the prior written agreement of TCDD:

Blackout	Period / trigger and application
Winter blockade blackout	Zone 1 [15 Dec – 15 Mar]; Zone 2 [1 Dec – 31 Mar]; Zone 3 [15 Nov – 15 Apr]. Applies to Type B and Type C; Type A remains available.
Avalanche season blackout	Zone 3, [1 January – 30 April], in the avalanche corridors and at the snow-tunnel and snow-shed locations. All types except Type D.
TCDD winter preparedness	[15 October – 15 November]. TCDD snow-clearance plant and winter maintenance have priority. Applies to Type B and Type C.
Peak traffic blackout	Touristic Eastern Express operating season; semester break; Ramazan and Kurban Bayramı and the [3] days before and after; 1 January; 29 October. Applies to Type B and Type C.
Weather-triggered suspension	MGM orange or red warning; snowfall exceeding [20] cm in 24 hours; sustained wind exceeding [17] m/s; visibility below [200] m; avalanche bulletin level [3] or above; ambient temperature below [−20] °C. All types, with immediate handback where a possession is in force.

The following thresholds govern execution and shall be reflected in the Construction Works Programme. Time lost to conditions within the disclosed climatic baseline shall not give rise to an extension of time.

Activity	Threshold and programme consequence
Concreting (in situ)	Cold-weather measures below +5 °C and falling; placement suspended below [−5] °C unless enclosed and heated (TS EN 206, TS 1247). Unenclosed concreting season in Zone 3 approximately [1 May – 31 October].
Earthworks and formation	No placement of frozen material or on frozen formation; compaction not accepted below [+2] °C in freezing conditions. Earthworks confined to the open season of each zone.
Ballast and tamping	Not permitted in frozen ballast or on frozen formation. Winter tamping unavailable in Zones 2 and 3.
Rail welding (aluminothermic)	Preheat and qualification requirements; not permitted below the rail temperature stated by the process supplier, generally [−5] °C, or in precipitation without shelter.
CWR stressing / destressing	Stress-free temperature range [25–35] °C rail temperature or equivalent mechanical stressing. Practically achievable only [June–September] in Zone 3; a principal driver of the track renewal sequence.
Waterproofing, linings, coatings	Substrate above [+5] °C and rising, relative humidity below [85]%. Tunnel waterproofing feasible year-round within heated enclosures.
OCS wiring and tensioning	Tension calibration to the design temperature band; erection suspended above [12] m/s wind and in icing conditions.

The Programme shall show productive use of the winter restriction periods through tunnel invert lowering and slab track construction within tunnels, tunnel electromechanical installation, works within technical and station buildings, precast and prefabrication in enclosed heated plant, detailed design, procurement, factory acceptance testing and personnel certification and training.

9.5 Possession Risk Allocation

The Possession Availability Baseline (Annex-34) and the Seasonal Restriction Calendar (Annex-35) are Employer's Reliance Data. The Contractor bears the risk of possession availability to the extent that it corresponds to that baseline. Risk arising from denial, curtailment or cancellation of possessions is allocated as follows.

Event	EOT	Cost	Mechanism
A Confirmed Possession (T–8 weeks) is denied, curtailed or cancelled by TCDD for operational reasons not attributable to the Contractor	Yes	Yes (without profit)	Sub-Clause 8.5 and 20.2; standing time at the tendered rate under Clause 4.9.5.2
Possessions granted over any rolling [6]-month period fall below [85]% of the baseline possession-hours for the Lot, for reasons not attributable to the Contractor	Yes	Yes (without profit)	Assessed on the shortfall in possession-hours against Annex-34, using the monthly record under Clause 4.9.3
Possession curtailed or refused following an incident, accident, derailment or infrastructure failure on the network	Yes	No	Sub-Clause 8.5; standing time not payable for the first [4] hours
Possession curtailed or refused due to weather or natural hazard exceeding the climatic baseline in Annex-35	Yes	No	Sub-Clause 8.5(c); exceptionally adverse climatic conditions defined as exceeding the MGM [1991–2020] normals for the relevant station by more than the values stated in Annex-35
Possession restricted by weather or seasonal conditions within the disclosed baseline	No	No	Deemed included in the Accepted Contract Amount
Possession lost, shortened or refused through the Contractor's late or defective request, unsafe method statement, unavailable certified personnel or plant, or late handback	No	No	Contractor's risk; late handback damages under Clause 4.9.5.3
Blackout period additional to those disclosed in Clause 4.9.4 imposed after the Base Date, or amendment of the Collaboration Protocol materially reducing possession availability	Yes	Yes	Variation under Sub-Clause 13

9.5.1 Standing Time.

Proposers shall state in the Schedule of Rates an hourly standing-time rate for each Lot covering the possession-dedicated site team, on-track plant and work train resources. Where a Confirmed Possession is cancelled less than [24] hours before its start time for reasons not attributable to the Contractor, the tendered rate shall be payable for the nominal duration of the cancelled possession, up to [8] hours per occurrence, and shall be the sole measure of compensation for the cancellation.

9.5.2 Late Handback

Where the Contractor fails to hand back the line at the agreed time, delay damages of [ ] TRY per commenced [30] minutes per possession shall apply, capped at [ ]% of the Accepted Contract Amount in aggregate, and shall be the Employer's sole remedy for late handback other than in the case of an unsafe handback.

9.5.3 Possession Coordination Committee.

A committee comprising AYGM, TCDD, the Engineer and the Contractor shall meet at least monthly, and weekly during any Type C possession, to review the rolling plan and resolve conflicts between possession and traffic requirements, recording decisions within [7] days. Referral to the committee shall not affect the Contractor's rights under the Conditions of Contract or the jurisdiction of the DAAB.

9.6 Railway Safety Plan

The Contractor shall prepare, submit and maintain a Railway Safety Plan (RSP) covering all work on, over, under or adjacent to the operational railway. The RSP forms part of the RAMS documentation required under EN 50126, shall be consistent with the applicable TCDD operating rules and safety instructions and shall be owned by the Railway Safety and Authorization Manager. It shall be submitted within [28] days of the Commencement Date and approved by the Engineer, following TCDD's operational review, before any work is carried out on or adjacent to the operational line, and shall be updated annually, after any incident and before the start of each winter season.

The RSP shall include, as a minimum:

(a) the Possession Management Procedure, covering the cycle in Clause 4.9.3, possession take and handback and abort criteria;

(b) safe system of work planning, including protection arrangements, line blockages, lookout and site warning, position of safety on a single-track railway with restricted cess width and working in tunnels without walkways;

(c) roles, competence and TCDD certification for the person in charge of each worksite, protection staff and machine controllers;

(d) on-track plant and work train control, including run-away protection on gradients up to 2.8% in the Topdağı–Soğanlı–Sarıkamış zone;

(e) isolation, earthing and permit-to-work procedures for the 25 kV AC overhead contact system during staged energisation, including the boundary with the existing BTK infrastructure at Kars;

(f) level crossing safety during the Works at the 117 in-scope level crossings, including temporary crossing arrangements and the interface with the road authorities;

(g) winter and natural hazard procedures, including avalanche bulletin monitoring, work suspension and evacuation triggers, the snow-clearance interface with TCDD, working in snow sheds and snow tunnels, cold-stress management, lighting for night possessions and rockfall and freeze-thaw hazards at tunnel portals;

(h) interface with the DAS natural hazard detection system, including alarm response, evacuation and re-entry authorization;

(i) emergency arrangements in the rail-only access sections Km 777+708–805+000 and Km 840+000–850+000, including casualty evacuation by rail, standby traction and communications coverage; and

(j) incident reporting and investigation, safety performance monitoring and hazard log maintenance. The Railway Safety and Authorization Manager shall be present on Site throughout any period in which work is undertaken on or adjacent to the operational line and shall have authority to suspend the Works on safety grounds.

9.7 Annexes to be Provided

Annex	Content
Annex-32	AYGM–TCDD Collaboration Protocol, being the Implementation Protocol on the Rehabilitation, Electrification and Signaling of the Divriği–Kars Border Railway Construction (signed Turkish original and English translation), or the key-terms summary disclosed in Clause 4.9.1.
Annex-33	Restricted-Access Schedule: chainage-based schedule of rail-only and restricted-access locations with locomotives, work trains, paths and traffic staff to be made available by TCDD and their conditions of use. The Schedule shall record that over the Divriği–Çaltı section, Km 777+708 – 805+000, there is no road access to the railway line other than at isolated locations; that length and the İliç canyon passage, Km 840+000 – 850+000, shall be treated as rail-access-only, and the Contractor shall provide for rail-borne delivery of plant, materials and personnel over those lengths accordingly.
Annex-34	Possession Availability Baseline: month-by-month possession windows by Lot and type, with nominal and effective hours and the annual possession-hour total per Lot. Following award, the Contractor's working programme shall be established and implemented on the basis of those possession windows and durations, in coordination with AYGM and TCDD and in accordance with the operating conditions prevailing at the time.
Annex-35	Seasonal Restriction Calendar and Climatic Baseline: zone-based restriction calendar; MGM [1991–2020] normals for Divriği, İliç, Erzincan, Erzurum, Sarıkamış and Kars (temperature, snowfall and snow-cover days, snow depth, wind); numerical definition of exceptionally adverse climatic conditions. It shall be the Contractor's responsibility to obtain from all official stakeholders the data necessary in respect of adverse weather conditions, and to establish and maintain its programme on the basis of that data.

9.8 Obligations Arising from the Collaboration Protocol

The Collaboration Protocol places obligations on "AYGM or its Contractor". Except where this Contract expressly provides otherwise, those obligations shall be performed by the Contractor, at its own cost, and shall be deemed included in the Accepted Contract Amount. AYGM remains responsible to TCDD for their performance (Protocol Article 3.13). The following are flowed down in particular.

(a) Personnel training and certification.

All personnel working on or alongside the track, including escort personnel, safety personnel, supervisors and watchmen, shall hold the training required by General Order No. 551 on Safety Requirements for Construction, Maintenance and Repair Activities Performed by Contractors within Railway Infrastructure, and such further training as TCDD legislation requires for the duties concerned. That training is given by TCDD upon request; the Contractor shall bear its cost. All such personnel shall additionally hold the qualifications required under the Vocational Qualifications Authority (MYK) framework and shall be certified as required by TCDD legislation. (Protocol Articles 2.1, 3.5 and 3.15)

(b) Level crossing officers and escort officers.

Following the Level Crossing Officer Training and Escort Officer Training given by TCDD, the Contractor shall assign a sufficient number of trained personnel to the crossings concerned on a 24-hour basis and shall bear the cost of that training. The cost of TCDD escort personnel attending the opening of the line shall be borne by the Contractor in accordance with TCDD legislation. (Protocol Articles 2.2 and 3.2)

(c) Temporary level crossings.

Temporary level crossings required for the Works shall be provided with the safety measures required by Article 8 of the Regulation on Measures to be Taken at Railway Level Crossings and Implementation Principles and by Highway Traffic Law No. 2918. They shall remain closed to third-party use and shall be used only by vehicles of the Contractor. The Contractor shall be fully liable for any accident at such crossings; shall bear the cost of maintaining and repairing road deterioration and damage resulting from their use; shall make good any deterioration or defect caused to the railway substructure or superstructure by such use; and shall bear the utility and subscription costs of watchmen's cabins until the crossing concerned is closed. Where TCDD carries out such rectification, the cost of the railway plant and operators used shall be determined under TCDD's calculation procedures and shall be paid by the Contractor. (Protocol Articles 3.1, 3.3, 3.4, 3.7 and 3.10)

(d) Emergency readiness.

The Contractor shall keep available at all times the vehicles, plant and equipment necessary for immediate intervention in adverse or emergency conditions arising during the Works. (Protocol Article 3.6)

(e) Electrified areas.

From the energisation of any part of the line, the Contractor shall comply with Instruction No. 641 on Measures to be Taken in Electrified Railway Operating Areas, in addition to General Order No. 551. (Protocol Articles 3.14 and 3.17)

(f) Railway vehicles.

Railway vehicles used by the Contractor shall comply with the applicable legislation of the Ministry and shall be accepted by TCDD before entering the operational line. (Protocol Article 3.16)

(g) Handback and reopening.

The Contractor shall open the railway substructure and superstructure to train traffic on completion of the work concerned in accordance with the criteria of the TCDD Track Maintenance Manual, shall impose the necessary safety measures, including speed restrictions, stop boards and signaling and marking, and shall carry out all works and procedures required for reopening. TCDD escort personnel shall accompany those activities until the line is reopened to train traffic. (Protocol Article 3.12)

(h) Assessment and certification.

The Contractor shall procure and submit to the Employer, for onward submission to TCDD, the Conformity Assessments, Independent Safety Assessments, Safety Status Reports and equivalent documents required for the improvements and system installations on the line. The Independent Safety Assessment shall be carried out by an assessor independent of the Contractor and of its designers, in accordance with EN 50126, EN 50128 and EN 50129. (Protocol Article 3.11)

(i) Management Plan and project implementation organization.

The Contractor shall prepare an overall Management Plan and shall define its project implementation organization, in a form suitable for notification by the Employer to TCDD. (Protocol Article 3.18)

(j) Further protocol.

The Contractor shall, within [28] days of the Commencement Date, execute with the Employer the further protocol contemplated by the Collaboration Protocol, covering the matters set out in it, for notification to TCDD. That protocol shall not diminish the Contractor's obligations under this Contract. (Protocol Article 3.19)

(k) Liability for disruption to train operations.

Subject to Clause 4.9.5, the Contractor shall bear all loss, damage and liability, including the consequences of train delays, train cancellations and additional operating measures, arising from disruption to train operations caused by the execution of the Works, and shall be responsible for any damage, loss or accident occurring on or alongside the railway line or at level crossings and for all legal and financial entitlements of the personnel it engages. (Protocol Articles 3.8, 3.9 and 3.20)

Nothing in sub-paragraph (k) transfers to the Contractor a risk that Clause 4.9.5 allocates to the Employer, and it does not extend to disruption caused by the Employer, by TCDD or by any third party for whom the Contractor is not responsible.

10 PROGRAMME GOVERNANCE

10.1 Scheduling Software and Format

The Contractor shall prepare, maintain and submit all programme in Oracle Primavera P6 (Professional or EPPM), version 21.12 or later, using the critical path method with retained logic. Negative lags shall not be used, and date constraints shall be used only with the Engineer's prior approval. Every submission shall comprise the native .xer file, the .xml file, a PDF of the programme and a narrative report. Calendars shall reflect the seasonal restriction periods of Clause 4.9.4 and the possession windows of Clause 4.9.2. Activities shall be coded, as a minimum, by Lot, discipline, chainage band, station or section, possession type, environmental and social hold point and milestone. No activity shall exceed 30 days' duration other than continuous linear activities, which shall be broken down by chainage. The programme shall be resource-loaded and cost-loaded and shall produce a value-time (S) curve. Total float is a project resource available to the Project and is not for the exclusive use of either Party.

10.2 Programme levels and submission.

Level	Content	Submission
Level 1	Project master summary, one page per Lot	With each monthly report
Level 2	Summary programme by discipline and section	With each monthly report
Level 3	Tender Programme, logic-linked, showing the Time for Completion, the Sections and the Key Dates	With the Proposal
Level 4	Detailed Works Programme, fully logic-linked, resource-loaded and cost-loaded; becomes the Baseline Programme on the Engineer's acceptance	Within 56 days of the Commencement Date; accepted within a further 28 days
Level 5	Rolling 8-week look-ahead, integrated with the possession planning cycle of Clause 4.9.3	Weekly

10.3 Updates, Recovery and Revision

The Contractor shall submit a monthly update with a data date of the last day of the month, within 7 days of that date, together with a progress narrative, a critical path analysis, a statement of float erosion, the 8-week look-ahead and the possession record required by Clause 4.9.3. Where the update shows the critical path delayed by more than 28 days against the Baseline Programme or forecasts any Section or Key Date to be achieved more than 14 days late, the Contractor shall submit a Recovery Programme within 14 days, at its own cost where the delay is not excusable. A revised programme shall be submitted in accordance with Sub-Clause 8.3 of the Conditions of Contract. The Baseline Programme shall not be re-baselined except with the Engineer's approval following a Variation or an agreed extension of time. Each claim for an extension of time shall be supported by a prospective time impact analysis prepared in accordance with recognized international practice, being AACE International Recommended Practice 29R-03 or the Society of Construction Law Delay and Disruption Protocol.

10.4 Integrated Master Programme and Inter-lot Interfaces

The Engineer shall maintain an Integrated Master Programme by merging the accepted programme of the three Lots and of the signaling and telecommunications package, using a common data date, common calendars and common activity coding. The Contractor shall adopt the interface milestones of the Integrated Master Programme in its own programme, shall attend a monthly interface programme meeting and shall give the Engineer not less than 28 days' notice of any change to an activity that affects another Lot. Interface milestones include the boundary works at Km 933+784, Km 1148+672 and Km 1364+775, the staged energization of adjacent feeding sections, and the integration of each Lot's signaling with the Centralized Traffic Control system.

4.10.5 Sections and Key Dates. In addition to the Time for Completion for the Works, the Contract provides for Sections, each having its own Time for Completion and attracting delay damages under Sub-Clause 8.7 of the Conditions of Contract, and for Key Dates, which do not attract delay damages but which the Contractor shall achieve and, if missed, shall recover at its own cost. The following intermediate milestones apply to each Lot. The periods stated run from the Commencement Date and shall be completed by the Employer in the Contract Data.

Ref.	Milestone	Type	Period from Commencement
KD-1	Baseline Programme (Level 4) accepted by the Engineer	Key Date	[2] months
KD-2	RAMS Plan, Safety Plan, Hazard Log and Railway Safety Plan approved; possession and safety-critical personnel certified by TCDD	Key Date	[4] months
KD-3	Annual Possession Plan agreed with TCDD for the first construction season (Clause 4.9.3)	Key Date	[6] months
KD-4	Detailed design approved – alignment, trackworks and civil works	Key Date	[9] months
KD-5	Detailed design approved – tunnels and structures	Key Date	[12] months
KD-6	Detailed design approved – electrification, signalling and telecommunications, including ETCS application design	Key Date	[15] months
S-1	Tunnel clearance enlargement and invert lowering complete, including slab track in tunnels of 1,000 m or more	Section	[30] months
S-2	Track renewal and de-stressing complete, main line	Section	[36] months
S-3	Overhead contact system erected and each feeding section energised at 25 kV	Section	[40] months
S-4	Interlockings, axle counters, point machines and lineside equipment installed and commissioned at all station areas	Section	[42] months
S-5	ERTMS/ETCS Level 1 static and dynamic testing complete	Section	[44] months

Ref.	Milestone	Type	Period from Commencement
S-6	Centralised Traffic Control integrated with the TCDD Maltepe centre and telecommunications systems accepted	Section	[46] months
S-7	Trial operation commenced in accordance with the Acceptance Conditions Technical Specifications (2.3.2.1)	Section	[48] months

10.5 Effect of the Milestones

Achievement of a Section shall be certified by the Engineer and shall not constitute Taking-Over unless a Taking-Over Certificate is issued for that Section. Sectional delay damages shall be stated in the Contract Data for each Section and shall be deducted from, and shall not be additional to, the delay damages payable for the Works as a whole, and the aggregate liability for delay damages shall not exceed the limit stated in the Contract Data. No Section or Key Date shall be achieved by means that prejudice railway safety, the possession regime of Clause 4.9 or the environmental and social requirements of this Contract.

11 CONSTRUCTION REQUIREMENTS

11.1 General

The Contractor shall carry out all its activities in compliance with the FIDIC Yellow Book approach.

Therefore, the following items along with typical cross-section of the railway line given in drawings and specifications will be taken into consideration by the Contractor during design and construction phases.

- Formation of sublayer will consider superstructure (rail, sleeper and ballast), future catenary poles, cable ducts; where deemed necessary, also drainage
- Horizontal alignment axis of track will be adjusted to ensure space for future catenary poles on one side of the sublayer

The Tenderers will submit Annexes as appropriately filled in their Tenders.

The Contractor shall request for and obtain all necessary permits and/or authorizations for the storage of material, machines, devices, construction and work trains, for access roads, as well as for assembly and disassembly.

It is incumbent on the Contractor in each case to accomplish the necessary agreements and obtain permits.

Preparing of surfaces also is the responsibility of the Contractor.

All costs and expenses will be deemed to be included in the Accepted Contract Amount.

All permits for the temporary construction and/or temporary use of railway tracks, roads, ways and storage areas/assets shall be obtained by the Contractor without expectation of monetary compensation. The elapsed time for the responses of the owners and the authorizing agencies responsible shall be considered in his Programme, without being subject to any time extension and additional cost claims.

The Contractor shall perform all reasonable surveys as specified with the Employer's Requirements for the Detailed Design

The Contractor shall erect project sign boards at the main entrance to the Site and other places (up to 10 locations) deemed necessary by the Engineer, as soon as possible after the Contractor has been given access to site, which shall bear:

- Financier's name;
- End Recipient's name;
- Employer's name;
- Engineer's name;
- Contractor's name;
- Project name; and

- Any other information as the Engineer may direct to be inserted upon it according to the EU visibility guidelines available at

http://www.avrupa.info.tr/AB_Mali_Destegi/Gorunurluk,Visi.html

The signboard shall be not less than 2.5 m x 2.5 m, lettered in Turkish and English.

The Contractor shall remove the signboard from the site on completion of the works and replace with a suitable plaque in each station.

Tracks becoming necessary for transfer and for stabling of track laying machinery shall be rented by the Contractor. The use of railway tracks and surrounding areas belonging to TCDD will not become an obstacle to the scheduled train operation and also will be subject to prior consent of End Recipient. Among other things, expenditures arising out of availability of track-bound work machines including provision of locomotives (including its personnel) for this machinery shall be included in the Accepted Contract Amount.

The Contractor shall provide for sufficient illumination of the construction site.

Demands for the use of the roads as approach road ways are the responsibility of the contractor in each case.

With work in and on public and non-public roads and at level crossings; the Contractor has the duty to safeguard traffic. Changes, restrictions of the traffic during the different construction phases and safeguarding of the construction site shall be planned in agreement with the responsible traffic authorities. In order to prevent trespass at construction sites by unauthorized persons (public) and to eliminate safety failure risks for both construction works and train traffic; the Contractor will take necessary precautions; construction sites at urban areas will be confined with portable panel fences by the Contractor to reduce the risk of safety breach and any accident/incident. All costs and expenses will be deemed to be included in the Accepted Contract Amount.

The Contractor shall be responsible for all survey work as deemed necessary in the project and for staking out, which must be carried out by sufficiently experienced engineers.

The Contractor shall be responsible for local inspections to find and determine locations for placing ESB, shelters, location of signals etc. These locations shall be also coordinated with and agreed by End Recipient.

Even if there has been the consent of the Employer, the Contractor shall be responsible for any of his planning, design and manufacturing defects that could arise and prevent the systems from working with full safety.

Contractor shall perform supervision, upon the request of End Recipient, for hardware replacement and replacement of software for modification and delivery for a period of 10 years after the issue of the Performance Certificate. During the execution of these works, the End Recipient will cover allowances and travel expenses of the personnel of the Contractor. Conditions of allowance payment and duration of

supervision of the personnel of the Contractor will be subject to mutual agreement of the Contractor and End Recipient.

Devices and equipment to be procured within the scope of work by the Contractor for measurement, maintenance, repair etc. will be new and unused as being subject to consent of End Recipient.

11.2 Dismantling

- All materials of the track superstructure (rails, sleepers, turnouts), other wayside equipment, which shall be removed by the Contractor, shall be the property of End Recipient and be transported to collection areas of the End Recipient (transportation distance up to 100 km or more). The materials shall be unloaded and sorted separately as being subject to conditions of End Recipient. All the removed materials shall be stored and protected by the Contractor until being handed over to End Recipient, and handing over shall be realized in batches according to a programme, which will be agreed by the Engineer, End Recipient and the Contractor.
- The rails shall be cut by the Contractor from a point 10 cm away from their welding points or be divided from joints (in at least 36 m or multiples), whichever is appropriate and consented by End Recipient. Rail shall always be sawed or cut with the help of a disc. Rails and sleepers shall be stockpiled on their bases and shall be lined on a flat surface in such a way to compose parallel layers with timbers. There shall be square timbers that are placed vertically to the rails above each rail row and in such a way that the distance between each other shall not be more than 6 meters.
- All further removed materials, which are classified as non-usable by End Recipient, will be transported to disposal areas by the Contractor. The Contractor shall find locations for dismantled/excavated materials which shall not be used any more by the End Recipient. Environmental laws for recycling and disposal shall be adhered to.

12 ENVIRONMENTAL AND SOCIAL (ES) REQUIREMENTS

The Environmental and Social (E&S) Requirements set out herein form an integral and binding part of the Employer's Requirements and shall be read in conjunction with the Conditions of Contract, Technical Specifications, and all other Contract documents.

12.1 Overarching Objectives of the Environmental and Social Requirements

The overarching objectives of the E&S Requirements are to ensure that the ETMIC Project and the Works under this Contract are designed, constructed, and completed in full compliance with the World Bank Environmental and Social Framework (ESF), applicable national legislation, the applicable Environmental and Social Commitment Plan (ESCP), approved Project E&S instruments, and Good International Industry Practice (GIIP).

These E&S Requirements form an integral part of the Employer's Requirements and define, in a clear and enforceable manner, the Environmental, Social, Health and Safety (ESHS) obligations of the Contractor under the Design–Build Contract.

The objectives set out herein apply to all activities within the Contractor's scope, including design development, construction and rehabilitation works, works on or adjacent to the operational railway, Project Facilities, Associated Facilities to the extent applicable, subcontracted activities, supply chain-related activities, testing and commissioning, temporary works, and reinstatement and decommissioning activities.

The Contractor acknowledges the particular implementation context and E&S risk profile of the Works, including, as applicable, construction and rehabilitation activities undertaken on or adjacent to an operational railway; railway traffic and worker–train interface risks; extensive tunnel, bridge, culvert, level-crossing and other structural rehabilitation works; electrification and electrical safety risks; high-altitude and severe winter conditions; remote and difficult-to-access work fronts; potentially unreliable telecommunications; and the presence of existing railway structures that may possess cultural, historic, architectural or engineering heritage value.

The Contractor shall ensure that these Project-specific conditions are fully incorporated into the final design, construction methodology, Work Programme, E&S instruments, method statements, staffing arrangements, logistics planning, emergency preparedness and response arrangements, and implementation of the Works.

The involvement, review, approval, monitoring or supervision of the Employer, the Project Implementation Support Services Consultant for the PIU (Sub-PIU), or the Construction Supervision Consultant (CSC)/Engineer shall not relieve the Contractor of any E&S obligation, responsibility or liability under the Contract.

12.2 Applicable Legal, Policy and Contractual Framework

The Contractor shall comply with all applicable environmental, social, health and safety requirements arising from the legal, policy, financing and contractual framework applicable to the Project and the Works. The applicable framework includes, without limitation:

- World Bank Environmental and Social Framework (ESF);

(https://www.worldbank.org/en/projects-operations/environmental-and-social-framework)

- Environmental and Social Commitment Plan (ESCP);

(https://aygm.uab.gov.tr/dogu-turkiye-orta-koridor-demiryolu-gelistirme-projesi)

The ESCP, agreed with the World Bank, establishes binding E&S commitments, actions, and timelines for the Project. The Contractor acknowledges that:

- the ESCP forms part of the financing framework of the Project;
- obligations arising from the ESCP that relate to design, construction and implementation of the Works are transferred to the Contractor through this Contract, as applicable to the Contractor's scope;
- compliance with applicable ESCP commitments is mandatory.

Failure by the Contractor to comply with obligations derived from the ESCP shall constitute non-compliance with the E&S Requirements under the Contract.

- all applicable national laws, regulations, standards, permits, approvals and other legal requirements in Türkiye in force at the date of Contract signature, together with subsequent amendments applicable during implementation of the Works;
- applicable TCDD requirements, rules, procedures, instructions and operational safety requirements relevant to works on, adjacent to, or otherwise interfacing with the operational railway.

Where differences exist between applicable national requirements and the World Bank ESF, the more stringent requirement shall apply, unless otherwise agreed in writing with the Employer and the World Bank.

The Contractor shall obtain, maintain and comply with all permits, licences, consents, approvals and authorizations required for execution of the Works within the Contractor's responsibility, including those applicable to Project Facilities and, where relevant and within the Contractor's responsibility, Associated Facilities.

The E&S obligations of the Contractor are defined by and derived from the following Contract documents and Project E&S instruments, which shall be read together:

- the Employer's Requirements, including these Environmental and Social Requirements;
- the Conditions of Contract;
- the Environmental and Social Commitment Plan (ESCP);
(https://aygm.uab.gov.tr/dogu-turkiye-orta-koridor-demiryolu-gelistirme-projesi)
- the Environmental and Social Impact Assessment (ESIA);
(https://aygm.uab.gov.tr/dogu-turkiye-orta-koridor-demiryolu-gelistirme-projesi)
- the Environmental and Social Management Plan (ESMP);
(https://aygm.uab.gov.tr/dogu-turkiye-orta-koridor-demiryolu-gelistirme-projesi)
- the Stakeholder Engagement Plan (SEP);
(https://aygm.uab.gov.tr/dogu-turkiye-orta-koridor-demiryolu-gelistirme-projesi)
- the Labor Management Procedures (LMP);
(https://aygm.uab.gov.tr/dogu-turkiye-orta-koridor-demiryolu-gelistirme-projesi)
- the Resettlement Framework (RF) and the Resettlement Plan / Livelihood Restoration Plan (RP/LRP)

(https://aygm.uab.gov.tr/dogu-turkiye-orta-koridor-demiryolu-gelistirme-projesi)[25]

- Sexual Exploitation, Abuse and Sexual Harassment (SEA/SH) Prevention and Response Action Plan and the Accountability and Response Framework

(https://aygm.uab.gov.tr/dogu-turkiye-orta-koridor-demiryolu-gelistirme-projesi)

- the Cultural Heritage Management Plan;

(https://aygm.uab.gov.tr/dogu-turkiye-orta-koridor-demiryolu-gelistirme-projesi)

- the Community Health and Safety Management Plan

(https://aygm.uab.gov.tr/dogu-turkiye-orta-koridor-demiryolu-gelistirme-projesi)

- the Emergency Preparedness and Response Plan

(https://aygm.uab.gov.tr/dogu-turkiye-orta-koridor-demiryolu-gelistirme-projesi)

- the Pollution Prevention and Waste Management Plan

(https://aygm.uab.gov.tr/dogu-turkiye-orta-koridor-demiryolu-gelistirme-projesi)

- the Traffic Management Plan

(https://aygm.uab.gov.tr/dogu-turkiye-orta-koridor-demiryolu-gelistirme-projesi)

- the Biodiversity Management Plan

(https://aygm.uab.gov.tr/dogu-turkiye-orta-koridor-demiryolu-gelistirme-projesi)

- the Occupational Health and Safety Management Plan

(https://aygm.uab.gov.tr/dogu-turkiye-orta-koridor-demiryolu-gelistirme-projesi)

- applicable World Bank Group Environmental, Health and Safety Guidelines (EHSGs), including the General EHS Guidelines and the EHS Guidelines for Railway;

(https://documents.worldbank.org/en/publication/documents-reports/documentdetail/157871484635724258/environmental-health-and-safety-general-guidelines/)

- Good International Industry Practice (GIIP).

The Employer-prepared ESIA, ESMP, SEP and associated E&S instruments constitute the baseline E&S framework for the Works. Where such instruments are required under this Contract to be prepared, updated, refined, supplemented or finalized by the Contractor to reflect the final design, construction methodology, sequencing, Project Facilities, site-specific conditions or other implementation arrangements, the Contractor shall undertake such updates in accordance with these E&S Requirements.

Any Contractor-prepared or Contractor-updated E&S instrument required under the Contract shall, following approval by the Engineer and the Employer and receipt of the World Bank's prior no-objection under these E&S Requirements, become binding upon the Contractor and shall be implemented as part of the Contract.

E&S requirements are not advisory but constitute binding contractual obligations. Unless expressly stated otherwise in the Contract, compliance with the applicable E&S framework, including preparation, updating,

---

[25] *The RF has been prepared and is available at the relevant link. The RP/LRP will be prepared and finalized by the Employer following the development of the final design by the Contractor. The Contractor shall provide timely and accurate design information, construction methodologies, sequencing of works, and any other relevant inputs required for the preparation and finalization of the RP/LRP. The Contractor acknowledges that the RP/LRP will be developed progressively, in line with design finalization, and may be issued in phases corresponding to specific sections of the Project. The Contractor shall fully cooperate with the Employer in this process and shall ensure that its work programme and construction planning are aligned with the preparation and implementation of the RP/LRP. No works shall commence on any section of the Project unless and until the relevant RP/LRP measures have been fully implemented and land access has been formally cleared in accordance with the Contract. The Contractor shall not be entitled to any claim for additional time or cost arising from the progressive preparation, finalization, or phased implementation of the RP/LRP.*

implementation, monitoring and reporting of required E&S instruments and measures, shall be deemed included in the Contract Price.

The Contractor shall ensure that all applicable E&S requirements are fully cascaded to and incorporated into all relevant subcontracts, labor service agreements, supply agreements, purchase orders and service agreements.

Without prejudice to the Contractor's obligations under FIDIC Sub-Clause 4.4 in respect of Subcontractors, the Contractor shall remain fully responsible for ensuring compliance by all Subcontractors, labor service providers, suppliers and service providers with the applicable E&S requirements throughout implementation of the Works. The Contractor shall monitor, supervise, enforce, and report on compliance with such requirements on a regular basis.

Any act, omission or non-compliance by a Subcontractor, labor service provider, supplier or service provider shall not relieve the Contractor of any obligation, responsibility or liability under the Contract.

12.3 Design–Build Model

The Contractor acknowledges that E&S risks related to design development and construction execution are inherent to Design–Build contracts and shall remain the responsibility of the Contractor to the extent arising from the Contractor's design, construction methodology, sequencing, temporary works, Project Facilities, or other implementation arrangements.

Such risks include, but are not limited to:

- impacts arising from design refinement;
- changes in construction methods or logistics;
- site-specific conditions identified during detailed design or construction;
- impacts associated with Project Facilities and Associated Facilities;
- E&S risks arising from works undertaken on, adjacent to, or otherwise interfacing with the operational railway, including changes affecting railway possessions, train movements, operational safety arrangements, temporary access, or railway interfaces;
- risks associated with high-altitude, severe winter, and remote working conditions, including changes to access, logistics, emergency response, and communication arrangements;
- impacts arising from modifications to existing tunnels, bridges, culverts, snow galleries, level crossings, stations, retaining structures, and other railway infrastructure, including structures with potential cultural, historic, architectural, or engineering heritage value; and
- risks arising from electrification, testing, and commissioning activities and their interfaces with existing railway operations.

Any change in design, construction methodology, sequencing of works, or Project/Associated Facilities after approval and/or World Bank no-objection of the applicable ESIA, ESMP, and other relevant E&S instruments shall be subject to prior E&S screening by the Contractor.

The Contractor shall prepare and implement an E&S Change Management Procedure as part of the Contractor's Environmental and Social Management Plan (C-ESMP). The procedure shall be subject to

review and approval by the Engineer and the Employer and World Bank no-objection as part of the C-ESMP prior to implementation.

The E&S Change Management Procedure shall be aligned with the Contractor's design management and change control processes and shall include screening, assessment, approval, documentation, and reporting of E&S risks and impacts associated with any change in design, construction methodology, sequencing of works, Project Facilities, Associated Facilities, or other implementation arrangements.

The procedure shall also define the criteria for determining whether a proposed change requires revision or supplementation of any approved E&S instrument, additional studies or surveys, stakeholder engagement or disclosure, additional permits or approvals, or prior World Bank no-objection.

Where any change is proposed before finalization and approval/no-objection of the applicable ESIA, ESMP, or relevant Lot-specific E&S instruments, the potential E&S risks and impacts of such change shall be assessed and addressed within the applicable ESIA, ESMP, and/or Lot-specific E&S instrument before implementation of the relevant change.

The Contractor shall prepare an E&S Screening Report for each proposed design, construction methodology, or implementation change having actual or potential E&S relevance, together with any supporting documentation required under the E&S Change Management Procedure, and submit it to the Engineer and the Employer for review and approval prior to implementation.

Any material change, any change for which the E&S screening identifies new or increased material E&S risks or impacts, and any change requiring amendment or supplementation of an E&S instrument previously subject to World Bank no-objection shall be subject to the World Bank's prior no-objection before implementation.

Where the screening identifies new or increased E&S risks or impacts, the Contractor shall update the relevant E&S instruments or prepare supplementary instruments, as required. Any such updated or supplementary E&S instrument shall be subject to the same review, approval, disclosure, and World Bank no-objection requirements applicable to the original instrument.

No such change shall be implemented unless and until the required E&S approvals are obtained and, under these E&S Requirements, the World Bank's no-objection is secured.

The Contractor shall ensure that approved changes and the corresponding E&S mitigation and management measures are incorporated, as applicable, into the final design, Work Programme, method statements, risk assessments, C-ESMP, and relevant sub-management plans before the affected activity commences.

Such activities shall be deemed included in the Contract Price and shall not constitute a Variation, unless such measures qualify as supplementary E&S measures in accordance with the relevant Provisional Sum provisions under the Contract.

12.4 ESS1 – Assessment and Management of Environmental and Social Risks and Impacts

12.4.1 Status of ESIA and ESMP

The ESIA and ESMP were prepared by the Employer prior to finalization of the detailed design and therefore constitute baseline E&S instruments under the Design–Build Contract.

The Contractor acknowledges that the ESIA and ESMP:

- were prepared prior to finalization of the detailed design;
- are based on the Project information, design assumptions, construction methods, sequencing, logistics arrangements, and Project Facilities available at the time of their preparation;
- may require updating, refinement, or supplementation to reflect the Contractor's final design, construction methodology, implementation arrangements, Project Facilities, Associated Facilities, and site-specific conditions; and
- constitute the baseline E&S framework for subsequent finalization of the applicable Project E&S instruments.

The ESIA and ESMP provided by the Employer shall not be considered finalized E&S instruments for the purposes of implementation of the Works until they have been updated and finalized in accordance with these E&S Requirements and have received the required approvals and World Bank no-objection.

12.4.2 Finalization of the ESIA and ESMP by the Contractor

The Contractor shall prepare, develop and finalize the ESIA and ESMP applicable to its own Lot and the Works under the Contract, building upon the baseline ESIA and ESMP provided by the Employer.

The ESIA and ESMP prepared by the Contractor shall be based on the final design, construction methodology, sequencing of works, implementation arrangements, Project Facilities, Associated Facilities, and site-specific conditions identified during detailed design and pre-construction activities.

Preparation and finalization of the ESIA and ESMP shall include, as a minimum:

- incorporation of final design and engineering details and associated land acquisition and land access requirements;
- assessment of E&S risks and impacts arising from construction methods, sequencing, logistics, temporary works, testing, commissioning, and implementation arrangements;
- assessment of risks associated with works on, adjacent to, or otherwise interfacing with the operational railway, including railway traffic, possessions, work windows, electrical interfaces, and worker–train interaction;
- assessment of risks associated with high-altitude, severe winter, remote and difficult-to-access working conditions, including emergency access, evacuation, communications, and medical response;
- assessment of E&S risks and impacts associated with tunnels, bridges, culverts, snow galleries, level crossings, stations, retaining structures, electrification, and other railway infrastructure;
- identification and assessment of existing railway structures with potential cultural, historic, architectural, engineering, or landscape heritage value and incorporation of appropriate avoidance, preservation, documentation, and mitigation measures;
- inclusion and assessment of all Project Facilities and applicable Associated Facilities;
- assessment of cumulative E&S risks and impacts, taking into account other existing, planned, or reasonably foreseeable developments and activities within the Project area of influence;
- incorporation of the findings of any additional E&S studies, surveys, assessments, and investigations required under the Contract;
- identification of any additional avoidance, mitigation, monitoring, management, emergency preparedness, and stakeholder engagement measures required to comply with the World Bank ESF, applicable national requirements, approved Project E&S instruments, and GIIP; and

- alignment of the ESIA and ESMP with the SEP, C-LMP, C-ESMP, RP/LRP, and applicable sub-management plans and procedures.

The Contractor shall submit the prepared and finalized ESIA and ESMP for its Lot to the Engineer and the Employer for review and approval in accordance with the Contract. The ESIA and ESMP shall also be subject to the World Bank's prior no-objection before commencement of the relevant physical works.

Where required by the Employer or the World Bank, the Contractor shall support disclosure and stakeholder engagement associated with the finalized or materially revised ESIA and ESMP prior to commencement of the relevant works.

Following approval and World Bank no-objection, the finalized ESIA and ESMP shall constitute binding Project E&S instruments for the Contractor's Lot and shall be fully implemented by the Contractor and its Subcontractors.

The Contractor shall further revise, supplement, and update the ESIA and ESMP as necessary during implementation to reflect material changes in design, construction methodology, sequencing, site conditions, Project Facilities, Associated Facilities, or E&S risks and impacts.

Preparation, development, finalization, revision, supplementation, and implementation of the ESIA and ESMP, including any additional mitigation and management measures arising from the final design, construction methodology, operational railway interfaces, Project Facilities, Associated Facilities, or site-specific conditions, shall not in themselves constitute a Variation or give rise to entitlement to additional time or cost, except where expressly provided otherwise under the applicable Provisional Sum provisions of the Contract.

12.4.3 Management and Mitigation Measures

The Contractor shall identify, define, implement, monitor, and maintain appropriate avoidance, minimization, mitigation, restoration, compensation, and management measures to address E&S risks and impacts associated with the Works.

Such measures shall:

- follow the mitigation hierarchy and be proportionate to the nature and level of the identified E&S risks and impacts;
- be technically feasible, site-specific, and consistent with the final design and construction methodology;
- take into account the particular conditions of the Contractor's Lot, including operational railway interfaces, high-altitude and severe winter conditions, remote and difficult-to-access work fronts, emergency communication and response constraints, and existing railway structures with potential cultural heritage value;
- be integrated into the final design, construction planning, Work Programme, method statements, risk assessments, Permit-to-Work arrangements, temporary works, logistics planning, and day-to-day site management; and
- be reviewed and updated where monitoring results, design changes, site conditions, incidents, grievances, or other information indicate that existing measures are insufficient or ineffective.

E&S management and mitigation measures shall be operationalized through the finalized ESMP, the C-ESMP, and the relevant sub-management plans and procedures.

The Contractor shall ensure that no activity involving material E&S risks is undertaken unless the applicable mitigation, monitoring, emergency response, community protection, and operational railway safety measures have been incorporated into the relevant method statement and risk assessment and are in place prior to commencement of the activity.

12.4.4 C-ESMP

The Contractor shall prepare, submit, obtain approval and World Bank no-objection for, and implement a Contractor's Environmental and Social Management Plan (C-ESMP) applicable to its own Lot prior to commencement of any physical works on site.

The C-ESMP shall constitute the primary operational instrument through which the Contractor implements all applicable E&S obligations under the Contract and shall be fully aligned with the finalized ESIA and ESMP, the ESCP, the World Bank ESF, applicable national requirements, and GIIP.

The C-ESMP shall reflect, as applicable, the final design, construction methodology, sequencing of works, workforce size and composition, logistics arrangements, temporary works, Project Facilities, Associated Facilities under the Contractor's control or influence, testing and commissioning activities, and site-specific conditions.

The C-ESMP shall specifically address the E&S risks and operational requirements associated with the Contractor's Lot, including works on or adjacent to the operational railway, railway traffic and worker–train interface risks, high-altitude and severe winter conditions, remote and difficult-to-access work fronts, emergency communication and medical response arrangements, tunnels and confined spaces, electrification and electrical safety, level crossings, community interfaces, and existing railway structures with potential cultural heritage value.

The C-ESMP shall also incorporate measures to prevent, minimize, mitigate, monitor, and manage cumulative E&S risks and impacts identified during the preparation and finalization of the ESIA, ESMP, RP/LRP, SEP, and other applicable E&S instruments.

The C-ESMP shall include, or clearly cross-reference, all applicable sub-management plans, procedures, method-specific controls, monitoring requirements, reporting arrangements, emergency response arrangements, and responsibilities necessary for implementation of the Works.

The C-ESMP shall be submitted by the Contractor to the Engineer and the Employer for review and approval in accordance with the Contract and shall be subject to the World Bank's prior no-objection.

No method statement for any activity involving material E&S risks shall be deemed complete or approved unless it incorporates all applicable mitigation, monitoring, emergency response, community protection, occupational health and safety, operational railway safety, pollution prevention, biodiversity, labor, and cultural heritage measures required under the finalized ESIA, ESMP, SEP, RP/LRP, C-ESMP, and relevant sub-management plans and procedures.

The Contractor shall ensure that all such measures are fully integrated into the planning and execution of the relevant activities and are implemented before and throughout the activity.

The C-ESMP shall be treated as a living document and shall be reviewed regularly and updated whenever required to reflect changes in design, construction methodology, sequencing, site conditions, E&S risks and impacts, monitoring results, incidents, grievances, corrective actions, or other relevant implementation

circumstances. Any material revision shall be subject to the applicable review, approval and World Bank no-objection requirements.

12.4.5 Sub-Management Plans under C-ESMP

The following site-specific sub-management plans and procedures, as a minimum, shall be prepared by the Contractor for its own Lot and tailored to the specific risks, activities, locations, environmental and social sensitivities, and implementation conditions of the Works:

- Biodiversity Management Plan (including, where required, Biodiversity Action Plan and other supplementary biodiversity management procedures);
- Occupational Health and Safety Management Plan and Procedures;
- Emergency Preparedness and Response Plan;
- Traffic and Transportation Management Plan;
- Community Health and Safety Management Plan;
- Pollution Prevention and Waste Management Plan, including management of hazardous and non-hazardous waste, spoil and excavated materials, wastewater, hazardous materials, fuels and chemicals, spill prevention and response, and pollution monitoring;
- Cultural Heritage Management Plan and Chance Find Procedure;
- Contractor's Labor Management Plan (C-LMP), including Labor Influx Management and Workers' Camp Management;
- Security Management Plan; and
- E&S Change Management Procedure.

The Contractor shall also prepare and implement specific procedures and arrangements, either as stand-alone procedures or as integral components of the relevant sub-management plans, for:

- works on, adjacent to, or otherwise interfacing with the operational railway, including railway traffic interface and worker–train safety;
- high-altitude, severe winter and cold-weather working conditions;
- remote and difficult-to-access work fronts, including emergency access, evacuation and communication arrangements;
- tunnel and confined-space works;
- electrical works, isolation and Lockout/Tagout (LOTO) arrangements associated with railway electrification and related systems within the Contractor's scope;
- level-crossing and community railway safety;
- protection, retention, documentation and management of existing railway structures with potential cultural, historic, architectural, engineering or landscape heritage value.

Each sub-management plan and procedure shall be consistent with the finalized ESIA and ESMP, the C-ESMP, applicable Project E&S instruments, the World Bank ESF, applicable national requirements, relevant TCDD requirements, and GIIP.

The Contractor shall submit the applicable sub-management plans and procedures to the Engineer and the Employer for review and approval in accordance with the Contract. The sub-management plans and procedures required prior to commencement of the relevant works shall also be subject to the World Bank's prior no-objection.

The final number, scope, structure, consolidation or separation of the sub-management plans and procedures may be adjusted, merged or revised through agreement between the Engineer, the Employer

and the Contractor, provided that no applicable E&S requirement, risk or mitigation measure is omitted or weakened as a result.

The definitive list and structure of the sub-management plans and procedures shall be confirmed and formalized within the finalized ESMP and C-ESMP approved by the Engineer and the Employer and subject to the World Bank's no-objection.

All sub-management plans and procedures shall be treated as living documents and shall be reviewed regularly and updated whenever required to reflect changes in design, construction methodology, sequencing, site conditions, E&S risks and impacts, monitoring results, incidents, grievances, corrective actions, or other relevant implementation circumstances. Any material revision shall be subject to the applicable review, approval and World Bank no-objection requirements.

12.4.6 Status of SEP

The SEP provided by the Employer was prepared prior to finalization of the detailed design and therefore constitutes a baseline stakeholder engagement instrument under the Design–Build Contract.

The Contractor acknowledges that the SEP:

- is based on the Project information available at the time of preparation, including the preliminary design, construction assumptions, sequencing of works, areas of influence, and identification of stakeholders;
- reflects the initial stakeholder mapping, consultation, disclosure, and engagement activities undertaken during Project preparation;
- may require refinement and supplementation to reflect the Contractor's final design, construction methodology, work fronts, Project Facilities, site-specific conditions, and stakeholder context; and
- constitutes the baseline framework for preparation and finalization of the SEP applicable to the Contractor's own Lot.

The Contractor shall prepare, develop, and finalize the SEP applicable to its own Lot, building upon the SEP provided by the Employer.

Preparation and finalization of the SEP shall include, as a minimum:

- updating stakeholder identification, mapping, and analysis based on the final design, Project footprint, areas of influence, Project Facilities, construction sequencing, and site-specific conditions;
- identifying Project-affected parties, other interested parties, and vulnerable or disadvantaged individuals or groups;
- identifying stakeholders affected by works on or adjacent to the operational railway, level crossings, temporary access restrictions, traffic diversions, construction logistics, remote work fronts, Project Facilities, and other construction-related activities;
- defining detailed and proportionate stakeholder engagement strategies and methods tailored to different stakeholder groups and risks;
- planning and implementing consultation, information disclosure, and engagement activities throughout implementation of the Works;
- ensuring that applicable disclosure and consultation requirements, including any required disclosure periods for E&S instruments, are reflected and implemented in accordance with World Bank requirements;

- establishing and operationalizing accessible, inclusive, transparent, and culturally appropriate Project-level grievance arrangements for affected communities and other stakeholders;
- ensuring that grievance channels remain accessible to persons in remote communities and locations where digital or telecommunications access may be limited;
- identifying and addressing barriers to participation of vulnerable or disadvantaged groups and incorporating appropriate targeted engagement measures;
- defining stakeholder engagement and communication arrangements for construction activities that may affect railway users, communities near level crossings, settlements, businesses, agricultural users, and other receptors along the railway corridor;
- establishing communication arrangements for planned disruptions, temporary closures, access restrictions, high-risk activities, emergency situations, and other construction-related events that may affect communities;
- considering cumulative social risks and impacts arising from interaction of the Works with other existing, planned, or reasonably foreseeable developments and activities;
- defining coordination and information-sharing arrangements with the contractors of the other Lots, where activities, access routes, stakeholder interfaces, construction schedules, cumulative impacts, or grievances may overlap or affect more than one Lot;
- maintaining a stakeholder database and appropriate records of consultations, disclosures, grievances, commitments, and follow-up actions; and
- ensuring alignment with the ESCP, finalized ESIA and ESMP, RP/LRP, C-ESMP, and other applicable E&S instruments.

The finalized SEP applicable to the Contractor's Lot shall be submitted to the Engineer and the Employer for review and approval and shall be subject to the World Bank's prior no-objection before commencement of the relevant physical works.

The Contractor shall implement the finalized SEP throughout execution of the Works and shall ensure that all stakeholder commitments, engagement activities, grievance arrangements, and disclosure requirements relevant to its activities are adequately resourced and implemented.

The SEP shall be treated as a living document and shall be reviewed regularly and updated whenever required to reflect changes in design, construction methodology, sequencing, work fronts, stakeholder context, Project Facilities, E&S risks and impacts, grievances, monitoring findings, or other relevant implementation circumstances. Any material revision shall be subject to the applicable review, approval, disclosure, and World Bank no-objection requirements.

12.4.7 World Bank No-Objection as a Condition Precedent to Construction

The Contractor shall not commence site establishment, physical works, or construction activities in the relevant section, work front, or Project Facility unless and until the applicable E&S documentation has been finalized, reviewed, approved, and, has received the World Bank's prior no-objection.

As applicable to the relevant scope, such documentation shall include:

- the finalized ESIA;
- the finalized ESMP;
- the finalized SEP;
- the C-LMP;
- the C-ESMP;
- applicable sub-management plans and procedures required under the C-ESMP;

- applicable biodiversity, cultural heritage, OHS, emergency preparedness, traffic, pollution prevention, worker accommodation, SEA/SH, security, and other E&S management plans required under the Contract; and
- applicable RP/LRP documentation and Sectional RP/LRP Completion Reports where land acquisition, resettlement, restrictions on land use, or livelihood impacts are present.

The Contractor shall prepare and submit all E&S instruments requiring review, approval, or World Bank prior no-objection sufficiently in advance of the relevant construction activities and shall allow adequate time in its Work Programme for preparation, review, revision, approval, disclosure, and World Bank no-objection.

At an early stage of implementation, and thereafter as necessary, the Contractor shall prepare and maintain an E&S Submission and Review Schedule, coordinated with the Engineer and the Employer and integrated into the Work Programme. The schedule shall identify, as applicable:

- each E&S instrument and supporting study to be submitted;
- the relevant section, activity, work front, or Project Facility to which it relates;
- the planned submission date by the Contractor;
- the required sequence of Engineer, Employer, and World Bank review, as applicable;
- reasonable indicative periods for review, revision, and resubmission;
- anticipated review and comment cycles;
- applicable disclosure requirements;
- the required approval or World Bank no-objection milestone; and
- the related construction hold point or planned commencement date.

The submission and review schedule shall be periodically reviewed and updated to reflect actual progress, the status of E&S studies and design development, comments received, and the sequencing of the Works.

The Contractor shall submit complete, internally reviewed, and technically adequate documentation in accordance with the agreed E&S Submission and Review Schedule. The Contractor shall promptly address consolidated comments issued by the Engineer and the Employer and, where applicable, comments arising from World Bank review.

The Engineer and the Employer shall undertake their respective reviews within reasonable periods consistent with the agreed E&S Submission and Review Schedule, taking into account the nature, complexity, completeness, urgency, and potential E&S significance of the relevant submission.

Where the World Bank's prior no-objection is required, the E&S Submission and Review Schedule shall include a reasonable indicative allowance for World Bank review and any subsequent comment and revision process. Such allowance shall be for programme planning purposes and shall not constitute a binding review period or guarantee as to the timing of the World Bank's review.

The Contractor shall make reasonable allowance in its Work Programme for review and comment cycles. No fixed maximum number of review cycles shall apply where further review is reasonably required to achieve compliance with the applicable E&S requirements. However, additional review cycles resulting from incomplete, inadequate, inconsistent, or non-compliant submissions, or from material changes introduced by the Contractor, shall remain the Contractor's responsibility.

The Engineer and the Employer shall, to the extent practicable, provide consolidated comments and coordinate the review process so as to avoid unnecessary duplication or delay.

No physical works, site establishment, construction-related occupation of land, or establishment of Project Facilities shall commence for the relevant section or activity until:

- the applicable finalized E&S instruments have been approved by the Engineer and the Employer;
- the World Bank's prior no-objection has been obtained;
- applicable land acquisition, RP/LRP, and land access requirements have been fully completed;
- applicable permits, licences, and authorizations have been obtained; and
- the Employer has issued the relevant written clearance to proceed.

Where land acquisition, resettlement, restrictions on land use, or livelihood impacts are present, no access to land, site establishment, or physical works shall commence until the applicable RP/LRP measures have been fully implemented and verified through the relevant Sectional RP/LRP Completion Report prepared by the CSC/Engineer, accepted by the Employer, and subject to the World Bank's no-objection.

The above requirements may be applied progressively by section, work front, activity, or Project Facility, provided that all applicable E&S, land access, permit, approval, and World Bank no-objection requirements have been completed for the specific scope concerned.

Prior to receipt of full approval for construction activities, the Contractor may, subject to the Engineer's prior written approval and compliance with applicable E&S, land access, permit, and safety requirements, undertake preparatory activities that do not result in material or irreversible E&S impacts.

Such activities may include, as applicable:

- design development;
- surveys and investigations;
- environmental, ecological, social, cultural heritage, geotechnical, and other baseline studies;
- preparation, development, and revision of E&S instruments;
- stakeholder engagement and disclosure activities;
- permitting and administrative activities;
- off-site procurement and fabrication;
- recruitment, induction, and training of personnel; and
- other low-impact preparatory activities approved by the Engineer.

Intrusive investigations may be undertaken only where specifically approved by the Engineer and where appropriate land access arrangements, permits, risk assessments, method statements, and E&S controls are in place.

Prior to receipt of the applicable approvals and World Bank no-objection, the Contractor shall not undertake permanent construction or any activity that may result in material or irreversible E&S impacts, including unauthorized vegetation clearance, establishment of Project Facilities requiring prior E&S approval, unauthorized occupation of land, or demolition or irreversible alteration of structures.

The Contractor shall remain responsible for delays arising from:

- failure to submit E&S instruments in accordance with the agreed E&S Submission and Review Schedule;
- incomplete, inadequate, or non-compliant submissions;
- failure to address comments within a reasonable period;
- failure to provide required supporting studies, surveys, or information;

- material changes to the design, construction methodology, sequencing, or Project Facilities introduced by the Contractor during the review process; or
- any other cause attributable to the Contractor.

Where the Contractor has complied with the agreed E&S Submission and Review Schedule, submitted complete and compliant documentation, and responded to comments within reasonable periods, but the relevant approval or World Bank no-objection is delayed for reasons demonstrably not attributable to the Contractor, such delay shall not automatically be treated as a Contractor-caused delay.

In such circumstances, the Contractor shall notify the Engineer in accordance with the Conditions of Contract and shall take reasonable measures to mitigate the programme impact, including resequencing of unaffected activities where practicable. Any contractual consequences, including any entitlement to Extension of Time or Cost, shall be assessed and determined in accordance with the applicable provisions of the Conditions of Contract.

For the avoidance of doubt, neither the occurrence of an approval delay nor the fact that World Bank no-objection is required shall, of itself, create an automatic entitlement to Extension of Time, additional payment, or compensation.

12.4.8 Integration of E&S Requirements into the Work Programme

The Contractor shall integrate all applicable E&S requirements into the Work Programme in a clear, logical, and traceable manner.

The Work Programme shall include, as mandatory and binding milestones and hold points, all E&S-related activities, approvals, no-objections, permits, studies, surveys, stakeholder engagement and disclosure activities, land access clearances, preparation and approval of E&S instruments, and other E&S preconditions required under the Contract.

The Work Programme shall, as applicable, clearly identify and sequence:

- preparation, review, approval, disclosure, and World Bank no-objection of the applicable ESIA, ESMP, SEP, C-LMP, C-ESMP, and sub-management plans and procedures;
- preparation and implementation of applicable RP/LRP measures, Sectional RP/LRP Completion Reports, and issuance of land access clearances;
- additional E&S studies, surveys, assessments, and monitoring required prior to commencement of specific activities;
- permitting and approval requirements for Project Facilities and Contractor-controlled Associated Facilities;
- stakeholder engagement and community notification activities required in advance of construction, access restrictions, traffic changes, level-crossing works, or other activities affecting communities;
- railway operational coordination requirements, including track possessions, work windows, operational clearances, and other prerequisites for works on or adjacent to the operational railway;
- seasonal and climatic constraints, including high-altitude and severe winter conditions, snow cover, restricted access, and other conditions that may affect safe execution of the Works;
- emergency access, medical response, evacuation, and communication arrangements for remote and difficult-to-access work fronts;
- interfaces and coordination requirements with the contractors of the other Lots where work programmes, access routes, railway operations, Project Facilities, stakeholder interfaces, cumulative impacts, or E&S risks may overlap; and

- any E&S-related corrective actions or conditions required by the Engineer, the Employer, or the World Bank prior to commencement or continuation of the relevant activities.

No construction activity, work front, site establishment, or establishment or operation of any Project Facility shall commence unless the corresponding E&S preconditions, approvals, World Bank no-objections, permits, and clearances required under the Contract have been fully satisfied.

Where an Associated Facility is developed, operated, or controlled by the Contractor, the corresponding Contractor-controlled activities shall not commence unless all applicable E&S preconditions, approvals, permits, and clearances have been fully satisfied.

The Contractor shall ensure that E&S milestones and hold points are fully integrated with the design, procurement, mobilization, construction, railway operational coordination, and overall implementation schedule and are updated whenever changes to the Works, design, sequencing, E&S risks, or approval requirements occur.

Such E&S milestones and hold points shall be subject to verification by the Engineer. The Contractor shall not proceed beyond an applicable E&S hold point until the Engineer has confirmed that the relevant contractual preconditions have been satisfied.

12.5 Additional Environmental and Social Studies and Surveys

12.5.1 General Requirement

The Employer-prepared ESIA, ESMP, and supporting studies constitute the baseline E&S information available at the time of tender. The Contractor shall review such information against the final design, construction methodology, Project Facilities, and site-specific conditions for its Lot.

Where additional studies, surveys, investigations, modelling, or monitoring are required, they shall be risk-based, proportionate, and limited to addressing identified information gaps or Project-specific needs.

The scope, locations, sampling requirements, monitoring frequency, and seasonal coverage of any additional studies and surveys shall be proposed by the Contractor and agreed with the Engineer and the Employer, based on the available baseline information, final design, sensitive receptors, applicable requirements, and the nature and significance of the anticipated impacts.

Adequate and representative baseline information shall not be unnecessarily repeated.

Additional studies arising from the Contractor's final design, construction methodology, sequencing, Project Facilities, or other matters within the Contractor's control shall remain within the Contractor's Design–Build obligations.

12.5.2 Types of Additional Studies and Surveys

Additional E&S studies, surveys, assessments, and investigations may include, but shall not be limited to:

- baseline noise and vibration measurements, impact assessment modelling, and monitoring;
- air quality baseline measurements, impact assessment modelling, and monitoring;
- climate change adaptation and climate resilience studies;

- assessments related to high-altitude, severe winter, snow, ice, extreme weather, and other climate-related risks affecting the Works;
- surface water and groundwater quality assessments;
- hydrological and drainage assessments where construction activities may affect watercourses, drainage patterns, or local water users;
- soil quality and contamination assessments;
- spoil and excavated material management studies, including identification and assessment of temporary and permanent storage or disposal sites, spoil generation forecasts, transport arrangements, and final destinations;
- hazardous materials and contaminated material assessments, where relevant;
- biodiversity surveys, including flora, fauna, avifauna, bat surveys, habitat assessments, and seasonal surveys;
- supplementary biodiversity surveys required to address seasonal data gaps or changes in the final design or construction footprint;
- community health and safety risk assessments;
- traffic and road safety assessments related to construction activities;
- level-crossing and railway community safety assessments;
- operational railway interface risk assessments for works on, adjacent to, or otherwise interfacing with the live railway;
- assessments of emergency access, evacuation, rescue, and medical response arrangements for remote and difficult-to-access work fronts;
- telecommunications and emergency communication coverage assessments, including identification of locations where conventional mobile communications are unavailable or unreliable and determination of alternative communication arrangements;
- tunnel and confined-space risk assessments, including ventilation, emergency egress, lighting, fire and rescue requirements, where relevant;
- electrical safety and railway electrification interface assessments within the Contractor's scope;
- surveys and assessments of existing railway structures with potential cultural, historic, architectural, engineering, or landscape heritage value, including photographic documentation and condition recording prior to intervention;
- additional cultural heritage surveys or assessments where required by the finalized design, construction methodology, competent authorities, or applicable E&S instruments;
- social baseline updates and site-specific socio-economic assessments where required due to changes in the Project footprint, construction methodology, Project Facilities, or affected communities;
- vulnerability assessments and other targeted social assessments where required;
- labor influx, worker accommodation, and labor-related assessments where necessary; and
- cumulative E&S impact assessments or updates where interactions with the other Lots, existing railway operations, Project Facilities, or other existing, planned, or reasonably foreseeable developments may create additional or cumulative risks and impacts.

The list above is non-exhaustive and shall be interpreted broadly. The Contractor shall identify and undertake any further studies, surveys, assessments, or investigations necessary to adequately identify, assess, avoid, minimize, mitigate, monitor, and manage the E&S risks and impacts associated with the Works.

12.5.3 Timing and Integration

Additional E&S studies, surveys, assessments, investigations, modelling, and monitoring shall be carried out, as applicable:

- during detailed design and design finalization, where required to support preparation and finalization of the ESIA, ESMP, SEP, C-ESMP, and other applicable E&S instruments;
- sufficiently in advance of commencement of specific construction activities where the results are required to define mitigation measures, obtain permits or approvals, complete method statements or risk assessments, or satisfy E&S hold points;
- prior to establishment or use of Project Facilities or Contractor-controlled Associated Facilities, where site-specific assessment is required;
- prior to works in environmentally or socially sensitive locations, operational railway interfaces, remote or difficult-to-access areas, or locations involving significant cultural heritage, biodiversity, community safety, or OHS risks; and
- during construction where monitoring results, incidents, grievances, design changes, unforeseen site conditions, changes in construction methodology, or emerging E&S risks indicate the need for further assessment.

The Contractor shall plan and programme such studies and surveys sufficiently in advance so that their completion, review, approval, disclosure, and World Bank no-objection, do not delay or compromise implementation of the applicable E&S mitigation measures.

The results and recommendations of such studies and surveys, including assessment of cumulative E&S risks and impacts where relevant, shall be incorporated, as applicable, into the finalized ESIA, ESMP, SEP, C-ESMP, C-LMP, relevant sub-management plans and procedures, method statements, risk assessments, Work Programme, and other applicable Project documents.

Where the results identify new or increased E&S risks or impacts, the Contractor shall revise or supplement the relevant E&S instruments and mitigation measures before commencement or continuation of the affected activity.

12.5.4 Standards and Methodology

All additional E&S studies, surveys, assessments, investigations, modelling, and monitoring shall:

- be designed and conducted by suitably qualified, competent, and experienced specialists with expertise relevant to the subject matter and Project risks;
- be undertaken in accordance with the World Bank ESF, GIIP, and applicable World Bank Group EHSGs, including sector-specific guidelines where relevant;
- comply with applicable national legislation, standards, permit conditions, and relevant TCDD requirements;
- use appropriate, scientifically and technically robust methodologies, equipment, laboratory procedures, quality assurance and quality control arrangements, and recognized assessment criteria;
- take account of applicable seasonal, climatic, geographic, operational railway, and site-specific conditions;
- be based on sufficient spatial and temporal coverage to support reliable assessment of the relevant risks and impacts; and
- clearly document the methodology, assumptions, limitations, findings, conclusions, and recommended mitigation, monitoring, or management measures.

Where seasonal surveys or measurements are required, the Contractor shall programme and complete them during the appropriate survey periods and shall not rely on unsuitable seasonal data where this could materially affect the reliability of the assessment.

12.5.5 Review, Approval and Disclosure

The Contractor shall submit all additional E&S studies, surveys, assessments, and investigations to the Engineer and the Employer for review and approval in accordance with the Contract.

Where such studies or assessments support, amend, supplement, or materially affect an E&S instrument subject to World Bank no-objection, or where otherwise required under the Contract, they shall also be submitted to the World Bank for prior no-objection before implementation of the relevant activity.

The Contractor shall address all comments issued by the Engineer, the Employer, and the World Bank and shall revise and resubmit the relevant documents as necessary until the required approval and no-objection have been obtained.

No activity dependent upon the findings or approval of an additional study, survey, assessment, or investigation shall commence until the applicable review, approval, and World Bank no-objection requirements have been completed.

The Contractor shall support all disclosure, consultation, and stakeholder engagement activities required in connection with such studies or their findings, including preparation of appropriate disclosure materials and participation in consultations where required.

12.5.6 Cost and Responsibility

All costs associated with additional E&S studies, surveys, assessments, investigations, modelling, and monitoring within the Contractor's responsibility, including specialist services, fieldwork, equipment, laboratory analysis, reporting, revision, consultation support, disclosure support, review, and approval processes, shall be borne by the Contractor.

The requirement to undertake any such study, survey, assessment, investigation, or monitoring shall not relieve the Contractor of any E&S obligation, responsibility, or liability under the Contract.

For the avoidance of doubt, all routine and reasonably foreseeable E&S studies, surveys, assessments, investigations, modelling, and monitoring required to:

- prepare and finalize the Contractor's E&S instruments;
- reflect the final design and construction methodology;
- assess Project Facilities and Contractor-controlled Associated Facilities;
- address site-specific and construction-related risks;
- comply with the World Bank ESF, applicable national requirements, relevant TCDD requirements, and GIIP; or
- fulfil the Contractor's Design–Build obligations,

shall be deemed included in the Contract Price and shall not constitute a Variation or give rise to entitlement to additional time or cost.

Only exceptional supplementary studies, surveys, assessments, investigations, or monitoring that could not reasonably have been identified, anticipated, or priced at the date of Contract signature, and that are expressly approved by the Employer and instructed in writing by the Engineer in accordance with the Contract, may be eligible for payment under the applicable Provisional Sum provisions.

12.6 Associated Facilities and Project Facilities

12.6.1 Definition and Scope

For the purposes of this Contract:

Project Facilities shall mean all temporary or permanent facilities, areas, installations, utilities, or infrastructure that are proposed, selected, designed, constructed, established, operated, used, or controlled by the Contractor or its Subcontractors and are required for execution of the Works.

The final binding determination as to whether a facility constitutes a Project Facility shall be made by the Engineer and the Employer.

Project Facilities include, but are not limited to:

- worker camps and accommodation facilities;
- borrow pits, quarries, and material extraction sites developed, established, or operated by the Contractor;
- spoil disposal, storage, and stockpile areas;
- batching plants, crushing plants, asphalt plants, workshops, maintenance areas, and fuel or chemical storage areas;
- access roads, haul roads, temporary crossings, and temporary connections constructed or established for the Works;
- temporary storage yards, laydown areas, and material handling areas;
- utilities established by the Contractor, including water abstraction points, wastewater collection or discharge points, temporary power supply facilities, and communication facilities; and
- any other temporary or permanent facility required for implementation of the Works and under the Contractor's control.

Associated Facilities shall mean facilities or activities that:

- are not funded as part of the Project;
- are directly and significantly related to the Project;
- would not have been constructed, expanded, or carried out if the Project did not exist; and
- are necessary for the Project to be viable.

The final binding determination as to whether a facility or activity constitutes an Associated Facility shall be made by the Engineer and the Employer, taking into account the Engineer's assessment and recommendation and, where applicable, consultation with the World Bank.

12.6.2 Environmental and Social Scope

All Project Facilities shall be considered an integral part of the Works and shall be fully covered by the Contractor's E&S obligations under the Contract.

The Contractor shall ensure that:

- all proposed Project Facilities are identified as early as practicable during detailed design and construction planning;

- the E&S risks and impacts associated with their location, establishment, operation, use, and decommissioning are identified and assessed;
- Project Facilities are included, as applicable, in the ESIA, ESMP, SEP, C-ESMP, C-LMP, RP/LRP, and relevant sub-management plans and procedures;
- alternatives analysis is undertaken for the siting of Project Facilities in order to avoid and minimize impacts on communities, biodiversity, cultural heritage, water resources, agricultural land, livelihoods, sensitive receptors, and other environmentally or socially sensitive areas;
- siting and design take into account high-altitude and severe winter conditions, year-round accessibility, emergency access and evacuation, medical response, reliable communications, and safe logistics arrangements;
- Project Facilities do not create unacceptable risks to the operational railway, railway users, communities, or the Works of the contractors of the other Lots;
- cumulative and interface risks associated with facilities, access routes, logistics, or activities shared with or located close to the other Lots are identified and managed in coordination with the Engineer and the relevant contractors; and
- appropriate avoidance, minimization, mitigation, monitoring, restoration, and management measures are implemented throughout the lifecycle of each Project Facility.

For Associated Facilities, the Contractor shall:

- identify such facilities to the extent reasonably known or reasonably foreseeable;
- provide relevant information to the Engineer and the Employer to support determination of Associated Facility status;
- assess related E&S risks and impacts where required, including alternatives analysis where relevant;
- where such facilities are developed, operated, or controlled by the Contractor, incorporate the applicable E&S risks, impacts, mitigation measures, and monitoring requirements into the relevant E&S instruments;
- implement all applicable mitigation and monitoring measures for any Associated Facility developed, operated, or controlled by the Contractor; and
- where an Associated Facility is outside the Contractor's control, cooperate with the Employer and relevant stakeholders and use reasonable efforts to support management of the facility in a manner consistent with the applicable E&S Standards.

For the avoidance of doubt, the Contractor shall not be responsible for obtaining permits, implementing mitigation measures, or ensuring compliance in respect of an Associated Facility outside its control, except to the extent of its contractual obligations to identify, assess, coordinate, disclose relevant information, and use reasonable efforts to influence the responsible third party.

12.6.3 Approval, Permits and Land Access (Project Facilities)

The Contractor shall be responsible for identifying, obtaining, and maintaining all permits, licences, approvals, authorizations, utility connections, and land access arrangements required for Contractor-selected Project Facilities, except where a specific responsibility is expressly assigned to the Employer under the Contract or applicable law.

Where land required for a Contractor-selected Project Facility is to be secured through lease, licence, easement, temporary occupation, or other voluntary commercial arrangement, the Contractor shall be responsible for arranging and maintaining such access at its own risk and cost.

Where the establishment of a Project Facility requires the exercise of statutory land acquisition or expropriation powers, the Employer shall retain responsibility for the statutory process and for determination of eligibility, entitlements, and compensation in accordance with applicable law and ESS5. The Contractor shall provide all necessary design, location, footprint, sequencing, and other information required to support such process.

Applications for permits, licences, approvals, and third-party authorizations falling within the Contractor's scope shall be prepared and submitted by the Contractor in a complete and timely manner. Where an application requires information, endorsement, authorization, or formal action that can only be provided by the Employer, the Employer shall provide reasonable cooperation in accordance with the Contract.

The Contractor shall ensure that:

- all necessary permits, licences, approvals, authorizations, and land access arrangements required for Project Facilities are obtained before establishment or use;
- land required for Contractor-selected Project Facilities is identified and proposed by the Contractor at its own risk and cost;
- all proposed locations and land-use or access arrangements are submitted to the Engineer and the Employer for prior review and clearance;
- no Project Facility is established in a location that has not been screened and assessed in accordance with the applicable E&S requirements;
- the Contractor does not determine ESS5 eligibility or entitlements, negotiate compensation or livelihood restoration entitlements, determine compensation values, or make unauthorized commitments to affected persons;
- where a proposed Project Facility results in land acquisition, physical displacement, economic displacement, livelihood impacts, or impacts on informal users, no access, occupation, site establishment, or physical works shall commence unless all applicable RP/LRP measures have been fully implemented and formally verified;
- where applicable, the relevant Sectional RP/LRP Completion Report has been prepared by the CSC/Engineer, accepted by the Employer, and received the World Bank's no-objection before written land access clearance is issued by the Employer;
- affected communities and other relevant stakeholders are informed and consulted in accordance with the finalized SEP; and
- the relevant E&S documentation has been reviewed and approved by the Engineer and the Employer and has received the World Bank's prior no-objection before establishment or operation of the Project Facility.

Temporary Project Facilities shall be decommissioned, cleared, made safe, and restored upon completion of their use in accordance with the Contract, applicable E&S requirements, permit conditions, and the requirements of the Employer and relevant authorities.

Restoration shall include, as applicable, removal of temporary structures, waste and contaminated materials, remediation of contaminated soil, restoration of drainage and landform, revegetation, reinstatement of access, and restoration of affected land to an agreed condition such that no significant residual E&S impacts remain.

Without prejudice to the Contractor's obligations under FIDIC Sub-Clause 4.22, all costs associated with decommissioning, remediation, reinstatement, and restoration of Project Facilities shall be borne by the Contractor.

For the avoidance of doubt, no Project Facility, including camps, accommodation facilities, quarries, borrow areas, spoil disposal or storage areas, batching plants, workshops, access roads, haul roads, storage yards, or temporary utilities, shall be established or used unless:

(i) all required permits, approvals, authorizations, and land access arrangements are in place;

(ii) all applicable E&S screening, assessment, consultation, mitigation, and clearance requirements under the Contract have been satisfied;

(iii) the applicable E&S instruments and management measures have been approved by the Engineer and the Employer; and

(iv) the applicable E&S instruments have received the World Bank's prior no-objection.

12.6.4 Subcontractors and Third Parties

The Contractor shall ensure that all Subcontractors and contracted third parties involved in the establishment, operation, use, maintenance, or decommissioning of Project Facilities comply with all applicable E&S requirements under the Contract.

The Contractor shall incorporate the applicable E&S requirements into all relevant subcontracts, purchase orders, supply agreements, service agreements, and other contractual arrangements.

Without prejudice to the Contractor's obligations under FIDIC Sub-Clause 4.4, the Contractor shall remain responsible for the works, acts, omissions, defaults, agents, and employees of its Subcontractors as if they were the works, acts, omissions, defaults, agents, and employees of the Contractor, including with respect to E&S compliance.

The Contractor shall remain fully responsible for the E&S performance of all Project Facilities under its control and shall monitor, inspect, and report on the E&S performance of such facilities throughout their lifecycle.

Where Project Facilities, access routes, logistics arrangements, or other activities interface with the Works of contractors of the other Lots, the Contractor shall coordinate with the Engineer and the relevant contractors to identify and manage shared, cumulative, and interface-related E&S risks and impacts.

For Associated Facilities outside the Contractor's control, where third parties are involved, the Contractor shall cooperate with the Employer and relevant stakeholders and use reasonable efforts to support alignment with applicable E&S requirements, without assuming responsibility for facilities outside its control.

12.7 ESS2 – Labor and Working Conditions

12.7.1 Contractor's Labor Management Plan (C-LMP)

The Contractor shall prepare, submit, obtain approval and World Bank no-objection for, and implement a Contractor's Labor Management Plan (C-LMP) applicable to its own Lot in accordance with ESS2, the ESCP, applicable national labor legislation, the Project LMP, and GIIP.

The C-LMP shall be prepared and approved prior to mobilization of the main workforce, commencement of construction activities, and establishment or operation of workers' camps or accommodation facilities.

The C-LMP shall reflect the workforce requirements, construction methodology, sequencing, working arrangements, Project Facilities, labor influx risks, remote working conditions, seasonal and climatic conditions, and other labor-related risks associated with the Contractor's Lot.

As a minimum, the C-LMP shall address:

- workforce planning, recruitment, mobilization, and demobilization procedures;
- transparent and non-discriminatory recruitment practices;
- local employment arrangements;
- terms and conditions of employment;
- employment contracts, lawful registration, wages, benefits, deductions, working hours, rest periods, leave, and overtime;
- prevention of excessive working hours and fatigue, including consideration of shift work, night work, operational railway work windows, remote working, and severe winter conditions;
- workers' accommodation, including applicable accommodation standards, welfare facilities, heating, sanitation, potable water, food hygiene, emergency arrangements, and regular inspections;
- occupational health and safety arrangements, including activity-specific risk assessments, method statements, Permit-to-Work procedures, competency requirements, medical fitness, periodic inspection and maintenance of critical equipment, and controls for high-risk activities;
- labor and OHS arrangements for works on or adjacent to the operational railway;
- arrangements for high-altitude, severe winter, cold-weather, remote, and difficult-to-access working conditions, including fatigue, cold stress, emergency access, communication, evacuation, and medical response;
- prevention of child labor and forced labor, including age verification, identity checks, work permit and eligibility checks, lawful employment registration, and prohibition of debt bondage, retention of identity documents or passports, coercion, threats, unlawful wage deductions, recruitment fees charged to workers, or involuntary work;
- non-discrimination and equal opportunity;
- prevention of harassment, violence, intimidation, retaliation, and discriminatory treatment in the workplace;
- gender equality and gender-sensitive workplace arrangements;
- prevention and management of SEA/SH and Gender-Based Violence and Harassment (GBVH);
- labor influx management and management of worker–community interactions;
- worker accommodation and camp management;
- worker grievance mechanism, including confidential and anonymous channels and specific arrangements for sensitive grievances;
- disciplinary procedures consistent with applicable law, ESS2, and the Project Code of Conduct;
- mandatory worker induction, refresher training, and toolbox training requirements;
- implementation and enforcement of the Project Code of Conduct;
- monitoring of labor and working conditions;
- management of Subcontractors, labor service providers, and other parties employing Project workers; and
- recordkeeping, monitoring, reporting, labor audit, and corrective action requirements.

The C-LMP shall clearly define roles and responsibilities for implementation, monitoring, reporting, and enforcement of labor requirements across the Contractor and all Subcontractors and labor service providers.

The C-LMP shall be submitted to the Engineer and the Employer for review and approval and shall be subject to the World Bank's prior no-objection.

The C-LMP shall be treated as a living document and shall be reviewed regularly and updated whenever required to reflect changes in workforce size or composition, construction methodology, work locations, labor risks, working arrangements, incidents, grievances, audit findings, or other relevant circumstances. Any material revision shall be subject to the applicable review, approval, and World Bank no-objection requirements.

The C-LMP shall include provisions for periodic labor audits to be conducted at least semi-annually, commencing upon mobilization of the main workforce. Additional labor audits may be required by the Engineer, the Employer, or the World Bank where significant labor risks, complaints, non-compliances, or changes in workforce arrangements are identified.

12.7.2 Code of Conduct and Mandatory Induction Training

All Project workers employed or engaged by the Contractor, Subcontractors, labor service providers, and relevant service providers shall sign the Project Code of Conduct prior to commencement of work.

No worker shall be permitted to commence work unless the worker has:

- received and understood the applicable Code of Conduct;
- signed the Code of Conduct;
- completed the mandatory induction training applicable to the worker's duties and work location; and
- completed any required competency verification, medical fitness assessment, or activity-specific training.

The Code of Conduct shall, as a minimum, address:

- respectful and professional workplace behavior;
- non-discrimination and equal opportunity;
- prohibition of SEA/SH, GBVH, sexual harassment, exploitation, abuse, intimidation, bullying, and retaliation;
- appropriate interaction with local communities and Project-affected persons;
- prohibition of child labor and forced labor;
- compliance with OHS requirements and instructions;
- prohibition of alcohol or illicit drugs where their use may affect workplace safety or conduct;
- protection of cultural heritage and the environment;
- use of the worker grievance mechanism;
- consequences of non-compliance with the Code of Conduct; and
- the obligation to report serious misconduct, unsafe practices, and violations through the appropriate reporting channels.

Mandatory induction training shall include, as applicable:

- Project E&S requirements;
- worker rights and responsibilities;
- terms and conditions of employment;
- worker grievance mechanism;

- OHS requirements;
- operational railway safety and worker–train interface risks;
- Permit-to-Work requirements;
- emergency preparedness and response;
- high-altitude, severe winter, cold-weather, and remote working arrangements;
- gender awareness, gender equality, and non-discrimination;
- SEA/SH and GBVH prevention and reporting;
- respectful workplace behavior;
- community health and safety and appropriate community interaction;
- cultural heritage awareness and Chance Find Procedure;
- environmental protection, pollution prevention, and waste management; and
- the Project Code of Conduct.

Induction and Code of Conduct requirements shall apply equally to workers employed by the Contractor and all tiers of Subcontractors.

The Contractor shall maintain an up-to-date register of all workers showing, as a minimum, employment status, employer, work location, induction completion, Code of Conduct signature, required competencies, and refresher training status.

The Contractor shall ensure that induction and awareness training is delivered in a language and manner that is understandable to the worker, taking into account literacy levels and other relevant accessibility considerations.

Refresher training shall be provided periodically and whenever there is a material change in work activity, work location, risk profile, applicable procedure, or following incidents, non-compliances, or identified deficiencies.

Compliance with mandatory induction and Code of Conduct requirements shall be monitored and reported in the monthly E&S reports. The target for workers completing mandatory induction and signing the Code of Conduct prior to commencement of work shall be 100 percent.

12.7.3 Local Employment and Local Workforce Development

The Contractor shall give priority to local employment to the extent technically and practically feasible, in accordance with ESS2, the ESCP, the Project LMP, and applicable national legislation.

For the purposes of this Contract, "local" shall mean individuals residing within the Project area of influence or surrounding districts, as further clarified by the Employer during implementation.

Local recruitment shall be conducted through transparent, fair, non-discriminatory, and accessible processes. Recruitment practices shall not create unauthorized commitments to communities or affected persons and shall not involve recruitment fees charged to workers.

Where required by the Employer or the World Bank, the Contractor shall propose targets and Key Performance Indicators (KPIs) related to local employment and workforce development.

Such KPIs may include, but shall not be limited to:

- percentage of local workers in the total workforce;
- percentage of local workers in unskilled and semi-skilled positions;
- number and percentage of local women employed;
- number and percentage of women employed in technical and skilled positions;
- number of local workers receiving skills development or vocational training; and
- retention rate of local workers.

Approved KPIs shall be monitored and reported as part of the regular E&S monitoring reports.

The Contractor shall maintain records of:

- local recruitment activities;
- workforce composition disaggregated by employer, local/non-local status, gender, and relevant job category;
- progress against approved local employment and workforce development KPIs;
- labor audits;
- workers' accommodation inspections;
- induction and refresher training;
- Code of Conduct compliance; and
- labor-related corrective actions.

This information shall be included in the regular E&S monitoring reports.

12.7.4 Subcontractors and Labor Service Providers

The Contractor shall ensure that all Subcontractors, labor service providers, and relevant service providers comply with the requirements of this Section, the Project LMP, the approved C-LMP, the Code of Conduct, and applicable ESS2 requirements.

The Contractor shall incorporate the applicable labor and working conditions requirements directly into all relevant subcontracts, labor service agreements, purchase orders, and service agreements.

The Contractor shall conduct due diligence before engagement of Subcontractors and labor service providers and shall monitor their labor and working conditions throughout their engagement.

The Contractor shall ensure that workers employed through Subcontractors or labor service providers receive terms and conditions, protections, grievance access, induction training, Code of Conduct requirements, OHS protection, and other applicable labor safeguards equivalent to those required under the Contract.

The Contractor shall ensure that all Subcontractors maintain accurate worker records and make such records available to the Contractor, Engineer, Employer, and authorized auditors upon request.

The Contractor shall remain fully responsible for labor and working conditions across the workforce employed or engaged for its Works. Without prejudice to FIDIC Sub-Clause 4.4, the Contractor shall be responsible for the acts, omissions, defaults, agents, and employees of any Subcontractor as if they were the acts, omissions, defaults, agents, and employees of the Contractor.

Non-compliance by a Subcontractor or labor service provider shall not relieve the Contractor of any obligation under the Contract. The Contractor shall require timely corrective action and shall take appropriate contractual measures where persistent or material labor non-compliances are identified.

12.7.5 Occupational Health and Safety Requirements

The Contractor shall establish, implement, maintain, monitor, and continuously improve an Occupational Health and Safety (OHS) management system applicable to its own Lot in accordance with ESS2, the ESCP, the finalized ESIA and ESMP, the approved C-LMP, the approved C-ESMP, applicable national OHS legislation, relevant TCDD requirements, applicable World Bank Group EHSGs, and GIIP.

The Contractor shall prepare, develop, finalize, obtain approval and World Bank no-objection for, and implement an Occupational Health and Safety Management Plan (OHSMP) applicable to its own Lot prior to commencement of physical works.

The OHSMP shall be based on the final design, construction methodology, sequencing, work fronts, Project Facilities, workforce arrangements, railway operational interfaces, remote working conditions, climatic conditions, and the specific hazards associated with the Works.

The Contractor shall ensure that no activity commences unless:

- the relevant hazards have been identified and assessed;
- an activity-specific risk assessment has been prepared;
- an appropriate method statement has been prepared and approved where required;
- applicable Permit-to-Work requirements have been satisfied;
- competent and medically fit personnel have been assigned;
- required plant, machinery, tools, and equipment have been inspected and approved;
- applicable isolation, exclusion, access control, railway protection, and emergency arrangements are in place;
- workers have received the required induction, training, and toolbox briefing; and
- appropriate supervision is available for the duration of the activity.

The Contractor shall implement specific OHS controls for high-risk activities, including, as applicable:

- works on, adjacent to, or otherwise interfacing with the operational railway;
- tunnelling and confined-space works;
- excavation and trenching;
- lifting and hoisting operations;
- work at height;
- hot works;
- electrical works, including isolation and Lockout/Tagout (LOTO);
- demolition and structural modification works;
- operation of heavy plant and construction equipment;
- night works and shift working;
- temporary works;
- hazardous materials and chemicals;
- blasting, where applicable;
- traffic interfaces;
- high-altitude and severe winter working conditions; and
- remote and difficult-to-access work fronts.

For works on or adjacent to the operational railway, the Contractor shall implement railway-interface safety measures in coordination with the Engineer, Employer, TCDD, and other authorized operational parties. Such measures shall include, as applicable:

- operational clearances;
- track possessions and work windows;
- railway work permits;
- electrical isolation;
- safe work zones and exclusion areas;
- safe refuges;
- train approach warning systems;
- competent railway safety personnel, lookouts, flagmen, or equivalent personnel where required;
- secure control of plant, equipment, and materials to prevent fouling of the operating railway envelope;
- shift and daily coordination arrangements;
- reliable communication with relevant railway operational personnel; and
- emergency evacuation and incident response arrangements.

No work shall commence or continue where the required railway protection, possession, operational clearance, communication, or other safety-critical control is unavailable or ineffective.

The Contractor shall implement specific arrangements for high-altitude, severe winter, and remote working conditions, including:

- cold stress, hypothermia, and frostbite prevention;
- suitable winter PPE and clothing;
- heated shelters and welfare arrangements;
- snow and ice management;
- safe access and evacuation arrangements;
- weather monitoring and work suspension criteria;
- winterized vehicles, plant, and equipment;
- emergency food, water, heating, and survival supplies where appropriate;
- isolated worker and check-in/check-out procedures;
- emergency rescue arrangements;
- alternative and redundant communication systems where mobile telecommunications are unreliable or unavailable; and
- appropriate medical response arrangements.

No work shall commence or continue at a remote or severe-weather location where safe access, emergency evacuation, reliable communication, adequate shelter, or appropriate medical response cannot be maintained.

The Contractor shall ensure that workers are medically fit and competent for the tasks assigned to them. Competency requirements shall be defined for high-risk activities and shall include, as applicable, licences, certificates, task-specific training, practical verification, medical fitness, and refresher training.

The Contractor shall maintain effective occupational health arrangements proportionate to workforce size, risk level, remoteness, and travel time to medical facilities, including trained first aiders, first aid facilities, emergency transport, ambulance arrangements, and qualified medical personnel where required.

The Contractor shall empower competent OHS personnel to stop any activity presenting an imminent or serious risk to life, health, railway safety, communities, or the environment.

No worker shall be subject to retaliation, disciplinary action, or adverse treatment for raising a legitimate OHS concern or exercising authorized stop-work rights in good faith.

All OHS requirements shall apply equally to the Contractor, Subcontractors, labor service providers, and other parties engaged in execution of the Works.

The Contractor shall remain fully responsible for OHS performance and compliance throughout its Lot.

12.7.6 Plant, Machinery and Equipment Approval and Tagging System

The Contractor shall establish and implement a formal approval, inspection, registration, and tagging system for all plant, machinery, vehicles, lifting equipment, work equipment, and other safety-critical equipment intended for use in connection with the Works.

No plant, machinery, vehicle, lifting equipment, work equipment, or other safety-critical equipment shall be put into service, mobilized to an active work front, or used for any Project activity unless it has been inspected and approved by the CSC/Engineer and has been issued with a valid **Green Tag**.

Prior to approval and use, the Contractor shall submit to the CSC/Engineer all applicable documentation, including, as relevant:

- equipment registration and identification information;
- ownership, rental, or lease documentation;
- valid statutory and periodic inspection certificates;
- maintenance and service records;
- manufacturer documentation and operating manuals;
- conformity certificates and statutory compliance documentation;
- load test certificates and lifting equipment inspection records;
- safety-device inspection and functional test records;
- insurance and roadworthiness documentation, where applicable;
- operator licences and competency certificates;
- medical fitness records of operators where required; and
- any other documentation required under applicable legislation, the Contract, or by the CSC/Engineer.

The Contractor shall provide a designated inspection and quarantine area for plant, machinery, and equipment pending review and approval.

Equipment awaiting approval may be brought into the designated inspection or quarantine area solely for inspection, testing, servicing, or documentation purposes but shall not be deployed to or operated at an active work front.

The CSC/Engineer shall conduct or witness, as appropriate, a physical inspection of the equipment and verify the submitted documentation before authorizing use.

Following satisfactory completion of the required documentation review and physical inspection, the CSC/Engineer shall authorize the equipment for Project use and a valid **Green Tag** shall be affixed in a clearly visible location.

The Green Tag shall include, as a minimum:

- unique equipment identification number;
- equipment description;
- inspection and approval date;
- expiry date or next required inspection date, where applicable; and
- identification of the responsible approving authority.

The Contractor shall maintain a current **Plant and Equipment Register** containing, as a minimum:

- equipment identification;
- owner or supplier;
- work location;
- approval status;
- Green Tag status;
- inspection and certification dates;
- next inspection due date;
- maintenance status;
- operator information where applicable;
- deficiencies identified;
- corrective actions; and
- removal from service and re-approval records.

Any equipment that:

- has not been approved;
- does not have a valid Green Tag;
- has an expired statutory or periodic inspection;
- is defective, damaged, or otherwise unsafe;
- has safety-critical documentation missing or invalid;
- has undergone significant repair, structural modification, welding, alteration, or replacement of a safety-critical component;
- has been involved in an incident that may have affected its structural integrity or safe operation; or
- otherwise fails to comply with applicable requirements,

shall be immediately removed from service, clearly identified as **Out of Service / Not Approved**, and physically prevented from use until the deficiency has been corrected and the equipment has been re-inspected and re-approved by the CSC/Engineer.

Any significant repair, structural modification, welding, alteration, or intervention affecting a safety-critical component shall automatically invalidate the existing Green Tag and prior approval.

Such equipment shall not return to service until all required inspection, testing, certification, maintenance documentation, and CSC/Engineer re-approval requirements have been satisfactorily completed and a new or renewed Green Tag has been issued.

The Contractor shall ensure that equipment removed from service is effectively isolated, immobilized, quarantined, or otherwise controlled to prevent unauthorized use.

The requirements of this Section shall apply equally to:

- Contractor-owned equipment;
- Subcontractor-owned equipment;
- rented or leased equipment;
- equipment supplied or operated by third parties;
- temporary or short-term equipment;
- standby or replacement equipment; and
- equipment transferred between work fronts.

Short-term use, rental status, urgent operational need, or third-party ownership shall not constitute grounds for exemption from inspection, approval, or Green Tag requirements.

The Contractor shall conduct routine checks to ensure that:

- Green Tags remain valid, legible, and securely affixed;
- statutory and periodic inspections remain valid;
- equipment condition remains consistent with its approved status;
- safety devices remain functional; and
- identified deficiencies are promptly corrected.

The CSC/Engineer may at any time inspect any item of plant, machinery, or equipment and may suspend or withdraw its approval where the equipment is considered defective, unsafe, inadequately maintained, improperly documented, modified without re-approval, or otherwise non-compliant.

Possession of a valid Green Tag or approval by the CSC/Engineer shall not relieve the Contractor of responsibility for the safety, maintenance, inspection, certification, competency of operators, or proper use of the equipment.

12.7.7 Permit-to-Work and High-Risk Activities

The Contractor shall establish and implement a formal Permit-to-Work (PTW) system for high-risk activities.

The PTW system shall be documented within the OHSMP and shall define:

- activities requiring a permit;
- permit authorization levels;
- competency requirements for permit issuers and receivers;
- prerequisites for issue;
- required supporting documentation;
- validity periods;
- shift handover arrangements;
- suspension and cancellation requirements;
- isolation and reinstatement arrangements;
- simultaneous operations controls;
- site verification requirements; and

- permit closure and recordkeeping requirements.

A Permit-to-Work shall be required, as applicable, for:

- work on or adjacent to the operational railway requiring operational protection or railway possession;
- electrical isolation and LOTO;
- confined-space entry;
- hot works;
- work at height involving significant risk;
- high-risk lifting operations;
- excavation and trenching where significant underground, collapse, or interface risks are present;
- tunnel works and other high-risk underground activities;
- demolition or major structural modification;
- work involving hazardous energy sources;
- work involving significant hazardous materials;
- night works involving elevated risk;
- activities involving simultaneous or interfacing high-risk operations; and
- any other activity designated by the Contractor, CSC/Engineer, Employer, or applicable legislation as requiring a Permit-to-Work.

No high-risk activity subject to the PTW system shall commence unless a valid permit has been issued following verification that all required controls are in place.

Issuance of a Permit-to-Work shall require, as applicable:

- approved method statement;
- activity-specific risk assessment;
- verification of competent and medically fit personnel;
- verification of approved and validly Green-Tagged equipment;
- required inspections and certifications;
- isolation and LOTO arrangements;
- exclusion zones and access controls;
- rescue and emergency arrangements;
- communication arrangements;
- railway possession or operational clearance where applicable;
- environmental and community protection measures;
- coordination of simultaneous operations; and
- pre-start site verification by competent personnel.

The Permit-to-Work shall be specific to the activity, location, equipment, workforce, shift, and validity period for which it is issued.

Separate permits shall be used where different high-risk activities require different controls or where simultaneous activities create additional interface risks.

A Permit-to-Work shall be suspended or cancelled where:

- site conditions materially change;
- the work method changes;

- the workforce or responsible supervision changes in a manner affecting safety;
- required isolation or railway protection is lost;
- weather conditions create unacceptable risk;
- the equipment used becomes defective or loses valid approval;
- an incident or near miss occurs;
- emergency conditions arise; or
- any permit condition is no longer satisfied.

Work shall not recommence until the relevant conditions have been reassessed and a valid Permit-to-Work has been reissued or formally revalidated.

The PTW system shall include specific requirements for coordination of simultaneous operations, including activities undertaken by different Subcontractors or contractors of the other Lots where work areas, access, railway operations, or hazards overlap.

The Contractor shall maintain a current PTW Register and retain copies of issued, suspended, cancelled, and closed permits together with supporting documentation.

The CSC/Engineer shall have full access to PTW records and may suspend any activity where the PTW system is not properly implemented.

Issuance of a Permit-to-Work shall not relieve the Contractor, responsible supervisor, or workers of their obligation to continuously assess conditions and stop work where unsafe conditions arise.

12.7.8 Primary Suppliers and Supply Chain Requirements

The Contractor shall identify and manage E&S risks associated with primary suppliers and other relevant suppliers whose goods, materials, equipment, or services are necessary for execution of the Works.

The Contractor shall apply risk-based due diligence to suppliers, proportionate to the nature of the goods or services supplied and the associated E&S risks.

As a minimum, the Contractor shall take appropriate measures to ensure that primary suppliers and relevant suppliers:

- do not employ or engage child labor in violation of applicable national legislation or ESS2 requirements;
- do not employ or engage forced labor, including trafficked persons, debt bondage, coercive labor practices, retention of identity documents, or other forms of involuntary work;
- implement appropriate measures to prevent and manage serious occupational health and safety risks affecting their workers;
- comply with applicable environmental, labor, health and safety, and social requirements relevant to the goods, materials, or services supplied;
- obtain and maintain all permits, licences, approvals, and authorizations required for their activities; and
- provide accurate and verifiable information reasonably required by the Contractor, the Engineer, or the Employer to demonstrate compliance with the applicable E&S requirements.

Where child labor, forced labor, trafficking, serious safety risks, or other material E&S non-compliance is identified in the supply chain, the Contractor shall:

- promptly notify the Engineer and the Employer where the matter is material;
- require the supplier to implement appropriate corrective and preventive measures within a reasonable and specified timeframe;
- monitor implementation of the required corrective measures; and
- where the supplier fails to remedy the identified material E&S risk or non-compliance within the required timeframe, replace the supplier with an alternative supplier capable of complying with the applicable E&S requirements, subject to the Contract.

The Contractor shall undertake appropriate due diligence regarding the origin of natural-resource-based construction materials, including, as applicable:

- aggregates;
- sand and gravel;
- stone;
- timber and wood products; and
- other natural materials used in significant quantities for the Works.

Such materials shall be obtained only from legally authorized sources and shall not be sourced from operations that are known to cause significant conversion or degradation of natural or critical habitats or otherwise materially conflict with ESS6 requirements.

For quarries, borrow areas, aggregate suppliers, sand and gravel sources, and similar material suppliers, the Contractor shall verify, as applicable:

- valid licences and permits;
- legal authorization for extraction and operation;
- environmental approvals;
- compliance with applicable E&S requirements;
- absence of material unresolved E&S non-compliances relevant to the supply; and
- traceability of the material source.

Where the Contractor identifies that a supplier cannot demonstrate legal sourcing or acceptable E&S performance, the Contractor shall not procure the relevant material from that supplier unless and until the deficiency has been satisfactorily resolved.

The Contractor shall incorporate applicable E&S requirements into relevant purchase orders, supply agreements, framework agreements, and other procurement arrangements.

The Contractor shall maintain appropriate records of supplier screening, due diligence, identified risks, corrective actions, and supplier replacement decisions and shall make such records available to the Engineer and the Employer upon request.

The Contractor shall remain responsible for implementing appropriate supply chain due diligence within the scope of its contractual obligations and shall not rely solely on supplier declarations where the nature of the supply presents a material E&S risk.

12.7.9 Worker Accommodation, Camp Management and Welfare Facilities

The Contractor shall ensure that all worker accommodation facilities, camps, kitchens, dining areas, sanitary facilities, laundry facilities, recreational areas, drinking-water systems, and other worker welfare

facilities established or used in connection with the Works are designed, established, operated, maintained, monitored, and decommissioned in accordance with ESS2, applicable national legislation, the approved C-LMP and C-ESMP, applicable World Bank Group guidance, and GIIP.

The Contractor shall prepare and implement appropriate worker accommodation and camp management arrangements as part of the C-LMP and C-ESMP. Such arrangements shall apply equally to accommodation operated directly by the Contractor or by Subcontractors, labor service providers, or third-party accommodation providers engaged for Project workers.

Accommodation and Gender-Sensitive Arrangements:

Worker accommodation shall provide adequate privacy, dignity, security, hygiene, and living conditions.

Where both female and male workers are accommodated, the Contractor shall provide appropriate gender-segregated accommodation and welfare facilities.

As a minimum:

- sleeping accommodation for female and male workers shall be physically separated;
- toilets and washing facilities shall be separate for female and male workers and clearly identified;
- showers and changing facilities shall be separate for female and male workers;
- **laundry and clothes-washing facilities shall be separate for female and male workers,** unless individual secure facilities providing equivalent privacy are provided;
- female accommodation and associated sanitary and welfare facilities shall provide adequate privacy and secure access;
- accommodation arrangements shall take account of the safety and security needs of female workers;
- adequate lighting shall be provided along access routes and around accommodation and welfare facilities;
- sanitary facilities shall be lockable from the inside and designed to prevent unauthorized access; and
- female workers shall have access to appropriate sanitary waste disposal facilities.

Accommodation arrangements shall not result in discrimination, unequal access to services, or inferior living conditions for any group of workers.

Cleanliness, Housekeeping and Hygiene:

The Contractor shall maintain all accommodation and welfare facilities in a clean, hygienic, safe, and habitable condition at all times.

A documented cleaning programme shall be established covering, as applicable:

- sleeping areas;
- toilets;
- showers;
- changing rooms;
- laundry facilities;
- kitchens;
- dining areas;
- recreational and common areas;

- corridors and access areas; and
- waste collection areas.

Cleaning frequency shall be proportionate to occupancy and use and shall be sufficient to maintain appropriate hygiene standards.

The Contractor shall ensure:

- regular removal of domestic and food waste;
- provision of adequate covered waste containers;
- effective pest and vector control;
- prevention of stagnant water and unsanitary conditions;
- adequate ventilation;
- adequate heating appropriate to the climatic conditions;
- appropriate maintenance of buildings, plumbing, electrical installations, heating systems, and sanitary facilities; and
- prompt repair of damaged or defective welfare facilities.

Particular arrangements shall be implemented for severe winter conditions to ensure continuous availability of heating, hot water, sanitary facilities, potable water, and safe access to accommodation facilities.

Drinking Water:

The Contractor shall provide workers with a continuous and sufficient supply of safe potable drinking water, free of charge.

Potable water shall comply with applicable national drinking-water standards and shall be:

- obtained from an approved and reliable source;
- protected against contamination during storage and distribution;
- available at accommodation facilities, dining areas, and workplaces as appropriate; and
- provided in sufficient quantity for the number of workers and climatic conditions.

Where drinking water is stored in tanks or distributed through temporary systems, such tanks and systems shall be regularly inspected, cleaned, disinfected, and maintained.

The Contractor shall undertake periodic drinking-water quality testing through appropriately qualified laboratories at frequencies required by applicable legislation, the approved management plans, or the Engineer.

Where testing identifies non-compliance with applicable potable-water standards, the affected supply shall not be used for drinking purposes until appropriate corrective measures have been completed and satisfactory water quality has been verified.

Food Quality, Kitchens and Catering:

All food preparation, storage, catering, and dining facilities shall be maintained in accordance with applicable food safety and hygiene requirements.

The Contractor shall ensure that:

- food supplied to workers is safe, hygienically prepared, nutritionally adequate, and of appropriate quality;
- meals are sufficient in quantity and appropriate to the physical demands and working conditions of the workforce;
- food storage and preparation areas are maintained in hygienic condition;
- raw and cooked food is appropriately separated;
- appropriate temperature control and cold-chain arrangements are maintained;
- expired, spoiled, contaminated, or otherwise unsuitable food is not served;
- kitchen and catering personnel receive appropriate hygiene and food-safety training;
- catering personnel undergo health examinations where required by applicable legislation;
- clean drinking water is used in food preparation;
- food waste is collected and disposed of hygienically; and
- kitchens, dining areas, refrigerators, storage facilities, utensils, and cooking equipment are regularly cleaned and inspected.

Where reasonably practicable, the Contractor shall take account of workers' dietary, cultural, religious, and medically documented dietary requirements.

Sanitary and Laundry Facilities:

The Contractor shall provide sanitary facilities in sufficient number and capacity for the workforce.

Such facilities shall include, as applicable:

- toilets;
- showers;
- washbasins;
- changing areas;
- hot and cold water;
- laundry and clothes-washing facilities;
- clothes-drying areas; and
- sanitary waste disposal facilities.

Facilities shall be maintained in proper working condition and shall be regularly cleaned and disinfected.

Female and male toilets, showers, changing rooms, and laundry facilities shall be physically separated and clearly identified.

The Contractor shall ensure sufficient availability of hot water, particularly at accommodation facilities and during severe winter conditions.

Room Conditions and Occupancy:

Sleeping accommodation shall provide sufficient space, ventilation, lighting, heating, furniture, and storage for personal belongings.

The Contractor shall:

- prevent overcrowding;
- provide each worker with an individual bed and suitable mattress;
- prohibit bed-sharing arrangements;
- provide clean bedding;
- provide appropriate individual storage or lockers;
- maintain reasonable separation between sleeping arrangements;
- establish regular linen cleaning and replacement arrangements; and
- maintain accommodation temperatures appropriate to health, comfort, and climatic conditions.

Health, Security and Welfare:

The Contractor shall provide appropriate arrangements for:

- first aid and access to medical services;
- fire prevention, detection, alarms, firefighting equipment, and evacuation;
- emergency lighting and emergency exits;
- security that respects workers' dignity and rights;
- safe pedestrian access within camp areas;
- recreational and rest facilities proportionate to workforce size;
- communication facilities, particularly at remote camps; and
- confidential access to the Worker Grievance Mechanism.

Camp rules shall be communicated to all workers during induction and shall include requirements relating to hygiene, respectful behavior, Code of Conduct, SEA/SH and GBVH prevention, alcohol and prohibited substances, fire safety, security, waste management, and community interaction.

Inspection and Monitoring:

The Contractor's E&S, OHS, social, and camp management personnel shall conduct documented routine inspections of worker accommodation and welfare facilities.

The Contractor shall undertake, at minimum:

- **daily housekeeping and hygiene checks** by the responsible camp management personnel; and
- **weekly documented E&S/OHS inspections** of accommodation and welfare facilities.

Inspections shall cover, as applicable:

- accommodation cleanliness and occupancy;
- toilets, showers, changing rooms, and laundry facilities;
- gender segregation and privacy arrangements;
- kitchens and food storage;
- food quality and hygiene;
- drinking-water availability and quality;
- heating and hot-water systems;
- waste management;
- pest control;
- fire and emergency arrangements;
- electrical safety;
- worker health and welfare;

- security arrangements; and
- grievances concerning accommodation, food, hygiene, privacy, or welfare.

Deficiencies shall be recorded, assigned to responsible personnel, corrected within specified timeframes, and verified for closure.

The CSC/Engineer, Sub-PIU, and Employer shall have the right to inspect worker accommodation, kitchens, dining areas, sanitary facilities, laundry areas, and other welfare facilities at any time.

Where accommodation, drinking water, food, sanitation, heating, or other essential welfare conditions present a serious risk to worker health, safety, dignity, or welfare, the CSC/Engineer may require immediate corrective action and, where necessary, suspension of use of the affected facility until satisfactory conditions are restored.

12.8 ESS3 – Resource Efficiency and Pollution Prevention

12.8.1 Resource Efficiency and Pollution Prevention Requirements

The Contractor shall manage resources, materials, wastes, emissions, discharges, hazardous substances, and pollution risks associated with the Works in accordance with ESS3, the finalized ESIA and ESMP, applicable national requirements, applicable World Bank Group EHSGs, GIIP, and the approved Pollution Prevention and Waste Management Plan (PPWMP).

Where the Works involve significant energy use, the Contractor shall implement technically and financially feasible measures to improve energy efficiency, including:

- selection and use of energy-efficient equipment, machinery, vehicles, and temporary facilities, where practicable;
- regular inspection and maintenance of vehicles, plant, and equipment;
- optimization of construction methods, logistics, transportation, and working arrangements to avoid unnecessary energy consumption; and
- monitoring of significant energy consumption where appropriate.

Where the Works involve significant water use or have the potential to affect water resources, the Contractor shall:

- minimize water consumption and avoid unnecessary abstraction;
- assess the availability and sustainability of proposed water sources prior to use;
- avoid or minimize adverse impacts on local water users, irrigation systems, surface waters, groundwater, wetlands, and aquatic ecosystems;
- obtain all required permits and approvals for water abstraction, use, and discharge;
- implement appropriate water conservation, reuse, and recycling measures where technically feasible; and
- monitor water abstraction, consumption, wastewater generation, and discharge where required.

The Contractor shall promote efficient use of raw materials and construction materials through:

- avoidance and minimization of material wastage;
- reuse, recovery, and recycling of materials where technically and environmentally appropriate;

- appropriate management and beneficial reuse of excavated materials where suitable;
- responsible sourcing of materials in accordance with applicable legal and E&S requirements; and
- maintaining records sufficient to demonstrate the origin and lawful supply of significant construction materials, where required.

The Contractor shall prevent and minimize air emissions, dust, noise, vibration, and other nuisance impacts arising from the Works through appropriate engineering, operational, and administrative controls.

Such measures shall include, as applicable:

- dust suppression and control at work fronts, access roads, haul roads, stockpiles, crushing or batching facilities, and material handling locations;
- covering or otherwise controlling dusty materials during transport and storage;
- maintenance of vehicles, machinery, and equipment to control emissions;
- implementation of appropriate noise and vibration controls;
- scheduling of high-noise or high-vibration activities to minimize impacts on sensitive receptors;
- monitoring of air quality, noise, and vibration where required by the ESIA, ESMP, permits, complaints, or site-specific risk assessment; and
- implementation of corrective measures where applicable standards, thresholds, or Project requirements are exceeded.

The Contractor shall prevent pollution of surface water and groundwater through:

- appropriate management of wastewater, stormwater, runoff, dewatering water, and drainage;
- prevention of uncontrolled or unauthorized discharges;
- appropriate treatment of wastewater prior to discharge or disposal;
- erosion and sediment control;
- protection of watercourses and drainage systems during construction;
- spill prevention, containment, response, and remediation arrangements; and
- monitoring of water quality where required.

The Contractor shall prevent soil and land contamination through:

- appropriate storage and handling of fuels, oils, lubricants, chemicals, hazardous materials, and wastes;
- use of suitable impermeable surfaces and secondary containment where required;
- controlled fueling, maintenance, and washing of vehicles and equipment;
- prompt containment, reporting, clean-up, and remediation of spills and leaks;
- identification and appropriate management of contaminated soil or materials encountered during the Works; and
- prevention of uncontrolled disposal or burial of wastes.

The Contractor shall manage all waste in accordance with the waste hierarchy, giving priority to:

1. prevention and minimization;
2. reuse;
3. recycling and recovery;
4. treatment; and
5. safe disposal as a last resort.

Waste management shall include hazardous and non-hazardous wastes, municipal-type wastes, construction and demolition wastes, packaging wastes, waste oils, contaminated materials, wastewater treatment residues, spoil and excavated materials, and any other waste streams generated by the Works.

Hazardous and non-hazardous wastes shall be appropriately classified, segregated, labelled, stored, handled, transported, recovered, treated, and disposed of through authorized facilities and service providers in accordance with applicable legislation and the approved PPWMP.

The Contractor shall maintain complete and traceable records of waste generation, temporary storage, transport, recovery, recycling, treatment, and final disposal.

Spoil and excavated materials shall be managed in accordance with the approved PPWMP and applicable site-specific arrangements. The Contractor shall:

- estimate and regularly update spoil and excavated material quantities;
- maximize technically and environmentally suitable reuse within the Works;
- identify and obtain approval for temporary and permanent storage or disposal locations;
- assess E&S risks associated with proposed spoil management locations and transport routes;
- prevent disposal in watercourses, flood-prone areas, sensitive habitats, agricultural areas, culturally sensitive locations, or other unauthorized locations; and
- ensure appropriate stabilization, drainage, erosion control, rehabilitation, and restoration of spoil storage and disposal areas.

The Contractor shall ensure that hazardous materials and chemicals are:

- identified, classified, and inventoried;
- procured and used only where necessary and in controlled quantities;
- transported, stored, handled, and used safely;
- stored with appropriate segregation, labelling, security, fire protection, and secondary containment;
- subject to spill prevention and emergency response arrangements; and
- managed by trained and authorized personnel.

Current Safety Data Sheets (SDS) shall be readily available at relevant workplaces and storage locations, and workers shall receive appropriate training in the handling, storage, use, emergency response, and disposal requirements applicable to hazardous materials.

Particular pollution prevention arrangements shall be established for remote and difficult-to-access work fronts to ensure that wastes, wastewater, fuels, chemicals, and contaminated materials are not improperly stored or disposed of due to logistical or seasonal access constraints.

The Contractor shall also plan for severe winter conditions, including measures to prevent environmental impacts associated with frozen drainage systems, snowmelt, winter fuel storage, de-icing materials, restricted waste collection, and delayed access to authorized disposal facilities.

The Contractor shall monitor resource efficiency and pollution prevention performance throughout implementation of the Works.

Monitoring shall include, as applicable:

- energy and fuel consumption;
- water abstraction and consumption;
- wastewater generation, treatment, and discharge;
- waste generation, reuse, recycling, recovery, and disposal;
- spoil and excavated material management;
- hazardous materials and chemical inventories;
- air quality, dust, noise, and vibration;
- surface water, groundwater, and soil quality;
- spills, leaks, unauthorized discharges, and pollution incidents; and
- implementation and effectiveness of corrective and preventive measures.

Relevant monitoring results, trends, exceedances, incidents, and corrective actions shall be included in the Contractor's regular E&S monitoring reports.

The Contractor shall ensure that all Subcontractors, suppliers, waste contractors, transport operators, and service providers comply with the applicable requirements of this Section.

The Contractor shall remain fully responsible for compliance with ESS3 and for the environmental performance of activities undertaken by its Subcontractors and service providers within the scope of the Works.

12.8.2 Pollution Prevention and Waste Management Plan

The Contractor shall prepare, finalize, submit, obtain approval and World Bank no-objection for, and implement a Pollution Prevention and Waste Management Plan (PPWMP) applicable to its own Lot.

The PPWMP shall build upon the PPWMP provided by the Employer and shall be tailored to the final design, construction methodology, work fronts, Project Facilities, waste streams, spoil quantities, logistics arrangements, site-specific environmental conditions, and other characteristics of the Contractor's Works.

The PPWMP shall include, as a minimum:

- identification and characterization of anticipated waste streams;
- waste minimization, segregation, reuse, recycling, recovery, treatment, and disposal arrangements;
- spoil and excavated material management, including estimated quantities, proposed reuse, storage, transport, and final destinations;
- identification and assessment of temporary waste, spoil, and material storage areas;
- hazardous waste management;
- wastewater and sewage management;
- stormwater, runoff, erosion, and sediment management;
- fuel, oil, chemical, and hazardous material management;
- spill prevention, preparedness, response, clean-up, and remediation arrangements;
- air quality and dust management;
- noise and vibration management;
- soil and groundwater contamination prevention;
- requirements applicable to batching plants, workshops, maintenance areas, fuel storage areas, camps, and other Project Facilities;
- arrangements for remote work fronts and severe winter conditions;
- inspection, monitoring, recordkeeping, and reporting requirements;
- identification of authorized transporters, recycling, treatment, and disposal facilities, where known;

- roles and responsibilities;
- emergency arrangements; and
- corrective action requirements.

The PPWMP shall be submitted to the Engineer and the Employer for review and approval and shall be subject to the World Bank's prior no-objection before commencement of activities generating the relevant wastes or pollution risks.

The PPWMP shall be treated as a living document and shall be reviewed and updated whenever required to reflect changes in design, construction methodology, waste streams, spoil quantities, Project Facilities, disposal or recovery routes, environmental conditions, monitoring results, incidents, complaints, or other relevant circumstances. Any material revision shall be subject to the applicable review, approval, and World Bank no-objection requirements.

12.9 ESS4 – Community Health, Safety and Security

In addition to, and without prejudice to, the Contractor's general obligations under the Conditions of Contract, including Sub-Clauses 4.8, 4.13, 4.14, 4.15, 4.18 and 4.21, as relevant to community health, safety and security, the Contractor shall comply with the specific requirements set out in this Section.

The requirements of this Section shall be read together with, and shall not limit or replace, the Contractor's obligations under the Conditions of Contract, the finalized ESIA and ESMP, the SEP, the Community Health and Safety Management Plan, the Traffic and Transportation Management Plan, the Emergency Preparedness and Response Plan, the C-ESMP, and other applicable E&S instruments.

12.9.1 Community Health and Safety Risk Assessment

The Contractor shall identify, assess, prevent, minimize, and manage risks to community health and safety arising from the Works.

Such risks shall include, but not be limited to:

- construction-related hazards;
- risks arising from works on or adjacent to the operational railway;
- train movements and worker/community interaction with the operational railway;
- level-crossing safety risks;
- construction traffic and road safety risks;
- temporary road, railway, pedestrian, agricultural, or community access restrictions;
- noise, vibration, dust, emissions, and other construction-related nuisance impacts;
- blasting, excavation, lifting, demolition, and other high-risk activities where relevant;
- interactions between workers and local communities;
- labor influx and associated community risks;
- risks related to Project Facilities, Contractor-controlled Associated Facilities, and worker accommodation;
- hazardous materials, fuels, chemicals, waste, and pollution incidents;
- risks associated with remote and difficult-to-access work areas;
- extreme winter conditions, snow, ice, reduced visibility, and other severe weather events affecting communities or access;

- emergency response constraints, including locations with limited road access, medical services, or telecommunications; and
- cumulative and interface risks arising from activities undertaken by the contractors of the other Lots or other ongoing activities within the railway corridor.

Community health and safety risks shall be assessed during preparation and finalization of the ESIA, ESMP and SEP and shall be reflected in the C-ESMP, Community Health and Safety Management Plan, Emergency Preparedness and Response Plan, Traffic and Transportation Management Plan, and other applicable sub-management plans and procedures.

The Contractor shall review and update community health and safety risk assessments whenever there are material changes in design, construction methodology, sequencing, work fronts, railway operations, access arrangements, Project Facilities, or other circumstances affecting community risk.

12.9.2 Traffic and Road Safety

The Contractor shall assess and manage traffic and road safety risks associated with the Works and shall prepare and implement a Traffic and Transportation Management Plan.

Traffic management measures shall include, as applicable:

- identification and assessment of construction traffic routes;
- safe routing of construction vehicles and heavy transport;
- avoidance or minimization of construction traffic through sensitive locations where feasible;
- specific controls for residential areas, schools, health facilities, markets, village roads, and other sensitive receptors;
- implementation of appropriate speed limits and driver rules;
- installation and maintenance of appropriate signage, barriers, lighting, warning systems, and traffic control measures;
- safe management of vehicle and pedestrian interfaces;
- management of oversized or abnormal loads;
- arrangements for temporary road closures, diversions, and access restrictions;
- advance notification and consultation with affected communities regarding material traffic changes;
- driver competency, fitness, working-hour, and fatigue-management requirements;
- implementation of an In-Vehicle Monitoring System, including GPS tracking, for Project vehicles where required;
- vehicle inspection and preventive maintenance;
- reporting and investigation of road traffic incidents and near misses; and
- coordination with the Engineer, relevant authorities, affected communities, and contractors of the other Lots where construction traffic routes or logistics arrangements overlap.

Traffic-related risks to communities shall be minimized throughout implementation of the Works.

12.9.3 Operational Railway and Level Crossing Community Safety

The Contractor acknowledges that the Works will be undertaken on, adjacent to, or in close proximity to an operational railway and that railway services may continue during implementation of the Works.

The Contractor shall identify, assess, and manage risks to communities, railway users, road users, pedestrians, livestock, and other third parties arising from the interaction between construction activities and railway operations.

The Contractor shall, as a minimum:

- coordinate all relevant activities with the Engineer, the Employer, TCDD, and other authorized railway operational parties;
- comply with applicable TCDD operational safety requirements, instructions, work permits, possessions, and railway protection arrangements;
- prevent unauthorized public access to work areas within or adjacent to the operational railway;
- ensure that construction activities, plant, materials, temporary works, and Project Facilities do not create unacceptable risks to railway users or interfere with safe railway operations;
- provide appropriate fencing, barriers, warning signs, lighting, flagging, and access controls at locations where construction activities interface with communities or railway users;
- establish and maintain safe temporary pedestrian, vehicle, livestock, and agricultural access arrangements where existing access is affected by the Works;
- assess and manage risks associated with works at or near level crossings, including temporary changes to crossing arrangements, visibility, signage, road alignment, pedestrian access, and railway operations;
- provide advance information to affected communities regarding temporary closures, diversions, changes in level-crossing arrangements, or other material access restrictions;
- implement additional community awareness and safety measures at high-risk locations, including settlements, schools, frequently used crossings, and locations with informal crossing practices;
- ensure that no temporary arrangement creates an uncontrolled or unauthorized railway crossing;
- maintain effective communication with relevant railway operational personnel during activities that may affect the operational railway; and
- promptly rectify any unsafe condition affecting railway users or surrounding communities.

Where construction activities affect level crossings or community access across the railway, the Contractor shall maintain safe access to the extent practicable or provide an appropriate alternative arrangement approved by the Engineer and relevant authorities.

12.9.4 Management of Construction-Related Community Risks

The Contractor shall implement measures to prevent or minimize risks to communities arising from construction activities, including:

- controlling public access to construction sites, work fronts, temporary facilities, excavations, and hazardous areas;
- maintaining safe site boundaries, fencing, barriers, signage, and lighting;
- implementing safe working practices in proximity to communities, public roads, railway stations, level crossings, agricultural areas, and other sensitive locations;
- minimizing disruption to community access, services, utilities, livelihoods, and daily activities;
- maintaining safe access to homes, businesses, agricultural land, public services, and community facilities wherever practicable;
- communicating construction schedules, planned disruptions, hazards, and mitigation measures to affected communities in advance;
- implementing additional protective measures for vulnerable or disadvantaged persons where required; and

- coordinating overlapping community risks and mitigation measures with the contractors of the other Lots where relevant.

Where temporary disruption or residual risk cannot be avoided, the Contractor shall implement appropriate mitigation, alternative access, communication, monitoring, and corrective measures.

12.9.5 Emergency Preparedness and Response

The Contractor shall establish, maintain, and implement emergency preparedness and response arrangements addressing incidents and emergencies that may affect workers, communities, railway users, or the environment.

Potential emergency scenarios shall include, as applicable:

- railway-related accidents, including train strikes, collisions, derailments, or incidents arising from construction–railway interfaces;
- accidents involving construction vehicles or heavy equipment;
- incidents at level crossings;
- fires, explosions, spills, or hazardous material incidents;
- tunnel and confined-space emergencies;
- electrical incidents associated with railway electrification and other electrical systems within the Contractor's scope;
- extreme winter conditions, heavy snowfall, icing, blizzards, reduced visibility, and road closures;
- landslides, rockfall, flooding, and other natural hazards;
- earthquakes and seismic events;
- medical emergencies in remote or difficult-to-access areas; and
- other emergencies with potential off-site or community impacts.

Emergency arrangements shall be coordinated, as appropriate, with the Engineer, Employer, TCDD, local authorities, hospitals, ambulance services, fire services, search and rescue services, and other relevant emergency organizations.

The Contractor shall assess emergency access, evacuation routes, response times, and communication coverage for all active work fronts and Project Facilities.

Where conventional mobile telecommunications are unavailable or unreliable, the Contractor shall provide reliable alternative and, where necessary, redundant communication systems, such as two-way radio, radio repeaters, satellite communication, or equivalent arrangements.

No work shall commence or continue at a remote or high-risk work location where effective emergency communication, safe access, evacuation, or required medical response arrangements cannot be maintained.

The Contractor shall ensure that adequate medical emergency response arrangements are maintained at all active work fronts, Project Facilities, and worker accommodation areas, including night shifts and out-of-hours activities.

Such arrangements shall include, as appropriate to the risk level, workforce size, remoteness, access conditions, and travel time to medical facilities:

- trained first aiders;
- appropriate first aid facilities and equipment;
- emergency transport arrangements;
- reliable access to ambulance services;
- qualified medical personnel; and
- on-site ambulance and/or medical personnel where justified by the risk assessment.

Emergency response arrangements shall be documented in the C-ESMP, Occupational Health and Safety Management Plan, Community Health and Safety Management Plan, and Emergency Preparedness and Response Plan and shall be periodically tested through drills.

12.9.6 Security Arrangements

Where security personnel are employed in connection with the Works, the Contractor shall ensure that security arrangements:

- are based on an assessment of security risks and are proportionate to those risks;
- comply with applicable national legislation;
- are consistent with ESS4, GIIP, and applicable Project E&S instruments;
- respect the rights, dignity, safety, and security of workers and communities; and
- do not obstruct access to Project grievance mechanisms.

Security personnel shall receive training prior to commencement of their duties and periodic refresher training on:

- appropriate and respectful conduct;
- interaction with workers and communities;
- prevention of SEA/SH and GBVH;
- non-discrimination;
- prohibition of retaliation;
- appropriate use of force and prohibition of excessive use of force;
- applicable Code of Conduct requirements; and
- incident reporting and grievance referral procedures.

The Contractor shall prepare and implement a Security Management Plan.

12.9.7 Monitoring, Incident Reporting and Corrective Action

The Contractor shall monitor community health, safety, and security performance throughout implementation of the Works.

Monitoring shall include, as applicable:

- community health and safety incidents and near misses;
- railway-interface and level-crossing incidents;
- construction traffic incidents;
- access-related complaints and disruptions;
- security-related incidents;
- emergency response performance;
- community grievances and concerns;

- implementation of community safety controls; and
- corrective and preventive actions.

Any incident or accident with actual or potential significant impact on communities, railway users, or the public shall be reported immediately to the Engineer and the Employer and no later than twenty-four (24) hours after the Contractor becomes aware of the incident, in accordance with the incident reporting requirements of the Contract.

The Contractor shall investigate relevant incidents, identify root and underlying causes, and implement corrective and preventive actions within the required timeframe.

12.9.8 Subcontractors and Third Parties

The Contractor shall ensure that all Subcontractors, transport operators, security providers, labor service providers, and other service providers involved in the Works comply with the applicable requirements of this Section.

The Contractor shall incorporate relevant community health, safety, railway-interface, traffic, emergency response, and security requirements into applicable subcontracts and service agreements and shall monitor compliance throughout implementation.

The Contractor shall remain fully responsible for community health, safety, and security risks and impacts arising from activities undertaken by its Subcontractors and service providers.

Where community health and safety risks overlap with or may be affected by activities of contractors of the other Lots, the Contractor shall coordinate with the Engineer and the relevant contractors to ensure consistent controls, communication arrangements, emergency response, and management of cumulative and interface risks.

12.10 ESS5 – Land Acquisition, Resettlement and Livelihood Restoration

12.10.1 Allocation of Roles and Responsibilities

The allocation of responsibilities for land acquisition, resettlement, and livelihood restoration activities shall be as defined in the Resettlement Framework and applicable RP/LRP and shall include the following:

- statutory expropriation and payment of compensation required under national legislation shall remain the responsibility of the Employer through the relevant competent authorities;
- preparation, development, and updating of the RP/LRP shall be undertaken by the Employer following finalization of the relevant design and land requirements;
- determination of eligibility, entitlements, compensation, assistance, livelihood restoration measures, and implementation of the RP/LRP shall remain under the responsibility of the Employer;
- stakeholder engagement specifically related to entitlement determination, compensation, resettlement, and livelihood restoration shall be led by the Employer in accordance with the applicable RP/LRP and SEP; and
- without prejudice to the Employer's responsibility for providing access to the Site and to the Contractor's obligations under FIDIC Sub-Clause 4.13 in respect of additional facilities or areas outside the Site required for the Works, the Contractor shall not access, occupy, establish facilities

on, or commence works on any such land unless the applicable land access arrangements have been reviewed and cleared by the Employer and any required ESS5 measures have been completed.

The Contractor shall not assume or be assigned decision-making authority with respect to ESS5 eligibility, entitlements, compensation levels, valuation, or livelihood restoration assistance.

The Contractor shall not directly determine eligibility, assess or negotiate ESS5 entitlements, determine compensation values or rates, or make commitments to Project-affected persons unless expressly authorized in writing by the Employer.

Where applicable national legislation and ESS5 requirements differ, the Project shall be implemented in accordance with the applicable ESS5 requirements and the arrangements agreed with the World Bank.

12.10.2 Contractor's Obligations under ESS5

Notwithstanding the above allocation of responsibilities, the Contractor shall:

- identify, as early as practicable during detailed design, all permanent and temporary land requirements arising from its design, construction methodology, sequencing, temporary works, access arrangements, Project Facilities, and other activities within its responsibility;
- upon finalization or material development of the design for a section, promptly notify the Engineer and the Employer in writing and provide all drawings, coordinates, schedules, land requirement information, construction methodology information, and other documentation necessary for the Employer to prepare, update, and implement the applicable RP/LRP;
- promptly notify the Engineer and the Employer of any subsequent design or construction change that may create additional land acquisition, temporary land occupation, access restriction, physical displacement, economic displacement, or livelihood impacts;
- not access, occupy, establish facilities on, or commence physical works on any parcel or section affected by ESS5 impacts unless the Employer has issued written land access clearance;
- cooperate fully with the Employer, Sub-PIU, and CSC/Engineer in preparation, implementation, monitoring, and completion of ESS5 instruments;
- provide timely and accurate information regarding construction schedules and sequencing that may affect compensation, relocation, livelihood restoration, agricultural activities, seasonal land use, or access arrangements;
- implement any supplementary ESS5 mitigation or livelihood restoration measures assigned to the Contractor through written instruction in accordance with the Contract;
- avoid unnecessary temporary land take, access restrictions, or disruption of livelihoods through appropriate design and construction planning;
- maintain safe and reasonable access to residences, agricultural land, grazing areas, businesses, community facilities, and other livelihood resources wherever practicable during construction; and
- immediately notify the Engineer and the Employer of any unauthorized occupation, access, damage, livelihood impact, or grievance relating to land or resettlement arising from the Contractor's activities.

No physical works shall commence on any parcel or section affected by land acquisition, physical displacement, economic displacement, livelihood impacts, or other ESS5 impacts unless all applicable RP/LRP measures and supplementary ESS5 measures have been completed for that parcel or section.

The CSC/Engineer shall prepare the relevant Sectional RP/LRP Completion Report confirming implementation of all applicable compensation, assistance, livelihood restoration, and supplementary ESS5

measures. The report shall be accepted by the Employer and, under the Contract or applicable financing arrangements, submitted to the World Bank for no-objection.

The applicable Sectional RP/LRP Completion Report, the World Bank's no-objection, and the Employer's written land access clearance shall constitute conditions precedent to access to land and commencement of physical works in the relevant parcel or section.

The Contractor shall comply with the cut-off date established by the Employer in accordance with ESS5 and the applicable RP/LRP.

The Contractor shall not recognize, facilitate, encourage, or make any unauthorized commitment, payment, or assistance to persons establishing new occupation, use, structures, crops, businesses, or other assets after the applicable cut-off date unless otherwise instructed in writing by the Employer.

The Contractor shall support the Employer in communicating the cut-off date to affected communities and individuals and shall take no action that could undermine its integrity or enforceability.

12.10.3 Informal Users and Livelihood Impacts

The Contractor acknowledges that ESS5 applies not only to persons holding formal legal title but also, as applicable, to informal users, tenants, users without recognizable legal rights to land, and persons experiencing physical or economic displacement or livelihood impacts as a result of the Project.

Livelihood impacts may arise from permanent or temporary land take, loss of or restriction on access, construction activities, sequencing of works, or disruption of productive resources or economic activities.

Such impacts may include, but shall not be limited to:

- loss of access to agricultural land, pastureland, forests, water resources, or other natural or common property resources;
- loss of crops, trees, standing assets, irrigation infrastructure, fences, or other productive resources;
- loss of grazing rights or disruption of livestock routes and seasonal grazing patterns;
- temporary or permanent disruption of agricultural, commercial, service, or other income-generating activities;
- disruption of planting, irrigation, harvesting, livestock movement, or other seasonal agricultural activities due to construction timing or access restrictions;
- loss of business income or customer access resulting from construction activities, temporary closures, or movement restrictions;
- loss of or restricted access to markets, services, utilities, public facilities, residences, workplaces, or transport connections;
- temporary closure or restriction of informal or customary access routes across or alongside the railway;
- impacts arising from temporary land occupation for access roads, haul roads, camps, stockpiles, spoil areas, laydown areas, or other Project Facilities;
- restrictions on land use that prevent or limit productive activity;
- impacts on water-dependent livelihoods or irrigation arising from drainage, watercourse, or hydrological changes;
- secondary or indirect livelihood impacts on household members dependent upon affected income sources;

- temporary livelihood disruption caused by construction sequencing, seasonal access constraints, or prolonged occupation of land; and
- collective or group-based livelihood impacts where agricultural, grazing, irrigation, or other livelihood resources are managed or used communally.

Such impacts shall be identified and addressed through the applicable RP/LRP and other approved ESS5 instruments in accordance with ESS5.

The Contractor shall promptly notify the Engineer and the Employer where any previously unidentified livelihood impact or informal land use is encountered during implementation and shall not proceed with the affected activity until instructed by the Engineer following assessment and completion of any required ESS5 measures.

12.10.4 E&S Provisional Sums and ESS5-Related Mitigation Measures

E&S Provisional Sums are financial mechanisms only and shall not transfer to the Contractor any authority regarding eligibility determination, entitlement assessment, compensation valuation, livelihood restoration entitlement, or negotiation with Project-affected persons.

All decisions concerning eligibility, entitlements, compensation, livelihood restoration assistance, transitional support, measures for informal users, and support for vulnerable groups shall remain the responsibility of the Employer in accordance with the applicable RP/LRP, ESS5, and national legislation.

The Contractor shall implement ESS5-related measures financed through a Provisional Sum only upon the Employer's prior written approval and the Engineer's written instruction.

The Contractor shall act solely as an implementing entity for such measures and shall not make any commitment, representation, agreement, or payment to affected persons except as expressly authorized in writing.

For the avoidance of doubt:

- all ordinary, foreseeable, design-related, construction-related, and site-specific E&S obligations falling within the Contractor's scope shall be deemed included in the Contract Price;
- E&S measures arising from the Contractor's design, construction methodology, sequencing, Project Facilities, inadequate planning, non-compliance, or failure to implement applicable mitigation measures shall not be payable from the Provisional Sum;
- the Provisional Sum may be used only for supplementary E&S measures that were not expressly identified, quantified, or reasonably priceable at the date of Contract signature and that are approved by the Employer and instructed by the Engineer; and
- use of the Provisional Sum shall not relieve the Contractor of any obligation otherwise included in the Contract Price.

Where the Contractor is instructed to implement supplementary ESS5 measures, including livelihood restoration assistance, transitional support, measures for informal users, support to vulnerable groups, or other approved assistance, payment shall be subject to the applicable payment provisions of the Contract and to submission of adequate supporting documentation.

Supporting documentation may include, as applicable:

- the Engineer's written instruction;
- the Employer's prior approval;
- the applicable approved RP/LRP or other ESS5 instrument;
- beneficiary or affected-person records, subject to confidentiality requirements;
- invoices, receipts, payment records, delivery records, acknowledgements, or other evidence of implementation;
- verification by the CSC/Engineer; and
- any other documentation reasonably required under the Contract.

Any Contractor's overhead, profit, handling fee, administrative cost, or similar mark-up applicable to expenditure under the Provisional Sum shall be treated in accordance with the applicable provisions of the Conditions of Contract and the pricing rules governing Provisional Sums. No additional mark-up shall apply unless expressly permitted under the Contract.

The CSC/Engineer shall verify implementation and supporting evidence before any amount is certified for payment from the Provisional Sum.

The Employer shall retain final authority over the eligibility, scope, and value of ESS5-related assistance, while the Engineer shall administer instruction, verification, and certification in accordance with the Contract.

12.10.5 Monitoring, Audit and Oversight

Implementation of ESS5-related activities shall be subject to:

- supervision and verification by the CSC/Engineer;
- monitoring and audit by the CSC/Engineer;
- review and oversight by the Employer; and
- review by the World Bank in accordance with applicable financing requirements.

The Contractor shall cooperate fully with ESS5 monitoring, audits, site inspections, verification activities, and completion assessments and shall provide timely access to relevant personnel, sites, affected areas, documentation, records, and implementation evidence.

The CSC/Engineer shall conduct resettlement and livelihood restoration monitoring in accordance with ESS5, the approved RP/LRP, applicable national legislation, and the Contract.

Monitoring shall include, as applicable:

- verification of eligibility and entitlements;
- delivery of compensation, assistance, and livelihood restoration measures;
- measures applicable to informal users and vulnerable or disadvantaged persons;
- temporary and permanent livelihood impacts;
- restoration of access and affected community infrastructure;
- functionality of resettlement-related grievance arrangements;
- implementation of supplementary ESS5 measures; and
- assessment of livelihood restoration outcomes.

The CSC/Engineer shall prepare Sectional RP/LRP Completion Reports following completion of the applicable compensation, assistance, livelihood restoration, access restoration, and supplementary ESS5 measures.

Each Sectional RP/LRP Completion Report shall include the CSC/Engineer's verification findings and written recommendation and shall be submitted to the Employer for review and acceptance. Following acceptance, the Employer shall submit the report to the World Bank for no-objection.

The Employer shall issue written land access clearance only after completion of the applicable ESS5 requirements. No physical works shall commence in the relevant parcel or section before such written land access clearance has been issued.

The CSC/Engineer shall also prepare periodic resettlement monitoring reports and recommend corrective actions to the Employer where deficiencies are identified. The Contractor shall implement any corrective actions falling within its contractual responsibility within the timeframe instructed by the Engineer.

12.11 Provisional Sums for Environmental and Social Outcomes

12.11.1 Purpose and Nature of E&S Provisional Sums

E&S Mitigation Measures Provisional Sums shall be included in the Contract as a financial mechanism to facilitate implementation of approved supplementary E&S mitigation, restoration, assistance, monitoring, or corrective measures required to achieve compliance with the World Bank ESF, the ESCP, approved Project E&S instruments, and other applicable E&S requirements.

E&S Mitigation Measures Provisional Sums shall not:

- transfer any E&S responsibility or obligation from the Contractor to the Employer;
- alter the allocation of roles, responsibilities, risks, or liabilities established under the Contract;
- relieve the Contractor of any obligation included or reasonably foreseeable within its Design–Build responsibilities;
- create any discretionary authority for the Contractor to determine E&S eligibility, entitlements, mitigation requirements, compensation, assistance, or the use of Provisional Sum funds; or
- constitute a cap or limitation on the Contractor's E&S obligations under the Contract.

For the avoidance of doubt, an E&S Mitigation Measures Provisional Sum may be used only for supplementary measures that:

- are required to comply with an applicable ESS, the ESCP, or an approved E&S instrument;
- were not expressly identified, quantified, or reasonably capable of being priced at the date of Contract signature;
- are approved in writing by the Employer; and
- are instructed in writing by the Engineer in accordance with the Contract.

All ordinary, foreseeable, design-related, construction-related, and site-specific E&S obligations necessary for compliance with the Contract, including preparation, implementation, monitoring, revision, and updating of applicable E&S instruments, shall be deemed included in the Contract Price unless expressly stated otherwise in the Contract.

Nothing in this Section shall prejudice the Employer's statutory responsibilities under national legislation or its responsibilities under the applicable Project E&S instruments.

12.11.2 Scope of Application

E&S Mitigation Measures Provisional Sums may be used, subject to the requirements of this Section, for approved supplementary measures including, but not limited to:

- livelihood restoration, transitional assistance, and support to informal users or vulnerable or disadvantaged persons under ESS5 where such measures are not covered by national expropriation legislation and were not otherwise included in the Contract Price;
- supplementary measures required to restore temporary access, community infrastructure, livelihood resources, or services affected by unforeseen construction impacts;
- supplementary environmental mitigation, restoration, rehabilitation, or remediation measures required in response to previously unidentified or materially different site conditions or impacts;
- supplementary biodiversity conservation, restoration, or management measures arising from additional surveys, monitoring findings, or unforeseen impacts;
- supplementary cultural heritage protection, documentation, conservation, or mitigation measures where previously unidentified cultural heritage resources or values are encountered;
- targeted community health and safety measures required in response to unforeseen or materially increased risks;
- additional targeted training, awareness-raising, specialist support, monitoring, investigation, or corrective actions expressly required under the ESCP, an approved E&S instrument, or following a material E&S incident or non-compliance, where such requirements were not reasonably foreseeable at Contract signature; and
- other supplementary E&S measures expressly approved by the Employer and instructed by the Engineer in accordance with the Contract.

The existence of a Provisional Sum shall not entitle the Contractor to payment for measures that form part of its ordinary contractual obligations, including measures arising from its final design, construction methodology, sequencing, temporary works, Project Facilities, foreseeable site conditions, or failure to comply with applicable E&S requirements.

Where the requirement for a measure results from the Contractor's breach, negligence, non-compliance, defective design, inadequate planning, failure to implement approved E&S instruments, or failure to take reasonably foreseeable mitigation measures, the relevant costs shall be borne by the Contractor and shall not be payable from an E&S Mitigation Measures Provisional Sum.

12.11.3 Governance and Control of Provisional Sums

Use of E&S Mitigation Measures Provisional Sums shall be subject to the following requirements:

- no Provisional Sum expenditure shall be incurred without the Employer's prior written approval and the Engineer's written instruction;
- the Contractor shall have no authority to independently determine, allocate, commit, or expend any Provisional Sum amount;
- each expenditure shall relate to a clearly defined and approved E&S measure;
- the scope, quantity, implementation arrangement, cost basis, and supporting documentation for the proposed measure shall be submitted to the Engineer and the Employer before expenditure;
- implementation shall be carried out under the supervision and verification of the CSC/Engineer;

- expenditure shall be supported by appropriate invoices, receipts, payment records, delivery records, photographic evidence, implementation records, or other evidence required by the Engineer; and
- payment or reimbursement shall be made only in accordance with the applicable Contract provisions governing Provisional Sums.

Where supplementary ESS5 measures are implemented through a Provisional Sum, all decisions concerning eligibility, entitlements, compensation, livelihood restoration assistance, payment values, or other assistance shall remain with the Employer in accordance with the approved RP/LRP and ESS5.

The Contractor shall act solely as an implementing entity for such measures and only within the scope expressly authorized in writing by the Employer and instructed by the Engineer.

The Contractor shall not make any commitment, representation, agreement, payment, or promise to Project-affected persons concerning entitlement, compensation, assistance, or other ESS5 measures unless expressly authorized in writing by the Employer.

12.11.4 Oversight, Audit and Transparency

Implementation and expenditure of E&S Mitigation Measures Provisional Sums shall be subject to:

- supervision and verification by the CSC/Engineer;
- monitoring and audit by the CSC/Engineer;
- review and approval by the Employer; and
- review by the World Bank under the applicable financing or E&S arrangements.

The Contractor shall maintain complete, accurate, and auditable records for all measures and expenditures financed through E&S Mitigation Measures Provisional Sums.

Such records shall include, as applicable:

- the relevant Engineer's instruction and Employer approval;
- description and justification of the measure;
- applicable E&S instrument or requirement;
- quantities and cost breakdowns;
- procurement and payment documentation;
- implementation evidence;
- beneficiary records where applicable and subject to appropriate confidentiality requirements;
- monitoring and verification records; and
- evidence of completion and effectiveness of the measure.

The Contractor shall provide the Engineer, the Employer, authorized auditors, and the World Bank with access to such records upon request.

No payment from an E&S Mitigation Measures Provisional Sum shall be certified unless the CSC/Engineer has verified that the relevant measure has been implemented in accordance with the approved scope and applicable E&S requirements.

The Contractor acknowledges that the existence, amount, use, or exhaustion of any E&S Mitigation Measures Provisional Sum shall not constitute a limitation of the Contractor's E&S obligations, responsibilities, or liabilities under the Contract.

12.12 ESS6 – Biodiversity Conservation

12.12.1 Baseline Information and Use of Existing Assessments

The Contractor acknowledges that the ESIA, ESMP, and associated biodiversity assessments prepared by the Employer include baseline biodiversity information and preliminary assessment of biodiversity risks and impacts based on the Project information available at the time of their preparation.

Such baseline information shall constitute the basis for further assessment but shall not relieve the Contractor of its responsibility to verify, refine, supplement, and, where necessary, update biodiversity information for its own Lot to reflect:

- the final design and construction methodology;
- the final Project footprint and areas of influence;
- Project Facilities and Contractor-controlled Associated Facilities;
- temporary works, access roads, spoil disposal areas, borrow areas, camps, batching plants, and other ancillary facilities;
- site-specific habitat and species conditions;
- seasonal variability in habitats, flora, fauna, avifauna, bats, and other relevant biodiversity features;
- changes in construction sequencing or timing;
- cumulative and interface impacts, including those arising from activities undertaken within the other Lots; and
- any additional biodiversity risks or impacts identified during detailed design or construction.

Where baseline information is insufficient to reliably assess biodiversity risks and impacts, the Contractor shall undertake supplementary biodiversity surveys, assessments, and investigations prior to commencement of the relevant activities.

12.12.2 Identification and Assessment of Biodiversity Risks and Impacts

The Contractor shall identify and assess biodiversity-related risks and impacts arising from the Works, including, as applicable:

- permanent and temporary land take;
- vegetation clearance and habitat loss;
- habitat fragmentation, degradation, and edge effects;
- disturbance to fauna arising from noise, vibration, lighting, human presence, and construction activities;
- wildlife mortality associated with construction traffic, machinery, excavations, structures, and other Project activities;
- disturbance or mortality associated with works on or adjacent to the operational railway;
- establishment, operation, and decommissioning of Project Facilities and Contractor-controlled Associated Facilities;
- borrow areas, quarries, spoil disposal and storage areas, access roads, and temporary work areas;
- changes in hydrology, drainage, surface water, groundwater, sedimentation, or water quality;

- pollution, spills, dust, wastewater, and waste management;
- introduction or spread of invasive alien species;
- impacts on protected areas, natural habitats, critical habitats, priority biodiversity features, ecological corridors, breeding areas, nesting areas, roosting sites, migration routes, and other sensitive biodiversity receptors;
- seasonal construction impacts;
- cumulative impacts arising from interaction with the other Lots and other existing, planned, or reasonably foreseeable developments; and
- restoration and post-construction residual impacts.

Additional biodiversity surveys and studies shall be undertaken where required by ESS6, the finalized ESIA and ESMP, the applicable biodiversity instruments, monitoring findings, site conditions, design changes, or the Engineer, Employer, or World Bank.

All biodiversity surveys shall be undertaken by suitably qualified and experienced specialists using methodologies and seasonal survey periods appropriate to the relevant habitats and species.

12.12.3 Mitigation Hierarchy and Biodiversity Management Measures

The Contractor shall apply the mitigation hierarchy to all biodiversity-related risks and impacts.

The Contractor shall, in order of priority:

1. **Avoid** impacts through design refinement, micro-siting, changes in construction methodology, timing, sequencing, access arrangements, or selection of Project Facility locations;
2. **Minimize** unavoidable impacts by reducing their extent, duration, intensity, and disturbance;
3. **Restore or rehabilitate** habitats, ecological functions, and affected areas as soon as practicable following disturbance; and
4. **Address residual impacts** through additional conservation measures and, only where required under ESS6 and expressly approved by the Employer and the World Bank, biodiversity offsets or equivalent measures.

Avoidance shall be given particular priority where the Works may affect critical habitat, protected or threatened species, sensitive habitats, breeding or nesting areas, ecological corridors, or other high biodiversity value features.

Biodiversity offsets shall not be used as a substitute for feasible avoidance, minimization, restoration, or rehabilitation measures.

Where biodiversity offsetting, No Net Loss, Net Gain, or other residual impact measures are determined to be required under ESS6, the Contractor shall prepare and implement the relevant studies, strategies, plans, protocols, and monitoring arrangements as instructed under the Contract and subject to the required approvals and World Bank no-objection.

All biodiversity mitigation measures shall be incorporated, as applicable, into the finalized ESIA, ESMP, C-ESMP, BMP, BAP, method statements, Work Programme, and relevant site-specific procedures.

12.12.4 Sensitive Habitats and Species

Where natural habitat, critical habitat, priority biodiversity features, protected areas, protected or threatened species, or other sensitive biodiversity receptors are present within the Project area of influence, the Contractor shall implement enhanced protection and management measures.

Such measures shall include, as applicable:

- establishment of clearly demarcated exclusion or buffer zones;
- micro-siting of works and temporary facilities to avoid sensitive biodiversity features;
- implementation of seasonal or time-of-day restrictions;
- pre-construction ecological inspections and surveys;
- ecological supervision of vegetation clearance and other sensitive activities;
- species-specific protection and management measures;
- prevention of unnecessary access by workers, vehicles, and equipment;
- prohibition of hunting, trapping, fishing, collection, disturbance, or intentional harm to wildlife by Project workers;
- control of lighting, noise, vibration, dust, and other disturbance;
- safe management of excavations, trenches, drainage structures, and other potential wildlife traps;
- wildlife rescue or relocation only where appropriate, legally permitted, and undertaken by competent specialists;
- immediate suspension of relevant activities where previously unidentified sensitive biodiversity features are encountered and continuation could result in material impact; and
- implementation of corrective measures before recommencement of the affected activity.

Works in or near sensitive biodiversity areas shall be subject to site-specific method statements and biodiversity protection measures approved prior to commencement.

12.12.5 Vegetation Clearance and Ecological Restoration

Vegetation clearance shall be limited to the minimum area necessary for safe and effective implementation of the Works.

Prior to vegetation clearance, the Contractor shall:

- confirm that the relevant area is within the approved Project footprint;
- obtain all applicable permits and authorizations;
- complete required biodiversity surveys and pre-clearance inspections;
- clearly demarcate approved clearance boundaries and exclusion areas;
- identify protected, sensitive, or retained vegetation; and
- implement any applicable seasonal restrictions or species-specific measures.

The Contractor shall prevent unnecessary damage to vegetation outside the approved work area and shall prohibit uncontrolled clearance, burning, or disposal of vegetation.

Restoration and reinstatement shall commence as soon as practicable following completion of construction activities and shall be undertaken in accordance with the finalized ESMP, C-ESMP, BMP, BAP where applicable, and approved restoration measures.

Restoration shall, as applicable:

- use locally appropriate and preferably native species;
- restore topsoil, drainage, landform, and vegetation;
- prevent erosion and soil degradation;
- avoid introduction of invasive alien species;
- restore habitat connectivity and ecological functionality where feasible;
- include aftercare, replacement planting, and maintenance; and
- be monitored until the agreed restoration success criteria have been achieved.

12.12.6 Invasive Alien Species

The Contractor shall prevent the introduction, establishment, and spread of invasive alien species through Project activities.

Measures shall include, as applicable:

- inspection and cleaning of vehicles, machinery, equipment, footwear, and tools moving between work areas;
- appropriate management of imported soil, aggregate, fill, planting material, and other potentially contaminated materials;
- controls on the movement of soil, spoil, vegetation, and other materials from locations containing invasive species;
- regular inspection and monitoring of disturbed areas, Project Facilities, access routes, and restoration areas;
- identification and mapping of invasive alien species encountered within affected areas;
- appropriate eradication, containment, or control measures; and
- management and disposal of invasive plant material in a manner that prevents further spread.

The Contractor shall prepare and implement an Invasive Alien Species Management Procedure as part of the BMP or other approved biodiversity management instrument.

Where invasive species are identified during site clearance or construction, affected material shall not be transferred to general spoil, waste, or restoration areas unless appropriate measures have been implemented to prevent propagation or spread.

12.12.7 Sustainable Management of Living Natural Resources

Where the Works involve sourcing, use, harvesting, or management of living natural resources, the Contractor shall ensure that such resources are managed in accordance with ESS6, applicable national legislation, approved Project E&S instruments, and GIIP.

The Contractor shall avoid procurement of timber, vegetation, or other living natural resources from illegal or unsustainable sources.

Where significant quantities of timber or other living natural resources are required, the Contractor shall maintain appropriate source documentation and, where required, demonstrate that such materials originate from legally authorized and sustainably managed sources.

12.12.8 Biodiversity Management Plan and Biodiversity Action Plan

The Contractor shall prepare, develop, finalize, obtain approval and World Bank no-objection for, and implement a Biodiversity Management Plan (BMP) applicable to its own Lot.

The BMP shall build upon the biodiversity baseline, impact assessment, and management measures contained in the Employer-prepared E&S instruments and shall be updated and supplemented using the Contractor's final design, site-specific surveys, construction methodology, Project Facilities, and implementation arrangements.

The BMP shall include, as a minimum:

- identification and mapping of biodiversity-sensitive areas and features;
- habitat and species-specific mitigation measures;
- vegetation clearance controls;
- seasonal and spatial restrictions;
- ecological pre-construction inspection requirements;
- ecological supervision arrangements;
- management of wildlife encounters and mortality;
- invasive alien species management;
- pollution and disturbance controls relevant to biodiversity;
- restoration and rehabilitation measures;
- biodiversity monitoring indicators, methods, frequencies, and responsibilities;
- adaptive management and corrective action procedures; and
- reporting requirements.

Where the biodiversity assessment identifies requirements for specific conservation actions, management of critical habitat, achievement of No Net Loss or Net Gain outcomes, or other measures requiring a more detailed implementation framework, the Contractor shall prepare and implement a Biodiversity Action Plan (BAP) or other supplementary biodiversity plan as required.

Any BAP or supplementary biodiversity plan shall be consistent with ESS6, the finalized ESIA and ESMP, the BMP, and applicable World Bank requirements and shall be subject to review and approval by the Engineer and the Employer and the World Bank's prior no-objection.

The BMP and any BAP shall be treated as living documents and shall be reviewed and updated based on monitoring results, design changes, construction progress, new biodiversity findings, seasonal survey results, incidents, or evidence that mitigation measures are not achieving the required outcomes.

12.12.9 Monitoring and Reporting

The Contractor shall implement biodiversity monitoring throughout construction, restoration, and any required post-construction monitoring period in accordance with the finalized ESIA, ESMP, BMP, BAP where applicable, and other approved biodiversity instruments.

Monitoring shall include, as applicable:

- habitat loss, disturbance, and fragmentation;
- vegetation clearance;
- sensitive species and habitat conditions;

- wildlife incidents and mortality;
- effectiveness of seasonal and spatial restrictions;
- invasive alien species;
- restoration and rehabilitation progress;
- effectiveness of mitigation measures;
- residual impacts;
- implementation and effectiveness of any approved offset, No Net Loss, or Net Gain measures; and
- corrective and adaptive management actions.

The Contractor shall establish measurable biodiversity performance indicators and maintain complete monitoring records.

Any significant or unexpected biodiversity impact, mortality event, damage to a sensitive habitat, or other material non-compliance shall be immediately reported to the Engineer and the Employer in accordance with the applicable incident reporting requirements.

Monitoring results, trends, non-compliances, corrective actions, and restoration progress shall be included in the Contractor's regular E&S monitoring reports.

Where monitoring demonstrates that mitigation measures are ineffective or biodiversity outcomes are not being achieved, the Contractor shall promptly revise and strengthen the relevant measures, subject to the applicable approval requirements.

12.12.10 Subcontractors and Third Parties

The Contractor shall ensure that all Subcontractors, suppliers, service providers, transport operators, and other parties engaged in the Works comply with the applicable biodiversity requirements of the Contract, finalized E&S instruments, BMP, and BAP where applicable.

Relevant biodiversity requirements shall be incorporated into applicable subcontracts, purchase orders, supply agreements, and service arrangements.

The Contractor shall ensure that workers and Subcontractors receive appropriate biodiversity awareness and site-specific instruction before undertaking activities in or near biodiversity-sensitive areas.

The Contractor shall remain fully responsible for biodiversity-related risks and impacts arising from activities undertaken by its Subcontractors and service providers.

Where biodiversity risks, habitats, species, ecological corridors, or mitigation measures extend across Lot boundaries, the Contractor shall coordinate with the Engineer and the contractors of the other Lots to ensure consistent implementation, monitoring, information sharing, and management of cumulative and interface-related biodiversity risks.

12.13 ESS8 – Cultural Heritage

12.13.1 Known Cultural Heritage

The Contractor acknowledges that the ESIA, ESMP, Cultural Heritage Management Plan (CHMP), and other Project studies may identify known cultural heritage resources within or in the vicinity of the Contractor's Lot.

The Contractor shall identify, assess, avoid, protect, and manage impacts on known cultural heritage in accordance with ESS8, applicable national legislation, the finalized ESIA and ESMP, the CHMP, relevant permits and approvals, and GIIP.

Where known cultural heritage is present, the Contractor shall:

- avoid adverse impacts wherever technically feasible;
- apply the mitigation hierarchy in the planning, design, and implementation of the Works;
- incorporate cultural heritage constraints into the final design, construction methodology, Work Programme, method statements, and site-specific risk assessments;
- establish appropriate protection, exclusion, or buffer zones where required;
- prevent unauthorized access, damage, removal, alteration, or disturbance;
- implement all mitigation, monitoring, documentation, conservation, and protection measures required under the applicable E&S instruments;
- comply with all conditions, permits, clearances, and instructions issued by competent cultural heritage authorities; and
- ensure that works in proximity to cultural heritage resources are appropriately supervised by qualified cultural heritage specialists where required.

Works affecting or having the potential to affect known cultural heritage shall not commence until all required studies, consultations, permits, approvals, and clearances have been completed.

The Contractor shall comply with its obligations under the Conditions of Contract, including FIDIC Sub-Clause 4.23, as applicable.

12.13.2 Existing Railway Structures of Potential Cultural Heritage Value

The Contractor acknowledges that the existing railway corridor includes bridges, culverts, retaining structures, tunnel portals, snow galleries, drainage structures, masonry works, and other railway engineering structures constructed during the early development of the railway, including structures dating from the early twentieth century.

Although such structures may not be formally registered or designated as cultural heritage under national legislation, they may possess significant historic, architectural, engineering, technical, landscape, or cultural value and shall therefore be treated as potential cultural heritage resources for the purposes of design development and implementation of the Works.

The absence of formal registration or legal designation shall not, by itself, constitute sufficient justification for demolition, replacement, covering, dismantling, or irreversible alteration of such structures.

The Contractor shall adopt a presumption in favor of retention and in-situ preservation of existing historic railway structures wherever technically feasible and consistent with railway safety and operational requirements.

Accordingly, the Contractor shall:

- identify and inventory existing historic railway structures within its Lot during detailed design;
- undertake structure-specific assessment of their historic, architectural, engineering, technical, and landscape value prior to proposing any material intervention;
- prepare photographic, dimensional, descriptive, and condition records before intervention;
- evaluate whether the required structural, operational, clearance, durability, or safety objectives can be achieved through repair, strengthening, rehabilitation, partial modification, or other sympathetic engineering solutions rather than demolition and replacement;
- integrate retention and conservation considerations into the design development and alternatives analysis;
- preserve original masonry, stonework, structural form, architectural characteristics, construction techniques, and visual appearance to the maximum extent technically feasible;
- avoid unnecessary covering, encasement, demolition, or replacement of historic masonry or stone structures with concrete or other modern structures;
- ensure that any intervention is proportionate to the demonstrated technical need and minimizes loss of historic fabric;
- obtain the Engineer's and Employer's prior written approval before any demolition, substantial alteration, dismantling, covering, or irreversible modification of an identified historic railway structure; and
- obtain any additional permits, opinions, or approvals required by the competent cultural heritage authorities where the assessment indicates that such consultation is necessary.

Demolition or complete replacement shall be considered a measure of last resort.

The Contractor shall not propose demolition, replacement, substantial alteration, or irreversible modification solely on the grounds of construction convenience, standardization of design, simplification of construction methodology, programme acceleration, reduction of construction effort, commercial advantage, or cost optimization.

Where the Contractor proposes demolition, substantial alteration, or replacement of an existing historic railway structure, the Contractor shall submit a Structure-Specific Heritage and Alternatives Assessment to the Engineer and the Employer before finalization of the relevant design.

Such assessment shall, as a minimum:

- describe the existing structure and its construction date or estimated historical period, where known;
- document its existing condition and relevant heritage characteristics;
- identify the technical, structural, operational, and safety requirements necessitating intervention;
- assess feasible retention, repair, strengthening, rehabilitation, and partial modification alternatives;
- explain why less intrusive alternatives are not technically feasible where demolition or complete replacement is proposed;
- compare the cultural heritage implications of the available alternatives;
- define measures for preservation, documentation, salvage, reconstruction, or interpretation, where applicable; and

- include the recommendation of the Contractor's Archaeologist/Cultural Heritage Expert.

No demolition, dismantling, covering, substantial alteration, or complete replacement of such a structure shall commence until the proposed intervention and the Structure-Specific Heritage and Alternatives Assessment have been reviewed and approved by the Engineer and the Employer and any other required approval or clearance has been obtained.

Where technically feasible, the preferred hierarchy of intervention shall be:

1. retention without intervention;
2. repair and conservation;
3. structural strengthening while retaining the original structure and appearance;
4. sympathetic rehabilitation or limited modification;
5. partial dismantling and reconstruction using original materials and characteristics, where unavoidable; and
6. complete demolition and replacement only where no technically feasible and safe retention alternative exists.

The Contractor shall ensure that value engineering, design optimization, or commercial considerations do not result in the unnecessary loss of existing historic railway structures.

Any structure proposed for demolition or substantial alteration shall be recorded in a dedicated Historic Railway Structures Register, including the assessment undertaken, alternatives considered, approvals obtained, intervention selected, and final outcome.

12.13.3 Cultural Heritage Management Plan and Chance Find Procedure

The Contractor shall prepare, develop, finalize, obtain approval and World Bank no-objection for, and implement a Cultural Heritage Management Plan (CHMP) applicable to its own Lot, building upon the CHMP and cultural heritage information provided by the Employer.

The CHMP shall reflect the final design, construction methodology, work fronts, identified cultural heritage resources, existing railway structures of potential heritage value, ground-disturbing activities, Project Facilities, and site-specific cultural heritage risks.

The CHMP shall include a Chance Find Procedure consistent with ESS8 and applicable national legislation.

The Chance Find Procedure shall apply to all excavation, demolition, tunnelling, earthworks, vegetation clearance, site preparation, foundation works, and other activities with the potential to encounter previously unidentified archaeological, paleontological, historical, cultural, or other heritage resources.

Upon discovery of a potential chance find, the Contractor shall:

- immediately stop work in the vicinity of the find;
- establish an appropriate exclusion area and secure the location against damage, disturbance, theft, or unauthorized access;
- leave the find in situ and avoid unnecessary handling, movement, cleaning, or removal;
- immediately notify the Engineer and the Employer and, where required, the competent cultural heritage authority;

- arrange assessment by a suitably qualified cultural heritage specialist;
- comply with all instructions and requirements issued by the competent authority, the Engineer, and the Employer;
- document the find and actions taken, subject to any confidentiality or sensitivity requirements; and
- resume work in the affected area only after the required authorization and clearance have been obtained.

Where a chance find is encountered, the Contractor shall consider whether similar resources may be present in adjacent areas and shall implement any additional survey, monitoring, or construction controls required before recommencing work.

The CHMP and Chance Find Procedure shall be treated as living instruments and shall be updated where new cultural heritage information, design changes, construction findings, authority requirements, or monitoring results indicate that additional measures are necessary. Any material revision shall be subject to the applicable review, approval, and World Bank no-objection requirements.

12.13.4 Training and Awareness

The Contractor shall ensure that all personnel whose activities may affect cultural heritage receive appropriate induction and awareness training before commencing the relevant work.

Enhanced training shall be provided to relevant personnel, including:

- site managers and supervisors;
- engineers;
- excavation and earthworks personnel;
- tunnel personnel;
- machine and equipment operators;
- demolition and rehabilitation crews;
- survey teams;
- environmental and social personnel; and
- Subcontractors engaged in relevant activities.

Training shall address, as applicable:

- recognition of potential archaeological and cultural heritage resources;
- recognition of existing railway structures with potential cultural, historic, architectural, or engineering value;
- cultural heritage exclusion and protection requirements;
- the Chance Find Procedure;
- immediate stop-work and notification requirements;
- prohibition of unauthorized collection, removal, disturbance, or disclosure of cultural heritage materials;
- roles and responsibilities under the CHMP and ESS8; and
- consequences of non-compliance.

Training and awareness records shall be maintained by the Contractor and made available to the Engineer and the Employer upon request.

12.13.5 Monitoring and Reporting

The Contractor shall monitor implementation of cultural heritage protection measures throughout execution of the Works.

Monitoring shall include, as applicable:

- compliance with the CHMP and Chance Find Procedure;
- condition and protection of known cultural heritage resources;
- protection and treatment of existing railway structures identified as having potential heritage value;
- compliance with exclusion zones, permit conditions, and authority requirements;
- implementation of agreed conservation, repair, documentation, or mitigation measures;
- chance finds and their management;
- training and awareness activities; and
- cultural heritage-related non-compliances and corrective actions.

Any chance find or cultural heritage-related incident with actual or potential material impact shall be reported immediately to the Engineer and the Employer and no later than twenty-four (24) hours after the Contractor becomes aware of the find or incident.

Where required under applicable national legislation, competent authorities shall be notified within the legally prescribed timeframe.

The Contractor shall maintain a cultural heritage register documenting known resources, screened railway structures, chance finds, permits, authority decisions, mitigation measures, monitoring findings, and corrective actions.

Relevant information shall be included in the Contractor's regular E&S monitoring reports.

12.13.6 Subcontractors and Third Parties

The Contractor shall ensure that all Subcontractors, service providers, suppliers, and other parties engaged in activities with potential cultural heritage impacts comply with the requirements of this Section, the approved CHMP, the Chance Find Procedure, applicable permits, and authority requirements.

Relevant cultural heritage requirements shall be incorporated into applicable subcontracts, method statements, work instructions, and service agreements.

The Contractor shall ensure that no Subcontractor independently demolishes, alters, removes, relocates, covers, or otherwise interferes with any known or potential cultural heritage resource without the required approvals and clearances.

The Contractor shall remain fully responsible for cultural heritage protection and compliance arising from activities undertaken by its Subcontractors and service providers.

12.14 ESS10 – Stakeholder Engagement

12.14.1 Stakeholder Engagement Plan (SEP) Implementation

The Contractor shall implement the finalized SEP applicable to its own Lot throughout execution of the Works.

Preparation, development, finalization, approval, disclosure, and World Bank no-objection requirements applicable to the SEP shall be governed by Section 12.4.6 of these E&S Requirements.

The Contractor shall:

- implement all stakeholder engagement, consultation, disclosure, communication, and grievance-related commitments applicable to its activities;
- maintain and regularly update site-specific stakeholder mapping and analysis based on the final design, construction methodology, work fronts, Project Facilities, access arrangements, and evolving E&S risks and impacts;
- identify Project-affected parties, other interested parties, and vulnerable or disadvantaged individuals or groups relevant to its Lot;
- adjust engagement methods, frequency, and communication channels to reflect changes in construction activities, stakeholder concerns, grievances, and site-specific conditions;
- ensure that stakeholder engagement is undertaken sufficiently in advance of activities that may materially affect communities;
- maintain suitably qualified Community Liaison Officers and other personnel required to implement the SEP;
- coordinate stakeholder engagement activities with the Engineer, the Employer, and the Sub-PIU; and
- coordinate with the contractors of the other Lots where stakeholder groups, communities, access routes, construction impacts, grievances, or cumulative social risks overlap across Lot boundaries.

The Contractor shall ensure that stakeholder engagement is continuous, inclusive, culturally appropriate, accessible, documented, and proportionate to the nature and magnitude of the relevant E&S risks and impacts.

12.14.2 Information Disclosure

The Contractor shall support timely, accurate, and accessible disclosure of Project-related information relevant to its design and construction activities.

Information to be disclosed shall include, as applicable:

- finalized or materially revised ESIA, ESMP, SEP, and other E&S instruments requiring public disclosure;
- construction schedules, sequencing, and major work fronts;
- anticipated E&S risks and impacts and applicable mitigation measures;
- planned traffic arrangements, diversions, and road restrictions;
- works affecting level crossings or access across or alongside the operational railway;
- planned temporary closures, access restrictions, or disruptions;
- recruitment and local employment arrangements;
- establishment and operation of Project Facilities where communities may be affected;

- changes affecting access to residences, businesses, agricultural land, grazing areas, community facilities, services, utilities, or natural resources;
- planned high-risk or disruptive activities;
- emergency or safety-related information relevant to communities; and
- contact information for Community Liaison Officers and Project grievance channels.

Information shall be disclosed sufficiently in advance to enable affected stakeholders to understand the anticipated impacts and, where relevant, provide feedback before the affected activity commences.

Disclosure methods shall be appropriate to the relevant stakeholder group and shall take into account language, literacy, disability, telecommunications access, remoteness, and other accessibility considerations.

Digital disclosure shall not be relied upon as the sole means of communication in communities where internet or mobile telecommunications access is limited or unreliable.

12.14.3 Engagement with Affected Communities

The Contractor shall engage with affected communities in a respectful, inclusive, transparent, and culturally appropriate manner throughout execution of the Works.

Particular attention shall be given to communities affected by:

- temporary disturbance or access restrictions;
- works on or adjacent to the operational railway;
- works affecting level crossings or customary railway crossing points;
- increased construction traffic or road safety risks;
- noise, vibration, dust, lighting, or other nuisance impacts;
- establishment or operation of Project Facilities;
- temporary or permanent disruption of agricultural activities, grazing, irrigation, businesses, or other livelihood activities;
- temporary or permanent restriction of access to land, natural resources, community assets, residences, businesses, or public facilities;
- worker influx and worker–community interaction;
- community health and safety risks;
- cultural heritage impacts;
- water availability, water quality, drainage, or other changes affecting community resources;
- land acquisition, economic displacement, livelihood restoration, or other ESS5-related impacts;
- emergencies or construction activities requiring temporary evacuation or special safety arrangements; and
- impacts that may disproportionately affect vulnerable or disadvantaged individuals or groups.

Stakeholder engagement activities shall be informed by the finalized SEP, stakeholder mapping, community baseline information, grievances, monitoring findings, and the nature and timing of construction activities.

The Contractor shall also consider cumulative and interface-related social impacts arising from activities undertaken by the contractors of the other Lots and shall coordinate engagement and communication where communities may be affected by more than one Lot.

The Contractor shall prepare and implement a monthly Stakeholder Engagement Outreach Programme identifying planned engagement activities, responsible personnel, target stakeholder groups, key issues, communication methods, and follow-up actions.

The Outreach Programme shall include, as appropriate:

- community meetings;
- targeted consultations;
- household or business-level engagement;
- meetings with local authorities and community representatives;
- engagement with farmers, livestock owners, businesses, railway users, and other affected livelihood groups;
- engagement with women and vulnerable or disadvantaged groups;
- information sessions and awareness activities;
- Open Door Days; and
- other engagement formats appropriate to the local context and identified risks.

The Contractor shall organize community-level Open Door Days at least once per year within its Lot and more frequently where justified by construction intensity, community impacts, grievance trends, or stakeholder demand.

Open Door Days shall not replace routine engagement with directly affected communities or persons.

The Contractor shall maintain an up-to-date stakeholder database recording, as applicable:

- stakeholder group and location;
- engagement date and method;
- number of participants, disaggregated by gender where appropriate;
- issues and concerns raised;
- commitments made;
- responsible party;
- required follow-up action; and
- status of follow-up.

The Contractor shall conduct anonymous participant feedback surveys during Open Door Days and other major consultation events where appropriate to assess accessibility, usefulness, inclusiveness, and effectiveness of engagement.

Digital survey methods may be used where appropriate; however, non-digital alternatives shall always be made available where necessary to ensure accessibility.

12.14.4 Vulnerable and Disadvantaged Groups

The Contractor shall identify and engage vulnerable or disadvantaged individuals and groups in accordance with ESS10 and the finalized SEP.

The Contractor shall assess whether any individual or group may:

- experience disproportionate or differentiated Project impacts;

- have limited ability to participate in stakeholder engagement;
- face barriers to accessing Project information or grievance mechanisms; or
- require additional assistance to benefit from mitigation or engagement measures.

The Contractor shall prepare and periodically update a Vulnerability Assessment for its Lot, consistent with the finalized SEP and applicable E&S instruments.

The Vulnerability Assessment shall:

- identify relevant vulnerable or disadvantaged groups and the nature of their vulnerability in the context of the Project;
- assess potential differentiated or disproportionate impacts;
- identify barriers to participation, information access, and grievance access;
- define appropriate targeted engagement and communication measures;
- identify any additional mitigation or assistance measures within the Contractor's responsibility; and
- establish appropriate monitoring indicators.

The Contractor shall not collect or disclose unnecessary sensitive personal information in conducting the Vulnerability Assessment and shall implement appropriate confidentiality and data protection measures.

Engagement approaches shall be adapted as necessary to enable meaningful participation, including through suitable timing, location, language, communication methods, separate consultations, or other targeted measures.

12.14.5 Grievance Mechanism for Communities

The Contractor shall support and operate the Contractor-level functions of the Project Grievance Mechanism in accordance with ESS10, the finalized SEP, and applicable Project procedures.

The Contractor shall ensure that Project-affected persons and other stakeholders are informed of available grievance channels and may submit grievances without cost, discrimination, intimidation, or retaliation.

Grievances may be submitted anonymously and through multiple accessible channels, including non-digital channels appropriate for remote communities and locations where telecommunications access may be limited.

The Contractor shall:

- receive and register grievances relating to its activities;
- acknowledge receipt within two (2) working days and inform the complainant that the grievance has been registered;
- promptly refer grievances outside the Contractor's authority or responsibility to the appropriate Project-level entity in accordance with the SEP;
- investigate grievances relating to its activities in coordination with the Engineer and the Employer, as required;
- provide a substantive response within fifteen (15) working days, including proposed corrective or remedial actions where applicable;
- where resolution cannot reasonably be achieved within fifteen (15) working days, inform the complainant of the reason for the delay and the expected timeframe for resolution;

- implement corrective actions falling within its contractual responsibility;
- track implementation and effectiveness of grievance-related corrective actions;
- maintain complete and auditable grievance records; and
- report grievance status, trends, response times, corrective actions, recurring issues, and overdue cases in the Monthly E&S Reports.

Grievance records and reporting shall protect the confidentiality and personal information of complainants.

SEA/SH-related grievances shall not be investigated through the ordinary grievance procedure. Such cases shall be immediately handled or referred through the confidential, survivor-centred, safe, and non-retaliatory procedures established under the applicable SEA/SH Prevention and Response arrangements.

The Contractor shall not seek unnecessary details from a SEA/SH survivor and shall restrict recording and disclosure of information to the minimum necessary in accordance with the applicable protocol.

The Contractor shall ensure that complainants, witnesses, workers, and other stakeholders are protected from retaliation or adverse treatment arising from use of the grievance mechanism.

12.14.6 Monitoring and Reporting

The Contractor shall monitor the effectiveness of stakeholder engagement and information disclosure throughout execution of the Works.

Monitoring shall include, as applicable:

- stakeholder engagement activities undertaken against the monthly Outreach Programme;
- number and type of stakeholders consulted;
- participation of women and vulnerable or disadvantaged groups;
- number and location of Open Door Days and other major consultation activities;
- participant feedback and survey findings;
- disclosure activities;
- stakeholder concerns and commitments;
- grievances received, acknowledged, resolved, pending, and overdue;
- grievance response and resolution times;
- recurring grievance themes and trends;
- corrective and follow-up actions;
- changes in stakeholder mapping or community baseline conditions;
- effectiveness and accessibility of communication and grievance channels; and
- cumulative or cross-Lot stakeholder issues requiring coordinated management.

Relevant information shall be included in the Contractor's regular E&S monitoring reports.

Where monitoring, grievances, or stakeholder feedback indicate that engagement methods are ineffective or inaccessible, the Contractor shall promptly revise the relevant engagement arrangements.

12.14.7 Subcontractors and Third Parties

The Contractor shall ensure that all Subcontractors, service providers, transport operators, security providers, and other parties whose activities may interact with communities comply with the applicable stakeholder engagement and communication requirements of this Section and the finalized SEP.

The Contractor shall incorporate relevant stakeholder engagement, community interaction, grievance referral, disclosure, and Code of Conduct requirements into applicable subcontracts and service agreements.

Subcontractors shall not independently make commitments, promises, compensation offers, employment guarantees, land-related commitments, or other representations to affected persons or communities unless expressly authorized by the Contractor and by the Employer.

Community engagement undertaken by Subcontractors shall be coordinated through the Contractor's designated E&S and Community Liaison personnel.

The Contractor shall remain fully responsible for stakeholder engagement and community-related impacts arising from activities undertaken by its Subcontractors and service providers.

12.15 Monitoring, Reporting, Audit and Enforcement

12.15.1 Contractor's Environmental and Social Organization and Capacity

The Contractor shall establish and maintain adequate E&S staffing, resources, authority, and organizational arrangements throughout implementation of the Works.

As a minimum, the Contractor shall:

- appoint competent and suitably qualified E&S personnel with sufficient authority and resources to implement and enforce the E&S requirements of the Contract;
- ensure continuous and effective E&S presence across active work fronts, Project Facilities, worker accommodation areas, and other locations under the Contractor's control;
- assign clear responsibilities for environmental, social, labor, OHS, biodiversity, cultural heritage, gender/SEA/SH, resettlement and livelihood restoration, and community liaison functions, proportionate to the risks and scale of the Works;
- provide adequate E&S coverage for simultaneous work fronts, night works, high-risk activities, remote locations, severe winter operations, and works on or adjacent to the operational railway;
- ensure appropriate coordination between E&S personnel and the Contractor's design, construction, planning, railway interface, logistics, and emergency response teams; and
- ensure that Subcontractors and labor service providers maintain adequate E&S staffing, competency, supervision, and reporting arrangements.

The Contractor shall submit an E&S organizational chart, staffing plan, deployment schedule, and CVs of key E&S personnel to the Engineer for review, interview, and approval in accordance with Section 12.15.2 and the applicable Key Personnel provisions of the Contract.

The Contractor shall mobilize all key E&S personnel sufficiently in advance of preparation and finalization of the relevant E&S instruments and in any event prior to commencement of site establishment or physical works.

All key E&S personnel shall complete appropriate training on the World Bank Environmental and Social Framework (https://www.worldbank.org/en/projects-operations/environmental-and-social-framework/brief/esf-training) prior to or immediately following mobilization, as agreed with the Engineer. The Contractor shall maintain evidence of completion and make such records available to the Engineer and the Employer upon request.

No physical works, site establishment, or mobilization of construction activities shall commence unless the Contractor's required key E&S personnel have been appointed, mobilized, and approved by the Engineer.

The Contractor shall maintain the required personnel throughout execution of the Works and shall ensure adequate replacement and handover arrangements in the event of approved personnel changes.

Failure to mobilize, maintain, or adequately deploy the required E&S personnel shall constitute non-compliance under the Contract and may result in suspension of the progress of all or part of the Works under Sub-Clause 8.9 or application of other contractual remedies. Where such suspension results from the Contractor's failure to comply with the staffing requirements, it shall be deemed attributable to the Contractor.

12.15.2 E&S Staffing Arrangements

This Section forms an integral part of the Contract and establishes the minimum mandatory E&S staffing requirements applicable to the Contractor for its Lot.

The relevant academic qualifications and minimum required years of relevant and overall professional experience shall be as defined in the Contractor's Representative and Key Personnel provisions of the Contract.

The Contractor shall not reduce, omit, replace, downgrade, or materially change the engagement level of the minimum required E&S personnel without the prior written approval of the Engineer.

The minimum staffing requirements shall not limit the Contractor's obligation to increase staffing where necessary to ensure adequate and effective E&S management of:

- simultaneous work fronts;
- multiple Project Facilities;
- tunnel, bridge, culvert, level-crossing, and other high-risk works;
- works on or adjacent to the operational railway;
- night works and shift working;
- remote and difficult-to-access locations;
- high-altitude and severe winter working conditions;
- environmentally or socially sensitive areas; and
- other activities requiring continuous or specialized E&S supervision.

Each active high-risk work front shall be subject to effective OHS and E&S supervision appropriate to the activity, location, shift pattern, and risk level.

Any failure to maintain adequate E&S staffing or the minimum requirements specified below shall constitute a material non-compliance under the Contract and may result in suspension of works, withholding or deduction of payments where provided under the Contract, or other contractual remedies.

Contractor E&S Personnel	Level of Engagement	Minimum Number of Required E&S Personnel		
		Lot 1	Lot 2	Lot 3
Environmental and Social Manager	**Full-time**	1	1	1
Environmental Specialist	**Full-time**	2	2	2
Social Specialist	**Full-time**	1	2	2
Resettlement and Livelihood Restoration Specialist	**Full-time**	1	1	1
OHS Manager	**Full-time**	1	1	1
OHS Engineer / Site Safety Engineer	**Full-time**	2	2	2
OHS Documentation & Training Specialist	**Full-time**	1	1	1
Community Liaison Officer	**Full-time**	4	4	4
Biodiversity & Ecology Specialist	**Full-time**	1	1	1
Archaeologist / Cultural Heritage Expert	**Full-time**	1	1	1
Gender and SEA/SH Specialist	**Full-time**	1	1	1
Legal Expert	**On-call basis**	1	1	1
Valuation Expert	**On-call basis**	1	1	1
Labor Specialist	**Full-time**	1	1	1

The minimum numbers stated above shall not limit the Contractor's obligation to provide additional personnel where required to ensure adequate coverage of all work fronts, shifts, locations, and risks.

The Contractor shall ensure that all key E&S personnel are mobilized and approved by the Engineer prior to commencement of the activities for which their services are required. Key E&S personnel shall not be replaced without the prior written approval of the Engineer.

12.15.3 Monitoring Requirements

12.15.3.1 Routine Monitoring

The Contractor shall implement systematic E&S monitoring to verify:

- compliance with the Contract and approved E&S instruments;
- implementation of mitigation and management measures;
- effectiveness of E&S controls;
- achievement of applicable E&S performance indicators and commitments; and
- timely identification and correction of deficiencies.

Monitoring shall be proportionate to the nature, scale, location, and risk of the relevant activity and shall be documented through inspection records, logs, monitoring data, checklists, registers, photographs, and other verifiable evidence.

Monitoring arrangements shall include appropriate coordination with the contractors of the other Lots where risks, impacts, access arrangements, communities, environmental receptors, or railway interfaces overlap.

12.15.3.2 Compliance Monitoring and Inspections

The Contractor shall conduct internal E&S inspections at frequencies proportionate to Project risks and, as a minimum:

- weekly inspections of active work fronts, Project Facilities, worker accommodation areas, storage areas, workshops, batching plants, spoil disposal and storage areas, access roads, and other temporary facilities;
- daily checks of high-risk activities, including lifting operations, confined spaces, working at height, excavation, tunnel works, energy isolation/LOTO, hot works, electrical works, hazardous materials, night works, and works on or adjacent to the operational railway;
- daily verification, where relevant, of railway operational protection arrangements, permits, possessions, exclusion zones, safe refuges, communication systems, and other railway-interface controls;
- verification of activity-specific risk assessments, method statements, Permit-to-Work records, competency records, training and induction records, Code of Conduct records, medical fitness records, toolbox talks, Plant and Equipment Registers, valid Green Tag status, statutory and periodic inspection certificates, maintenance records, and re-inspection and re-approval records for safety-critical equipment;
- verification that equipment removed from service, rejected, under repair, modified, or awaiting approval is appropriately quarantined, identified, and physically prevented from unauthorized use;
- verification of emergency response arrangements, including communications, evacuation capability, rescue arrangements, medical response, and emergency access at remote work fronts;
- verification of severe winter and high-altitude working controls during relevant periods;
- verification of pollution prevention, PPWMP implementation, waste and hazardous materials controls;
- verification of community health and safety, traffic, level-crossing, stakeholder engagement, and grievance management measures;
- verification of biodiversity and cultural heritage controls, including measures applicable to existing historic railway structures; and
- verification of labor conditions, worker accommodation, SEA/SH measures, worker grievance arrangements, and Subcontractor compliance.

The Engineer, Sub-PIU, and Employer shall have the right to undertake announced or unannounced E&S inspections and audits at any reasonable time.

The Contractor shall provide full access to relevant work fronts, Project Facilities, records, monitoring results, workers, personnel, Subcontractors, labor service providers, suppliers, and service providers for such inspections and audits.

12.15.4 Reporting Requirements

12.15.4.1 Regular E&S Reporting

The Contractor shall submit monthly E&S monitoring reports in the format required by the Employer.

Monthly E&S reports shall be submitted to the Engineer, with copies to the Sub-PIU and the Employer, within fifteen (15) days following the end of each reporting period. The Employer may transmit such reports to the World Bank in accordance with the ESCP and applicable financing requirements.

The Contractor shall also provide additional, thematic, incident-specific, or ad hoc E&S reports at such intervals as may reasonably be required by the Engineer, Employer, or World Bank.

Monthly E&S reports shall include, as a minimum:

- summary of construction activities and progress relevant to E&S;
- compliance status against the finalized ESIA, ESMP, SEP, C-LMP, C-ESMP, BMP/BAP, PPWMP, CHMP, OHS Plan, EPRP, Traffic and Transportation Management Plan, Community Health and Safety Management Plan, and other applicable E&S instruments;
- status of E&S permits, approvals, clearances, World Bank no-objections, and E&S hold points;
- environmental monitoring results, trends, exceedances, and corrective actions;
- energy, water, waste, spoil, wastewater, hazardous materials, spills, and pollution prevention performance;
- biodiversity monitoring, wildlife incidents, restoration progress, and implementation of biodiversity mitigation measures;
- cultural heritage status, including chance finds and screening, retention, alteration, or protection of existing historic railway structures;
- labor statistics, including workforce by employer, local/non-local status, gender, job category, working hours, overtime, and accommodation status;
- percentage and number of workers completing mandatory induction and signing the Code of Conduct, with a target of 100 percent prior to commencement of work;
- training undertaken, including OHS, operational railway safety, gender awareness, SEA/SH, Code of Conduct, emergency response, biodiversity, cultural heritage, and community interface;
- worker and community grievances, status, trends, response times, overdue grievances, and corrective actions;
- incidents, accidents, near misses, investigations, root causes, and corrective actions;
- railway-interface incidents, near misses, operational safety concerns, possession or Permit-to-Work non-compliances, and any construction-related disruption to railway operations;
- traffic and level-crossing incidents and community safety issues;
- severe winter, cold-weather, and high-altitude safety performance;
- emergency communication failures, emergency response events, drills, and corrective actions;
- summary of stakeholder engagement and outreach activities;
- status of land access and applicable ESS5 requirements;
- ESHS inspections, audits, non-compliances, corrective actions, stop-work instructions, and enforcement actions;
- subcontractor E&S performance;
- worker accommodation and welfare performance, including camp occupancy, accommodation inspections, gender-segregated accommodation and welfare arrangements, drinking-water quality testing, food and kitchen hygiene inspections, sanitary and laundry facilities, heating and hot-water availability, identified deficiencies, worker grievances, and corrective actions;

- status of plant, machinery and equipment approvals, including the number and type of equipment registered, inspected, approved and Green-Tagged; equipment rejected or removed from service; expired inspections or certifications; equipment requiring re-inspection following repair, structural modification, welding, or incident; and outstanding equipment-related corrective actions;
- Permit-to-Work performance, including the number and categories of permits issued, suspended or cancelled; identified PTW non-compliances; simultaneous-operation interface issues; and related corrective actions;
- cross-Lot E&S coordination issues and actions, where relevant; and
- upcoming activities, anticipated E&S risks, and required mitigation measures for the following reporting period.

Reports shall be supported by verifiable records and evidence.

The format and reporting template shall be agreed between the Contractor, the Engineer, and the Employer before submission of the first Monthly E&S Report.

12.15.4.2 Immediate Notifications and Incident Reporting

The Contractor shall immediately notify the Engineer and the Employer of any incident or accident related to the Works that has, or is reasonably likely to have, a significant adverse effect on workers, communities, the public, railway users, the environment, biodiversity, or cultural heritage.

Such events shall include, but not be limited to:

- fatalities;
- lost-time injuries or other serious occupational injuries;
- train strikes, collisions, derailments, or other significant railway-interface incidents;
- serious road traffic or level-crossing incidents;
- structural failure or collapse;
- major fire, explosion, spill, or pollution event;
- significant environmental damage;
- significant biodiversity impacts or wildlife mortality events;
- damage to or unauthorized demolition or alteration of cultural heritage or existing historic railway structures;
- forced or child labor;
- forced eviction or unauthorized land occupation;
- serious acts of violence, discrimination, or unrest;
- allegations of SEA or SH;
- significant security incidents;
- serious emergency communication or evacuation failures; and
- disease outbreaks or other significant health events associated with the Works.

The Contractor shall:

- provide an initial notification to the Engineer and the Employer immediately and in any event no later than twenty-four (24) hours after becoming aware of the incident;
- preserve relevant evidence and take immediate measures to prevent further harm;
- cooperate fully with any investigation required by the Engineer, Employer, competent authorities, or World Bank; and

- submit a detailed incident investigation report, including immediate, underlying, and root causes and a Corrective Action Plan, within ten (10) days following the initial notification unless otherwise agreed in writing by the Engineer and the Employer.

SEA/SH-related incidents shall be reported and managed in accordance with the confidential, survivor-centred procedures established under the applicable Project E&S instruments, and incident reporting shall not include personally identifiable or unnecessary sensitive information.

12.15.5 Grievance and Feedback Tracking

The Contractor shall support and maintain the Contractor-level functions of:

- the Worker Grievance Mechanism under ESS2; and
- the Project-level Community Grievance Mechanism under ESS10.

The Contractor shall maintain separate and appropriately controlled grievance registers containing, as applicable:

- date received;
- grievance category and location;
- relevant work activity;
- complainant type, where available and appropriate;
- acknowledgement date;
- actions taken;
- responsible person or entity;
- resolution status;
- response and closure time;
- corrective and preventive actions; and
- follow-up and verification of effectiveness.

Grievance information shall be managed in accordance with confidentiality and data protection requirements.

SEA/SH grievances shall not be recorded in ordinary grievance logs beyond the minimum non-identifying information required for Project reporting and shall be managed through the applicable confidential survivor-centred procedures.

12.15.6 Monitoring and Audit

The Contractor shall cooperate fully with monitoring, inspections, verification activities, and audits undertaken by the CSC/Engineer, Sub-PIU, Employer, World Bank, or other duly authorized parties.

The Contractor shall provide timely access to:

- the Site and all relevant work fronts;
- Project Facilities and Contractor-controlled Associated Facilities;
- E&S documentation, management plans, registers, monitoring data, permits, records, and logs;
- workers and E&S personnel for interviews;
- Subcontractors, labor service providers, and service providers;

- labor, employment, accommodation, training, competency, and OHS records; and
- any other documentation reasonably required to verify compliance with the Contract.

The CSC/Engineer shall monitor and verify compliance with the World Bank ESF, applicable national legislation, approved E&S instruments, relevant TCDD requirements, GIIP, and the Contract and shall advise the Employer on compliance status and required corrective actions.

The CSC/Engineer shall conduct labor audits under ESS2 at least semi-annually commencing upon mobilization of the main workforce.

Labor audits shall include, as applicable:

- terms and conditions of employment;
- wages, working hours, overtime, and rest periods;
- forced and child labor controls;
- recruitment practices;
- non-discrimination and equal opportunity;
- Code of Conduct implementation;
- mandatory induction and training;
- worker accommodation;
- labor influx management;
- SEA/SH and GBVH prevention measures;
- worker grievance arrangements;
- occupational health and safety;
- Subcontractor labor management; and
- implementation and closure of previous corrective actions.

Where corrective actions are required, the CSC/Engineer shall issue instructions, non-compliance notices, or Corrective Action requirements in accordance with the Contract. Such instructions and notices shall be binding on the Contractor.

12.15.7 Non-Compliance Management and Corrective Action

12.15.7.1 Corrective Action Plans

Where an E&S non-compliance is identified by the Contractor, CSC/Engineer, Sub-PIU, Employer, or another authorized party, the Contractor shall:

- immediately record and assess the non-compliance;
- implement immediate controls where necessary to prevent or limit harm;
- identify immediate, underlying, and root causes where appropriate;
- prepare corrective and preventive measures;
- establish responsible persons and completion dates;
- submit the proposed actions to the CSC/Engineer;
- implement the required measures within the specified timeframe; and
- provide objective evidence of implementation and closure.

Corrective actions shall be proportionate to the severity, actual impact, and potential consequences of the non-compliance.

The CSC/Engineer may require preparation of a formal Corrective Action Plan for material, repeated, systemic, or high-risk non-compliances.

Material non-compliances, including failure to implement corrective actions within the required timeframe, may be escalated in accordance with the Contract.

12.15.7.2 Stop-Work and Site Controls

Where an activity presents an imminent or serious risk to workers, railway users, communities, the public, cultural heritage, biodiversity, or the environment, the Engineer may require immediate suspension of the relevant activity in accordance with the Contract, including Sub-Clause 8.9 where applicable.

The Contractor shall also empower its competent E&S and OHS personnel to stop an activity where continuation would present an imminent danger to life, serious injury, significant environmental or social harm, or unacceptable railway operational safety risk.

The Contractor shall immediately implement measures necessary to make the affected area safe.

No suspended activity shall resume until:

- the relevant risk has been adequately assessed;
- appropriate corrective and preventive controls have been implemented;
- required method statements, risk assessments, permits, or E&S instruments have been revised where necessary; and
- the Engineer has authorized recommencement where the suspension was instructed by the Engineer.

Where suspension results from the Contractor's non-compliance, related delay and cost shall remain the Contractor's responsibility and shall not give rise to entitlement to Extension of Time, additional payment, or compensation, except where expressly provided otherwise under the Contract.

12.15.8 Access to Site Conditionality Related to Land Acquisition and Resettlement

Access to land, site establishment, and commencement of physical works shall remain strictly conditional upon completion of all applicable land acquisition, resettlement, livelihood restoration, and ESS5 requirements.

Without prejudice to Sections 12.4.7 and 12.10, the Contractor shall not access, occupy, establish facilities on, or commence physical works on any parcel or section unless and until:

(a) applicable statutory land acquisition procedures have been completed to the extent required for lawful access;

(b) all applicable RP/LRP measures, including compensation, assistance, transitional support, livelihood restoration, measures for informal users and vulnerable persons, and supplementary ESS5 measures have been fully implemented for the relevant parcel or section;

(c) implementation has been verified through the applicable Sectional RP/LRP Completion Report prepared by the CSC/Engineer and accepted by the Employer;

(d) the World Bank's no-objection has been obtained; and

(e) the Employer has issued written land access clearance for the relevant parcel or section.

Any unauthorized access, occupation, site establishment, storage, vegetation clearance, demolition, or physical works undertaken prior to such clearance shall be entirely at the Contractor's risk, cost, and liability and shall constitute a material E&S non-compliance.

The Employer may designate parcels, areas, or sections as restricted or "locked" areas. The Contractor shall not enter or use such areas until the Employer has issued written clearance.

Sectional or phased land handover may be used to enable progressive implementation of the Works following completion and verification of the applicable ESS5 requirements for each relevant section.

12.15.9 Enforcement and Contract Administration

E&S obligations under these Employer's Requirements are contractual obligations and shall be administered and enforced through the normal contract management mechanisms.

Repeated, persistent, or material non-compliance by the Contractor, its Subcontractors, labor service providers, suppliers, or service providers may result in contractual remedies in accordance with the Contract, including, as applicable:

- issuance of notices to correct;
- withholding of amounts associated with non-compliant E&S obligations or activities in accordance with the applicable payment certification provisions, including Sub-Clause 14.6 where applicable;
- rejection or non-certification of affected activities;
- suspension of the progress of all or part of the Works under Sub-Clause 8.9;
- requirement to replace or supplement E&S personnel;
- requirement to remove non-compliant personnel, Subcontractors, equipment, or activities where permitted under the Contract;
- financial deductions where expressly provided under the Contract; and
- other contractual remedies available to the Employer, up to and including termination where the applicable contractual threshold is met.

Where an E&S non-compliance or deficiency is formally notified by the Engineer or the Employer, the Contractor shall take immediate action to control any ongoing risk and shall complete corrective actions within the timeframe specified in the notification or otherwise agreed with the Engineer.

Without prejudice to Sub-Clause 4.4, the Contractor shall remain responsible for managing, coordinating, supervising, and enforcing E&S compliance by all Subcontractors and for their acts, omissions, and defaults as if they were those of the Contractor.

Failure by a Subcontractor to comply with E&S requirements shall not relieve the Contractor of any obligation or liability under the Contract.

Where the Contractor fails to implement corrective actions within the specified timeframe, the Employer may apply the contractual remedies available under the Conditions of Contract.

The Contractor shall not be entitled to additional payment solely for compliance with E&S requirements that form part of its obligations under the Contract. Such obligations shall be deemed included in the Contract Price except where the Contract expressly provides otherwise.

Failure to mobilize, maintain, or adequately deploy required key E&S personnel shall constitute a material non-compliance and may result in suspension, withholding of applicable payments, financial deductions where contractually provided, or other remedies under the Contract.

The existence or application of any contractual remedy shall not relieve the Contractor of its obligation to correct the relevant non-compliance or prevent recurrence.

12.16 Contractual Administration of E&S Requirements

All E&S requirements set out in these Employer's Requirements and in the applicable E&S instruments form an integral and inseparable part of the Contract scope and shall be administered in accordance with the Conditions of Contract, the Particular Conditions of Contract, and the contractual hierarchy of documents.

Under the Design–Build model, the Contractor shall be responsible for ensuring that the final design, construction methodology, sequencing, temporary works, Project Facilities, Contractor-controlled Associated Facilities, and other implementation arrangements comply with all applicable E&S requirements.

The Contractor shall prepare, develop, finalize, revise, supplement, and implement the applicable E&S assessments, instruments, management plans, procedures, mitigation measures, and monitoring arrangements as necessary to reflect the final design and implementation of the Works.

Preparation, development, finalization, revision, supplementation, or implementation of E&S instruments and measures arising from:

- final design development;
- construction methodology or sequencing;
- temporary works;
- Project Facilities;
- Contractor-controlled Associated Facilities;
- site-specific conditions that were reasonably foreseeable;
- coordination and interface requirements with the contractors of the other Lots; or
- compliance with the Contractor's obligations under the World Bank ESF, approved Project E&S instruments, applicable national requirements, relevant TCDD requirements, GIIP, and the Contract,

shall not, in themselves, constitute a Variation or give rise to entitlement to an Extension of Time, additional payment, or compensation.

The requirement to undertake routine or reasonably foreseeable additional E&S studies, surveys, investigations, assessments, modelling, monitoring, stakeholder engagement, mitigation measures, management measures, corrective actions, or other E&S activities necessary for proper performance of the Contractor's Design–Build obligations shall be deemed included in the Contract Price.

For the avoidance of doubt, E&S measures required as a consequence of the Contractor's design choices, construction methods, inadequate planning, non-compliance, failure to implement approved E&S instruments, or failure to take reasonably foreseeable preventive or mitigation measures shall be undertaken at the Contractor's own cost and shall not constitute a Variation.

Exceptional supplementary E&S studies, surveys, assessments, monitoring activities, or mitigation measures that could not reasonably have been identified, anticipated, quantified, or priced at the date of Contract signature may be administered through the applicable E&S Mitigation Measures Provisional Sum only where:

- the measure falls within the permitted scope of the applicable Provisional Sum;
- the Employer has provided prior written approval; and
- the Engineer has issued a written instruction in accordance with the Contract.

E&S Mitigation Measures Provisional Sums are financial mechanisms only and shall not:

- constitute a cap or limitation on the Contractor's E&S obligations;
- make any E&S obligation optional or discretionary;
- transfer E&S responsibilities or liabilities from the Contractor to the Employer; or
- create any entitlement to payment except in accordance with the express provisions of the Contract.

Nothing in these E&S Requirements shall alter the allocation of statutory land acquisition, compensation, entitlement determination, or other responsibilities expressly assigned to the Employer under the Contract and applicable E&S instruments.

All E&S obligations shall be administered and enforced in accordance with the Conditions of Contract and the Particular Conditions of Contract.

12.17 Final Enforceability

All E&S requirements contained in these Employer's Requirements, the ESCP, and the applicable approved E&S instruments constitute binding contractual obligations of the Contractor and shall be treated as core obligations under the Contract.

The Contractor shall comply with such obligations throughout performance of the Works, and compliance shall not be conditional upon separate instruction, reminder, or enforcement action by the Engineer, the Employer, the Sub-PIU, or the World Bank.

E&S requirements shall be interpreted in accordance with the contractual hierarchy of documents and in a manner that ensures compliance with:

- the World Bank ESF;
- the ESCP;
- applicable approved E&S instruments;
- applicable national legislation, permits, and approvals;
- relevant TCDD requirements;
- applicable World Bank Group EHSGs; and
- GIIP.

Where an E&S instrument is revised, supplemented, or replaced in accordance with the Contract and receives the applicable approvals and World Bank no-objection, the approved revised, supplemented, or replacement instrument shall become binding upon the Contractor in accordance with the Contract.

Compliance with E&S obligations shall be enforced through the normal contract administration mechanisms, including:

- review and approval by the Engineer and the Employer;
- E&S hold points and conditions precedent;
- supervision, inspection, monitoring, and audit;
- reporting requirements;
- non-compliance notices and Corrective Action Plans;
- stop-work and suspension measures;
- withholding or deduction of payments where provided under the Contract; and
- other contractual remedies available under the Conditions of Contract and Particular Conditions of Contract.

Failure to comply with any applicable E&S obligation shall constitute non-compliance under the Contract and may constitute material non-compliance where the nature, severity, persistence, recurrence, or potential consequences of the failure so warrant.

Review, approval, acceptance, inspection, monitoring, audit, comment, no-objection, or absence of comment by the Engineer, the Employer, the Sub-PIU, or the World Bank shall not relieve the Contractor of any E&S obligation, responsibility, or liability under the Contract.

Similarly, any failure or delay by the Engineer, the Employer, or the Sub-PIU to identify, notify, require correction of, or otherwise enforce an E&S non-compliance shall not constitute:

- acceptance of such non-compliance;
- waiver of any contractual requirement;
- limitation of the Contractor's responsibility or liability; or
- prejudice to any right or remedy available under the Contract.

Interim approvals, inspections, payment certificates, Taking-Over Certificates, or other contractual certifications shall not relieve the Contractor of outstanding E&S obligations, corrective actions, restoration requirements, remediation obligations, or liabilities arising from its performance of the Works.

The Contractor's E&S obligations shall apply, as relevant, throughout design development, construction, testing and commissioning activities within the Contractor's scope, reinstatement and restoration, decommissioning of temporary Project Facilities, and the Defects Notification Period.

Any E&S obligation that by its nature requires implementation, monitoring, remediation, restoration, corrective action, reporting, or completion after Taking Over shall survive the issuance of the relevant Taking-Over Certificate to the extent necessary to achieve full compliance with the Contract.

13 CONTRACTOR'S REPRESENTATIVE AND KEY PERSONNEL

The Proposer shall provide details of the Contractor's Representative and Key Personnel and such other Key Personnel that the Proposer considers appropriate, together with their academic qualifications and work experience. The Proposer shall complete the relevant Forms in Section IV, Proposal Forms. Given that the Project includes ERTMS/ETCS, CTC, IP/MPLS, SCADA, CCTV and remote-access systems, the Contract is assessed to present cyber security risks; accordingly, the Proposer must include a Cyber Security Expert (Cybersecurity Manager) among the Key Personnel, with defined experience and certification requirements. Considering the safety-critical nature of the Project, the following roles shall also be required as Key Personnel (or their responsibilities expressly assigned to existing Key Personnel): Systems Integration Manager; RAMS Manager; Interface Manager; Testing and Commissioning Manager; Railway Safety and Authorization Manager; OHS Manager; EMC and Earthing Specialist; and Cybersecurity Manager.

If any of the Key Personnel proposed by the Proposer is determined by the Employer not meeting the specified requirements, the Employer reserves the right to require the Proposer to replace such key personnel with the fully qualified and experienced key personnel prior to contract award, if awarded to the Proposer.

PART 3 – CONDITIONS OF CONTRACT AND CONTRACT FORMS

SECTION VIII - GENERAL CONDITIONS (GC)

Yellow Book:

© FIDIC 2017 - 2022. All rights reserved.

The Conditions of Contract are the "General Conditions" which form part of the "Conditions of Contract for Plant & Design-Build for Electrical & Mechanical Plant & for Building & Engineering Works Designed by the Contractor ("Yellow book") Second edition 2017, reprinted 2022 with amendments" published by the Federation Internationale Des Ingenieurs – Conseils (FIDIC) and the following "Particular Conditions" which comprise of the *World Bank's* COPA and the amendments and additions to such General Conditions.

An original copy of the above FIDIC publication i.e. "Conditions of Contract for Plant & Design-Build for Electrical & Mechanical Plant & for Building & Engineering Works Designed by the Contractor" must be obtained from FIDIC.

International Federation of Consulting Engineers (FIDIC)

FIDIC Bookshop – Box- 311 – CH – 1215 Geneva 15 Switzerland

Fax: +41 22 799 49 054

Telephone: +41 22 799 49 01

E-mail: fidic@fidic.org

www.fidic.org

FIDIC code: ISBN13: 978-2-88432-082-5

SECTION IX - PARTICULAR CONDITIONS (PC)

The following Particular Conditions shall supplement the General Conditions. Whenever there is a conflict, the provisions herein shall prevail over those in the General Conditions.

Particular Conditions

Part A – Contract Data

Conditions	Sub-Clause	Data
Employer's name and address	1.1.30	Name: General Directorate of Infrastructure Investments (GDII) Address: Hakkı Turayliç Cad. No:5 06338 Emek/Çankaya/ANKARA
Engineer's name and address	1.1.35	to be notified by the Employer prior to the Commencement Date
Site	1.1.77	Details of the site is given in the Employer's Requirements.
Time for Completion	1.1.86	**Add** at the end of the subparagraph: Time for Completion is 38 months
Bank's name	1.1.91	**Add** new provision 1.1.91 as follows: "**Bank**" means International Bank for Reconstruction and Development.
Borrower's name	1.1.92	**Add** new provision 1.1.92 as follows: "Borrower" means Republic of Türkiye.
Defects Notification Period	1.1.27	**Add** at the end of the subparagraph: 1 (one) year
Sections	1.1.76	*N/A*
Milestones	1.1.95	*N/A*
Electronic transmission system	1.3 (a) (ii)	Electronic transmission system shall not be used.
Address of Employer for communications:	1.3(d)	Hakkı Turayliç Caddesi No:5, Emek 06500, Ankara, Türkiye

Conditions	Sub-Clause	Data
Address of Engineer for communications:	1.3(d)	to be notified by the Employer prior to the Commencement Date
Address of Contractor for communications:	1.3(d)	
Governing Law	1.4	The governing law is Turkish Laws.
Ruling language	1.4	The ruling language is English.
Language for communications	1.4	The language for communication is English
Time for the Parties to sign a Contract Agreement	1.6	42 days after receipt of the Letter of Acceptance
Number of additional paper copies of Contractor's Documents	1.8	Three hardcopies and one digital copy
Total liability of the Contractor to the Employer under or in connection with the Contract	1.15	100 % (one hundred percent)
Time for access to the Site	2.1	No later than the Commencement Date
Engineer's Duties and Authority	3.2	Variations resulting any increase of the Accepted Contract Amount shall require written consent of the Employer.
Cyber security- Contractor's obligations	4.1	*N/A*
Performance Security	4.2	The Performance Security will be in the form of a "demand guarantee" in the amount(s) of 6% (six) percent of the Accepted Contract Amount and in the same currency (ies) of the Accepted Contract Amount.
Environmental and Social (ES) Performance Security	4.2	The ES Performance Security will be in the form of a "demand guarantee" in the amount(s) of 1% (one percent) of the Accepted Contract Amount and in the same currency (ies) of the Accepted Contract Amount.

Conditions	Sub-Clause	Data
Maximum allowable accumulated value of work subcontracted (as a percentage of the Accepted Contract Amount)	4.4(a)	30% (thirty percent)
Parts of the Works for which subcontracting is not permitted	4.4(b)	N/A
Period for notification of errors in the items of reference	4.7.2	28 days
Period of payment for temporary utilities	4.19	N/A
Number of additional paper copies of progress reports	4.20	Three hardcopies and one digital copy
Cyber security	4.20	*N/A*
Cyber security-immediate reporting	4.20	*N/A*
Engagement of Staff and Labour	6.1	The Contractor shall allocate not less than 30% of the total labour cost under the contract to the employment of local Contractor's Personnel (local labour) with appropriate skills and experience.
Normal working hours	6.5	Normal working hours means working hours in accordance with applicable laws, collective agreements, and industry standards.
Number of additional paper copies of program	8.3	Three hardcopies and one digital copy
Delay damages payable for each day of delay	8.8	0.05% of the Accepted Contract Amount, less provisional sum for DAAB.
Maximum amount of delay damages	8.8	10% of the Accepted Contract Amount less provisional sum for DAAB.
Cyber security- Variation	13.3.1(a)	*N/A*

Conditions	Sub-Clause	Data
Percentage rate to be applied to Provisional Sums for overhead charges and profit	13.4 (b)(ii)	5%
Total advance payment	14.2	10% of the Accepted Contract Amount payable in the currencies and proportions in which the Accepted Contract Amount is payable
Repayment of Advance payment	14.2.3	(a) minimum amount of certified interim payments to commence repayment of the Advance Payment, as a percentage of the Accepted Contract Amount payable in that currency less Provisional Sums 5% (b) percentage deductions for the repayment of the Advance Payment 25%; provided that the advance payment shall be completely repaid prior to the time when 90 percent (90%) of the Accepted Contract Amount Less Provisional Sums has been certified for payment.
Period of payment	14.3	Monthly
Number of additional paper copies of Statements	14.3(b)	Three hardcopies and one digital copy
Percentage of retention	14.3(iii)	5%
Limit of Retention Money (as a percentage of Accepted Contract Amount)	14.3(iii)	5%
Minimum Amount of Interim Payment Certificates	14.6.2	0.5 % of the Accepted Contract Amount.
Cyber security- withholding payments	14.6.2	*N/A*
Period of payment of Advance Payment to the Contractor	14.7(a)	45 days after receiving the documents in accordance with Sub-Clause 14.2

Conditions	Sub-Clause	Data
Period for the Employer to make interim payments to the Contractor under Sub-Clause 14.6 (interim Payment)	14.7b(i)	56 days after the Engineer receives the Statement and supporting documents
Period for the Employer to make interim payments to the Contractor under Sub-Clause 14.13 (Final Payment)	14.7b(ii)	70 days after the Employer receives this Payment Certificate
Period for the Employer to make final payment to the Contractor	14.7(c)	**Replace** "56 days" with "70 days"
financing charges for delayed payment (percentage points above the average bank short-term lending rate as referred to under sub-paragraph (a))	14.8	1% per annum
Number of additional paper copies of draft Final Statement	14.11.1(b)	Three hardcopies and one digital copy
Forces of nature, the risks of which are allocated to the Contractor	17.2(d)	N/A

Conditions	Sub-Clause	Data
Permitted deductible limits	19.1	The maximum permitted deductible for insurances under Sub-Clause 19 shall be: (a) For insurance of the Works and Plant: not exceeding USD 1,000,000 per occurrence (b) For third party liability insurance: not exceeding USD 500,000 per occurrence (c) For professional indemnity insurance: not exceeding USD 1,000,000 per claim Any higher deductibles shall be subject to the prior approval of the Employer.
Additional amount to be insured (as a percentage of the replacement value, if less or more than 15%)	19.2.1(b)	20% of the replacement value of the Works
List of risks arising from Exceptional Events which shall not be excluded from the insurance cover for the Works	19.2.1(iv)	The insurance cover shall not exclude risks arising from Exceptional Events including but not limited to: (a) Earthquake (b) Flood (c) Storm, cyclone, hurricane, and other severe natural events (d) Landslide and subsidence (e) Explosion and fire (f) Riot, commotion and civil disturbance (g) Terrorism
Extent of insurance required for Goods	19.2.2	Insurance shall cover loss or damage to Goods during manufacture, transport (including international transit), storage, and delivery to the Site, on an "All Risks" basis.
Amount of insurance required for Goods		110% of the CIF value of the Goods

Conditions	Sub-Clause	Data
amount of insurance required for liability for breach of professional duty	19.2.3(a)	Amount of insurance required for liability for breach of professional duty: as stated in article 19.2.7
Insurance required against liability for fitness for purpose	19.2.3(b)	No
Period of insurance required for liability for breach of professional duty	19.2.3	Until end of Defects Notification Period
Amount of insurance required for injury to persons and damage to property	19.2.4	1,000,000.00 EUR (One Million Euro) per occurrence with unlimited number of occurrences
Other insurances required by Laws and by local practice (give details)		The Contractor shall obtain and maintain all insurances required by the Laws of Türkiye and by local practice.

Conditions	Sub-Clause	Data
Insurance for Design	19.2.7	Add new Sub provision 19.2.7: The Contractor shall affect professional indemnity insurance, which shall cover the risk of professional negligence in the part of the Permanent Works designed by the Contractor. This insurance shall be for a limit of not less than specified below: (a) Limit of liability of any one professional error or omission: Min. 5,000,000.00 EUR (five million Euros) (b) The aggregate amount for which the insurer is liable in respect of all damages paid in the period of insurance: Min. 15,000,000.00 EUR (fifteen million Euros) (c) Period of insurance: Duration of the contract (including DNP) The Contractor shall use his best endeavors to maintain the professional indemnity insurance in full force and effect until the issue of Performance Certificate. The Contractor undertakes to notify the employer of any extending, renewing or reinstating this insurance.
Time for appointment of DAAB member(s)	21.1	42 days after signature by both parties of the Contract Agreement
The DAAB shall be comprised of	21.1	Three Members

Conditions	Sub-Clause	Data
List of proposed members of DAAB	21.1	Three Members Proposed by Employer 1. Mr. Fahrettin Öner 2. Mr. Mehmet Tarık Dündar 3. Mr. Musa Tuncay Proposed by Contractor [Attach CVs to the Contract] 1. 2. 3 For DAAB member nationality, the nationalities of all JV members shall be considered.
Rules of arbitration:	21.6 (a)	Sub-Clause 21.6(a) of PART B – Special Provisions **shall** apply. *A JV with at least one member incorporated outside Türkiye shall be treated as a foreign Contractor.*
	21.6 (b)	Sub-Clause 21.6(b) of PART B – Special Provisions **shall** apply.
Place of arbitration	21.6 (a)	It will be indicated at the time of award of contract in accordance with origin of the Contractor as per Sub-Clause 21.6. *A JV with at least one member incorporated outside Türkiye shall be treated as a foreign Contractor.*

Part B – Special Provisions

Sub-Clause 1.1.4 **Base Date**	Sub-Clause 1.1.4 is replaced with the following: "Unless stated otherwise in the Contract Data, Base Date means the date 28 days before the latest date for submission of the Tender.
Sub-Clause 1.1.49 **Laws**	The Sub-Clause is replaced with: "**Laws**" means all national (or state) legislation, statutes, ordinances and other laws, and regulations and by-laws of any legally constituted public authority."
Sub-Clause 1.1.59 **Particular Conditions**	The Sub-Clause is replaced with: "Particular Conditions" means the document entitled particular conditions included in the Contract, which consists of Part A- Contract Data, Part B- Special Provisions, Part C- Fraud and Corruption and Part D- Environmental and Social (ES) Metrics for Progress Reports."
Sub-Clause 1.1.74 **Site**	The Sub-Clause is replaced with: "**Site**" means the places where the Permanent Works are to be executed, including storage and working area, and to which Plant and Materials are to be delivered, and any other places specified in the Contract as forming part of the Site."
Sub-Clause 1.1.83 **Tender**	The following is added at the end of the sentence. "Tender is synonymous with "Proposal", "tenderer" with "Proposer", "tender documents" with "request for proposals documents".

Sub-Clause 1.1.91 to 1.1.96 are added after Sub-Clause 1.1.90

Sub-Clause 1.1 91 Bank	"**Bank**" means the financing institution (if any) named in the Contract Data.
Sub-Clause 1.1.92 **Borrower**	"**Borrower**" means the person (if any) named as the borrower in the Contract Data.
Sub-Clause 1.1.93 **ES**	"**ES**" means Environmental and Social (including Sexual Exploitation and Abuse (SEA), and Sexual Harassment (SH)).

Sub-Clause 1.1.94

Sexual Exploitation and Abuse (SEA), and Sexual Harassment (SH)

"**Sexual Exploitation and Abuse" "(SEA)"** means the following:

Sexual Exploitation is defined as any actual or attempted abuse of position of vulnerability, differential power or trust, for sexual purposes, including, but not limited to, profiting monetarily, socially or politically from the sexual exploitation of another;

Sexual Abuse is defined as the actual or threatened physical intrusion of a sexual nature, whether by force or under unequal or coercive conditions; and

"Sexual Harassment" "(SH)" is defined as unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature by the Contractor's Personnel with other Contractor's or Employer's Personnel.

Sub-Clause 1.1.95

Milestone

"Milestone" means a part of the Works stated in the Contract Data (if any), and described in detail in the Employer's Requirements as a Milestone, which is to be completed by the time for completion stated in Sub-Clause 4.26 [*Milestones*] but is not to be taken over by the Employer after completion.

Sub-Clause 1.1.96

Milestone Certificate

"Milestone certificate" means the certificate issued by the Engineer under Sub-Clause 4.26 [*Milestones*].

Sub-Clause 1.2

Interpretation

Sub-paragraph (a) is replaced with the following:

(a) "Words indicating one gender include all genders;

"he/she" is replaced with:" it";

"him/her" is replaced with "it";

"his" and "his/her" are replaced with: "its";

"himself/herself" are replaced with: "itself"."

Further, "and" is deleted from the end of sub-paragraph (i) and added at the end of sub-paragraph (j).

sub-paragraph (k) is added:

(k) "The word "tender" is synonymous with "bid" or "proposal", the word tenderer with "bidder" or "proposer" and the words "tender documents" with "request for bids documents" or "request for proposal documents", as applicable."

Sub-Clause 1.5 **Priority of Documents**	The following documents are added in the list of Priority Documents after (e): "(f) the Particular Conditions Part C- Fraud and Corruption; (g) the Particular Conditions Part D- Environmental and Social (ES) Metrics for Progress Reports;" (h) Particular Conditions- Part E- Sexual Exploitation and Abuse (SEA) and/or Sexual Harassment Performance Declaration for Subcontractors; and the list renumbered accordingly.
Sub-Clause 1.6 **Contract Agreement**	The last paragraph is replaced with: "If the Contractor comprises a JV, the authorised representative of the JV shall sign the Contract Agreement in accordance with Sub-Clause 1.14 *[Joint and Several Liability]."*
Sub-Clause 1.12 **Confidentiality**	The following is added at the end of the second paragraph: "The Contractor shall be permitted to disclose information required to establish its qualifications to compete for other projects." "or" at the end of (b) is deleted. "or" at the end of (c) is added. The following is then added as (d): "is being provided to the Bank."
Sub-Clause 1.17 **Inspections & Audit by the Bank**	The following Sub-Clause is added after Sub-Clause 1.16: "Pursuant to paragraph 2.2 e. of Particular Conditions - Part C- Fraud and Corruption, the Contractor shall permit and shall cause its agents (where declared or not), subcontractors, subconsultants, service providers, suppliers, and personnel, to permit, the Bank and/or persons appointed by the Bank to inspect the site and/or the accounts, records and other documents relating to the procurement process, selection and/or contract execution, and to have such accounts, records and other documents audited by auditors appointed by the Bank. The Contractor's and its Subcontractors' and subconsultants' attention is drawn to Sub-Clause 15.8 (Fraud and Corruption) which provides, inter alia, that acts intended to materially impede the exercise of the Bank's inspection and audit rights constitute a prohibited practice subject to contract termination (as well as to a determination of ineligibility pursuant to the Bank's prevailing sanctions procedures)."

Sub-Clause 2.4

Employer's Financial Arrangements

The first paragraph is replaced with:

"The Employer shall submit, before the Commencement Date, reasonable evidence that financial arrangements have been made for financing the Employer's obligations under the Contract."

The following sub-paragraph is added at the end of Sub-Clause 2.4:

"In addition, if the Bank has notified to the Borrower that the Bank has suspended disbursements under its loan, which finances in whole or in part the execution of the Works, the Employer shall give notice of such suspension to the Contractor with detailed particulars, including the date of such notification, with a copy to the Engineer, within 7 days of the Borrower having received the suspension notification from the Bank. If alternative funds will be available in appropriate currencies to the Employer to continue making payments to the Contractor beyond a date 60 days after the date of Bank notification of the suspension, the Employer shall provide reasonable evidence in its notice of the extent to which such funds will be available."

Sub-Clause 3.1

The Engineer

The following is added at the end of the first sub-paragraph:

"The Engineer's staff shall include suitably qualified engineers and other professionals who are competent to carry out these duties."

Sub-Clause 3.2

Engineer's Duties and Authority

The Engineer shall obtain the consent in writing of the Employer before taking action under the following Sub-Clauses of these Conditions:

(a) Sub-Clause 13.1: Right to vary - instructing a variation, except;

(i) in an emergency situation as determined by the Engineer; or

(ii) (if such a Variation would increase the Accepted Contract Amount by less than the percentage specified in the Contract Data.

(b) Sub-Clause 13.2 (Value Engineering): stating consent or otherwise to a value engineering proposal submitted by the Contractor in accordance with Sub-Clause 13.2.

	Notwithstanding the obligation, as set out above, to obtain consent in writing, if, in the opinion of the Engineer, an emergency occurs affecting the safety of life or of the Works or of adjoining property, it may, without relieving the Contractor of any of his duties and responsibility under the Contract, instruct the Contractor to execute all such work or to do all such things as may, in the opinion of the Engineer, be necessary to abate or reduce the risk. The Contractor shall forthwith comply, despite the absence of consent of the Employer, with any such instruction of the Engineer. The Engineer shall determine an addition to the Contract Price, in respect of such instruction, and EOT if any, in accordance with Clause 13 and shall notify the Contractor accordingly, with a copy to the Employer.
Sub-Clause 3.3 **Engineer's Representative**	The following is added at the end of Sub-Clause 3.3: "The Engineer shall obtain the consent of the Employer before appointing or replacing an Engineer's Representative."
Sub-Clause 3.4 **Delegation by the Engineer**	The following is added at the end of the second paragraph: "If any assistants are not fluent in this language, the Engineer shall make competent interpreters available during all working hours, in a number sufficient for those assistants to properly perform their assigned duties and/or exercise their delegated authority."
Sub-Clause 3.6 **Replacement of the Engineer**	In the first paragraph, "42 days" is replaced with: "21 days"; In the third para, "shall" is replaced with: "should".
Sub-Clause 4.1 **Contractor's General Obligations**	The following is inserted after the paragraph "The Contractor shall execute the Works…": "The Contractor shall not post and shall ensure that its Subcontractors/suppliers/manufacturers and Contractors' Personnel shall not post, any signage on the Site, or in any other place where the Works will be carried out, except such signage as is required under the Contract, including by the Laws of the Country, or has been approved by the Employer. For the purposes of this sub-clause, signage shall include, inter alia, flags, billboards, advertising materials and any other similar item separately posted on the Site." The following is inserted after the paragraph "The Contractor shall provide the Plant (and spare parts, if any)…":

"All equipment, material, and services to be incorporated in or required for the Works shall have their origin in any eligible source country as defined by the Bank."

The following is inserted after the paragraph "The Contractor shall, whenever required by the Engineer...":

"The Contractor shall not carry out mobilization to Site (e.g. clearance for haul roads, site accesses and work site establishment, geotechnical investigations or investigations to select ancillary features such as quarries and borrow pits) unless the Engineer gives consent, a consent that shall not be unreasonably delayed, to the measures the Contractor proposes to manage the environmental and social risks and impacts, which at a minimum shall include applicable Management Strategies and Implementation Plans (MSIPs) and applying the Code of Conduct for Contractor's Personnel submitted as part of the Proposal and agreed as part of the Contract. The Contractor shall submit, to the Engineer for Review, any additional MSIPs as are necessary to manage the ES risks and impacts of ongoing Works. (e.g. excavation, earth works, bridge and structure works, stream and road diversions, quarrying or extraction of materials, concrete batching and asphalt manufacture). These MSIPs collectively comprise the Contractor's Environmental and Social Management Plan (C-ESMP). The Contractor shall review the C-ESMP, periodically (but not less than every six (6) months), and update it as required to ensure that it contains measures appropriate to the Works. The updated C-ESMP shall be submitted to the Engineer for Review.

The C-ESMP shall be part of the Contractor's Documents. The procedures for Review of the C-ESMP and its updates shall be as described in Sub-Clause 5.2 *[Contractor's Documents]."*

The following is added at the end of the Sub-Clause:

"The Contractor shall provide relevant contract- related information, as the Employer and/or Engineer may reasonably request to conduct Stakeholder engagements. "Stakeholder" refers to individuals or groups who:

(i) are affected or likely to be affected by the Contract; and

(ii) may have an interest in the Contract.

The Contractor shall also directly participate in Stakeholder engagements, as the Employer and/or Engineer may reasonably request.

Pursuant to the Contract Data, the Contractor, including its Subcontractors/ suppliers/ manufacturers shall take all technical and organizational measures necessary to protect the information technology systems and data used in connection with the Contract. Without limiting the foregoing, the Contractor, including its Subcontractors/ suppliers/ manufacturers, shall use all reasonable efforts to establish, maintain, implement and comply with, reasonable information technology, information security, cyber security and data protection controls, policies and procedures, including oversight, access controls, encryption, technological and physical safeguards and business continuity/disaster recovery and security plans that are designed to protect against and prevent breach, destruction, loss, unauthorized distribution, use, access, disablement, misappropriation or modification, or other compromise or misuse of or relating to any information technology system or data used in connection with the Contract."

Sub-Clause 4.2

Performance Security and ES Performance Security

The first paragraph is replaced with:

"The Contractor shall obtain (at its cost) a Performance Security for proper performance and, if applicable, an Environmental and Social (ES) Performance Security for compliance with the Contractor's ES obligations, in the amounts stated in the Contract Data and denominated in the currency(ies) of the Contract or in a freely convertible currency acceptable to the Employer. If amounts are not stated in the Contract Data, this Sub-Clause shall not apply."

In the following Sub-Clauses of the General Conditions, the term "Performance Security" is replaced with: "Performance Security and, if applicable, an Environmental and Social (ES) Performance Security":

2.1- Right of Access to the Site;

14.2- Advance Payment;

14.6- Issue of IPC;

14.12- Discharge;

14.13- Issue of FPC;

14.14 Cessation of Employer's Liability;

15.2- Termination for Contractor's Default;

15.5- Termination for Employer's Convenience.

Sub-Clause 4.2.1

The first paragraph is replaced with:

Contractor's obligations	"The Contractor shall deliver the Performance Security and, if applicable, an ES Performance Security to the Employer within 28 days after receiving the Letter of Acceptance and shall send a copy to the Engineer. The Performance Security, and if applicable, ES Performance Security shall be issued by a reputable bank or financial institution selected by the Contractor. The Performance Security shall be, as stipulated in the Contract Data, and shall be in accordance with the form included in the request for proposals documents for the subject contract or in another form acceptable to the Employer." Thereafter, throughout Sub-Clause 4.2 "Performance Security" is replaced with: "Performance Security and, if applicable, ES Performance Security."
Sub-Clause 4.2.2 **Claims under the Performance Security**	The first paragraph is replaced in its entirety with: "The Employer shall not make a claim under the Performance Security, except for amounts for which the Employer is entitled under the Contract."
Sub-Clause 4.2.3 **Return of Performance Security**	In sub-paragraph (a) "21 days" is replaced with: "28 days".
Sub-Clause 4.3 **Contractor's Representative**	The following is added at the end of the last paragraph: "If any of these persons is not fluent in this language, the Contractor shall make competent interpreters available during all working hours in a number deemed sufficient by the Engineer."

Sub-Clause 4.4 Subcontractors

The following is added at the beginning of the second paragraph.

"The Contractor shall require in all subcontracts relating to the Works that Subcontractors execute the Works in accordance with the Contract, including complying with the relevant ES requirements and the obligations set out in Sub-Clause 4.25."

The following is added after the first sentence of the fourth paragraph.

"The Contractor's submission to the Engineer shall also include a Subcontractor's declaration in accordance with the Particular Conditions- Part E- Sexual Exploitation and Abuse (SEA) and/or Sexual Harassment Performance Declaration for Subcontractors."

The following is added at the end of the last paragraph of Sub-Clause 4.4:

"All subcontracts relating to the Works shall include provisions which entitle the Employer to require the subcontract to be assigned to the Employer under Sub-Clause 15.2. [*Termination for Contractor's Default*].

Where practicable, the Contractor shall give fair and reasonable opportunity for contractors from the Country to be appointed as Subcontractors."

Sub-Clause 4.5.1

Objection to nomination

In sub-paragraph (c):

"and" is deleted from the end of (i);

"." at the end of (ii) is replaced with: ", and".

The following is then added as (iii):

"(iii) be paid only if and when the Contractor has received from the Employer payments for sums due under the Subcontract referred to under Sub-Clause 4.5.2 [*Payment to nominated Subcontractors*]."

Sub-Clause 4.6

Co-operation

The following is added after the first paragraph:

"The Contractor shall also, as stated in the Employer's Requirements or as instructed by the Engineer, cooperate with and allow appropriate opportunities for the Employer's Personnel to conduct any environmental and social assessment."

Sub-Clause 4.8

Health and Safety Obligations

The following are included after deleting "and" at the end of (f) and replacing "." with ";" at the end of (g):

(h) "provide health and safety training of Contractor's Personnel as appropriate and maintain training records;

(i) actively engage the Contractor's Personnel in promoting understanding, and methods for, implementation of health and safety requirements, as well as in providing information to Contractor's Personnel, and provision of personal protective equipment without expense to the Contractor's Personnel;

(j) put in place workplace processes for Contractor's Personnel to report work situations that they believe are not safe or healthy, and to remove themselves from a work situation which they have reasonable justification to believe presents an imminent and serious danger to their life or health;

(k) Contractor's Personnel who remove themselves from such work situations shall not be required to return to work until necessary remedial action to correct the situation has been taken. Contractor's Personnel shall not be retaliated against or otherwise subject to reprisal or negative action for such reporting or removal;

(l) subject to Sub-Clause 4.6, collaborate with the entities and Personnel under paragraph (a) , (b) and (c) of Sub-Clause 4.6, in applying the health and

safety requirements. This is without prejudice to the responsibility of the relevant entities for the health and safety of their own personnel; and

(m) establish and implement a system for regular (not less than six-monthly) review of health and safety performance and the working environment."

The second and third paragraphs are replaced with the following:

"Subject to Sub-Clause 4.1, the Contractor shall submit to the Engineer for Review a health and safety manual which has been specifically prepared for the Works, the Site and other places (if any) where the Contractor intends to execute the Works. The procedures for Review of the health and safety manual and its updates shall be as described in Sub-Clause 5.2.2 *[Review by Engineer]*.

The health and safety manual shall be in addition to any other similar document required under applicable health and safety regulations and Laws.

The health and safety manual shall set out all the health and safety requirements under the Contract,

(a) which shall include at a minimum:

(i) the procedures to establish and maintain a safe working environment without risk to health at all workplaces, machinery, equipment and processes under the control of the Contractor, including control measures for chemical, physical and biological substances and agents;

(ii) details of the training to be provided, records to be kept;

(iii) the procedures for prevention, preparedness and response activities to be implemented in the case of an emergency event (i.e. an unanticipated incident, arising from both natural and man-made hazards, typically in the form of fire, explosions, leaks or spills, which may occur for a variety of different reasons including failure to implement operating procedures that are designed to prevent their occurrence, extreme weather or lack of early warning);

(iv) the measures to be taken to avoid or minimize the potential for community exposure to

water-borne, water-based, water-related, and vector-borne diseases,

(v) the measures to be implemented to avoid or minimize the spread of communicable diseases (including transfer of Sexually Transmitted Diseases or Infections (STDs), such as HIV virus) and non-communicable diseases associated with the execution of the Works, taking into consideration differentiated exposure to and higher sensitivity of vulnerable groups. This includes taking measures to avoid or minimize the transmission of communicable diseases that may be associated with the influx of temporary or permanent Contract-related labour;

(vi) the policies and procedures on the management and quality of accommodation and welfare facilities if such accommodation and welfare facilities are provided by the Contractor in accordance with Sub-Clause 6.6; and

(b) any other requirements stated in the Employer's Requirements."

The paragraph starting with: "In addition to the reporting requirement of…" is deleted and replaced with the addition to GC Sub-Clause 4.20 in Sub-Clause 4.20 of the Special Provisions.

Sub-Clause 4.15

Access Route

The following is added at the end of Sub-Clause 4.15:

"The Contractor shall take all necessary safety measures to avoid the occurrence of incidents and injuries to any third party associated with the use of, if any, Contractor's Equipment on public roads or other public infrastructure.

The Contractor shall monitor and use road safety incidents and accidents reports to identify negative safety issues and establish and implement necessary measures to resolve them."

Sub-Clause 4.18

Protection of the Environment

Sub-Clause 4.18 Protection of the Environment is replaced with:

"The Contractor shall take all necessary measures to:

(a) protect the environment (both on and off the Site); and

(b) limit damage and nuisance to people and property resulting from pollution, noise and other results of the Contractor's operations and/ or activities.

The Contractor shall ensure that emissions, surface discharges, effluent and any other pollutants from the Contractor's activities shall exceed neither the values indicated in the Employer's Requirements, nor those prescribed by applicable Laws.

In the event of damage to the environment, property and/or nuisance to people, on or off Site as a result of the Contractor's operations, the Contractor shall agree with the Engineer the appropriate actions and time scale to remedy, as practicable, the damaged environment to its former condition. The Contractor shall implement such remedies at its cost to the satisfaction of the Engineer."

Sub-Clause 4.20

Progress Reports

"4.20 (g) is replaced with:

"4.20 (g) the Environmental and Social (ES) metrics set out in Particular Conditions - Part D"

The following paragraph is added prior to the paragraph starting with: "However, nothing stated…": "Unless otherwise stated in the Contract Data, progress reports shall include status of compliance to cyber security risks management, and any foreseeable cyber security risk and mitigation."

The following is added at the end of the Sub-Clause:

"In addition to the reporting requirement of this sub-paragraph (g) of Sub-Clause 4.20 [*Progress Reports*], the Contractor shall inform the Engineer immediately of any allegation, incident or accident, which has or is likely to have a significant adverse effect on the environment, the affected communities, the public, Employer's Personnel or Contractor's Personnel. This includes, but is not limited to, any incident or accident causing fatality or serious injury; significant adverse effects or damage to private property; any cyber security incidents as specified in the Contract Data; or any allegation of SEA and/or SH. In case of SEA and/or SH, while maintaining confidentiality as appropriate, the type of allegation (sexual exploitation, sexual abuse or sexual harassment), gender and age of the person who experienced the alleged incident should be included in the information.

The Contractor, upon becoming aware of the allegation, incident or accident, shall also immediately inform the Engineer of any such incident or accident on the Subcontractors' or suppliers' premises relating to the Works

which has or is likely to have a significant adverse effect on the environment, the affected communities, the public, Employer's Personnel or Contractor's, its Subcontractors' and suppliers' personnel. The notification shall provide sufficient detail regarding such incidents or accidents. The Contractor shall provide full details of such incidents or accidents to the Engineer within the timeframe agreed with the Engineer.

The Contractor shall require its Subcontractors and suppliers (other than Subcontractors) to immediately notify the Contractor of any incidents or accidents referred to in this Subclause."

Sub-Clause 4.21

Security of the Site

The Sub-Clause is replaced with the following:

"The Contractor shall be responsible for the security of the Site, and:

(a) for keeping unauthorised persons off the Site;

(b) authorised persons shall be limited to the Contractor's Personnel, the Employer's Personnel, and to any other personnel identified as authorised personnel (including the Employer's other contractors on the Site), by a Notice from the Employer or the Engineer to the Contractor.

Subject to Sub-Clause 4.1, the Contractor shall submit for the Engineer's No-objection a security management plan that sets out the security arrangements for the Site.

The Contractor shall (i) conduct appropriate background checks on any personnel retained to provide security; (ii) train the security personnel adequately (or determine that they are properly trained) in the use of force (and where applicable, firearms), and appropriate conduct towards Contractor's Personnel, Employer's Personnel and affected communities; and (iii) require the security personnel to act within the applicable Laws and any requirements set out in the Employer's Requirements.

The Contractor shall not permit any use of force by security personnel in providing security except when used for preventive and defensive purposes in proportion to the nature and extent of the threat.

In making security arrangements, the Contractor shall also comply with any additional requirements stated in the Employer's Requirements."

Sub-Clause 4.23

The first paragraph is replaced with the following:

Archaeological and Geological Findings

"All fossils, coins, articles of value or antiquity, structures, groups of structures, and other remains or items of geological, archaeological, paleontological, historical, architectural or religious interest found on the Site shall be placed under the care and custody of the Employer. The Contractor shall:

(a) take all reasonable precautions, including fencing-off the area or site of the finding, to avoid further disturbance and prevent Contractor's Personnel or other persons from removing or damaging any of these findings;

(b) train relevant Contractor's Personnel on appropriate actions to be taken in the event of such findings; and

(c) implement any other action consistent with the requirements of the Employer's Requirements and relevant Laws.

Sub-Clause 4.24

Suppliers (other than Subcontractors)

The following Sub-Clause is added:

4.24.1 Forced Labour

The Contractor shall take measures to require its suppliers (other than Subcontractors) not to employ or engage forced labour including trafficked persons as described in Sub-Clause 6.21. If forced labour/trafficking cases are identified, the Contractor shall take measures to require the suppliers to take appropriate steps to remedy them. Where the supplier does not remedy the situation, the Contractor shall within a reasonable period substitute the supplier with a supplier that is able to manage such risks.

4.24.2 Child labour

The Contractor shall take measures to require its suppliers (other than Subcontractors) not to employ or engage child labour as described in Sub-Clause 6.22. If child labour cases are identified, the Contractor shall take measures to require the suppliers to take appropriate steps to remedy them. Where the supplier does not remedy the situation, the Contractor shall within a reasonable period substitute the supplier with a supplier that is able to manage such risks.

4.24.3 Serious Safety Issues

The Contractor, including its Subcontractors, shall comply with all applicable safety obligations, including as stated in Sub-Clauses 4.4, 4.8 and 6.7. The Contractor shall also take measures to require its suppliers (other than Subcontractors) to adopt procedures and mitigation measures adequate to address safety issues related to their personnel. If serious safety issues

are identified, the Contractor shall take measures to require the suppliers to take appropriate steps to remedy them. Where the supplier does not remedy the situation, the Contractor shall within a reasonable period substitute the supplier with a supplier that is able to manage such risks.

4.24.4 Obtaining natural resource materials in relation to supplier

The Contractor shall obtain natural resource materials from suppliers that can demonstrate, through compliance with the applicable verification and/ or certification requirements, that obtaining such materials is not contributing to the risk of significant conversion or significant degradation of natural or critical habitats such as unsustainably harvested wood products, gravel or sand extraction from river beds or beaches.

If a supplier cannot continue to demonstrate that obtaining such materials is not contributing to the risk of significant conversion or significant degradation of natural or critical habitats, the Contractor shall within a reasonable period substitute the supplier with a supplier that is able to demonstrate that they are not significantly adversely impacting the habitats.

Sub-Clause 4.25

Code of Conduct

The following Sub-Clause is added:

The Contractor shall have a Code of Conduct for the Contractor's Personnel.

The Contractor shall take all necessary measures to ensure that each Contractor's Personnel is made aware of the Code of Conduct including specific behaviors that are prohibited, and understands the consequences of engaging in such prohibited behaviors.

These measures include providing instructions and documentation that can be understood by the Contractor's Personnel and seeking to obtain that person's signature acknowledging receipt of such instructions and/or documentation, as appropriate.

The Contractor shall also ensure that the Code of Conduct is visibly displayed in multiple locations on the Site and any other place where the Works will be carried out, as well as in areas outside the Site accessible to the local community and project affected people. The posted Code of Conduct shall be provided in languages comprehensible to Contractor's Personnel, Employer's Personnel and the local community.

The Contractor's Management Strategy and Implementation Plans shall include appropriate processes for the Contractor to verify compliance with these obligations.

Sub-Clause 4.26

Milestones

The following Sub-Clause is added:

"If no Milestones are specified in the Contract Data, this Sub-Clause shall not apply.

The Contractor shall complete the works of each Milestone (including all work which is stated in the Employer's Requirements as being required for the Milestone to be considered complete) within the time for completion of the milestone, as stated in the Contract Data, calculated from the Commencement Date.

The Contractor shall include, in the initial programme and each revised programme, under sub-paragraph (a) of Sub-Clause 8.3 [*Programme*], the time for completion of each Milestone.

Sub-paragraph 9d) of Sub-Clause 8.4 [*Advance Warning*] and Sub-Clause 8.5 [*Extension of the Time for Completion*] shall apply to each Milestone, such that "Time for Completion" under Sub-Clause 8.5 shall be read as the time for completion of a Milestone under this Sub-Clause.

The Contractor may apply, by Notice to the Engineer, for a Milestone certificate not earlier than 14 days before the works of a Milestone will, in the Contractor's opinion, be complete. The Engineer shall, within 28 days after receiving the Contactor's Notice:

(a) issue the Milestone Certificate to the Contractor, stating the date on which the works of a Milestone were completed in accordance with the Contract, except for any minor outstanding work and defects (as shall be listed in the Milestone Certificate); or

(b) reject the application, giving reasons and specifying the work required to be done and defects required to be remedied by the Contractor to enable the Milestone Certificate to be issued.

The Contractor shall then complete the work referred to in subparagraph (b) of this Sub-Clause before issuing a further Notice of application under this Sub-Clause.

If the Engineer fails either to issue the Milestone Certificate or to reject the Contractor's application within the above period

of 28 days, and if the works of a Milestone are completed in accordance with the Contract, the Milestone Certificate shall be deemed to have been issued on the date which is 14 days after the date stated in the Contractor's Notice of application.

If delay damages for a Milestone are stated in the Contract Data, and if the Contractor fails to complete the works of the Milestone within the time for completion of the Milestone (with any extension under this Sub-Clause):

(i) the Contractor shall, subject to Sub-Clause 20.1 [*Claims*], pay delay damages to the Employer for this default;

(ii) such delay damages shall be the amount stated in the Contract Data, for every day which shall elapse between the time for completion for the Milestone (with any extension under this Sub-Clause) and the date stated in the Milestone Certificate;

(iii) these delay damages shall be the only damages due from the Contractor for such default; and

(iv) the total amount of delay damages for all Milestones shall not exceed the maximum amount stated in the Contract Data (this shall not limit the Contractor's liability for delay damages in any case of fraud, gross negligence, deliberate default or reckless misconduct by the Contractor)."

Sub-Clause 5.4

Technical Standards and Regulations

The following is added as a second paragraph:

"If so stated in the Employer's Requirements, the Contractor shall:

(a) take into account climate change considerations in the design of structural elements of the Works and new buildings if any; and

(b) apply the concept of universal access to the design and construction of structures and new buildings if any (the concept of universal access means unimpeded access for people of all ages and abilities in different situations and under various circumstances.)"

Sub-Clause 6.1

Engagement of Staff and Labour

The following paragraphs are added at the end of the Sub-Clause:

"The Contractor shall provide the Contractor's Personnel information and documentation that are clear and understandable regarding their terms and conditions of employment. The information and documentation shall set out

their rights under relevant labour Laws applicable to the Contractor's Personnel (which will include any applicable collective agreements), including their rights related to hours of work, wages, overtime, compensation and benefits, as well as those arising from any requirements in the Employer's Requirements. The Contractor's Personnel shall be informed when any material changes to their terms or conditions of employment occur.

As specified in the Contract Data, the Contractor shall employ local labour with appropriate skills and experience. Local labour excludes Contractor's foreign personnel."

Sub-Clause 6.2

Rates of Wages and Conditions of Labour

The following paragraphs are added at the end of the Sub-Clause:

"The Contractor shall inform the Contractor's Personnel about:

(a) any deduction to their payment and the conditions of such deductions in accordance with the applicable Laws or as stated in the Employer's Requirements; and

(b) their liability to pay personal income taxes in the Country in respect of such of their salaries, wages, allowances and any benefits as are subject to tax under the Laws of the Country for the time being in force.

The Contractor shall perform such duties in regard to such deductions thereof as may be imposed on him by such Laws.

Where required by applicable Laws or as stated in the Employer's Requirements, the Contractor shall provide the Contractor's Personnel written notice of termination of employment and details of severance payments in a timely manner. The Contractor shall have paid the Contractor's Personnel (either directly or where appropriate for their benefit) all due wages and entitlements including, as applicable, social security benefits and pension contributions, on or before the end of their engagement/ employment."

Sub-Clause 6.5

Working Hours

The following is inserted at the end of the Sub-Clause

"The Contractor shall provide the Contractor's Personnel annual holiday and sick, maternity and family leave, as required by applicable Laws or as stated in the Employer's Requirements."

Sub-Clause 6.6

The following is added as the last paragraph:

Facilities for Staff and Labour

"If stated in the Employer's Requirements, the Contractor shall give access to or provide services that accommodate the physical, social and cultural needs of the Contractor's Personnel. The Contractor shall also provide similar facilities for the Employer's Personnel as stated in the Employer's Requirements."

Sub-Clause 6.7

Health and Safety of Personnel

In the second paragraph, "The Contractor" is replaced with:

"Except as otherwise stated in the Employer's Requirements, the Contractor…"

Sub-Clause 6.9

Contractor's Personnel

The Sub-Clause is replaced with:

"The Contractor's Personnel (including Key Personnel, if any) shall be appropriately qualified, skilled, experienced and competent in their respective trades or occupations.

The Engineer may require the Contractor to remove (or cause to be removed) any person employed on the Site or Works, including the Contractor's Representative and Key Personnel (if any), who:

(a) persists in any misconduct or lack of care;

(b) carries out duties incompetently or negligently;

(c) fails to comply with any provision of the Contract;

(d) persists in any conduct which is prejudicial to safety, health, or the protection of the environment;

(e) based on reasonable evidence, is determined to have engaged in Fraud and Corruption during the execution of the Works;

(f) has been recruited from the Employer's Personnel in breach of Sub-Clause 6.3 [Recruitment of Persons];

(g) undertakes behaviour which breaches the Code of Conduct for Contractor's Personnel (ES).

If appropriate, the Contractor shall then promptly appoint (or cause to be appointed) a suitable replacement with equivalent skills and experience. In the case of replacement of the Contractor's Representative, Sub-Clause 4.3 [*Contractor's Representative*] shall apply. In the case of replacement of Key Personnel (if any), Sub-Clause 6.12 [*Key Personnel*] shall apply.

Subject to the requirements in Sub-Clause 4.3 [*Contractor's Representative*] and 6.12 [*Key Personnel*], and notwithstanding any requirement from the Engineer to remove or cause to remove any person, the Contractor shall take

	immediate action as appropriate in response to any violation of (a) through (g) above. Such immediate action shall include removing (or causing to be removed) from the Site or other places where the Works are being carried out, any Contractor's Personnel who engages in (a), (b), (c), (d), (e) or (g) above or has been recruited as stated in (f) above."
Sub-Clause 6.10	Sub-Clause 6.10(a) is replaced with the following:
Contractor's Records	"Occupations, actual working hours for each class and skill category of Contractor's Personnel including identifying those engaged through local labour."
Sub-Clause 6.12	The following is inserted at the end of the last paragraph:
Key Personnel	"If any of the Key Personnel are not fluent in this language, the Contractor shall make competent interpreters available during all working hours in a number deemed sufficient by the Engineer."

The following Sub-Clauses 6.13 to 6.27 are added after Sub-clause 6.12

Sub-Clause 6.13 **Foreign Personnel**	The Contractor may bring into the Country any foreign personnel who are necessary for the execution of the Works to the extent allowed by the applicable Laws. The Contractor shall ensure that these personnel are provided with the required residence visas and work permits. The Employer will, if requested by the Contractor, use its best endeavours in a timely and expeditious manner to assist the Contractor in obtaining any local, state, national, or government permission required for bringing in the Contractor's personnel. The Contractor shall be responsible for the return of these personnel to the place where they were recruited or to their domicile. In the event of the death in the Country of any of these personnel or members of their families, the Contractor shall similarly be responsible for making the appropriate arrangements for their return or burial.
Sub-Clause 6.14 **Supply of Foodstuffs**	The Contractor shall arrange for the provision of a sufficient supply of suitable food as may be stated in the Employer's Requirements at reasonable prices for the Contractor's Personnel for the purposes of or in connection with the Contract.
Sub-Clause 6.15 **Supply of Water**	The Contractor shall, having regard to local conditions, provide on the Site an adequate supply of drinking and other water for the use of the Contractor's Personnel.

Sub-Clause 6.16 **Measures against Insect and Pest Nuisance**	The Contractor shall at all times take the necessary precautions to protect the Contractor's Personnel employed on the Site from insect and pest nuisance, and to reduce the danger to their health. The Contractor shall comply with all the regulations of the local health authorities, including use of appropriate insecticide.
Sub-Clause 6.17 **Alcoholic Liquor or Drugs**	The Contractor shall not, otherwise than in accordance with the Laws of the Country, import, sell, give, barter or otherwise dispose of any alcoholic liquor or drugs, or permit or allow importation, sale, gift, barter or disposal thereto by Contractor's Personnel.
Sub-Clause 6.18 **Arms and Ammunition**	The Contractor shall not give, barter, or otherwise dispose of, to any person, any arms or ammunition of any kind, or allow Contractor's Personnel to do so.
Sub-Clause 6.19 **Festivals and Religious Customs**	The Contractor shall respect the Country's recognized festivals, days of rest and religious or other customs.
Sub-Clause 6.20 **Funeral Arrangements**	The Contractor shall be responsible, to the extent required by local regulations, for making any funeral arrangements for any of its local employees who may die while engaged upon the Works.
Sub-Clause 6.21 **Forced Labour**	The Contractor, including its Subcontractors, shall not employ or engage forced labour. Forced labour consists of any work or service, not voluntarily performed, that is exacted from an individual under threat of force or penalty, and includes any kind of involuntary or compulsory labour, such as indentured labour, bonded labour or similar labour-contracting arrangements. No persons shall be employed or engaged who have been subject to trafficking. Trafficking in persons is defined as the recruitment, transportation, transfer, harbouring or receipt of persons by means of the threat or use of force or other forms of coercion, abduction, fraud, deception, abuse of power, or of a position of vulnerability, or of the giving or receiving of payments or benefits to achieve the consent of a person having control over another person, for the purposes of exploitation.
Sub-Clause 6.22 **Child Labour**	The Contractor, including its Subcontractors, shall not employ or engage a child under the age of 14 unless the national law specifies a higher age (the minimum age).

The Contractor, including its Subcontractors, shall not employ a child between the minimum age and the age of 18 in a manner that is likely to be hazardous, or to interfere with, the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral, or social development.

The Contractor including its Subcontractors, shall only employ children between the minimum age and the age of 18 after an appropriate risk assessment has been conducted by the Contractor with the Engineer's consent. The Contractor shall be subject to regular monitoring by the Engineer that includes monitoring of health, working conditions and hours of work.

Work considered hazardous for children is work that, by its nature or the circumstances in which it is carried out, is likely to jeopardize the health, safety, or morals of children. Such work activities prohibited for children include work:

(a) with exposure to physical, psychological or sexual abuse;

(b) underground, underwater, working at heights or in confined spaces;

(c) with dangerous machinery, equipment or tools, or involving handling or transport of heavy loads;

(d) in unhealthy environments exposing children to hazardous substances, agents, or processes, or to temperatures, noise or vibration damaging to health; or

(e) under difficult conditions such as work for long hours, during the night or in confinement on the premises of the employer.

Sub-Clause 6.23

Employment Records of Workers

The Contractor shall keep complete and accurate records of the employment of labour at the Site. The records shall include the name, age, gender, hours worked, category of skill (i.e. skilled, semi-skilled or unskilled), wages paid to all workers, and whether they are local labour as specified in Sub-Clause 6.1. These records shall be submitted to the Engineer on a monthly basis. The Employer will use the records to submit periodic reports to the Bank on local labour engagement. These records shall be included in the details to be submitted by the Contractor under Sub-Clause 6.10 [*Contractor's Records*].

Sub-Clause 6.24

Workers' Organisations

In countries where the relevant labour laws recognise workers' rights to form and to join workers' organisations of their choosing and to bargain collectively without interference, the

Contractor shall comply with such laws. In such circumstances, the role of legally established workers' organizations and legitimate workers' representatives will be respected, and they will be provided with information needed for meaningful negotiation in a timely manner. Where the relevant labour laws substantially restrict workers' organisations, the Contractor shall enable alternative means for the Contractor's Personnel to express their grievances and protect their rights regarding working conditions and terms of employment. The Contractor shall not seek to influence or control these alternative means. The Contractor shall not discriminate or retaliate against the Contractor's Personnel who participate, or seek to participate, in such organisations and collective bargaining or alternative mechanisms. Workers' organisations are expected to fairly represent the workers in the workforce.

Sub-Clause 6.25

Non-Discrimination and Equal Opportunity

The Contractor shall not make decisions relating to the employment or treatment of Contractor's Personnel on the basis of personal characteristics unrelated to inherent job requirements. The Contractor shall base the employment of Contractor's Personnel on the principle of equal opportunity and fair treatment, and shall not discriminate with respect to any aspects of the employment relationship, including recruitment and hiring, compensation (including wages and benefits), working conditions and terms of employment, access to training, job assignment, promotion, termination of employment or retirement, and disciplinary practices.

Special measures of protection or assistance to remedy past discrimination or selection for a particular job based on the inherent requirements of the job shall not be deemed discrimination. The Contractor shall provide protection and assistance as necessary to ensure nondiscrimination and equal opportunity, including for specific groups such as women, people with disabilities, migrant workers and children (of working age in accordance with Sub-Clause 6.22).

Sub-Clause 6.26

Contractor's Personnel Grievance Mechanism

The Contractor shall have a grievance mechanism for Contractor's Personnel, and where relevant the workers' organizations stated in Sub-Clause 6.25, to raise workplace concerns. The grievance mechanism shall be proportionate to the nature, scale, risks and impacts of the Contract. The mechanism shall address concerns promptly, using an understandable and transparent process that provides timely feedback to those concerned in a language they understand,

	without any retribution, and shall operate in an independent and objective manner. The Contractor's Personnel shall be informed of the grievance mechanism at the time of engagement for the Contract, and the measures put in place to protect them against any reprisal for its use. Measures will be put in place to make the grievance mechanism easily accessible to all Contractor's Personnel. The grievance mechanism shall not impede access to other judicial or administrative remedies that might be available, or substitute for grievance mechanisms provided through collective agreements. The grievance mechanism may utilize existing grievance mechanisms, providing that they are properly designed and implemented, address concerns promptly, and are readily accessible to Contractor's Personnel. Existing grievance mechanisms may be supplemented as needed with Contract-specific arrangements.
Sub-Clause 6.27 **Training of Contractor's Personnel**	The Contractor shall provide appropriate training to relevant Contractor's Personnel on ES aspects of the Contract, including appropriate sensitization on prohibition of SEA and health and safety training referred to in Sub-Clause 4.8 As stated in the Employer's Requirements or as instructed by the Engineer, the Contractor shall also allow appropriate opportunities for the relevant Contractor's Personnel to be trained on ES aspects of the Contract by the Employer's Personnel. The Contractor shall provide training on SEA, including its prevention, to any of its personnel who has a role to supervise other Contractor's Personnel.
Sub-Clause 7.3 Inspection	The following is added in the first paragraph after "Employer's Personnel" "(including the Bank staff or consultants acting on the Bank's behalf, stakeholders and third parties, such as independent experts, local communities, or non-governmental organizations)" The following is added as (b) (iv): "(iv) carryout environmental and social audit, and"
Sub-Clause 7.7 **Ownership of Plant and Materials**	The following is added before the first paragraph: "Except as otherwise provided in the Contract,"

Sub-Clause 8.1

Commencement of Work

The Sub- Clause is replaced in its entirety with the following:

"The Engineer shall give a Notice to the Contractor stating the Commencement Date, not less than 14 days before the Commencement Date.

The Notice shall be issued promptly after the Engineer determines the fulfilment of the following conditions:

(a) signature of the Contract Agreement by both Parties, and if required, approval of the Contract by relevant authorities of the Country;

(b) delivery to the Contractor of reasonable evidence of the Employer's financial arrangements (under Sub-Clause 2.4 [Employer's Financial Arrangements]);

(c) except if otherwise specified in the Contract Data, effective access to and possession of the Site given to the Contractor together with such permission(s) under (a) of Sub-Clause 1.13 [Compliance with Laws] as required for the commencement of the Works;

(d) receipt by the Contractor of the Advance Payment under Sub-Clause 14.2 [Advance Payment] provided that the corresponding bank guarantee has been delivered by the Contractor; and

(e) constitution of the DAAB in accordance with Sub-Clause 21.1 and Sub-Clause 21.2 as applicable.

Subject to Sub-Clause 4.1 on the Management Strategies and Implementation Plans and the C-ESMP and Sub-Clause 4.8 on the health and safety manual, the Contractor, shall commence the execution of the Works as soon as is reasonably practicable after the Commencement Date, and shall then proceed with the Works with due expedition and without delay."

Sub-Clause 8.3

The following is added as Sub-Clause 8.3(l):

"Engagement plan for local labour, taking into account the order in which the Contractor intends to carry out the works as described under Sub-Clause 8.3(c)".

Sub-Clause 11.7

Right of Access after Taking Over

In the second paragraph, "Whenever the Contractor intends to access any part of the Works during the relevant DNP:" is replaced with:

	"Whenever, until the date 28 days after issue of the Performance Certificate, the Contractor intends to access any part of the Works:"
Sub-Clause 13.3.1 **Variation by Instruction**	Subparagraph 13.3.1 (a) is replaced with: "a description of the varied work performed or to be performed, including details of the resources and methods adopted or to be adopted by the Contractor, and sufficient ES information to enable an evaluation of ES risks and impacts; and sufficient information to enable assessment of cyber security risks as specified in the Contract Data."
Sub-Clause 13.4 Provisional Sums	The following is inserted as the penultimate paragraph: "The Provisional Sum shall be used to cover the Employer's share of the DAAB members' fees and expenses, in accordance with Clause 21. No prior instruction of the Engineer shall be required with respect to the work of the DAAB. The Contractor shall submit the DAAB members' invoices and satisfactory evidence of having paid 100% of such invoices as part of the substantiation of those Statements submitted under Sub-Clause 14.3.
Sub-Clause 13.6 **Adjustments for Changes in Laws**	The following paragraph is added at the end of the Sub-Clause: "Notwithstanding the foregoing, the Contractor shall not be entitled to an extension of time if the relevant delay has already been taken into account in the determination of a previous extension of time and such Cost shall not be separately paid if the same shall already have been taken into account in the indexing of any inputs to the Table of Adjustment Data in accordance with the provisions of Sub-Clause 13.7 [Adjustments for Changes in Cost]."]
Sub-Clause 14.1 **The Contract Price**	"Any part of the Works which is to be measured shall be specified in the Contract. The Engineer shall agree or determine the value of those parts of the Works which are to be measured, in accordance with Sub-Clause 3.7 [*Agreement or Determination*]. Measurement shall be made of the net actual quantities of those parts notwithstanding local practice. Whenever the Engineer requires any part of the Works to be measured on Site. It shall give a Notice to the Contractor of not less than 7 days, of the part to be measured on the date on

which and place on Site at which the measurement shall be made. Unless otherwise agreed with the Contarctor, the measuremnt on Site shall be made on this date and the Contractor's Representaive shall:

(a) either attend or send another qualified representative to assist the Engineer and to endeavour to reach agreement of the measurement, and

(b) supply any particulars requested by the Engineer.

If the Contractor fails to attend or send a representative at the time and place stated in the Engineer's Notice (or otherwise agreed with the Contractor), the measurement made by (or on behalf of) the Engineer shall be deemed to have been made in the Contractor's presence and the Contractor shall be deemed to have accepted the measuremnt as accurate.

Any part of the Permanent Works that is to be measured from records shall be identified in the Employer's Requirements and, except as otherwise stated in the Contarct, such records shall be prepared by the Engineer. Whenever the Engineer has prepared the records of such a part, it shall give a Notice to the Contarctor of not less than 7 days, stating the date on which and place at which the Contractor's Representative shall attend to examine and agree the records of the Engineer. If the Contractor fails to attend or send a representaive at the time and place stated in the Engineer's Notice (or otherwise agreed with the Contarctor), the Contarctor shall be deemed to have accepted the records as accurate.

If, for any part of the Works, the Contractor attends the measuremnt on Site or examines the measurement records (as the case may be) but the Engineer and the Contractor are unable to agree the measurement, then the Contarctor shall give a Notice to the Engineer setting out the reasons why the Contractor considers the measuremnt on Site or records are inaccurate. If the Contractor does not give such a Notice to the Engineer within 14 days after attending the measuremnt on Site or examining the measurement records, the Contractor shall be deemed to have accepted the measurement as accurate.

After receiving a Contractor's Notice under this Sub-Clause, unless at that time such measuremnt is already subject to the third paragraph of Sub-Clause 13.3.1 [*Variation by Instruction*], the Engineer shall:

(a) proceed under Sub-Clause 3.7 [Agreeement or Determination] to agree or determine the measurement; and

(b) For the purpose of Sub-Clause 3.7.3 [*Time Limits*], the date on which the Engineer receives the Contractor's Notice shall be the date of commencement of the time limit for agreement under Sub-Clause 3.7.3.

Until such time as the measurement is agreed or determined, the Engineer shall assess a provisional measurement for the purposes of Interim Payment Certificates."

Sub-Clause 14.2.1

Advance Payment Guarantee

The first paragraph is replaced with:

"The Contractor shall obtain (at the Contractor's cost) an Advance Payment Guarantee in amounts and currencies equal to the advance payment and shall submit it to the Employer with a copy to the Engineer. This guarantee shall be issued by reputable bank or financial institution selected by the Contractor and shall be in accordance with the form included in the request for proposals documents for the subject contract or in another form acceptable to the Employer."

Sub-Clause 14.3

Application for Interim Payment

The following is inserted at the end of (vi) after: *[Agreement or Determination]*: "any reimbursement due to the Contractor under the DAAB Agreement. (Appendix General Conditions of DAAB Agreement)."

Sub-Clause 14.4

Schedule of Payments

The following is inserted as the second paragraph:

"If the Schedule of Payments specifies payments to be made to the Contractor based on Milestones, payments shall be made upon completion of such Milestones."

Sub-Clause 14.6.2

Withholding (amounts in) an IPC

"and/or" from subparagraph (b) is deleted.

The following is then added as subparagraph (c) and sub-paragraph (c) of the Sub-Clause is renumbered as (d):

"(c) if the Contractor was, or is, failing to perform any ES obligations or work under the Contract, the value of this work or obligation, as determined by the Engineer, may be withheld until the work or obligation has been performed, and/or the cost of rectification or replacement, as determined by the Engineer, may be withheld until rectification or replacement has been completed. Failure to perform includes, but is not limited to the following:

(i) failure to comply with any ES obligations or work described in the Employer's Requirements which may include: working outside site boundaries, excessive dust, damage to offsite vegetation, pollution of water courses from oils or sedimentation, contamination of land e.g. from oils, human waste, damage to archaeology or cultural heritage features, air pollution as a result of unauthorized and/or inefficient combustion;

(ii) failure to regularly review C-ESMP and/or update it in a timely manner to address emerging ES issues, or anticipated risks or impacts;

(iii) failure to implement the C-ESMP e.g. failure to provide required training or sensitization;

(iv) failing to have appropriate consents/permits prior to undertaking Works or related activities;

(v) failure to submit ES report/s (as described in Particular Conditions - Part D), or failure to submit such reports in a timely manner;

(vi) failure to implement remediation as instructed by the Engineer within the specified timeframe (e.g. remediation addressing non-compliance/s)."

(d) if the Contractor fails to materially comply with the Contractor's Local Labour Method Statement, an assessed amount, as determined by the Engineer, may be withheld until such an obligation has been met."

The following is added as penultimate paragraph: "As specified in the Contract Data, if the Contractor fails to perform its cyber security obligations under the Contract, an assessed amount, as determined by the Engineer, may be withheld until the obligation has been performed."

Sub-Clause 14.7

Payment

At the end of sub-paragraph (b): "and" is replaced with "or" and the following inserted as (iii):

"(iii) at a time when the Bank's loan or credit (from which part of the payments to the Contractor is being made) is suspended, the amount shown on any statement submitted by the Contractor within 14 days after such statement is submitted, any discrepancy being rectified in the next payment to the Contractor; and"

At the end of sub-paragraph (c): "." is replaced with ";" and the following inserted:

"or, at a time when the Bank's loan or credit (from which part of the payments to the Contractor is being made) is suspended the undisputed amount shown in the Final Statement within 56 days after the date of notification of the suspension in accordance with Sub-Clause 16.2 [Termination by Contractor]."

Sub-Clause 14.9

The following is added at the end of Sub-Clause 14.9:

Release of Retention Money

"Unless otherwise stated in the Contract, when the Taking-Over Certificate has been issued for the Works and the first half of the Retention Money has been certified for payment by the Engineer, the Contractor shall be entitled to substitute a guarantee, in the form annexed to the Particular Conditions or in another form approved by the Employer and issued by a reputable bank or financial institution selected by the Contractor, for the second half of the Retention Money. The Contractor shall ensure that the guarantee is in the amounts and currencies of the second half of the Retention Money and is valid and enforceable until the Contractor has executed and completed the Works and remedied any defects, as specified for the Performance Security and, if applicable, an ES Performance Security in Sub-Clause 4.2. On receipt by the Employer of the required guarantee, the Engineer shall certify, and the Employer shall pay the second half of the Retention Money. The release of the second half of the Retention Money against a guarantee shall then be in lieu of the release after the latest of the expiry dates of the Defects Notification Periods. The Employer shall return the guarantee to the Contractor within 21 days after receiving a copy of the Performance Certificate.

If the Performance Security and, if applicable, an ES Performance Security required under Sub-Clause 4.2 is in the form of a demand guarantee, and the amount guaranteed under them when the Taking-Over Certificate is issued is more than half of the Retention Money, then the Retention Money guarantee will not be required. If the amount guaranteed under the Performance Security and, if applicable, an ES Performance Security, when the Taking-Over Certificate is issued is less than half of the Retention Money, the Retention Money guarantee will only be required for the difference between half of the Retention Money and the amount guaranteed under the Performance Security and, if applicable, an ES Performance Security."

Sub-Clause 14.15 **Currencies of Payment**	Throughout Sub-Clause 14.15, "Contract Data" is replaced with: "Schedule of Payment Currencies".
Sub-Clause 15.1 **Notice to Correct**	"and" is deleted from (b) and "." is replaced by: "; and" in (c). The following is then added as (d) "(d) specify the time within which the Contractor shall respond to the Notice to Correct." In the third para., "shall immediately respond" is replaced with: "shall respond within the time specified in (d)". Further, in the third para., "to comply with the time specified in the Notice to Correct." is replaced with: "to comply with the time specified in (c)."
Sub-Clause 15.2.1 **Notice**	Sub-paragraph (h) is replaced with: "based on reasonable evidence, has engaged in Fraud and Corruption as defined in paragraph 2.2 of the Particular Conditions - Part C- Fraud and Corruption, in competing for or in executing the Contract."
Sub-Clause 15.8 **Fraud and Corruption**	The following new Sub-Clause is added: 15.8.1 "The Bank requires compliance with the Bank's Anti-Corruption Guidelines and its prevailing sanctions policies and procedures as set forth in the Bank's Sanctions Framework, as set forth in Particular Conditions - Part C- Fraud and Corruption." 15.8.2 The Employer requires the Contractor to disclose any commissions or fees that may have been paid or are to be paid to agents or any other party with respect to the request for proposals process or execution of the Contract. The information disclosed must include at least the name and address of the agent or other party, the amount and currency, and the purpose of the commission, gratuity or fee."
Sub-Clause 16.1 **Suspension by Contractor**	The following paragraph is inserted after the first paragraph: "Notwithstanding the above, if the Bank has suspended disbursements under the loan or credit from which payments to the Contractor are being made, in whole or in part, for the execution of the Works, and no alternative funds are available as provided for in Sub-Clause 2.4 [Employer's Financial Arrangements], the Contractor may by notice suspend work or reduce the rate of work at any time, but not less than 7 days

	after the Borrower having received the suspension notification from the Bank."
Sub-Clause 16.2.1	Sub-paragraph (j) is deleted in its entirety.
Notice	At the end of sub-paragraph (i): "; or" is replaced with: "."
	sub-paragraph (f) is replaced with:
	"(f) the Contractor does not receive a Notice of the Commencement Date under Sub-Clause 8.1 [*Commencement of Works*] within 180 days after receiving the Letter of Acceptance, for reasons not attributable to the Contractor."
Sub-Clause 16.2.2	The following is added at the end of Sub-Clause 16.2.2:
Termination	"In the event the Bank suspends the loan or credit from which part or whole of the payments to the Contractor are being made, if the Contractor has not received the sums due to him upon expiration of the 14 days referred to in Sub-Clause 14.7 [Payment] for payments under Interim Payment Certificates, the Contractor may, without prejudice to the Contractor's entitlement to financing charges under Sub-Clause 14.8 [Delayed Payment], take one of the following actions, namely (i) suspend work or reduce the rate of work under Sub-Clause 16.1 above, or (ii) terminate the Contract by giving notice to the Employer, with a copy to the Engineer, such termination to take effect 14 days after the giving of the notice."
Sub-Clause 17.7	The following Sub-Clause is added as 17.7:
Use of Employer's Accommodation/Facilities	"The Contractor shall take full responsibility for the care of the Employer-provided accommodation and facilities, if any, as detailed in the Employer's Requirements, from the respective dates of hand-over to the Contractor until cessation of occupation (where hand-over or cessation of occupation may take place after the date stated in the Taking-Over Certificate for the Works)
	If any loss or damage happens to any of the above items while the Contractor is responsible for their care arising from any cause whatsoever other than those for which the Employer is liable, the Contractor shall, at its own cost, rectify the loss or damage to the satisfaction of the Engineer."

Sub-Clause 18.1 **Exceptional Events**	Sub-paragraph (c) is substituted with: "(c) riot, commotion, disorder or sabotage by persons other than the Contractor's Personnel and other employees of the Contractor and Subcontractors;"
Sub-Clause 18.4 **Consequences of an Exceptional Event**	The following is added at the end of sub-paragraph (b) after deleting the ".": ", including the costs of rectifying or replacing the Works and/or Goods damaged or destroyed by Exceptional Events, to the extent they are not indemnified through the insurance policy referred to in Sub-Clause 19.2 [Insurance to be provided by the Contractor]."
Sub-Clause 18.5 **Optional Termination**	In sub-paragraph (c), "and necessarily" is inserted after "was reasonably".
Sub-Clause 19.1 **General Requirements**	The following paragraphs are added after the first: "Wherever the Employer is the insuring Party, each insurance shall be effected with insurers and in terms acceptable to the Contractor. These terms shall be consistent with terms (if any) agreed by both Parties before the date of the Letter of Acceptance. This agreement of terms shall take precedence over the provisions of this Clause."
Sub-Clause 19.2 **insurance to be provided by the Contractor**	The following is inserted as the first sentence in Sub-Clause 19.2: "The Contractor shall be entitled to place all insurances relating to the Contract (including, but not limited to the insurance referred to in Clause 19) with insurers from any eligible source country."
Sub-Clause 19.2.5 **Injury to employees**	The second paragraph is replaced with: "The Employer and the Engineer shall also be indemnified under the policy of insurance, against liability for claims, damages, losses and expenses (including legal fees and expenses) arising from injury, sickness, disease or death of any person employed by the Contractor or any other of the Contractor's Personnel, except that this insurance may exclude losses and claims to the extent that they arise from any act or neglect of the Employer or of the Employer's Personnel."
Sub-Clause 20.1	In a): "any additional payment" is replaced with "payment".

Claims

Sub-Clause 20.2 **Claims for Payment and/or EOT**	The first paragraph is replaced with: "If either Party considers that it is entitled to claim under Sub-clause 20.1[*Claims*] (a) or (b), the following claim procedure shall apply:"
Sub-Clause 21.1 **Constitution of the DAAB**	In the second paragraph, at the end of the first sentence after deleting: ".", the following is added: ", each of whom shall meet the criteria set forth in Sub-Clause 3.3 of Appendix-General Conditions of DAAB Agreement." After the second paragraph insert the following paragraph: "If the Contract is with a foreign Contractor, the DAAB members shall not have the same nationality as the Employer or the Contractor."
Sub-Clause 21.2 **Failure to Appoint DAAB Member (s)**	For both (a) and (b): "by the date stated in the first paragraph of Sub-Clause 21.1 [*Constitution of the DAAB*]" is replaced with: "within 42 days from the date the Contract is signed by both Parties."
Sub-Clause 21.6 **Arbitration**	In the first paragraph, delete starting from: "international arbitration" up to the end of (c), and replace with the following: "arbitration. Arbitration shall be conducted as follows: (a) if the contract is with foreign contractors, unless otherwise specified in the Contract Data; the dispute shall be finally settled under the Rules of Arbitration of the International Chamber of Commerce; by one or three arbitrators appointed in accordance with these Rules. The place of arbitration shall be the neutral location specified in the Contract Data; and the arbitration shall be conducted in the ruling language defined in Sub-Clause 1.4 [Law and Language]. (b) If the Contract is with domestic contractors, arbitration with proceedings conducted in accordance with the laws of the Employer's country."

Appendix- General Conditions of DAAB Agreement

1. **Definitions**	In Sub-Clause 1.8 a(i):" authorised representative of the contractor or of the Employer" is replaced with: "Contractor's Representative and authorised representative of the Employer"

2. **General provisions**

Sub-Clause 2.2 is deleted in its entirety.

3. **Warranties**

Sub-Clause 3.3 is deleted and replaced with the following:

"When appointing the DAAB Member, each Party relies on the DAAB Member's representations, that he/she:

a) has at least a bachelor's degree in relevant disciplines such as law, engineering, construction management or contract management;

b) has at least ten years of experience in contract administration/management and dispute resolution, out of which at least five years of experience as an arbitrator or adjudicator in construction-related disputes;

c) has received formal training as an adjudicator from an internationally recognized organization;

d) has experience and/or is knowledgeable in the type of work which the Contractor is to carry out under the Contract;

e) has experience in the interpretation of construction and/or engineering contract documents;

f) has familiarity with the forms of contract published by FIDIC since 1999, and an understanding of the dispute resolution procedures contained therein; and

g) is fluent in the language for communications stated in the Contract Data (or the language as agreed between the Parties and the DAAB)."

7. Confidentiality

In Sub-Clause 7.3: "or" is deleted after sub-paragraph (b).

and the following sub-paragraphs added:

"(d) is being provided to the Bank"

9. Fees and Expenses

In Sub-Clause 9.1 c): "business class or equivalent" is replaced with: "in less than first class"

In Sub-Clause 9.4: "and air fares" and "other" are deleted from the first and second sentences respectively.

ANNEX – CV OF PROPOSED DAAB MEMBERS

PERSONAL INFORMATION

Name, Surname : Fahrettin Öner
Date of Birth : 05.06.1971
Nationality : Turkish

EDUCATION

Education : Bsc. In Civil Engineering / İstanbul Technical University

EXPERIENCE

Date	Company	Position	Description
22.11.2021 – Ongoing	Istanbul Metropolitan Municipality / Licence and Inspection Directorate	Engineer	
25.06.2021 – 22.11.2021	Istanbul Metropolitan Municipality / Department of Rail System, Rail System Projects Directorate	Deputy Head of Department	
08.08.2019 - 22.11.2021	Istanbul Metropolitan Municipality / Department of Rail System, Anatolian Side Rail System Directorate	Head of Department	Projects worked on: • Dudullu-Bostanci Metro Line (14.27 km) • Ümraniye-Ataşehir-Göztepe Metro Line (13.03 km) • Kaynarca Centre-Pendik-Tuzla Tersane Metro Line (7,88 km) • Pendik Merkez-Kaynarca Merkez Metro Line (4.10 km) • Cekmekoy-Sancaktepe-Sultanbeyli Centre Metro Line (10.89 km) • Acceptance processes of Üsküdar-Ümraniye-Çekmeköy Metro Line (20 km)
2012-08.08.2019	Istanbul Metropolitan Municipality / Department of Studies and Projects, Infrastructure Projects Directorate	Deputy Head of Department	Design and tender documents for the projects below are completed: • Dudullu-Bostanci Metro Line (14,27 km) • Ümraniye-Ataşehir-Göztepe Metro Line (13.03 km) • Kirazli-Halkali Metro Line (9,67 km) • Kaynarca Centre-Pendik-Tuzla Tersane Metro Line (7,88 km) • Pendik Merkez-Kaynarca Merkez Metro Line (4.10 km) • Sarıgazi (Hospital)-Taşdelen-Yenidoğan Metro Line (6,86 km) • Cekmekoy-Sancaktepe-Sultanbeyli Centre Metro Line (10.89 km) • Sultanbeyli-Kurtköy (Viaport) High Speed Train Station (HST) Metro Line (5,41 km) • Vezneciler-Edirnekapı-Eyüp-GOP-Sultangazi Metro Line (17,30 km) • Beykoz (Sultaniye Park)-Karlıtepe Cable Car Line (1.50 km) • Beykoz Meadow-Hazreti Yuşa Hill Cable Car Line (2.50 km) Moreover, Drilling tunnel type, slope tunnel type and shaft type fully automatic mechanical car park

			application projects and various conventional underground car park application projects were prepared.
2006-2012	Istanbul Metropolitan Municipality / Department of Rail System,	Supervisor	Projects worked on: • Istanbul Metro Phase III 4.Levent-Ayazaga-Hacıosman Section, Seyrantepe Depot Area and Depot Connection Lines Construction (8 km) • Kadıköy-Kartal Metro Line Construction (21.7 km) Otogar-Bağcılar-Kirazlı Metro Line Construction (5.8 km) • Bağcılar (Kirazlı)-Başakşehir-Olympic Park Metro Line Construction (15,9 km)
2004-2006	Freelancer		Worked on: • Urban Design Projects • City Information System Projects
2002-2004	Transstroy-Hazinedaroğlu-Ünüvar JV	Site Engineer	Projects worked on: • Edirnekapı-Sultançiftliği Tram Line Construction and Electromechanical Works (12.5 km) • Eminönü-Kabataş Tram Line Construction and Electromechanical Works (2.9 km)
1998-2002	Istanbul Metropolitan Municipality / Directorate of Transportation / Department of Transport Planning	Project Engineer	ystem lines throughout Istanbul within the framework of Master Plan ys and junctions

PERSONAL INFORMATION

Name, Surname : Mehmet Tarık Dündar
Date of Birth : 27.01.1975
Nationality : Turkish

EDUCATION

Education : Yıldız Technical University / Civil Technician
BSc. In Civil Engineering / Yıldız Technical University
MSc. In Transportation Engineering / Istanbul Technical University
PhD. In Transportation Engineering / Istanbul Technical University

EXPERIENCE

Date	Company	Position	Description
08.2020 – Ongoing	TCDD TEKNİK Mühendislik ve Müşavirlik A.Ş	Director	Projects worked on: • Design of Derince Station Area, Loading - Unloading Areas • Preparation of Stage 2 Earthquake Investigation Reports for the Buildings in TCDD 1st Regional Directorate • Safety Evaluation of Kayaş- Sivas High-Speed Train Line and Control of Viaducts on this Line Section According to 300km/h Project Speed • TCDD Study Project and Consultancy Service Procurement for the Extension and Arrangements of 4 Stations between Karaman-Ulukisla • Contract for Independent Safety Assessment Services for Geyve-Doğançay, Konya -Karaman, Kayaş-Sivas High Speed Train Line Construction Projects • Dakar / Senegal Train Line Condition Monitoring and Reporting Works • Ministry of Transport and Infrastructure General Directorate of Infrastructure Investments Technical Documents (Technical Specifications, Unit Price Lists, Unit Price Recipes, Unit Price Analyses) and Legislation • Feasibility Studies and Preliminary Project Preparation of Amasya Nostalgic Tram Line Service Procurement Work • Preparation of Detailed Design of TCDD Adapazarı, Muş & Tatvan Station Building • Line Geometry, Vehicle Dynamic Acceleration, Pantograph Dynamic Interaction Tests and Reports on TCDD High Speed Train Line • Survey, Project and Engineering Service Procurement for Investigation of Infrastructures on Various Line Sections in TCDD 1st Region Area according to New Regulations • Investigation and Risk Analyses of Existing/Potential Karst Formations in the Ankara - Konya - Ulukisla Railway Corridor, which may have a negative impact due to Climate Change and Groundwater Use Research Engineering Service Procurement

			• Investigation of Various Art Structures on Existing Railway Lines in Terms of Seismicity According to the Updated Earthquake Map Research Engineering Service Procurement • Konya Barış Caddesi Tram Line Final Design Services • Konya Stadium City Hospital Tram Line Final Design Services
09.2019 – 08.2020	Aecom / SKAA (Systra - Aecom-Khatib Alami) JV	Engineer	**Name of the Project:** Mecca BRT and Bus Depot and Maintenance Workshop Construction Consultant Project **Tasks Performed:** • Procurement, Operation and Maintenance of the Mecca Bus Project Phase 1, awarded as a FIDIC Gold Book Design Build and Operate contract. The total contract duration is ten (10) years, two (2) years for the completion of design and construction and (8) years for the operation and maintenance of the buses. • Civil Infrastructure Works for the Bus Network, awarded as a FIDIC Red Book Design and Build contract. The total contract duration is two (2) years. • Responsible for Coordination between the Parties and MMRTC • Design Review Assignment and Distribution Officer for Bus Depot and Workshop Buildings. • Design Review Officer for Bus Terminal and its structures. • Provide training, direction, supervision and mentoring to junior staff. • Assisting and managing the Construction Control team. • Reviewing and approving Contractor's Material Submittals • Review and approve the Contractor's Supplier Approval • Review of Works to Contractor's Declaration Method • Control and approval of progress payments • To assist the occupational safety inspection team.
05.2014-07.2019	WSP Parsons Brinckerhoff	Design Manager	**Name of the Project:** Mecca Public Transport System Programme Senior Management Consultant Project **Tasks Performed:** • Technical evaluation of Construction and System Tenders for Mecca Metro • (45 km line length, Approximate Tender Price: 8 Billion Dollars) • Responsibility for all design works under Mecca Senior Management Consultancy. • Consultancy services for new metro lines -RFP-Preparation of tender technical documents and specifications (preliminary design of metro lines) • Participate in the evaluation of the technical proposals submitted by the contractors and consultants for the following items (Metro construction (cut and cover, TBM and Natm

			Tunnelling & Depot building) and system works and Bus infrastructure and PMCM). • Controlling the tender projects prepared in Phase 2 of the metro project (Designer: Systra) on behalf of the Contracting Authority • Review design studies, pre-qualification documents, material submittals and assist in providing technical support to the design team. (For Bus Maintenance and Operation Tender (Approximate Tender Value: 1 Billion USD) and Bus Infrastructure Tender (Approximate Tender Value: 100 Million USD)) • Establish and chair weekly progress meetings to review project processes - Meeting management • Prepare weekly and monthly reports for the administration. • To liaise and coordinate design with consultancy offices. • Preparing Technical reports for interfaces • Technical design work, checking and obtaining approvals. • Providing training, instruction, supervision and counselling to junior staff • Ensuring compliance with the company's Quality Assurance policies and procedures. • Provide input for performance reviews and development plans for subordinates. • Business development responsibility • Assisting the HR Manager with staff recruitment. • Providing technical assistance to the client's senior management
01.2012- 05.2014	Metro İstanbul A.Ş.	Project Coordinator	**Name of the Project:** Medina Metro Project **Tasks Performed:** • Coordination and Management of Administration and Stakeholder Relations • Responsibility for Architectural, Civil and Electromechanical design groups. Design for Metrobus, Metro and LRT stations, Maintenance Buildings and Warehouse area (Concept, Preliminary & Final), E & M Design for stations and other buildings, (Cut and cover, TBM and Natm Tunnel Construction & Warehouse Area building) • Transport and Traffic Engineering, Business studies • Participation in Feasibility Studies • Preparation of technical and tender documents
01.2011- 05.2012	Metro İstanbul A.Ş.	Project Coordinator	**Name of the Project:** Lahore Metrobus Project **Tasks Performed:** • Coordination and Management of Administration and Stakeholder Relations • Preparation of Route Projects • Responsibility for Architectural, Civil and Electromechanical design groups. Design (Concept, Pre & Final) for Metrobus, Metro and LRT stations, Maintenance Buildings and Warehouse area, E & M Design for Stations and other buildings, • Transport and Traffic Engineering, Business studies

			• Participation in Feasibility Studies • Preparation of technical and tender documents
2005-2014	Metro İstanbul A.Ş.	Project Engineer / Project Coordinator	**Name of the Project:** Üsküdar - Ümraniye- Çekmeköy Metro Project **Tasks Performed:** • Coordination and Management of Administration and Stakeholder Relations • Preparation of Route Projects • Responsibility for Architectural, Civil and Electromechanical design groups. Design for Metrobus, Metro and LRT stations, Maintenance Buildings and Warehouse area (Concept, Preliminary & Final Design), E & M Design for stations and other buildings, (Cut-and-cover, TBM and Natm Tunnel Construction & Warehouse Area building) • Transport and Traffic Engineering, Business studies • Participation in Feasibility Studies • Preparation of technical and tender documents
09.2000-01.2012	Metro İstanbul A.Ş.	Project Engineer / Project Coordinator	**Name of the Project:** Kadıköy -Kartal- Pendik Metro Project **Tasks Performed:** • Coordination and Management of Administration and Stakeholder Relations • Preparation of Route Projects • Responsibility for Architectural, Civil and Electromechanical design groups. Design for Metrobus, Metro and LRT stations, Maintenance Buildings and Warehouse area (Concept, Preliminary & Final Design), E & M Design for stations and other buildings, (Cut-and-cover, TBM and Natm Tunnel Construction & Warehouse Area building) • Transport and Traffic Engineering, Business studies • Participation in Feasibility Studies • Preparation of technical and tender documents • Maltepe Underground Workshop Design • Esenkent Control Centre and Administrative Building Design
06.2013 – 05.2014	Metro İstanbul A.Ş.	Design Chief	**Name of the Project:** Göztepe-Finans Centre-Umraniye Metro Preliminary Project **Tasks Performed:** • Architectural design of Metro stations and Maintenance Building and depot (Concept, Preliminary & Final Design), • Participation in Feasibility Studies • Preparation of technical and tender documents
09.2010 – 06.2012	Metro İstanbul A.Ş.	Design Chief	**Name of the Project:** Ikitelli- Atakoy Metro Final Project **Tasks Performed:** • Architectural design of Metro stations and Maintenance Building and depot (Concept, Preliminary & Final Design), • Participation in Feasibility Studies • Preparation of technical and tender documents

01.2010 – 06.2012	Metro İstanbul A.Ş.	Design Chief	**Name of the Project:** Söğütlüçeşme - Kazlıçeşme Metro Preliminary Project **Tasks Performed:** • Architectural design of Metro stations and Maintenance Building and depot (Concept, Preliminary & Final Design), • Participation in Feasibility Studies • Preparation of technical and tender documents
10.2007 – 11.2009	Metro İstanbul A.Ş.	Design Chief	**Name of the Project:** Şişhane - Kasimpasa - Okmeydanı - Mecidiyekoy Rail System Line Project **Tasks Performed:** • Architectural design of Metro stations and Maintenance Building and depot (Concept, Preliminary & Final Design), • Participation in Feasibility Studies • Preparation of technical and tender documents
01.2008 – 01.2009	Metro İstanbul A.Ş.	Design Chief	**Name of the Project:** Trabzon Municipality Rail System Application Project and Feasibility Study Preparation Service Procurement **Tasks Performed:** • Architectural design of Metro stations and Maintenance Building and depot (Concept, Preliminary & Final Design), • Participation in Feasibility Studies • Preparation of technical and tender documents

PERSONAL INFORMATION

Name, Surname : Musa Tuncay
Date of Birth : 01.05.1959
Nationality : Turkish

EDUCATION

Education : BSc. In Civil Engineering Eskisehir State Architecture Engineering Academy
MSc. In Civil Engineering / Gazi University

EXPERIENCE

Date	Company	Position	Description
2019-2023	KMG Proje	Civil Engineer	Projects worked on: • Manavgat-Seydisehir Railway Project • Merzifon-Samsun Railway Project • Ulukisla-Yenice Railway Project • Kars-Iğdır Railway Project • Polatli Military Region (Centre of Excellence) Railway Interconnection Line Project
2018-2019	Su Yapı Mühendislik	Civil Engineer	Projects worked on: • Manavgat-Seydisehir Railway Project • Merzifon-Samsun Railway Project • Ulukisla-Yenice Railway Project • Ispartakule-Çerkezköy Railway Project
2014-2018	KMG Proje	Civil Engineer	Projects worked on: • Manavgat-Seydisehir Railway Project • Merzifon-Samsun Railway Project • Ulukisla-Yenice Railway Project • Ispartakule-Çerkezköy Railway Project
2003-2012	DLH Construction General Directorate	Head of Railway Survey and Project Department	Projects worked on: • Halkalı - Kapıkule Railway Project • Ankara - Istanbul Railway Project • Ankara - Sivas Railway Project • Sivas - Kars Railway Project • Kars - Tbilisi Railway Project • Ankara - Izmir Railway Project • Adapazari - Bartın Railway Project • Toprakkale - Habur Railway Project • Erzincan - Muş Railway Project • Erzincan- Diyarbakır- Mardin Railway Project • Bandirma - Izmir Railway Project • Tekirdag - Muratli Railway Project • Eskisehir - Antalya Railway Project • Dinar - Aydin Railway Project • Konya - Mersin Railway Project • Kars - Igdir - Nakhchivan Railway Project • Kirikkale - Samsun Railway Project • Antalya - Konya - Aksaray - Nevsehir - Kayseri Railway Project • Kırşehir - Yerköy Railway Project • Kırşehir - Aksaray - Ulukisla Railway Project

			• Aydin - Gulluk Port Railway Connection Project • Erzincan - Trabzon - Tirebolu Railway Project • Yerkoy - Kayseri Railway Project • Bandirma - Bursa - Osmaneli Railway Project • Diyarbakır - Urfa Railway Project • Samsun - Fatsa Railway Project • Ardahan - Çıldır - Railway Project • Sinan-Batman Project • Tokat-Turhal Railway Project • Urfa-Mursitpinar Railway Project • Sabiha Gökçen and Atatürk Airport Rail System Project • Cukurova Airport Rail System Project • Kemalpasa Logistics Centre Project • Esenboga Airport Rail System Project • Ankara Subways Project and Supervision Consultancy • Kemalpaşa-Torbalı- Alsancak Port Connection
2003-2003	DLH Construction General Directorate	Head of Railway Construction Department	Projects worked on: • Ankara - Istanbul High Speed Railway Construction • Tecer - Kangal Railway Construction • Menemen - Aliaga Railway Construction • Izmit City Crossing Railway Construction • Khanli - Bostankaya Railway Construction
2000-2003	DLH Construction General Directorate	Head of Rail Public Transport Department	Tasks Performed: • Marmaray Project tender and control • Ankara, Istanbul, Izmir, Konya, Kayseri, Kayseri, Samsun, Adana, Mersin rail system feasibility, survey project control and approval.
1993-2000	DLH Construction General Directorate	Implementation Branch Manager	Projects worked on: • Ankara - Istanbul Speed Railway Construction • Karakaya Railway Bridge (2400m) • Tecer - Kangal Railway Construction • Menemen - Aliaga Railway Construction • Izmit City Crossing Railway Construction • Hanli - Bostankaya Railway Construction
1983-1993	DLH Construction General Directorate	Civil Engineer	Projects worked on: • Ankara - Istanbul Speed Railway Construction • Karakaya Railway Bridge (2400m) • Tecer - Kangal Railway Construction • Menemen - Aliaga Railway Construction • Sincan-Yenikent Railway Construction

Particular Conditions

Part C- Fraud and Corruption

(Text in this Particular Conditions - Part C shall not be modified)

1. **Purpose**

1.1 The Bank's Anti-Corruption Guidelines and this annex apply with respect to procurement under Bank Investment Project Financing operations.

2. **Requirements**

2.1 The Bank requires that Borrowers (including beneficiaries of Bank financing); bidders, consultants, contractors and suppliers; any sub-contractors, sub-consultants, service providers or suppliers; any agents (whether declared or not); and any of their personnel, observe the highest standard of ethics during the procurement process, selection and contract execution of Bank-financed contracts, and refrain from Fraud and Corruption.

2.2 To this end, the Bank:

a. Defines, for the purposes of this provision, the terms set forth below as follows:

i. "corrupt practice" is the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;

ii. "fraudulent practice" is any act or omission, including misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain financial or other benefit or to avoid an obligation;

iii. "collusive practice" is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party;

iv. "coercive practice" is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;

v. "obstructive practice" is:

(a) deliberately destroying, falsifying, altering, or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede a Bank investigation into allegations of a corrupt, fraudulent, coercive, or collusive practice; and/or threatening,

harass or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation; or

(b) acts intended to materially impede the exercise of the Bank's inspection and audit rights provided for under paragraph 2.2 e. below.

b. Rejects a proposal for award if the Bank determines that the firm or individual recommended for award, any of its personnel, or its agents, or its sub-consultants, sub-contractors, service providers, suppliers and/ or their employees, has, directly or indirectly, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices in competing for the contract in question;

c. In addition to the legal remedies set out in the relevant Legal Agreement, may take other appropriate actions, including declaring misprocurement, if the Bank determines at any time that representatives of the Borrower or of a recipient of any part of the proceeds of the loan engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices during the procurement process, selection and/or execution of the contract in question, without the Borrower having taken timely and appropriate action satisfactory to the Bank to address such practices when they occur, including by failing to inform the Bank in a timely manner at the time they knew of the practices;

d. Pursuant to the Bank's Anti- Corruption Guidelines and in accordance with the Bank's prevailing sanctions policies and procedures, may sanction a firm or individual, either indefinitely or for a stated period of time, including by publicly declaring such firm or individual ineligible (i) to be awarded or otherwise benefit from a Bank-financed contract, financially or in any other manner26; (ii) to be a nominated 27 sub-contractor, consultant, manufacturer or supplier, or service provider of an otherwise eligible firm being awarded a Bank-financed contract; and (iii) to receive the proceeds of any loan made by the Bank or otherwise to participate further in the preparation or implementation of any Bank-financed project;

e. Requires that a clause be included in bidding/request for proposals documents and in contracts financed by a Bank loan, requiring (i) bidders, consultants, contractors,

[26] For the avoidance of doubt, a sanctioned party's ineligibility to be awarded a contract shall include, without limitation, (i) applying for pre-qualification, expressing interest in a consultancy, and bidding, either directly or as a nominated sub-contractor, nominated consultant, nominated manufacturer or supplier, or nominated service provider, in respect of such contract, and (ii) entering into an addendum or amendment introducing a material modification to any existing contract.

[27] A nominated sub-contractor, nominated consultant, nominated manufacturer or supplier, or nominated service provider (different names are used depending on the particular bidding document) is one which has been: (i) included by the bidder in its pre-qualification application or bid because it brings specific and critical experience and know-how that allow the bidder to meet the qualification requirements for the particular bid; or (ii) appointed by the Borrower.

and suppliers, and their sub-contractors, sub-consultants, service providers, suppliers, agents personnel, permit the Bank to inspect 28 all accounts, records and other documents relating to the submission of bids and contract performance, and to have them audited by auditors appointed by the Bank.

[28] Inspections in this context usually are investigative (i.e., forensic) in nature. They involve fact-finding activities undertaken by the Bank or persons appointed by the Bank to address specific matters related to investigations/audits, such as evaluating the veracity of an allegation of possible Fraud and Corruption, through the appropriate mechanisms. Such activity includes but is not limited to: accessing and examining a firm's or individual's financial records and information, and making copies thereof as relevant; accessing and examining any other documents, data and information (whether in hard copy or electronic format) deemed relevant for the investigation/audit, and making copies thereof as relevant; interviewing staff and other relevant individuals; performing physical inspections and site visits; and obtaining third party verification of information.

Particular Conditions

Part D- Environmental and Social (ES)

Metrics for Progress Reports

The Contractor shall include in each Progress Report, and in any separate Environmental and Social (E&S) report required under the Contract, the E&S metrics necessary to demonstrate compliance with the Contract, the Environmental and Social Commitment Plan (ESCP), the finalized ESIA/ESMP/SEP, RP&LRP and the C-ESMP, and all applicable sub-management plans.

The Contractor shall carry out all E&S monitoring and reporting in full compliance with the E&S Requirements defined in the "Environmental and Social Requirements" section under "Part-2 Employer's Requirements". The Contractor shall submit monthly E&S monitoring reports to the Employer within fifteen (15) days following the end of each reporting period, unless otherwise instructed by the Employer.

The detailed format, indicators, and level of disaggregation of the reports shall be agreed between the Employer and the Contractor following Contract award and prior to submission of the first report, and may be updated during implementation as required by the Employer or the World Bank.

The Employer may require additional indicators, reporting formats, or supporting data during implementation, and the Contractor shall comply with such requirements.

Particular Conditions

Part E- Sexual Exploitation and Abuse (SEA) and/or Sexual Harassment Performance Declaration for Subcontractors

[The following table shall be filled in by each subcontractor proposed by the Contractor, that was not named in the Contract]

Subcontractor's Name: *[insert full name]*
Date: *[insert day, month, year]*

Contract reference *[insert contract reference]*
Page *[insert page number]* of *[insert total number]* pages

SEA and/or SH Declaration
We: ☐ (a) have not been subject to disqualification by the Bank for non-compliance with SEA/ SH obligations. ☐ (b) are subject to disqualification by the Bank for non-compliance with SEA/ SH obligations. ☐ (c) had been subject to disqualification by the Bank for non-compliance with SEA/ SH obligations. An arbitral award on the disqualification case has been made in our favor. ☐ (d) had been subject to disqualification by the Bank for non-compliance with SEA/ SH obligations for a period of two years. We have subsequently demonstrated that we have adequate capacity and commitment to comply with SEA /SH obligations. ☐ (e) had been subject to disqualification by the Bank for non-compliance with SEA/ SH obligations for a period of two years. We have attached specific evidence demonstrating that we have adequate capacity and commitment to comply with SEA and SH obligations.
[*If (c) above is applicable, attach evidence of an arbitral award reversing the findings on the issues underlying the disqualification.]*
[If (d) or (e) above are applicable, provide the following information:]
Period of disqualification: From: _____ To: _____
If previously provided on another Bank financed works contract, details of evidence that demonstrated adequate capacity and commitment to comply with SEA/SH obligations (**as per (d) above)** Name of Employer: _____ Name of Project: _____ Contract description: _____ Brief summary of evidence provided: _____ _____ Contact Information: (Tel, email, name of contact person): _____

_____
As an alternative to the evidence under (d), other evidence demonstrating adequate capacity and commitment to comply with SEA/SH obligations (**as per (e) above))** *[attach details as appropriate]*.
_____
_____

Name of the Subcontractor_____

Name of the person duly authorized to sign on behalf of the Subcontractor_____

Title of the person signing on behalf of the Subcontractor_____

Signature of the person named above_____

Date signed _____ day of _____, _____

Countersignature of authorized representative of the Contractor:

Signature: _____

Date signed _____ day of _____, _____

SECTION X - CONTRACT FORMS

Table of Forms

Notification of Intention to Award **556**
Letter of Acceptance **562**
Contract Agreement **563**
Performance Security – Option 1: Demand Guarantee **565**
Performance Security – Option 2: Performance Bond .... Hata! Yer işareti tanımlanmamış.
Environmental and Social (ES) Performance Security **568**
Advance Payment Security **570**
Retention Money Security **572**

Notification of Intention to Award

[This Notification of Intention to Award shall be sent to each Proposer that submitted a Proposal, unless the Proposer has previously received notice of exclusion from the process at an interim stage of the procurement process.]

[Send this Notification to the Proposer's Authorized Representative named in the Proposer Information Form]

For the attention of Proposer's Authorized Representative
Name: *[insert Authorized Representative's name]*
Address: *[insert Authorized Representative's Address]*
Telephone/Fax numbers: *[insert Authorized Representative's telephone/fax numbers]*
Email Address: *[insert Authorized Representative's email address]*

[IMPORTANT: insert the date that this Notification is transmitted to all participating Proposers. The Notification must be sent to all Proposers simultaneously. This means on the same date and as close to the same time as possible.]

DATE OF TRANSMISSION: This Notification is sent by: *[email/fax]* on *[date]* (local time)

Notification of Intention to Award

Employer: *[insert the name of the Employer]*
Project: *[insert name of project]*
Contract title: *[insert the name of the contract]*
Country: *[insert country where RFP is issued]*
Loan No. /Credit No. / Grant No.: *[insert reference number for loan/credit/grant]*
RFP No: *[insert RFP reference number from Procurement Plan]*

This Notification of Intention to Award (Notification) notifies you of our decision to award the above contract. The transmission of this Notification begins the Standstill Period. During the Standstill Period you may:

a) request a debriefing in relation to the evaluation of your Proposal, and/or

b) submit a Procurement-related Complaint in relation to the decision to award the contract.

1. The successful Proposer

Name:	*[insert name of successful Proposer]*
Address:	*[insert address of the successful Proposer]*
Contract price:	*[insert contract price of the successful Proposer]*
Total combined score:	*[insert the total combined score of the successful Proposer]*

2. Other Proposers *[INSTRUCTIONS: insert names of all Proposers that submitted a Proposal, Proposal prices as read out and evaluated, technical and combined scores.]*

Name of Proposer	Technical Score	Proposal price	Evaluated Proposal Cost (if applicable)	Combined Score
[insert name]	*[insert Technical score]*	*[insert Proposal price]*	*[insert evaluated cost]*	*[insert combined score]*
[insert name]	*[insert Technical score]*	*[insert Proposal price]*	*[insert evaluated cost]*	*[insert combined score]*
[insert name]	*[insert Technical score]*	*[insert Proposal price]*	*[insert evaluated cost]*	*[insert combined score]*
[insert name]	*[insert Technical score]*	*[insert Proposal price]*	*[insert evaluated cost]*	*[insert combined score]*
[insert name]	*[insert Technical score]*	*[insert Proposal price]*	*[insert evaluated cost]*	*[insert combined score]*

3. Reason/s why your Proposal was unsuccessful *[Delete if the combined score already reveals the reason]*

[INSTRUCTIONS: State the reason/s why <u>this</u> Proposer's Proposal was unsuccessful. Do NOT include: (a) a point by point comparison with another Proposer's Proposal or (b) information that is marked confidential by the Proposer in its Proposal.]

4. How to request a debriefing

DEADLINE: The deadline to request a debriefing expires at midnight on *[insert date]* (local time).

You may request a debriefing in relation to the results of the evaluation of your Proposal. If you decide to request a debriefing your written request must be made within three (3) Business Days of receipt of this Notification of Intention to Award.

Provide the contract name, reference number, name of the Proposer, contact details; and address the request for debriefing as follows:

Attention: *[insert full name of person, if applicable]*

Title/position: *[insert title/position]*

Agency: *[insert name of Employer]*

Email address: *[insert email address]*

Fax number: *[insert fax number]* ***delete if not used***

If your request for a debriefing is received within the 3 Business Days deadline, we will provide the debriefing within five (5) Business Days of receipt of your request. If we are unable to provide the debriefing within this period, the Standstill Period shall be extended by five (5) Business Days after the date that the debriefing is provided. If this happens, we will notify you and confirm the date that the extended Standstill Period will end.

The debriefing may be in writing, by phone, video conference call or in person. We shall promptly advise you in writing how the debriefing will take place and confirm the date and time.

If the deadline to request a debriefing has expired, you may still request a debriefing. In this case, we will provide the debriefing as soon as practicable, and normally no later than fifteen (15) Business Days from the date of publication of the Contract Award Notice.

5. How to make a complaint

DEADLINE: The deadline for submitting a Procurement-related Complaint challenging the decision to award the contract expires on midnight, [*insert date*] (local time).

Provide the contract name, reference number, name of the Proposer, contact details; and address the Procurement-related Complaint as follows:

Attention: *[insert full name of person, if applicable]*

Title/position: *[insert title/position]*

Agency: *[insert name of Employer]*

Email address: *[insert email address]*

Fax number: *[insert fax number]* ***delete if not used***

At this point in the procurement process, you may submit a Procurement-related Complaint challenging the decision to award the contract. You do not need to have requested, or received, a debriefing before making this complaint. Your complaint must be submitted within the Standstill Period and received by us before the Standstill Period ends.

Further information:

For more information, see the "Procurement Regulations for IPF Borrowers (Procurement Regulations) (Annex III)." You should read these provisions before preparing and submitting your complaint. In addition, the World Bank's Guidance "How to make a Procurement-related Complaint" provides a useful explanation of the process, as well as a sample letter of complaint.

In summary, there are four essential requirements:

1. You must be an 'interested party'. In this case, that means a Proposer who submitted a Proposal in this procurement, and is the recipient of a Notification of Intention to Award.
2. The complaint can only challenge the decision to award the contract.
3. You must submit the complaint within the deadline stated above.
4. You must include, in your complaint, all of the information required by the Procurement Regulations (as described in Annex III).

6. Standstill Period

DEADLINE: The Standstill Period is due to end at midnight on *[insert date]* (local time).

The Standstill Period lasts ten (10) Business Days after the date of transmission of this Notification of Intention to Award.

The Standstill Period may be extended. This may happen where we are unable to provide a debriefing within the five (5) Business Day deadline. If this happens we will notify you of the extension.

If you have any questions regarding this Notification, please do not hesitate to contact us.

On behalf of the Employer:

Signature: _____

Name: _____

Title/position: _____

Telephone: _____

Email: _____

Beneficial Ownership Disclosure Form

INSTRUCTIONS TO PROPOSERS: DELETE THIS BOX ONCE YOU HAVE COMPLETED THE FORM

This Beneficial Ownership Disclosure Form ("Form") is to be completed by the successful Proposer[1]. In case of joint venture, the Proposer must submit a separate Form for each member. The beneficial ownership information to be submitted in this Form shall be current as of the date of its submission.

For the purposes of this Form, a Beneficial Owner of a Proposer is any natural person who ultimately owns or controls the Proposer by meeting one or more of the following conditions:

- *directly or indirectly holding 25% or more of the shares*
- *directly or indirectly holding 25% or more of the voting rights*

directly or indirectly having the right to appoint a majority of the board of directors or equivalent governing body of the Proposer directly or indirectly having the right to appoint a majority of the board of directors or equivalent governing body of the Proposer

RFP No.: [*insert number of RFP process*]
Request for Proposal No.: [*insert identification*]

To: **[*insert complete name of Employer*]**

In response to your request in the Letter of Acceptance *dated [insert date of letter of Acceptance]* to furnish additional information on beneficial ownership: *[select one option as applicable and delete the options that are not applicable]*

(i) we hereby provide the following beneficial ownership information.

Details of beneficial ownership

Identity of Beneficial Owner	Directly or indirectly holding 25% or more of the shares (Yes / No)	Directly or indirectly holding 25 % or more of the Voting Rights (Yes / No)	Directly or indirectly having the right to appoint a majority of the board of the directors or an equivalent governing body of the Proposer (Yes / No)
[include full name (last, middle, first), nationality, country of residence]			

OR

(ii) *We declare that there is no Beneficial Owner meeting one or more of the following conditions:*

- directly or indirectly holding 25% or more of the shares
- directly or indirectly holding 25% or more of the voting rights
- directly or indirectly having the right to appoint a majority of the board of directors or equivalent governing body of the Proposer

OR

(iii) We declare that we are unable to identify any Beneficial Owner meeting one or more of the following conditions. [If this option is selected, the Proposer shall provide explanation on why it is unable to identify any Beneficial Owner]

- directly or indirectly holding 25% or more of the shares
- directly or indirectly holding 25% or more of the voting rights
- directly or indirectly having the right to appoint a majority of the board of directors or equivalent governing body of the Proposer]"

Name of the Proposer: *[*insert complete name of the Proposer*]_____

Name of the person duly authorized to sign the Proposal on behalf of the Proposer: **[*insert complete name of person duly authorized to sign the Proposal*]_____

Title of the person signing the Proposal: [*insert complete title of the person signing the Proposal*]_____

Signature of the person named above: [*insert signature of person whose name and capacity are shown above*]_____

Date signed [*insert date of signing*] **day of** [*insert month*], [*insert year*]_____

[*] In the case of the Proposal submitted by a Joint Venture specify the name of the Joint Venture as Proposer. In the event that the Proposer is a joint venture, each reference to "Proposer" in the Beneficial Ownership Disclosure Form (including this Introduction thereto) shall be read to refer to the joint venture member.

[**] Person signing the Proposal shall have the power of attorney given by the Proposer. The power of attorney shall be attached with the Proposal Schedules.

Letter of Acceptance

[letterhead paper of the Employer]

[date]

To: *[name and address of the Contractor]*

This is to notify you that your Proposal dated *[date]* for execution of the *[name of the Contract and identification number, as given in the Contract Data]* for the Accepted Contract Amount *[amount in numbers and words] [name of currency]*, as corrected and modified in accordance with the Instructions to Proposers, is hereby accepted by our Agency.

You are requested to furnish (i) the Performance Security and an Environmental and Social Performance Security ***[Delete ES Performance Security if it is not required under the contract]*** within 28 days in accordance with the Conditions of Contract, using, for that purpose, one of the Performance Security Forms and the ES Performance Security Form, ***[Delete reference to the ES Performance Security Form if it is not required under the contract]*** and (ii) the additional information on beneficial ownership in accordance with **ITP 53.1** within eight (8) Business days using the Beneficial Ownership Disclosure Form, included in Section X, Contract Forms, of the RFP document.

Authorized Signature: _____

Name and Title of Signatory: _____

Name of Agency: _____

Attachment: Contract Agreement

Contract Agreement

THIS AGREEMENT made the _____ day of _____, _____, between _____of _____ (hereinafter "the Employer"), of the one part, and _____ of _____ (hereinafter "the Contractor"), of the other part:

WHEREAS the Employer desires that the Works known as _____ _____ should be executed by the Contractor, and has accepted a Proposal by the Contractor for the execution and completion of these Works and the remedying of any defects therein,

The Employer and the Contractor agree as follows:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Contract documents referred to.

2. The following documents shall be deemed to form and be read and construed as part of this Agreement. This Agreement shall prevail over all other Contract documents.
   (a) the Letter of Acceptance
   (b) the Letter of Proposal
   (c) the addenda Nos _____(if any)
   (d) the Particular Conditions
   (e) the General Conditions
   (f) the Employer's Requirements
   (g) the completed Schedules, and
   (h) the Contractor's Proposal and any other documents forming part of the Contract including, but not limited to:
      i. Code of Conduct for Contractor's Personnel (ES) and
      ii. Local Labour Method Statement.

3. In consideration of the payments to be made by the Employer to the Contractor as specified in this Agreement, the Contractor hereby covenants with the Employer to execute the Works and to remedy defects therein in conformity in all respects with the provisions of the Contract.

4. The Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with the laws of _____ on the day, month and year specified above.

Signed by _____ (for the Employer)

Signed by _____ (for the Contractor)

Performance Security – Demand Guarantee

[Guarantor letterhead or SWIFT identifier code]

Beneficiary: _____*[insert name and Address of Employer]*

Date: _____*[Insert date of issue]*

PERFORMANCE GUARANTEE No.: _____*[Insert guarantee reference number]*

Guarantor: *[Insert name and address of place of issue, unless indicated in the letterhead]*

We have been informed that _____ (hereinafter called "the Applicant") has entered into Contract No. _____ dated _____ with the Beneficiary, for the execution of _____ (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, a performance guarantee is required.

At the request of the Applicant, we as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of _____ (_),[1] such sum being payable in the types and proportions of currencies in which the Contract Price is payable, upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating that the Applicant is in breach of its obligation(s) under the Contract without the Beneficiary needing to prove or to show grounds for your demand or the sum specified therein.

This guarantee shall expire, no later than the …. Day of ……, 2… [2], and any demand for payment under it must be received by us at this office indicated above on or before that date.

---

[1] *The Guarantor shall insert an amount representing the percentage of the Accepted Contract Amount specified in the Letter of Acceptance, less provisional sums, if any, and denominated either in the currency (ies) of the Contract or a freely convertible currency acceptable to the Beneficiary.*

[2] *Insert the date twenty-eight days after the expected completion date as described in GC Clause 11.9. The Employer should note that in the event of an extension of this date for completion of the Contract, the Employer would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Employer might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months] [one year], in response to the Beneficiary's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."*

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758, except that the supporting statement under Article 15(a) is hereby excluded.

_____

[signature(s)]

Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.

Environmental and Social (ES) Performance Security

ES Demand Guarantee

[Guarantor letterhead or SWIFT identifier code]

Beneficiary: _____*[insert name and Address of Employer]*

Date: _____*[Insert date of issue]*

ES PERFORMANCE GUARANTEE No.: _____*[Insert guarantee reference number]*

Guarantor: *[Insert name and address of place of issue, unless indicated in the letterhead]*

We have been informed that _____ (hereinafter called "the Applicant") has entered into Contract No. _____ dated _____ with the Beneficiary, for the execution of _____ (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, a performance guarantee is required.

At the request of the Applicant, we as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of _____ (_),[1] such sum being payable in the types and proportions of currencies in which the Contract Price is payable, upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating that the Applicant is in breach of its Environmental and/or Social (ES) obligation(s) under the Contract, without the Beneficiary needing to prove or to show grounds for your demand or the sum specified therein.

This guarantee shall expire, no later than the …. Day of ……, 2… [2], and any demand for payment under it must be received by us at this office indicated above on or before that date.

---

[1] *The Guarantor shall insert an amount representing the percentage of the Accepted Contract Amount specified in the Letter of Acceptance, less provisional sums, if any, and denominated either in the currency (cies) of the Contract or a freely convertible currency acceptable to the Beneficiary.*

[2] *Insert the date twenty-eight days after the expected completion date as described in GC Clause 11.9. The Employer should note that in the event of an extension of this date for completion of the Contract, the Employer would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Employer might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months] [one year], in response to the Beneficiary's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."*

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758, except that the supporting statement under Article 15(a) is hereby excluded.

_____

[signature(s)]

Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.

Advance Payment Security

Demand Guarantee

[Guarantor letterhead or SWIFT identifier code]

Beneficiary: _____*[insert name and Address of Employer]*

Date: _____*[Insert date of issue]*

ADVANCE PAYMENT GUARANTEE No.: _____*[Insert guarantee reference number]*

Guarantor: *[Insert name and address of place of issue, unless indicated in the letterhead]*

We have been informed that _____ (hereinafter called "the Applicant") has entered into Contract No. _____ *dated* _____ with the Beneficiary, for the execution of _____ (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, an advance payment in the sum _____ (_) is to be made against an advance payment guarantee.

At the request of the Applicant, we as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of _____ (_) [1] upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating either that the Applicant:

(a) has used the advance payment for purposes other than the costs of mobilization in respect of the Works; or

(b) has failed to repay the advance payment in accordance with the Contract conditions, specifying the amount which the Applicant has failed to repay.

A demand under this guarantee may be presented as from the presentation to the Guarantor of a certificate from the Beneficiary's bank stating that the advance payment referred to above has been credited to the Applicant on its account number _____ at _____.

The maximum amount of this guarantee shall be progressively reduced by the amount of the advance payment repaid by the Applicant as specified in copies of interim statements or payment certificates which shall be presented to us. This guarantee shall expire, at the latest, upon our receipt of a copy of the interim payment certificate indicating that ninety (90) percent of the Accepted Contract Amount, less provisional sums, has been certified for payment, or on the ___

[1] *The Guarantor shall insert an amount representing the amount of the advance payment and denominated either in the currency (ies) of the advance payment as specified in the Contract, or in a freely convertible currency acceptable to the Employer.*

day of _____, 2___,[2] whichever is earlier. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758, except that the supporting statement under Article 15(a) is hereby excluded.

_____
[signature(s)]

Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.

[2] *Insert the expected expiration date of the Time for Completion. The Employer should note that in the event of an extension of the time for completion of the Contract, the Employer would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Employer might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months] [one year], in response to the Beneficiary's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."*

Retention Money Security

Demand Guarantee

[Guarantor letterhead or SWIFT identifier code]

Beneficiary: _____*[insert name and Address of Employer]*

Date: _____*[Insert date of issue]*

RETENTION MONEY GUARANTEE No.: _____*[Insert guarantee reference number]*

Guarantor: *[Insert name and address of place of issue, unless indicated in the letterhead]*

We have been informed that _____ *[insert name of Contractor, which in the case of a joint venture shall be the name of the joint venture]* (hereinafter called "the Applicant") has entered into Contract No. _____ *[insert reference number of the contract]* dated _____ with the Beneficiary, for the execution of _____ *[insert name of contract and brief description of Works]* (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, the Beneficiary retains moneys up to the limit set forth in the Contract ("the Retention Money"), and that when the Taking-Over Certificate has been issued under the Contract and the first half of the Retention Money has been certified for payment, payment of *[insert the second half of the Retention Money or if the amount guaranteed under the Performance Guarantee when the Taking-Over Certificate is issued is less than half of the Retention Money],* the difference between half of the Retention Money and the amount guaranteed under the Performance Security and, if required, the ES Performance Security*]* is to be made against a Retention Money guarantee.

At the request of the Applicant, we, as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of _____ *[insert amount in figures]* (_) *[amount in words]*[1] upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating that the Applicant is in breach of its obligation(s) under the Contract, without your needing to prove or show grounds for your demand or the sum specified therein.

A demand under this guarantee may be presented as from the presentation to the Guarantor of a certificate from the Beneficiary's bank stating that the second half of the Retention Money as

---

[1] *The Guarantor shall insert an amount representing the amount of the second half of the Retention Money or if the amount guaranteed under the Performance Guarantee when the Taking-Over Certificate is issued is less than half of the Retention Money, the difference between half of the Retention Money and the amount guaranteed under the Performance Security and denominated either in the currency(ies) of the second half of the Retention Money as specified in the Contract, or in a freely convertible currency acceptable to the Beneficiary.*

referred to above has been credited to the Applicant on its account number _____ at _____ *[insert name and address of Applicant's bank]*.

This guarantee shall expire no later than the …. Day of ……, 2… [2], and any demand for payment under it must be received by us at the office indicated above on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758, except that the supporting statement under Article 15(a) is hereby excluded.

_____
[signature(s)]

Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.

[2] *Insert the same expiry date as set forth in the Performance Security, representing the date twenty-eight days after the completion date described in GC Clause 11.9. The Employer should note that in the event of an extension of this date for completion of the Contract, the Employer would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Employer might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months] [one year], in response to the Beneficiary's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."*