



**Bangladesh Economic Zones Authority (BEZA)**  
**Bangladesh Economic Zones Development Project**  
**(Phase- 1)**

**BIDDING DOCUMENTS**  
**for**

**Procurement of**

**Site Development and construction of embankment  
for Mirsarai – 2A EZ**

**Tender Package No. : BEZA WD-1201**

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**Project: Bangladesh Economic Zones Development  
Project (Phase- I)**

**Employer: Bangladesh Economic Zones Authority**

**Country: Bangladesh**

**Issued on:-- -- ----**

# Summary Description

These Standard Bidding Documents for Procurement of Works and its User's Guide apply either when a prequalification process has taken place before bidding or when a prequalification process has not taken place before bidding (provided alternative documents should be selected as applicable).

A brief description of these documents is given below.

## SBD for Procurement of Works

### Summary

#### PART 1 – BIDDING PROCEDURES

##### **Section I: Instructions to Bidders (ITB)**

This Section provides relevant information to help Bidders prepare their bids. Information is also provided on the submission, opening, and evaluation of bids and on the award of Contracts. **Section I contains provisions that are to be used without modification.**

##### **Section II. Bid Data Sheet (BDS)**

This Section includes provisions that are specific to each procurement and that supplement Section I, Instructions to Bidders.

##### **Section III. Evaluation and Qualification Criteria** *(alternative Section III to be used when Prequalification has taken place before bidding)*

This Section specifies the criteria to determine the lowest evaluated bid and to ascertain the continued qualification of the Bidder to perform the contract.

##### **Section III. Evaluation and Qualification Criteria** *(alternative Section III to be used when Prequalification has not taken place before bidding)*

This Section includes the criteria to determine the lowest evaluated bid and the qualifications of the Bidder to perform the contract.

##### **Section IV: Bidding Forms**

This Section includes the forms which are to be completed by the Bidder and submitted as part of his Bid.

##### **Section V. Eligible Countries**

This Section contains information regarding eligible countries.

**Section VI. Bank Policy – Corrupt and Fraudulent Practices**

This Section provides the Bidders with the reference to the Bank's policy in regard to corrupt and fraudulent practices applicable to this process.

**PART 2 – WORKS REQUIREMENTS**

**Section VII. Works Requirements**

This Section contains the Specification, the Drawings, and supplementary information that describe the Works to be procured.

**PART 3 – *CONDITIONS OF CONTRACT AND CONTRACT FORMS***

**Section VIII. General Conditions (GC)**

This Section contains the general clauses to be applied in all contracts. **The text of the clauses in this Section shall not be modified.**

**Section IX. Particular Conditions (PC)**

This Section consists of Part A, Contract Data, which contains data, and Part B, Specific Provisions, which contains clauses specific to each contract. The contents of this Section supplement the General Conditions and shall be prepared by the Employer.

**Section X: Contract Forms**

This Section contains forms which, once completed, will form part of the Contract. The forms for **Performance Security** and **Advance Payment Security**, when required, shall only be completed by the successful Bidder after contract award.

**Annexure:**

- 1.Environmental Management Plan
- 2.Drawing-design

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# **PART 1 – BIDDING PROCEDURES**

# Section I. Instructions to Bidders

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## Section I. Instructions to Bidders

### A. General

#### 1. Scope of Bid

- 1.1 In connection with the Invitation for Bids specified in the Bid Data Sheet (BDS), the Employer, as specified in the BDS, issues these Bidding Documents for the procurement of Works as specified in Section VII, Works Requirements. The name, identification, and number of lots (contracts) of this International Competitive Bidding (ICB) process are specified in the BDS.
- 1.2 Throughout these Bidding Documents:
  - (a) the term “in writing” means communicated in written form and delivered against receipt;
  - (b) except where the context requires otherwise, words indicating the singular also include the plural and words indicating the plural also include the singular; and
  - (c) “day” means calendar day.

#### 2. Source of Funds

- 2.1 The Borrower or Recipient (hereinafter called “Borrower”) **specified in the BDS** has received or has applied for 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 BDS**, toward the project named **in the BDS**. The Borrower intends to apply a portion of the funds to eligible payments under the contract(s) for which these Bidding Documents are issued.
- 2.2 Payment by the Bank will be made only at the request of the Borrower and upon approval by the Bank, and will be subject, in all respects, to the terms and conditions of the Loan (or other financing) Agreement. The Loan (or other financing) Agreement prohibits a withdrawal from the Loan (or other financing) account for the purpose of any payment to persons or entities, or for any import of goods, if such payment or import, to the knowledge of the Bank, 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. Corrupt and Fraudulent Practices

- 3.1 The Bank requires compliance with its policy in regard to corrupt and fraudulent practices as set forth in Section VI.
- 3.2 In further pursuance of this policy, Bidders shall permit and shall cause its agents (whether declared or not), sub-contractors, sub-consultants, service providers, or suppliers and any personnel thereof, to permit the Bank to inspect all accounts, records and other documents relating to any prequalification process, bid submission, and contract performance (in the case of award), and to have them audited by auditors appointed by the Bank.

### 4. Eligible Bidders

- 4.1 A Bidder may be a firm that is a private entity, a government-owned entity—subject to ITB 4.5—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 bidding process and, in the event the JV is awarded the Contract, during contract execution. **Unless specified in the BDS**, there is no limit on the number of members in a JV.
- 4.2 A Bidder shall not have a conflict of interest. Any Bidder found to have a conflict of interest shall be disqualified. A Bidder may be considered to have a conflict of interest for the purpose of this bidding process, if the Bidder:
- (a) directly or indirectly controls, is controlled by or is under common control with another Bidder; or
  - (b) receives or has received any direct or indirect subsidy from another Bidder; or
  - (c) has the same legal representative as another Bidder; or
  - (d) has a relationship with another Bidder, directly or through common third parties, that puts it in a position to influence the bid of another Bidder, or influence the decisions of the Employer regarding this bidding process; or
  - (e) participates in more than one bid in this bidding process.

Participation by a Bidder in more than one Bid will result in the disqualification of all Bids in which such Bidder is involved. However, this does not limit the inclusion of the same subcontractor in more than one bid; or

- (f) any of its affiliates participated as a consultant in the preparation of the design or technical specifications of the works that are the subject of the bid; or
- (g) any of its affiliates has been hired (or is proposed to be hired) by the Employer or Borrower as Engineer for the Contract implementation; or
- (h) 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 BDS ITB 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
- (i) 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 bidding documents or specifications of the contract, and/or the bid 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 procurement process and execution of the contract.

4.3 A Bidder may have the nationality of any country, subject to the restrictions pursuant to ITB 4.7. A Bidder shall be deemed to have the nationality of a country if the Bidder 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.

4.4 A Bidder that has been sanctioned by the Bank in accordance with the above ITB 3.1, including in accordance

with the Bank's Guidelines on Preventing and Combating Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants ("Anti-Corruption Guidelines"), shall be ineligible to be prequalified for, bid 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 as **specified in the BDS**.

- 4.5 Bidders that are Government-owned enterprises or institutions in the Employer's Country may participate only if they can establish that they (i) are legally and financially autonomous (ii) operate under commercial law, and (iii) are not dependent agencies of the Employer. To be eligible, a government-owned enterprise or institution shall establish to the Bank's satisfaction, through all relevant documents, including its Charter and other information the Bank may request, that it: (i) is a legal entity separate from the government (ii) does not currently receive substantial subsidies or budget support; (iii) operates like any commercial enterprise, and, inter alia, is not obliged to pass on its surplus to the government, can acquire rights and liabilities, borrow funds and be liable for repayment of its debts, and can be declared bankrupt; and (iv) is not bidding for a contract to be awarded by the department or agency of the government which under their applicable laws or regulations is the reporting or supervisory authority of the enterprise or has the ability to exercise influence or control over the enterprise or institution.
- 4.6 A Bidder shall not be under suspension from bidding by the Employer as the result of the operation of a Bid-Securing Declaration.
- 4.7 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.
- 4.8 This bidding is open only to prequalified Bidders unless

**specified in the BDS.**

- 4.9 A Bidder shall provide such evidence of eligibility satisfactory to the Employer, as the Employer shall reasonably request.
- 5. Eligible Materials, Equipment, and Services**
- 5.1 The materials, equipment and services to be supplied under the Contract and financed by the Bank 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, Bidders may be required to provide evidence of the origin of materials, equipment and services.

**B. Contents of Bidding Documents**

- 6. Sections of Bidding Documents**
- 6.1 The Bidding Documents consist of Parts 1, 2, and 3, which include all the Sections specified below, and which should be read in conjunction with any Addenda issued in accordance with ITB 8.

**PART 1 Bidding Procedures**

- Section I. Instructions to Bidders (ITB)
- Section II. Bid Data Sheet (BDS)
- Section III. Evaluation and Qualification Criteria
- Section IV. Bidding Forms
- Section V. Eligible Countries
- Section VI. Bank Policy-Corrupt and Fraudulent Practices

**PART 2 Works Requirements**

- Section VII. Works Requirements

**PART 3 Conditions of Contract and Contract Forms**

- Section VIII. General Conditions (GC)
- Section IX. Particular Conditions (PC)
- Section X. Contract Forms
- 

- 6.2 The Invitation for Bids issued by the Employer is not part of the Bidding Documents.
- 6.3 Unless obtained directly from the Employer, the Employer is not responsible for the completeness of the Bidding

Documents, responses to requests for clarification, the minutes of the pre-Bid meeting (if any), or Addenda to the Bidding Documents in accordance with ITB 8. In case of any contradiction, documents obtained directly from the Employer shall prevail.

- 6.4 The Bidder is expected to examine all instructions, forms, terms, and specifications in the Bidding Documents and to furnish with its bid all information and documentation as is required by the Bidding Documents.

**7. Clarification of  
Bidding  
Documents, Site  
Visit, Pre-Bid  
Meeting**

- 7.1 A Bidder requiring any clarification of the Bidding Documents shall contact the Employer in writing at the Employer's address **specified in the BDS** or raise its enquiries during the pre-bid meeting if provided for in accordance with ITB 7.4. The Employer will respond in writing to any request for clarification, provided that such request is received no later than fourteen (14) days prior to the deadline for submission of bids. The Employer shall forward copies of its response to all Bidders who have acquired the Bidding Documents in accordance with ITB 6.3, including a description of the inquiry but without identifying its source. If so specified in the BDS, the Employer shall also promptly publish its response at the web page identified in the BDS. Should the clarification result in changes to the essential elements of the Bidding Documents, the Employer shall amend the Bidding Documents following the procedure under ITB 8 and ITB 22.2.
- 7.2 The Bidder is advised to visit and examine the Site of Works and its surroundings and obtain for itself on its own responsibility all information that may be necessary for preparing the bid and entering into a contract for construction of the Works. The costs of visiting the Site shall be at the Bidder's own expense.
- 7.3 The Bidder 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 Bidder, 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 If so specified in the BDS, the Bidder's designated representative is invited to attend a pre-bid meeting. The

purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.

- 7.5 The Bidder 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-bid meeting, if applicable, including the text of the questions asked by Bidders, without identifying the source, and the responses given, together with any responses prepared after the meeting, will be transmitted promptly to all Bidders who have acquired the Bidding Documents in accordance with ITB 6.3. Any modification to the Bidding Documents that may become necessary as a result of the pre-bid meeting shall be made by the Employer exclusively through the issue of an Addendum pursuant to ITB 8 and not through the minutes of the pre-bid meeting. Nonattendance at the pre-bid meeting will not be a cause for disqualification of a Bidder.

#### **8. Amendment of Bidding Documents**

- 8.1 At any time prior to the deadline for submission of bids, the Employer may amend the Bidding Documents by issuing addenda.
- 8.2 Any addendum issued shall be part of the Bidding Documents and shall be communicated in writing to all who have obtained the Bidding Documents from the Employer in accordance with ITB 6.3. The Employer shall also promptly publish the addendum on the Employer's web page in accordance with ITB 7.1.
- 8.3 To give Bidders reasonable time in which to take an addendum into account in preparing their bids, the Employer should extend the deadline for the submission of bids, pursuant to ITB 22.2

### **C. Preparation of Bids**

#### **9. Cost of Bidding**

- 9.1 The Bidder shall bear all costs associated with the preparation and submission of its Bid, and the Employer shall not be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

#### **10. Language of Bid**

- 10.1 The Bid, as well as all correspondence and documents relating to the bid exchanged by the Bidder and the Employer, shall be written in the language **specified in the**

**BDS.** Supporting documents and printed literature that are part of the Bid may be in another language provided they are accompanied by an accurate translation of the relevant passages in the language **specified in the BDS**, in which case, for purposes of interpretation of the Bid, such translation shall govern.

## **11. Documents Comprising the Bid**

### **11.1 The Bid shall comprise the following:**

- (a) Letter of Bid and Appendix to Bid, in accordance with ITB 12;
- (b) completed schedules as required, including priced Bill of Quantities, in accordance with ITB 12 and 14;
- (c) Bid Security or Bid-Securing Declaration, in accordance with ITB 19.1;
- (d) alternative bids, if permissible, in accordance with ITB 13;
- (e) written confirmation authorizing the signatory of the Bid to commit the Bidder, in accordance with ITB 20.2;
- (f) documentary evidence in accordance with ITB 17 establishing the Bidder's continued qualified status or, if post-qualification applies, as specified in accordance with ITB 4.8, the Bidder's qualifications to perform the contract if its Bid is accepted;
- (g) Technical Proposal in accordance with ITB 16; and
- (h) any other document **required in the BDS**.

**11.2** In addition to the requirements under ITB 11.1, bids submitted by a JV shall include a copy of the Joint Venture Agreement entered into by all members. Alternatively, a letter of intent to execute a Joint Venture Agreement in the event of a successful bid shall be signed by all members and submitted with the bid, together with a copy of the proposed Agreement.

**11.3** The Bidder shall furnish in the Letter of Bid information on commissions and gratuities, if any, paid or to be paid to agents or any other party relating to this Bid.

## **12. Letter of Bid and Schedules**

**12.1** The Letter of Bid and Schedules, including the Bill of Quantities, shall be prepared using the relevant forms furnished in Section IV, Bidding Forms. The forms must be completed without any alterations to the text, and no substitutes shall be accepted except as provided under ITB

20.2. All blank spaces shall be filled in with the information requested.

### **13. Alternative Bids**

13.1 **Unless otherwise specified in the BDS**, alternative bids shall not be considered.

13.2 When alternative times for completion are explicitly invited, a statement to that effect **will be included in the BDS**, as will the method of evaluating different times for completion.

13.3 Except as provided under ITB 13.4 below, Bidders wishing to offer technical alternatives to the requirements of the Bidding Documents must first price the Employer's design as described in the Bidding Documents and shall further provide all information necessary for a complete evaluation of the alternative by the Employer, including drawings, design calculations, technical specifications, breakdown of prices, and proposed construction methodology and other relevant details. Only the technical alternatives, if any, of the lowest evaluated Bidder conforming to the basic technical requirements shall be considered by the Employer.

13.4 **When specified in the BDS**, Bidders are permitted to submit alternative technical solutions for specified parts of the Works, and such parts **will be identified in the BDS**, as will the method for their evaluating, and described in Section VII, Works Requirements.

### **14. Bid Prices and Discounts**

14.1 The prices and discounts (including any price reduction) quoted by the Bidder in the Letter of Bid and in the Bill of Quantities shall conform to the requirements specified below.

14.2 The Bidder shall fill in rates and prices for all items of the Works described in the Bill of Quantities. Items against which no rate or price is entered by the Bidder shall be deemed covered by the rates for other items in the Bill of Quantities and will not be paid for separately by the Employer. An item not listed in the priced Bill of Quantities shall be assumed to be not included in the Bid, and provided that the Bid is determined substantially responsive notwithstanding this omission, the average price of the item quoted by substantially responsive bidders will be added to the bid price and the equivalent total cost of the bid so determined will be used for price comparison.

14.3 The price to be quoted in the Letter of Bid, in accordance

with ITB 12.1, shall be the total price of the Bid, excluding any discounts offered.

14.4 The Bidder shall quote any discounts and the methodology for their application in the Letter of Bid, in accordance with ITB 12.1.

14.5 **Unless otherwise specified in the BDS** and the Contract, the rates and prices quoted by the Bidder are subject to adjustment during the performance of the Contract in accordance with the provisions of the Conditions of Contract. In such a case, the Bidder shall furnish the indices and weightings for the price adjustment formulae in the Schedule of Adjustment Data and the Employer may require the Bidder to justify its proposed indices and weightings.

14.6 If so specified in ITB 1.1, bids are being invited for individual lots (contracts) or for any combination of lots (packages). Bidders wishing to offer discounts for the award of more than one Contract shall specify in their bid the price reductions applicable to each package, or alternatively, to individual Contracts within the package. Discounts shall be submitted in accordance with ITB 14.4, provided the bids for all lots (contracts) are opened at the same time.

14.7 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 bids, shall be included in the rates and prices and the total Bid Price submitted by the Bidder.

## **15. Currencies of Bid and Payment**

15.1 The currency(ies) of the bid and the currency(ies) of payments shall be **as specified in the BDS**.

15.2 Bidders 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 unit rates and prices and shown in the Schedule of Adjustment Data in the Appendix to Bid are reasonable, in which case a detailed breakdown of the foreign currency requirements shall be provided by Bidders.

## **16. Documents Comprising the Technical Proposal**

16.1 The Bidder shall furnish a Technical Proposal including a statement of work methods, equipment, personnel, schedule and any other information as stipulated in Section IV – Bidding Forms, in sufficient detail to demonstrate the adequacy of the Bidder's proposal to meet the work

requirements and the completion time.

**17. Documents  
Establishing the  
Qualifications of  
the Bidder**

- 17.1 In accordance with Section III, Evaluation and Qualification Criteria, to establish that the Bidder continues to meet the criteria used at the time of prequalification, the Bidder shall provide in the corresponding information sheets included in Section IV, Bidding Forms, updated information on any assessed aspect that changed from that time, or if post-qualification applies as specified in ITB 4.8, the Bidder shall provide the information requested in the corresponding information sheets included in Section IV, Bidding Forms.
- 17.2 If a margin of preference applies as specified in accordance with ITB 33.1, domestic Bidders, 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 ITB 33.1.
- 17.3 Any change in the structure or formation of a Bidder after being prequalified and invited to Bid (including, in the case of a JV, any change in the structure or formation of any member thereto) shall be subject to the written approval of the Employer prior to the deadline for submission of Bids. Such approval shall be denied if (i) a Bidder proposes to associate with a disqualified Bidder or in case of a disqualified joint venture, any of its members; (ii) as a consequence of the change, the Bidder no longer substantially meets the qualification criteria set forth in Section III, Qualification Criteria and Requirements; or (iii) in the opinion of the Employer, the change may result in a substantial reduction in competition. Any such change should be submitted to the Employer not later than fourteen (14) days after the date of the Invitation for Bids.

**18. Period of Validity  
of Bids**

- 18.1 Bids shall remain valid for the period **specified in the BDS** after the bid submission deadline date prescribed by the Employer in accordance with ITB 22.1. A bid valid for a shorter period shall be rejected by the Employer as non responsive.
- 18.2 In exceptional circumstances, prior to the expiration of the bid validity period, the Employer may request Bidders to extend the period of validity of their bids. The request and the responses shall be made in writing. If a bid security is requested in accordance with ITB 19, it shall also be extended for twenty-eight (28) days beyond the deadline of the extended validity period. A Bidder may refuse the request without forfeiting its bid security. A Bidder granting

the request shall not be required or permitted to modify its bid, except as provided in ITB 18.3.

18.3 If the award is delayed by a period exceeding fifty-six (56) days beyond the expiry of the initial bid validity, the Contract price shall be determined as follows:

- (a) In the case of fixed price contracts, the Contract price shall be the bid price adjusted by the factor **specified in the BDS**.
- (b) In the case of adjustable price contracts, no adjustment shall be made.
- (c) In any case, bid evaluation shall be based on the bid price without taking into consideration the applicable correction from those indicated above.

## 19. Bid Security

19.1 The Bidder shall furnish as part of its bid, either a Bid-Securing Declaration or a bid security **as specified in the BDS**, in original form and, in the case of a bid security, in the amount and currency **specified in the BDS**.

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

19.3 If a bid security is specified pursuant to ITB 19.1, the bid security shall be a demand guarantee in any of the following forms at the Bidder's option:

- (a) an unconditional guarantee issued by a bank or 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 **specified in the BDS**,

from a reputable source from an eligible country. If the unconditional guarantee is issued by a financial institution located outside the Employer's Country, the issuing financial institution shall have a correspondent financial institution located in the Employer's Country to make it enforceable. In the case of a bank guarantee, the bid security shall be submitted either using the Bid Security Form included in Section IV, Bidding Forms, or in another substantially similar format approved by the Employer prior to bid submission. The bid security shall be valid for twenty-eight

(28) days beyond the original validity period of the bid, or beyond any period of extension if requested under ITB 18.2.

19.4 If a bid security or Bid Securing Declaration is specified pursuant to ITB 19.1, any bid not accompanied by a substantially responsive bid security or Bid-Securing Declaration shall be rejected by the Employer as non responsive.

19.5 If a bid security is specified pursuant to ITB 19.1, the bid security of unsuccessful Bidders shall be returned as promptly as possible upon the successful Bidder's signing the Contract and furnishing the performance security pursuant to ITB 42.

19.6 The bid security of the successful Bidder shall be returned as promptly as possible once the successful Bidder has signed the Contract and furnished the required performance security.

19.7 The bid security may be forfeited or the Bid-Securing Declaration executed:

- (a) if a Bidder withdraws its bid during the period of bid validity specified by the Bidder on the Letter of Bid, or any extension thereto provided by the Bidder; or
- (b) if the successful Bidder fails to:
  - (i) sign the Contract in accordance with ITB 41; or
  - (ii) furnish a performance security in accordance with ITB 42.

19.8 The bid security or the Bid-Securing Declaration of a JV shall be in the name of the JV that submits the bid. If the JV has not been legally constituted into a legally enforceable JV at the time of bidding, the bid security or the Bid-Securing Declaration shall be in the names of all future members as named in the letter of intent referred to in ITB 4.1 and ITB 11.2.

19.9 If a bid security is **not required in the BDS** pursuant to ITB 19.1, and

- (a) if a Bidder withdraws its bid during the period of bid validity specified by the Bidder on the Letter of Bid, or
- (b) if the successful Bidder fails to sign the Contract in accordance with ITB 41; or furnish a performance

security in accordance with ITB 42;

the Borrower may, **if provided for in the BDS**, declare the Bidder ineligible to be awarded a contract by the Employer for a period of time **as stated in the BDS**.

## **20. Format and Signing of Bid**

- 20.1 The Bidder shall prepare one original of the documents comprising the bid as described in ITB 11 and clearly mark it "ORIGINAL." Alternative bids, if permitted in accordance with ITB 13, shall be clearly marked "ALTERNATIVE." In addition, the Bidder shall submit copies of the bid, in the number **specified in the BDS** and clearly mark them "COPY." In the event of any discrepancy between the original and the copies, the original shall prevail.
- 20.2 The original and all copies of the bid shall be typed or written in indelible ink and shall be signed by a person duly authorized to sign on behalf of the Bidder. This authorization shall consist of a written confirmation **as specified in the BDS** and shall be attached to the bid. The name and position held by each person signing the authorization must be typed or printed below the signature. All pages of the bid where entries or amendments have been made shall be signed or initialed by the person signing the bid.
- 20.3 In case the Bidder is a JV, the Bid 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.
- 20.4 Any inter-lineation, erasures, or overwriting shall be valid only if they are signed or initialed by the person signing the bid.

## **D. Submission and Opening of Bids**

## **21. Sealing and Marking of Bids**

- 21.1 The Bidder shall enclose the original and all copies of the bid, including alternative bids, if permitted in accordance with ITB 13, in separate sealed envelopes, duly marking the envelopes as "ORIGINAL", "ALTERNATIVE" and "COPY." These envelopes containing the original and the copies shall then be enclosed in one single envelope.
- 21.2 The inner and outer envelopes shall:
- (a) bear the name and address of the Bidder;
  - (b) be addressed to the Employer in accordance with ITB

22.1;

(c) bear the specific identification of this bidding process specified in the BDS 1.1; and

(d) bear a warning not to open before the time and date for bid opening.

21.3 If all envelopes are not sealed and marked as required, the Employer will assume no responsibility for the misplacement or premature opening of the bid.

## 22. Deadline for Submission of Bids

22.1 Bids must be received by the Employer at the address and no later than the date and time **specified in the BDS. When so specified in the BDS**, bidders shall have the option of submitting their bids electronically. Bidders submitting bids electronically shall follow the electronic bid submission procedures **specified in the BDS**.

22.2 The Employer may, at its discretion, extend the deadline for the submission of bids by amending the Bidding Documents in accordance with ITB 8, in which case all rights and obligations of the Employer and Bidders previously subject to the deadline shall thereafter be subject to the deadline as extended.

## 23. Late Bids

23.1 The Employer shall not consider any bid that arrives after the deadline for submission of bids, in accordance with ITB 22. Any bid received by the Employer after the deadline for submission of bids shall be declared late, rejected, and returned unopened to the Bidder.

## 24. Withdrawal, Substitution, and Modification of Bids

24.1 A Bidder may withdraw, substitute, or modify its bid after it has been submitted by sending a written notice, duly signed by an authorized representative, and shall include a copy of the authorization in accordance with ITB 20.2, (except that withdrawal notices do not require copies). The corresponding substitution or modification of the bid must accompany the respective written notice. All notices must be:

(a) prepared and submitted in accordance with ITB 20 and ITB 21 (except that withdrawals notices do not require copies), and in addition, the respective envelopes shall be clearly marked "WITHDRAWAL," "SUBSTITUTION," "MODIFICATION;" and

(b) received by the Employer prior to the deadline prescribed for submission of bids, in accordance with

## ITB 22.

24.2 Bids requested to be withdrawn in accordance with ITB 24.1 shall be returned unopened to the Bidders.

24.3 No bid may be withdrawn, substituted, or modified in the interval between the deadline for submission of bids and the expiration of the period of bid validity specified by the Bidder on the Letter of Bid or any extension thereof.

**25. Bid Opening**

25.1 Except in the cases specified in ITB 23 and 24, the Employer shall publicly open and read out in accordance with ITB 25.3 all bids received by the deadline, at the date, time and place **specified in the BDS**, in the presence of Bidders' designated representatives and anyone who choose to attend. Any specific electronic bid opening procedures required if electronic bidding is permitted in accordance with ITB 22.1, shall be **as specified in the BDS**.

25.2 First, envelopes marked "WITHDRAWAL" shall be opened and read out and the envelope with the corresponding bid shall not be opened, but returned to the Bidder. No bid withdrawal shall be permitted unless the corresponding withdrawal notice contains a valid authorization to request the withdrawal and is read out at bid opening. Next, envelopes marked "SUBSTITUTION" shall be opened and read out and exchanged with the corresponding bid being substituted, and the substituted bid shall not be opened, but returned to the Bidder. No bid substitution shall be permitted unless the corresponding substitution notice contains a valid authorization to request the substitution and is read out at bid opening. Envelopes marked "MODIFICATION" shall be opened and read out with the corresponding bid. No bid modification shall be permitted unless the corresponding modification notice contains a valid authorization to request the modification and is read out at bid opening. Only bids that are opened and read out at bid opening shall be considered further.

25.3 All other envelopes shall be opened one at a time, reading out: the name of the Bidder and whether there is a modification; the total Bid Price, per lot (contract) if applicable, including any discounts and alternative bids; the presence or absence of a bid security, if required; and any other details as the Employer may consider appropriate. Only discounts and alternative bids read out at bid opening shall be considered for evaluation. The Letter of Bid and the Bill of Quantities are to be initialed by representatives of the

Employer attending bid opening in the manner **specified in the BDS**. The Employer shall neither discuss the merits of any bid nor reject any bid (except for late bids, in accordance with ITB 23.1).

- 25.4 The Employer shall prepare a record of the bid opening that shall include, as a minimum: the name of the Bidder and whether there is a withdrawal, substitution, or modification; the Bid Price, per lot (contract) if applicable, including any discounts and alternative bids; and the presence or absence of a bid security, if one was required. The Bidders' representatives who are present shall be requested to sign the record. The omission of a Bidder'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 Bidders.

### **E. Evaluation and Comparison of Bids**

#### **26. Confidentiality**

- 26.1 Information relating to the evaluation of bids and recommendation of contract award shall not be disclosed to Bidders or any other persons not officially concerned with the bidding process until information on Contract award is communicated to all Bidders in accordance with ITB 40.
- 26.2 Any attempt by a Bidder to influence the Employer in the evaluation of the bids or Contract award decisions may result in the rejection of its bid.
- 26.3 Notwithstanding ITB 26.2, from the time of bid opening to the time of Contract award, if a Bidder wishes to contact the Employer on any matter related to the bidding process, it shall do so in writing.

#### **27. Clarification of Bids**

- 27.1 To assist in the examination, evaluation, and comparison of the bids, and qualification of the Bidders, the Employer may, at its discretion, ask any Bidder for a clarification of its bid, given a reasonable time for a response. Any clarification submitted by a Bidder 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. No change, including any voluntary increase or decrease, in the prices or substance of the bid shall be sought, offered, or permitted, except to confirm the correction of arithmetic errors discovered by the Employer in the evaluation of the bids, in accordance with ITB 31.
- 27.2 If a Bidder does not provide clarifications of its bid by the date and time set in the Employer's request for clarification,

its bid may be rejected.

**28. Deviations,  
Reservations, and  
Omissions**

28.1 During the evaluation of bids, the following definitions apply:

- (a) “Deviation” is a departure from the requirements specified in the Bidding Documents;
- (b) “Reservation” is the setting of limiting conditions or withholding from complete acceptance of the requirements specified in the Bidding Documents; and
- (c) “Omission” is the failure to submit part or all of the information or documentation required in the Bidding Documents.

**29. Determination of  
Responsiveness**

29.1 The Employer’s determination of a bid’s responsiveness is to be based on the contents of the bid itself, as defined in ITB11.

29.2 A substantially responsive bid is one that meets the requirements of the Bidding Documents 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 Bidding Documents, the Employer’s rights or the Bidder’s obligations under the proposed Contract; or
- (b) if rectified, would unfairly affect the competitive position of other Bidders presenting substantially responsive bids.

29.3 The Employer shall examine the technical aspects of the bid submitted in accordance with ITB 16, Technical Proposal, in particular, to confirm that all requirements of Section VI, Works Requirements have been met without any material deviation, reservation or omission.

29.4 If a bid is not substantially responsive to the requirements of the Bidding Documents, it shall be rejected by the Employer and may not subsequently be made responsive by correction of the material deviation, reservation, or omission.

**30. Nonmaterial  
Nonconformities**

- 30.1 Provided that a bid is substantially responsive, the Employer may waive any nonconformities in the Bid.
- 30.2 Provided that a bid is substantially responsive, the Employer may request that the Bidder submit the necessary information or documentation, within a reasonable period of time, to rectify nonmaterial nonconformities in the bid related to documentation requirements. Requesting information or documentation on such nonconformities shall not be related to any aspect of the price of the Bid. Failure of the Bidder to comply with the request may result in the rejection of its Bid.
- 30.3 Provided that a bid is substantially responsive, the Employer shall rectify quantifiable nonmaterial nonconformities related to the Bid Price. To this effect, the Bid Price shall be adjusted, for comparison purposes only, to reflect the price of a missing or non-conforming item or component. The adjustment shall be made using the method specified in Section III, Evaluation and Qualification Criteria.

**31. Correction of  
Arithmetical  
Errors**

- 31.1 Provided that the bid is substantially responsive, the Employer shall correct arithmetical errors on the following basis:
- (a) if there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected, unless in the opinion of the Employer there is an obvious misplacement of the decimal point in the unit price, in which case the total price as quoted shall govern and the unit price shall be corrected;
  - (b) if there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and
  - (c) 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) and (b) above.
- 31.2 Bidders shall be requested to accept correction of arithmetical errors. Failure to accept the correction in accordance with ITB 31.1, shall result in the rejection of the Bid.

- |  |   |
|--|---|
| <b>32. Conversion to Single Currency</b> | 32.1 For evaluation and comparison purposes, the currency(ies) of the Bid shall be converted into a single currency <b>as specified in the BDS.</b>   |
| <b>33. Margin of Preference</b>          | 33.1 <b>Unless otherwise specified in the BDS,</b> a margin of preference for domestic bidders <sup>1</sup> shall not apply.  |
| <b>34. Subcontractors</b>                | <p>34.1 <b>Unless otherwise stated in the BDS,</b> the Employer does not intend to execute any specific elements of the Works by sub-contractors selected in advance by the Employer.</p> <p>34.2 In case of Prequalification, the Bidder's Bid shall name the same specialized subcontractor as submitted in the prequalification application and approved by the Employer.</p> <p>34.3 In case of Postqualification, the Employer may permit subcontracting for certain specialized works as indicated in Section III 4.2. When subcontracting is permitted by the Employer, the specialized sub-contractor's experience shall be considered for evaluation. Section III describes the qualification criteria for sub-contractors.</p> <p>34.4 Bidders may propose subcontracting up to the percentage of total value of contracts or the volume of works as <b>specified in the BDS.</b></p> |
| <b>35. Evaluation of Bids</b>            | <p>35.1 The Employer shall use the criteria and methodologies listed in this Clause. No other evaluation criteria or methodologies shall be permitted.</p> <p>35.2 To evaluate a bid, the Employer shall consider the following:</p> <ul style="list-style-type: none"> <li>(a) the bid price, excluding Provisional Sums and the provision, if any, for contingencies in the Summary Bill of Quantities, but including Daywork items, where priced competitively;</li> <li>(b) price adjustment for correction of arithmetic errors in accordance with ITB 31.1;</li> </ul>  |

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<sup>1</sup> An individual firm is considered a domestic bidder 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 bidders 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.

- (c) price adjustment due to discounts offered in accordance with ITB 14.4;
- (d) converting the amount resulting from applying (a) to (c) above, if relevant, to a single currency in accordance with ITB 32;
- (e) price adjustment due to quantifiable nonmaterial nonconformities in accordance with ITB 30.3;
- (f) the additional evaluation factors are specified in Section III, Evaluation and Qualification Criteria;

35.3 The estimated effect of the price adjustment provisions of the Conditions of Contract, applied over the period of execution of the Contract, shall not be taken into account in bid evaluation.

35.4 If these Bidding Documents allows Bidders to quote separate prices for different lots (contracts), the methodology to determine the lowest evaluated price of the lot (contract) combinations, including any discounts offered in the Letter of Bid Form, is specified in Section III, Evaluation and Qualification Criteria.

35.5 If the bid, which results in the lowest Evaluated Bid Price, is seriously unbalanced or front loaded in the opinion of the Employer, the Employer may require the Bidder to produce detailed price analyses for any or all items of the Bill of Quantities, to demonstrate the internal consistency of those prices with the construction methods and schedule proposed. After evaluation of the price analyses, taking into consideration the schedule of estimated Contract payments, the Employer may require that the amount of the performance security be increased at the expense of the Bidder to a level sufficient to protect the Employer against financial loss in the event of default of the successful Bidder under the Contract.

**36. Comparison of Bids** 36.1 The Employer shall compare the evaluated prices of all substantially responsive bids established in accordance with ITB 35.2 to determine the lowest evaluated bid.

**37. Qualification of the Bidder** 37.1 The Employer shall determine to its satisfaction whether the Bidder that is selected as having submitted the lowest evaluated and substantially responsive bid either continues

to meet (if prequalification applies) or meets (if postqualification applies) the qualifying criteria specified in Section III, Evaluation and Qualification Criteria.

37.2 The determination shall be based upon an examination of the documentary evidence of the Bidder's qualifications submitted by the Bidder, pursuant to ITB 17.1.

37.3 An affirmative determination shall be a prerequisite for award of the Contract to the Bidder. A negative determination shall result in disqualification of the bid, in which event the Employer shall proceed to the next lowest evaluated bid to make a similar determination of that Bidder's qualifications to perform satisfactorily.

**38. Employer's Right to Accept Any Bid, and to Reject Any or All Bids**

38.1 The Employer reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids at any time prior to contract award, without thereby incurring any liability to Bidders. In case of annulment, all bids submitted and specifically, bid securities, shall be promptly returned to the Bidders.

## **F. Award of Contract**

**39. Award Criteria**

39.1 Subject to ITB 38.1, the Employer shall award the Contract to the Bidder who has been determined to be the lowest evaluated bid and is substantially responsive to the Bidding Documents, provided further that the Bidder is determined to be qualified to perform the Contract satisfactorily.

**40. Notification of Award**

40.1 Prior to the expiration of the period of bid validity, the Employer shall notify the successful Bidder, in writing, that its bid has been accepted. The notification letter (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 and completion of the Works (hereinafter and in the Conditions of Contract and Contract Forms called "the Contract Price"). At the same time, the Employer shall also notify all other Bidders of the results of the bidding and shall publish in *UNDB online* the results identifying the bid and lot (contract) numbers and the following information:

- (i) name of each Bidder who submitted a Bid;
- (ii) bid prices as read out at Bid Opening;

- (iii) name and evaluated prices of each Bid that was evaluated;
- (iv) name of bidders whose bids were rejected and the reasons for their rejection; and
- (v) name of the successful Bidder, and the Price it offered, as well as the duration and summary scope of the contract awarded.

40.2 Until a formal contract is prepared and executed, the notification of award shall constitute a binding Contract.

40.3 The Employer shall promptly respond in writing to any unsuccessful Bidder who, after notification of award in accordance with ITB 40.1, requests in writing the grounds on which its bid was not selected.

#### **41. Signing of Contract**

41.1 Promptly upon notification, the Employer shall send the successful Bidder the Contract Agreement.

41.2 Within twenty-eight (28) days of receipt of the Contract Agreement, the successful Bidder shall sign, date, and return it to the Employer.

#### **42. Performance Security**

42.1 Within twenty-eight (28) days of the receipt of notification of award from the Employer, the successful Bidder shall furnish the performance security in accordance with the General Conditions of Contract, subject to ITB 35.5, using for that purpose the Performance Security Form included in Section X, Contract Forms, or another form acceptable to the Employer. If the performance security furnished by the successful Bidder is in the form of a bond, it shall be issued by a bonding or insurance company that has been determined by the successful Bidder to be acceptable to the Employer. A foreign institution providing a bond shall have a correspondent financial institution located in the Employer's Country.

42.2 Failure of the successful Bidder to submit the above-mentioned Performance Security or sign the Contract shall constitute sufficient grounds for the annulment of the award and forfeiture of the bid security. In that event the Employer may award the Contract to the next lowest evaluated Bidder whose offer is substantially responsive and is determined by the Employer to be qualified to perform the Contract satisfactorily.

## Section II. Bid Data Sheet

A. Introduction	
ITB 1.1	The number of the Invitation for Bids is : ICB No. : 01/2016-17
ITB 1.1	The Employer is: Bangladesh Economic Zones Authority
ITB 1.1	The name of the ICB is: Site Development (land filling) and construction of embankment for Mirsarai – 2A EZ The identification number of the ICB is: 01/2016-17 The number and identification of lots (contracts) comprising this ICB is: 01
ITB 2.1	The Borrower is: Government of the Peoples Republic of Bangladesh
ITB 2.1	Loan or Financing Agreement amount: SDR 94,200,000/=
ITB 2.1	The name of the Project is: Bangladesh Economic Zones Development Project (Phase- I)
ITB 4.1	Maximum number of members in the JV shall be: 03.
ITB 4.4	A list of debarred firms and individuals is available on the Bank's external website: <a href="http://www.worldbank.org/debarr">http://www.worldbank.org/debarr</a> and Bangladesh- Central Procurement Technical Unit (CPTU) website: <a href="http://www.cptu.gov.bd">www.cptu.gov.bd</a>
ITB 4.8	This Bidding Process is not subject to prequalification.
B. Bidding Documents	
ITB 7.1	For <b>clarification purposes</b> only, the Employer's address is: Attention: Md. HabiburRahman Street Address: 12, Kawran Bazar Floor/Room number: 15 th floor City: Dhaka ZIP Code: Country: Bangladesh Telephone: +880255013691 Facsimile number: +88028180172 Electronic mail address: <a href="mailto:bezaproject1@gmail.com">bezaproject1@gmail.com</a>  <b>Requests for clarification should be received by the Employer no later than 14 (fourteen) days prior to the deadline for submission of Bid.</b>
ITB 7.1	Web page: _ <a href="http://www.beza.gov.bd">www.beza.gov.bd</a>
ITB 7.4	A Pre-Bid meeting <u>will</u> take place at the following date, time and place: Date: 08 March 2017 _____ Time: 11.00 AM BST _____ Place: BEZA Conference room, BDBL Building, 15 Kawran Bazar, Dhaka _____
C. Preparation of Bids	
ITB 10.1	The language of the bid is: English

	<p>All correspondence exchange shall be in English language.</p> <p>Language for translation of supporting documents and printed literature is English</p>
<b>ITB 11.1 (h)</b>	<p>The Bidder shall submit with its bid the following additional documents:</p> <p>(i) Detail Time Schedule , (ii) Work implementation methodology, (iii) Environmental Management System ISO 14001 Certification (if any).</p>
<b>ITB 13.1</b>	Alternative bids are not permitted.
<b>ITB 13.2</b>	Alternative times for completion are not permitted.
<b>ITB 13.4</b>	<p>Alternative technical solutions shall be permitted for the following parts of the Works:</p> <p>None</p>
<b>ITB 14.5</b>	The prices quoted by the bidder shall be: _ Non-adjustable
<b>ITB 15.1</b>	<p>The currency(ies) of the bid and the payment currency(ies) shall be as described below:</p> <p><b>Alternative A (Bidders to quote entirely in local currency):</b></p> <p>(a) The unit rates and the prices shall be quoted by the Bidder in the Bill of Quantities, entirely in Bangladeshi Taka, the name of the currency of the Employer's country, and further referred to as "the local currency". A Bidder 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 Bid - Table C, the percentage(s) of the Bid Price (excluding Provisional Sums), needed by the Bidder for the payment of such foreign currency requirements, limited to no more than three foreign currencies.</p> <p>(b) The rates of exchange to be used by the Bidder in arriving at the local currency equivalent and the percentage(s) mentioned in (a) above shall be specified by the Bidder in the Appendix to Bid - Table C, and shall apply for all payments under the Contract so that no exchange risk will be borne by the successful Bidder.</p>
<b>ITB 18.1</b>	The bid validity period shall be 150 days.
<b>ITB 18.3 (a)</b>	The bid price shall be adjusted by the following factor: None
<b>ITB 19.1</b>	<p>A Bid Security is required.</p> <p>A Bid-Securing Declaration not required.</p> <p>If a bid security shall be required, the amount and currency of the bid security shall be <b>BDT 30,000,000/- (Bangladeshi Taka Thirty million) or US\$ 375,000</b> in the form of Demand Draft or Bank Guarantee in favour of Project Director, Bangladesh Economic Zones Development Project (Phase- I) from any commercial Bank located in Bangladesh or any International Bank having Branch in Bangladesh.</p>
<b>ITB 19.3 (b), (c)</b>	Other types of acceptable securities: Not Applicable.
<b>ITB 19.3 (d)</b>	<p>Other types of acceptable securities: Demand Draft issued by a bank.</p> <p>In case the bid security is issued by a reputable commercial bank, the commercial bank must be from any member country (subject to eligibility as provided in Section V of the Bidding Document) of the World Bank and must have SWIFT code. If the bid security is issued by a commercial bank located outside of the Purchaser's country, the bid security shall be required a counter-guarantee by a local commercial bank of the Purchaser's</p>

	country.
<b>ITB 20.1</b>	In addition to the original of the bid, the number of copies is: 3(three). The Bidder will also provide the soft copy of the bid in PDF format in USB flash drive/ CD with copying provision. In case of interpretation, paper based bid will prevail.
<b>ITB 20.2</b>	The written confirmation of authorization to sign on behalf of the Bidder shall consist of: Power of Attorney or company board resolution to demonstrate the authority of the signatory to sign the bid.
<b>D. Submission and Opening of Bids</b>	
<b>ITB 22.1</b>	<p>For <b><u>bid submission purposes</u></b> only, the Employer's address is :</p> <p>Attention: Md. HabiburRahman  Street Address: 12 Kawran Bazar  Floor/Room number: 15 th floor  City: Dhaka  ZIP Code: 1215  Country: Bangladesh</p> <p><b>The deadline for bid submission is:</b>  Date: 20 March 2017  Time: 3.00 PM BST</p> <p>Bidders not have the option of submitting their bids electronically.</p> <p>If bidders have the option of submitting their bids electronically, the electronic bidding submission procedures shall be: Not applicable</p>
<b>ITB 25.1</b>	<p>The bid opening shall take place at:</p> <p>Street Address: Conference Room, BEZA  Floor/Room number: 15 th floor  City :Dhaka  Country: Bangladesh  Date: 20 March 2017  Time: 4.00 PM BST</p> <p>If bidders have the option of submitting their bids electronically, the electronic bid opening procedures shall be: <i>Not Applicable</i>.</p>
<b>ITB 25.3</b>	The Letter of Bid and Priced Bill of Quantities shall be initialled by representatives of the Employer conducting Bid opening
<b>E. Evaluation, and Comparison of Bids</b>	
<b>ITB 32.1</b>	<p>The currency that shall be used for bid evaluation and comparison purposes to convert all bid prices expressed in various currencies into a single currency is: BDT</p> <p>The source of exchange rate shall be: Bangladesh Bank webpage at  “<a href="http://www.bangladesh-bank.org/econdata/exchangerate.php">http://www.bangladesh-bank.org/econdata/exchangerate.php</a>” and the rate shall be the BC selling exchange rate.</p> <p>If the exchange rates are not available from the above source on the particular date, the exchange rates published in the Wall Street Journal would be used for currency conversion in US Dollar.</p>

	<b>The date for the exchange rate shall be 07 (seven) days earlier to the bid submission deadline.</b>
<b>ITB 33.1</b>	A margin of preference 7.5% apply. If a margin of preference applies, the application methodology shall be defined in Section III – Evaluation and Qualification Criteria
<b>ITB 34.1</b>	None.
<b>ITB 34.4</b>	<i>Not Applicable</i>
<b>ITB 35.2</b>	Day works : Not Applicable
<b>ITB 35.4</b>	Day works : Not Applicable
<b>ITB 35.4</b>	Day works : Not Applicable

### **Section III. *Evaluation and Qualification Criteria (Without Prequalification)***

This Section contains all the criteria that the Employer shall use to evaluate bids and qualify Bidders. In accordance with ITB 35 and ITB 37, no other factors, methods or criteria shall be used. The Bidder shall provide all the information requested in the forms included in Section IV, Bidding Forms.

Wherever a Bidder is required to state a monetary amount, Bidders 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 is to be converted) was originally established.

- Value of single contract - Exchange rate prevailing on the date of the contract.

Exchange rates shall be taken from the publicly available source identified in the ITB 32.1. Any error in determining the exchange rates in the Bid may be corrected by the Employer.

## **1. Domestic Preference**

A margin of preference of 7.5% (seven and one-half percent) shall be granted to domestic contractors, in accordance with, and subject to, the following provisions:

- (a) Contractors applying for such preference shall provide, as part of the data for qualification, such information, including details of ownership, as shall be required to determine whether, according to the classification established by the Borrower and accepted by the Bank, a particular contractor or group of contractors qualifies for a domestic preference. The bidding documents shall clearly indicate the preference and the method that will be followed in the evaluation and comparison of bids to give effect to such preference.
- (b) After bids have been received and reviewed by the Borrower, responsive bids shall be classified into the following groups:
  - (i) Group A: bids offered by domestic contractors eligible for the preference.
  - (ii) Group B: bids offered by other contractors.

All evaluated bids in each group shall, as a first evaluation step, be compared to determine the lowest bid, and the lowest evaluated bids in each group shall be further compared with each other. If, as a result of this comparison, a bid from Group A is the lowest, it shall be selected for the award. If a bid from Group B is the lowest, as a second evaluation step, all bids from Group B shall then be further compared with the lowest evaluated bid from Group A. For the purpose of this further comparison only, an amount equal to 7.5% (seven and one-half percent) of the respective bid price corrected for arithmetical errors, including unconditional discounts and excluding provisional sums and the cost of day works, if any, shall be added to the evaluated price offered in each bid from Group B. If the bid from Group A is the lowest, it shall be selected for award. If not, the lowest evaluated bid from Group B based on the first evaluation step shall be selected.

## **2. Evaluation**

In addition to the criteria listed in ITB 35.2 (a) – (e) the following criteria shall apply:

**2.1 Assessment of adequacy of Technical Proposal with Requirements**

**2.2 Multiple Contracts**, Not Applicable

**2.3 Alternative Completion Times**, if permitted under ITB 13.2, will be evaluated as follows: Not Applicable

**2.4 Technical alternatives** , if permitted under ITB 13.4, will be evaluated as follows: Not Applicable

### **2.5 Specialized Subcontractors**

Only the specific experience of sub-contractors for specialized works permitted by the Employer will be considered. The general experience and financial resources of the specialized sub-contractors shall not be added to those of the Bidder for purposes of qualification of the Bidder.

The specialized sub-contractors proposed shall be fully qualified for their work proposed, and meet the following criteria:

### 3. Qualification

Eligibility and Qualification Criteria			Compliance Requirements				Documentation
No.	Subject	Requirement	Single Entity	Joint Venture (existing or intended)			Submission Requirements
				All Parties Combined	Each Member	One Member	
1. Eligibility							
1.1	Nationality	Nationality in accordance with ITB 4.3	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 ITB 4.2	Must meet requirement	Must meet requirement	Must meet requirement	N/A	Letter of Bid
1.3	Bank Eligibility	Not having been declared ineligible by the Bank, as described in ITB 4.4, 4.5, 4.6 and 4.7	Must meet requirement	Must meet requirement	Must meet requirement	N/A	Letter of Bid
1.4	Government Owned Entity of the Borrower country	Meets conditions of ITB 4.5	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 Bidder’s country, or by an act of compliance with UN Security Council resolution, both in accordance with ITB 4.7 and Section V.	Must meet requirement	Must meet requirement	Must meet requirement	N/A	Forms ELI – 1.1 and 1.2, with attachments

Eligibility and Qualification Criteria			Compliance Requirements				Documentation
No.	Subject	Requirement	Single Entity	Joint Venture (existing or intended)			Submission Requirements
				All Parties Combined	Each Member	One Member	
2. Historical Contract Non-Performance							
2.1	History of Non-Performing Contracts	Non-performance of a contract <sup>2</sup> did not occur as a result of contractor default since 1 <sup>st</sup> January 2010	Must meet requirement <sup>12</sup>	Must meet requirements	Must meet requirement <sup>3</sup>	N/A	Form CON-2
2.2	Suspension Based on Execution of Bid Securing Declaration by the Employer or withdrawal of the Bid within Bid validity	Not under suspension based on execution of a Bid Securing Declaration pursuant to ITB 4.6 or withdrawal of the Bid pursuant ITB 19.9.	Must meet requirement	Must meet requirement	Must meet requirement	N/A	Bid Submission Form
2.3	Pending Litigation	Bidder's financial position and prospective long term profitability sound according to criteria established in 3.1 below and assuming that all pending litigation will be resolved against	Must meet requirement	N/A	Must meet requirement	N/A	Form CON – 2

<sup>2</sup> Non performance, as decided by the Employer, shall include all contracts where (a) non performance 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. Non performance shall not include contracts where Employers decision was overruled by the dispute resolution mechanism. Non performance 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 Bidder have been exhausted.

<sup>3</sup> This requirement also applies to contracts executed by the Bidder as JV member.

Eligibility and Qualification Criteria				Compliance Requirements			Documentation
No.	Subject	Requirement	Single Entity	Joint Venture (existing or intended)			Submission Requirements
				All Parties Combined	Each Member	One Member	
		the Bidder					
2.4	<b>Litigation History</b>	No consistent history of court/arbitral award decisions against the Bidder <sup>4</sup> since 1 <sup>st</sup> January 2010	Must meet requirement	Must meet requirement	Must meet requirement	N/A	Form CON – 2

<sup>4</sup> The Bidder shall provide accurate information on the letter of Bid about any litigation or arbitration resulting from contracts completed or ongoing under its execution over the last five years. A consistent history of court/arbitral awards against the Bidder or any member of a joint venture may result in disqualifying the Bidder.

Eligibility and Qualification Criteria								Compliance Requirements			Documentation
No.	Subject	Requirement	Single Entity	Joint Venture (existing or intended)			Submission Requirements				
				All Parties Combined	Each Member	One Member					
3. Financial Situation and Performance											
3.1	Financial Capabilities	(i) The Bidder 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 USD \$ 5 million (US\$ Five million) or equivalent of other freely convertible currencies for the subject contract(s) net of the Bidders other commitments (ii) The Bidders shall also demonstrate, to the satisfaction of the Employer, that it has adequate sources of finance to meet the cash flow requirements on	Must meet requirement	Must meet requirement	N/A	N/A	Form FIN – 3.1, with attachments				
			Must meet requirement	Must meet requirement	N/A	N/A					

Eligibility and Qualification Criteria			Compliance Requirements				Documentation
No.	Subject	Requirement	Single Entity	Joint Venture (existing or intended)			Submission Requirements
				All Parties Combined	Each Member	One Member	
		works currently in progress and for future contract commitments. (iii) The audited balance sheets or, if not required by the laws of the Bidder's country, other financial statements acceptable to the Employer, for the last five (5) years shall be submitted and must demonstrate the current soundness of the Bidder's financial position and indicate its prospective long-term profitability.	Must meet requirement	N/A	Must meet requirement	N/A	
3.2	Average Annual Construction Turnover	Minimum average annual construction turnover of US\$ 15 million (US\$ Fifteen million) or equivalent of other freely convertible currencies , calculated as total certified payments received for contracts in progress	Must meet requirement	Must meet requirement	Must meet twenty five percent (25%) of the requirement	Must meet forty percent (40%), of the requirement	Form FIN – 3.2

Eligibility and Qualification Criteria				Compliance Requirements			Documentation
No.	Subject	Requirement	Single Entity	Joint Venture (existing or intended)			Submission Requirements
				All Parties Combined	Each Member	One Member	
		and/or completed within the best five (05) years of last eight (8) years					

Eligibility and Qualification Criteria							
No.	Subject	Requirement	Single Entity	Compliance Requirements			Documentation
				Joint Venture (existing or intended)			Submission Requirements
				All Parties Combined	Each Member	One Member	
<b>4. Experience</b>							
4.1 (a)	<b>General Construction Experience</b>	Experience under construction contracts in the role of prime contractor, JV member, sub-contractor, or management contractor for at least the last five (5) years, starting 1 <sup>st</sup> January 2010.	Must meet requirement	N/A	Must meet requirement	N/A	Form EXP – 4.1
4.2 (a)	<b>Specific Construction &amp; Contract Management Experience</b>	(i) A minimum number of similar <sup>5</sup> contracts specified below that have been satisfactorily and substantially <sup>6</sup> completed as a prime contractor, joint venture member <sup>7</sup> ,	Must meet requirement	Must meet requirement <sup>8</sup>	N/A	N/A	Form EXP 4.2(a)

<sup>5</sup> The similarity shall be based on the physical size, complexity, methods/technology and/or other characteristics described in Section VII, Work's Requirements. Summation of number of small value contracts (less than the value specified under requirement) to meet the overall requirement will not be accepted.

<sup>6</sup> Substantial completion shall be based on 80% or more works completed under the contract.

<sup>7</sup> For contracts under which the Bidder participated as a joint venture member or sub-contractor, only the Bidder's share, by value, shall be considered to meet this requirement.

<sup>8</sup> 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.

Eligibility and Qualification Criteria			Compliance Requirements				Documentation
No.	Subject	Requirement	Single Entity	Joint Venture (existing or intended)			Submission Requirements
				All Parties Combined	Each Member	One Member	
		management contractor or sub-contractor <sup>7</sup> between 1st January 2008 and application submission deadline: (i) 1 contract of minimum value of US\$ 20 million (US\$ Twenty million) or equivalent of freely convertible other currencies. ; Or (ii) Two (2) contracts, each of minimum value of US\$ 15 million (US\$ Fifteen million) or equivalent of freely convertible other currency, but with total value of all contracts equal or more than US\$ 30 million (US\$ Thirty million) or equivalent of freely convertible other currencies					
4.2 (b)		For the above and	Must meet requirements	Must meet requirements	N/A	N/A	Form EXP – 4.2 (b)

Eligibility and Qualification Criteria				Compliance Requirements			Documentation
No.	Subject	Requirement	Single Entity	Joint Venture (existing or intended)			Submission Requirements
				All Parties Combined	Each Member	One Member	
		any other contracts completed and under implementation as prime contractor, joint venture member, management contractor or sub-contractor <sup>9</sup> on or after the first day of the calendar year during the period stipulated in 4.2 (a) above, a minimum construction experience in the following key activities successfully completed: (i) One point eight million (1.8 million) Cubic meter of land filling by dredged sand under a single contract  and  (ii) Pont Five zero					

<sup>9</sup> For contracts under which the Bidder participated as a joint venture member or sub-contractor, only the Bidder's share shall be counted to meet this requirement.

Eligibility and Qualification Criteria				Compliance Requirements			Documentation
No.	Subject	Requirement	Single Entity	Joint Venture (existing or intended)			Submission Requirements
				All Parties Combined	Each Member	One Member	
		million Cubic meter (0.50 million cubic meter) earth work under a single contract.					

*Note: [For Multiple lots (contracts) specify financial and experience criteria for each lot under 3.1, 3.2, 4.2(a) and 4.2(b)]*

### 3.5 Personnel

The Bidder must demonstrate that it has the personnel for the key positions that meet the following requirements:

No.	Position	Total Work Similar Experience (years)	In Similar Works Experience (years)
1	Project Manager- B.Sc in Civil Engineer -1 Person	Min. 15 years.	Min. 3 years.
2	Field Engineer - B.Sc in Civil Engineer -2 Person	Min. 10 years.	Min. 3 years.
3	Quality control Engineer- B.Sc in Civil Engineer - 1 Person	Min. 10 years.	Min. 3 years.
4	Environmental Specialist-B.Sc in Environment Engineer/Environment Science-1 Person	Min. 10 years	Min. 3 years
5	Site Supervisor – (Diploma –in- Civil Engineer – 2 persons	Min. 5 years.	Min. 2 years.
6	Lab Technician-(Diploma in Civil Engineering-1 Persons)	Min. 5 years.	Min. 2 years.
7	Surveyor (Certificated in Surveying from any recognized polytechnic/training institute & experienced in handling Total Station Machine) -1 Persons	Min. 5 years.	Min. 2 years

The Bidder shall provide details of the proposed personnel and their experience records using Forms PER-1 and PER-2 included in Section IV, Bidding Forms.

**3.6 Equipment** The Bidder must demonstrate that it has the key equipment listed hereafter:

No.	Equipment Type and Characteristics	Minimum Number required
1	Dredger	Min. 3 sets
2	Excavator	Min. 10Nos
3	Drum truck	Min.15Nos
4	Total station machine	Min. 2 Nos.
5	Sheep foot Roller	Min. 2 Nos.
6	Grader	Min. 2 No.
7	Dozer	Min. 5 Nos.
8	Water Pump with water tanker	Min.2 Nos.
9	Compactor	Min. 2 Nos.
10	Modified Proctor test equipment	Min. 2 Sets.
11	Cylinder Concrete Sampler	Min. 2 Sets.

The Bidder shall provide further details of proposed items of equipment using Form EQU in Section IV, Bidding Forms.

## Section IV. Bidding Forms

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## Letter of Bid

Date: \_\_\_\_\_

ICB No.: \_\_\_\_\_

Invitation for Bid No.: \_\_\_\_\_

Alternative No.: \_\_\_\_\_

To: \_\_\_\_\_

We, the undersigned, declare that:

- (a) We have examined and have no reservations to the Bidding Documents, including Addenda issued in accordance with Instructions to Bidders (ITB 8) \_\_\_\_\_;
- (b) We meet the eligibility requirements and have no conflict of interest in accordance with ITB 4;
- (c) We have not been suspended nor declared ineligible by the Employer based on execution of a Bid Securing Declaration in the Employer's country in accordance with ITB 4.6.
- (d) We offer to execute in conformity with the Bidding Documents the following Works: \_\_\_\_\_;
- (e) The total price of our Bid, excluding any discounts offered in item (f) below is:  
In case of only one lot, total price of the Bid \_\_\_\_\_  
  
In case of multiple lots, total price of each lot \_\_\_\_\_  
In case of multiple lots, total price of all lots (sum of all lots) \_\_\_\_\_;
- (f) The discounts offered and the methodology for their application are:
  - i) The discounts offered are: \_\_\_\_\_
  - ii) The exact method of calculations to determine the net price after application of discounts is shown below: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_;
- (g) Our bid shall be valid for a period of \_\_\_\_\_ days from the date fixed for the bid submission deadline in accordance with the Bidding Documents, and it shall remain binding upon us and may be accepted at any time before the expiration of that period;
- (h) If our bid is accepted, we commit to obtain a performance security in accordance with the Bidding Documents;

- (i) We are not participating, as a Bidder or as a subcontractor, in more than one bid in this bidding process in accordance with ITB 4.2(e), other than alternative bids submitted in accordance with ITB 13;
- (j) 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 a member of 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;
- (k) We are not a government owned entity/ We are a government owned entity but meet the requirements of ITB 4.5;<sup>13</sup>
- (l) We have paid, or will pay the following commissions, gratuities, or fees with respect to the bidding process or execution of the Contract:

Name of Recipient	Address	Reason	Amount
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

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

- (m) We understand that this bid, together with your written acceptance thereof included in your notification of award, shall constitute a binding contract between us, until a formal contract is prepared and executed; and
- (n) We understand that you are not bound to accept the lowest evaluated bid or any other bid that you may receive.
- (o) We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf will engage in any type of fraud and corruption.

Name of the Bidder\* \_\_\_\_\_

<sup>13</sup> Bidder to use as appropriate. <sup>14</sup> 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.

Name of the person duly authorized to sign the Bid on behalf of the Bidder\*\* \_\_\_\_\_

Title of the person signing the Bid \_\_\_\_\_

Signature of the person named above \_\_\_\_\_

Date signed \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_

\*: In the case of the Bid submitted by joint venture specify the name of the Joint Venture as Bidder

\*\*: Person signing the Bid shall have the power of attorney given by the Bidder to be attached with the Bid

## Appendix to Bid

### Schedule of Adjustment Data

[In Tables A, B, and C, below, the Bidder 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*	Bidder's related currency amount	Bidder's proposed weighting
	Nonadjustable	—	—	—	A: _____* B: _____* C: _____* D: _____* E: _____*
Total					<b>1.00</b>

[\* To be entered by the Employer. Whereas “A” should a fixed percentage, B, C, D and E should specify a range of values and the Bidder will be required to specify a value within the range such that the total weighting = 1.00]

**Table B. Foreign Currency (FC)**

**State type:** ..... [If the Bidder is allowed to receive payment in foreign currencies this table shall be used. If Bidder 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
	Nonadjustable	—	—	—		A: _____ * B: _____ * — C: _____ * — D: _____ * — E: _____ * —
Total						1.00

[\* To be entered by the Employer. Whereas “A” should a fixed percentage, B, C, D and E should specify a range of values and the Bidder will be required to specify a value within the range such that the total weighting = 1.00]

**Table C. Summary of Payment Currencies**

Table: Alternative A

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

<b>Name of payment currency</b>	<b>A Amount of currency</b>	<b>B Rate of exchange (local currency per unit of foreign)</b>	<b>C Local currency equivalent <math>C = A \times B</math></b>	<b>D Percentage of Total Bid Price (TBP) <math>\frac{100 \times C}{TBP}</math></b>
<b>Local currency</b> _____		<b>1.00</b>		
<b>Foreign currency #1</b> _____				
<b>Foreign currency #2</b> _____				
<b>Foreign currency #</b> _____				
<b>Total Bid Price</b>				<b>100.00</b>
<b>Provisional sums expressed in local currency</b>	[To be entered by the Employer]		[To be entered by the Employer]	
<b>TOTAL BID PRICE (including provisional sum)</b>				

**Table: Alternative B**

*To be used only with Alternative B Prices directly quoted in the currencies of payment.  
(Clause ITB 15.1)*

Summary of currencies of the bid for \_\_\_\_\_ *[insert name of Section of the Works]*

<i>Name of currency</i>	<i>Amounts payable</i>
Local currency: _____	
Foreign currency #1: _____	
Foreign currency #2: _____	
Foreign currency #3: _____	
Provisional sums expressed in local currency _____	[To be entered by the Employer]

## **Bill of Quantities**

### **Preamble to Bill of Quantities**

1. The complete description for the work items listed in the Bill of Quantities is given in Part 2, Section-VII specifications, of the Bid Documents.
2. The works shall be measured in accordance with the Measurement and Payment Sub-Clauses given at the end of each section of the specifications unless otherwise stated, together with any additional items included in the Bill of Quantities. The rates for these items should include all costs, including work of an ancillary or temporary nature, Test Fees, overheads and profit, required by the Bidder and shall (except insofar as is otherwise provided in the Contract) cover all his obligations under the Contract for the complete construction and maintenance of the works.
3. The quantities shall be computed net. In measuring earthworks no allowance shall be made for temporary batters, working space, shoring, Temporary works or bulking of the soil and the Bidder should make due allowance in his rates.
4. Payment for pre-cast piles shall be made in separate items for supplying and driving as per contract prices and units, concrete, reinforcement, pile shoe items shall be included.
5. The rates inserted against each item are to include for the provision and operation of all equipment necessary to meet the specifications. The Bidder shall be responsible for supplying the equipment.
6. The Bidder should not assume that equipment will be available from the BEZA and shall allow for obtaining equipment from other sources.
7. If the Bidder fails to enter a price against an item in the Bill of Quantities the amount shall be deemed to be included elsewhere in his rates.
8. The Bidder's attention is drawn to Clauses of the Conditions of Contract, which deal with variations in quantities.
9. No additional item of work of any nature shall be undertaken before a written order by the Engineer has been issued to the Bidder in this respect and a rate agreed. If there is no agreement between the Bidder and the Engineer on the rate, then the Engineer may instruct the Bidder to proceed with the work at a rate fixed by the Engineer.

10. The Bidder is responsible for ensuring the necessary tests and measurements are carried out field and at the laboratory fixed by BEZA in order to ensure that the work complies with the specifications. The Bidder shall give 24 hours notice of each item of work, which is due for testing. Any item of work, which is covered or buried without tests being carried out, may be rejected by the Engineer. Bidder's quoted rate for each item of work shall be inclusive of such test fees.
11. Only materials and work complying fully with all specified requirements shall be eligible for payment under the Contract.
12. Usable materials salvaged from within the site are the property of the BEZA and shall be applied to the works as indicated in the Bill of Quantities.
13. Quantities of earthworks in fill are fixed in respect of the supplied designed Longitudinal Profile, plan and cross-section. If any change design is made during execution, the changed volume of earthwork will be incorporated keeping the pre-designed survey unchanged.
14. The first running bill will not be processed subject to satisfactory completion of all necessary pre-work like construction of site office for engineers, labour accommodation with supply of toilet, septic tank, storm water drainage system, waste management and disposal, drinking water, personal protective equipment etc.
15. No separate bill will be entitled for any dismantling, site preparation, cleaning, grubbing.
16. The last two bills will not be processed without satisfying completion of all item as described in Bill no.-C : Environmental Compliance.

**Bill No. A: Land filling works –Mirsarai Zone 2A - EZ**

<i>Item no.</i>	<i>Description</i>	<i>Unit</i>	<i>Quantity</i>	<i>Rate</i>	<i>Amount</i>
1	Site development/ improvement by <b>dredged sand</b> , sandy silt free from any organic, foreign, environmental hazardous substances in/c cost of cutting or by dredging of sand, sandy silt, all; in/c local carrying, placing the sand, sandy silt in the designated area, maintaining slopes, breaking lumps, leveling and dressing in layers up to finished level etc. The rate includes cost of dredging of materials, construction of earthen dyke, mobilization and demobilization of dredgers, carrying, laying, joining, shifting, extending and dismantling, floating and shore pipes to prepare pipelines for disposal of dredged materials within the dyke, including river transportation by barge or other means , pumping and all other ancillary costs for dredging. The contractor to commence dredging at least 1 Km away from the coast line towards the sea. All required permission from concerned Authority must be obtained prior to start of the work by the contractor. The measurement will be made on the basis of pre and post work measurement of filling area etc. All complete as per direction and accepted by the engineer in charge. Ref.-Sec-VII, Sub-Sec- B, clause-12.	Cum	3,075,518.20		
<p style="text-align: right;">Total for Bill No. A _____ (carried forward to Summary, p. 61__)</p>					

**Bill No. B: Construction of Embankment - Mirsarai - Zone 2A - EZ**

<i>Item no.</i>	<i>Description</i>	<i>Unit</i>	<i>Quantity</i>	<i>Rate</i>	<i>Amount</i>
1	Construction & maintenance of site office for Engineers and provide required facilities as described in Sec-VII, Sub-sec-E, Clause-34 & 35	Ls	1		
2	Layout and marking for earthwork in excavation in foundation accepted by the Engineer. [Plinth area of the structure shall be considered for measurement]	Sqm	315,380		
3	Earth filling work with specified soil in any type of embankment including cutting, carrying, filling by throwing earth in layers not more than 150mm in each layer in proper alignment, grade, camber and side slope in all types of soil except rocky, gravelly and slushy including benching not more than 30cm in vertical and 60cm in horizontal steps along the sides while widening any embankment, etc. The soil for the embankment construction shall be taken from the land of authority. It will include all necessary lead & lift. Payment will be made on the basis of compacted volume. For this reason, BDT 35/- (Taka Thirty Five Only) per Cum will be deducted from the Contractor. The Contractor quote their rates including the royalty and this amount will be deducted during the progress payment. All complete as per the direction of E-I-C.	Cum	960,500		
4	Mechanical compaction of earthworks in 150 mm thick compacted layers by breaking clods to a maximum size of 25 mm using wooden drag or ladder and compacting using mechanical equipment, watering or drying to obtain optimum moisture content watering if necessary including the equipment and other tools required to work site, etc. all complete as per direction of the E-I-C. 90% compaction of the maximum dry density is to be obtained by the standard compaction <b>test</b> (Rate is for each layer of 150 mm thick).	Cum	960,500		

5	Earth work in excavation in all kinds of soil for foundation trenches including. layout, providing center lines, local benchmark pillars, leveling, ramming and preparing the base, fixing bamboo spikes and marking layout with chalk powder, providing necessary tools and plants, protecting and maintaining the trench dry etc., stacking, cleaning the excavated earth at a safe distance out of the area enclosed by the layout etc. all complete and accepted by the Engineer, subject to submit method statement of carrying out excavation work to the Engineer for approval. However, Engineer's approval shall not relieve the contractor of his responsibilities and obligations under the contract Earthwork in excavation (For Hard stone boulders) in foundation trenches up to 1.5 m depth and maximum 10 m lead: in soft clayey soil / loose sand / silt.	Cum	77,632		
6	Sand filling (For cement concrete block) in foundation trenches and plinth with sand having F.M. 0.5 to 0.8 in 150mm layers including leveling, watering and compaction to achieve minimum dry density of 90% with optimum moisture content (Modified proctor test) by ramming each layer up to finished level as per design supplied by the design office only etc. all complete and accepted by the Engineer.	Cum	16,543		
7	50 mm downgraded picked jhama Khoa consolidation in foundation trenches by mixing the same with best quality local sand (F.M. 1.2) in (2:1) (khoa : sand) proportion to achieve minimum dry density of 90% with optimum moisture content (Modified proctor test) including breaking and screening chips, laying and spreading in 100mm layers uniformly etc. all complete and accepted by the Engineer.	Cum	16,543		
8	Supply of stone boulders at site: 30cm to 45cm size	Cum	74,444		
9	Labour charge in laying stone boulders	Cum	74,444		
10	Supply and laying 3 mm thick geo-textile of approved quality and origin /manufacturer as per manufacturer's instructions approved and accepted by the	Sqm	189,692		

	Engineer. Before commencing lying of geo-textile, the contractor must submit the method statement for carrying out this work including sample with evidence of origin and compliance certificate from independent testing laboratory for approval.				
11	Manufacturing and supplying C.C. blocks (Block size 50cmx50cmx40cm) in leanest mix. 1:3:6, with cement, sand (FM>=1.5) and Stone Chips (40mm downgraded), to attain a minimum 28 days cylinder strength 'of 25 Mpa including grading, washing stone chips, mixing, laying in forms; consolidation, curing for at least 21 days, including preparation of platform, shuttering and stacking in measurable stacks etc complete- including · supply of all materials (steel shutter to be Used) as per direction of Engineer in charge.	Each	661,729		
12	Labour charge for protective works in laying CC blocks of different sizes including preparation of base, watering and ramming of base etc. complete as per direction of Engineer in charge.	Cum	66,173		
13	Supplying of local hard rock (Madhyapara) at site: 60cm and above size	Cum	77,632		
14	Labour charge in laying hard rock	Cum	77,632		
15	Flush pointing to CC blocks with cement sand (F.M. 1:2), mortar (1:2) with cement including raking out the joints, and necessary scaffolding curing at least for 7 days, cost of water, electricity and other charges etc. all complete in all respect as per drawing and accepted by the Engineer. (Cement: CEM-11/A-M). Ground floor.	Sqm	165,432		
16	Creating turf on the side slopes and top of embankment with good quality turf not less than 225 mm square chunk, watering till the grass grown including all leads and lifts etc. complete and accepted by the Engineer.	Sqm	107,744		
Total for Bill No. B _____ (carried forward to Summary, p. 61__)					

### Bill No. C: Environmental Compliance

<i>Item no.</i>	<i>Description</i>	<i>Unit</i>	<i>Quantity</i>	<i>Rate</i>	<i>Amount</i>
1	Overall EMP implementation as per description given on EMP (Annexure-1)	Ls	1		
2	Lake development as per design provided by BEZA (Ref: Section- VII, Sub-section-C-1.1)	Ls	1		
3	Green Belt Development Besides lake for around 30 acres of land (Ref: Section- VII, Sub-section-C-1.2)	Ls	1		
4	Provision of Personal protective Equipment to all labour involved in construction of proposed off-site developments (4-5 camp) (Ref: Section- VII, Sub-section C-1.3)	Ls	1		
5	Construction of Toilets & Septic Tanks/Soak Pits (4-5 camp) (Ref: Section- VII, Sub-section-C-1.4)	Ls	1		
6	Construction of Temporary storm water drainage system and sedimentation Tank (Ref: Section- VII, Sub-section-C-1.5)	Ls	1		
7	Construction waste management and disposal(Ref: Section- VII, Sub-section-C-1.6)	Ls	1		
8	Provision of clean drinking water supply (Ref: Section- VII, Sub-section-C-1.7)	Ls	1		
9	Water sprinkling (Ref: Section- VII, Sub-section-C-1.8)	Ls	1		
10	Environmental monitoring <ul style="list-style-type: none"> <li>• Air quality</li> <li>• Noise level</li> <li>• Drinking water quality</li> </ul> (Ref: Section- VII, Sub-section-C-1.9)	Ls	1		
11	Safety & Quality inspections (Ref: Section- VII, Sub-section-C-1.10)	Ls	1		
12	Environmental Training (Ref: Section- VII, Sub-section-C-1.11)	Ls	1		
13	Cost of Project Monitoring firm (Ref: Section- VII, Sub-section-C-1.12)	Ls	1		
Total for Bill No. C _____ (carried forward to Summary, p. 61__)					

## Grand Summary

Contract Name: Site development & construction of embankment for Mirsarai-2A EZ

Contract No.: ICB 01/2016-17

<i>General Summary</i>	<i>Page</i>	<i>Amount</i>
Bill No. A: Site development (Land Filling) Work		
Bill No. B: Construction of Embankment		
Bill No. C: Environmental Compliance		
Total		
In Word :		

## **Technical Proposal**

- **Site Organization**
- **Method Statement**
- **Mobilization Schedule**
- **Construction Schedule**
- **Equipment**
- **Others**

## **Site Organization**

## **Method Statement**

## **Mobilization Schedule**

## **Construction Schedule**

## Form EQU: Equipment

The Bidder shall provide adequate information to demonstrate clearly that it has the capability to meet the requirements for the key equipment listed in Section III, Evaluation and Qualification Criteria. A separate Form shall be prepared for each item of equipment listed, or for alternative equipment proposed by the Bidder.

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 <input type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

Omit the following information for equipment owned by the Bidder.

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	

## Personnel

### Form PER-1: Proposed Personnel

Bidders should provide the names of suitably qualified personnel to meet the specified requirements stated in Section III. The data on their experience should be supplied using the Form below for each candidate.

<b>1.</b>	<b>Title of position*</b>
	<b>Name</b>
<b>2.</b>	<b>Title of position*</b>
	<b>Name</b>
<b>3.</b>	<b>Title of position*</b>
	<b>Name</b>
<b>4.</b>	<b>Title of position*</b>
	<b>Name</b>

\*As listed in Section III.

## Form PER-2: Resume of Proposed Personnel

<b>Name of Bidder</b>
-----------------------

<b>Position</b>		
<b>Personnel information</b>	<b>Name</b>	<b>Date of birth</b>
	<b>Professional qualifications</b>	
<b>Present employment</b>	<b>Name of employer</b>	
	<b>Address of employer</b>	
	<b>Telephone</b>	<b>Contact (manager / personnel officer)</b>
	<b>Fax</b>	<b>E-mail</b>
	<b>Job title</b>	<b>Years with present employer</b>

Summarize professional experience over the last 20 years, in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

From	To	Company / Project / Position / Relevant technical and management experience

<b>From</b>	<b>To</b>	<b>Company / Project / Position / Relevant technical and management experience</b>

## Form ELI -1.1

# Bidder Information Form

Date: \_\_\_\_\_  
 ICB No. and title: \_\_\_\_\_  
 Page \_\_\_\_\_ of \_\_\_\_\_ pages

Bidder's name
In case of Joint Venture (JV), name of each member:
Bidder's actual or intended country of registration: <i>[indicate country of Constitution]</i>
Bidder's actual or intended year of incorporation:
Bidder's legal address [in country of registration]:
Bidder's authorized representative information Name: _____ Address: _____ Telephone/Fax numbers: _____ E-mail address: _____
1. Attached are copies of original documents of <input type="checkbox"/> Articles of Incorporation (or equivalent documents of constitution or association), and/or documents of registration of the legal entity named above, in accordance with ITB 4.3. <input type="checkbox"/> In case of JV, letter of intent to form JV or JV agreement, in accordance with ITB 4.1. <input type="checkbox"/> In case of Government-owned enterprise or institution, in accordance with ITB 4.5 documents establishing: <ul style="list-style-type: none"> <li>• Legal and financial autonomy</li> <li>• Operation under commercial law</li> <li>• Establishing that the Bidder is not dependent agency of the Employer</li> </ul> 2. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership.

**Form ELI -1.2**

## **Bidder's JV Information Form**

**(to be completed for each member of Bidder's JV)**

Date: \_\_\_\_\_

ICB No. and title: \_\_\_\_\_

Page \_\_\_\_\_ of \_\_\_\_\_ pages

Bidder's JV name:
JV member's name:
JV member's country of registration:
JV member's year of constitution:
JV member's legal address in country of constitution:
JV member's authorized representative information Name: _____ Address: _____ Telephone/Fax numbers: _____ E-mail address: _____
1. Attached are copies of original documents of <input type="checkbox"/> Articles of Incorporation (or equivalent documents of constitution or association), and/or registration documents of the legal entity named above, in accordance with ITB 4.3.  <input type="checkbox"/> In case of a Government-owned enterprise or institution, documents establishing legal and financial autonomy, operation in accordance with commercial law, and absence of dependent status, in accordance with ITB 4.5.  2. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership.

**Form CON – 2****Historical Contract Non-Performance, Pending Litigation  
and Litigation History**

Bidder's Name: \_\_\_\_\_

Date: \_\_\_\_\_

JV Member Name \_\_\_\_\_

ICB No. and title: \_\_\_\_\_

Page \_\_\_\_\_ of \_\_\_\_\_ pages

Non-Performed Contracts in accordance with Section III, Evaluation Criteria and Qualifications			
<input type="checkbox"/> Contract non-performance did not occur since 1 <sup>st</sup> January <i>[insert year]</i> specified in Section III, Evaluation Criteria and Qualifications, Sub-Factor 2.1.			
<input type="checkbox"/> Contract(s) not performed since 1 <sup>st</sup> January <i>[insert year]</i> specified in Section III, Evaluation Criteria and Qualifications, requirement 2.1			
Year	Non-performed portion of contract	Contract Identification	Total Contract Amount (current value, currency, exchange rate and US\$ equivalent)
		Contract Identification: Name of Employer: Address of Employer: Reason(s) for non performance:	
Pending Litigation, in accordance with Section III, Evaluation Criteria and Qualifications			
<input type="checkbox"/> No pending litigation in accordance with Section III, Evaluation Criteria and Qualifications, Sub-Factor 2.3.			
<input type="checkbox"/> Pending litigation in accordance with Section III, Evaluation Criteria and Qualifications, Sub-Factor 2.3 as indicated below.			

<b>Year of dispute</b>	<b>Amount in dispute (currency)</b>	<b>Contract Identification</b>	<b>Total Contract Amount</b>
		Contract Identification: _____ Name of Employer: _____ Address of Employer: _____ Matter in dispute: _____ Party who initiated the dispute: _____  Status of dispute: _____	

**Form FIN – 3.1****Financial Situation and Performance**

Bidder's Name: \_\_\_\_\_

Date: \_\_\_\_\_

JV Member Name \_\_\_\_\_

ICB No. and title: \_\_\_\_\_

Page \_\_\_\_\_ of \_\_\_\_\_ 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	Year 4	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					

## 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		

## 2. Financial documents

The Bidder and its parties shall provide copies of financial statements for \_\_\_\_\_ years pursuant Section III, Evaluation and Qualifications Criteria, Sub-factor 3.2. The financial statements shall:

- (a) reflect the financial situation of the Bidder 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<sup>14</sup> for the \_\_\_\_\_ years required above; and complying with the requirements

<sup>14</sup> 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**

Bidder's Name: \_\_\_\_\_

Date: \_\_\_\_\_

JV Member Name \_\_\_\_\_

ICB No. and title: \_\_\_\_\_

Page \_\_\_\_\_ of \_\_\_\_\_ pages

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

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

## **Bidders Qualification without prequalification**

To establish its qualifications to perform the contract in accordance with Section III (Evaluation and Qualification Criteria) the Bidder shall provide the information requested in the corresponding Information Sheets included hereunder.

## Form ELI -1.1

# Bidder Information Form

Date: \_\_\_\_\_  
 ICB No. and title: \_\_\_\_\_  
 Page \_\_\_\_\_ of \_\_\_\_\_ pages

Bidder's name
In case of Joint Venture (JV), name of each member:
Bidder's actual or intended country of registration: <i>[indicate country of Constitution]</i>
Bidder's actual or intended year of incorporation:
Bidder's legal address [in country of registration]:
Bidder's authorized representative information Name: _____ Address: _____ Telephone/Fax numbers: _____ E-mail address: _____
1. Attached are copies of original documents of <input type="checkbox"/> Articles of Incorporation (or equivalent documents of constitution or association), and/or documents of registration of the legal entity named above, in accordance with ITB 4.3. <input type="checkbox"/> In case of JV, letter of intent to form JV or JV agreement, in accordance with ITB 4.1. <input type="checkbox"/> In case of Government-owned enterprise or institution, in accordance with ITB 4.5 documents establishing: <ul style="list-style-type: none"> <li>• Legal and financial autonomy</li> <li>• Operation under commercial law</li> <li>• Establishing that the Bidder is not dependent agency of the Employer</li> </ul>
2. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership.

**Form ELI -1.2**

## **Bidder's JV Information Form**

**(to be completed for each member of Bidder's JV)**

Date: \_\_\_\_\_  
 ICB No. and title: \_\_\_\_\_  
 Page \_\_\_\_\_ of \_\_\_\_\_ pages

Bidder's JV name:
JV member's name:
JV member's country of registration:
JV member's year of constitution:
JV member's legal address in country of constitution:
JV member's authorized representative information Name: _____ Address: _____ Telephone/Fax numbers: _____ E-mail address: _____
1. Attached are copies of original documents of <input type="checkbox"/> Articles of Incorporation (or equivalent documents of constitution or association), and/or registration documents of the legal entity named above, in accordance with ITB 4.3.  <input type="checkbox"/> In case of a Government-owned enterprise or institution, documents establishing legal and financial autonomy, operation in accordance with commercial law, and absence of dependent status, in accordance with ITB 4.5.  2. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership.

**Form CON – 2****Historical Contract Non-Performance, Pending Litigation  
and Litigation History**

Bidder's Name: \_\_\_\_\_

Date: \_\_\_\_\_

JV Member's Name \_\_\_\_\_

ICB No. and title: \_\_\_\_\_

Page \_\_\_\_\_ of \_\_\_\_\_ pages

Non-Performed Contracts in accordance with Section III, Evaluation and Qualification Criteria			
<input type="checkbox"/> Contract non-performance did not occur since 1 <sup>st</sup> January <i>[insert year]</i> specified in Section III, Evaluation and Qualification Criteria, Sub-Factor 2.1.			
<input type="checkbox"/> Contract(s) not performed since 1 <sup>st</sup> January <i>[insert year]</i> specified in Section III, Evaluation and Qualification Criteria, requirement 2.1			
Year	Non-performed portion of contract	Contract Identification	Total Contract Amount (current value, currency, exchange rate and US\$ equivalent)
<i>[insert year]</i>	<i>[insert amount and percentage]</i>	Contract Identification: <i>[indicate complete contract name/ number, and any other identification]</i>  Name of Employer: <i>[insert full name]</i>  Address of Employer: <i>[insert street/city/country]</i>  Reason(s) for non performance: <i>[indicate main reason(s)]</i>	<i>[insert amount]</i>
Pending Litigation, in accordance with Section III, Qualification Criteria and Requirements			
<input type="checkbox"/> No pending litigation in accordance with Section III, Qualification Criteria and Requirements, Sub-Factor 2.3.			
<input type="checkbox"/> Pending litigation in accordance with Section III, Evaluation and Qualification Criteria, Sub-Factor 2.3 as indicated below.			

<b>Year of dispute</b>	<b>Amount in dispute (currency)</b>	<b>Contract Identification</b>	<b>Total Contract Amount (currency), USD Equivalent (exchange rate)</b>
		Contract Identification: _____ Name of Employer: _____ Address of Employer: _____ Matter in dispute: _____ Party who initiated the dispute: _____  Status of dispute: _____	
<input type="checkbox"/> No pending litigation in accordance with Section III, Evaluation and Qualification Criteria, Sub-Factor 2.3. <input type="checkbox"/> Pending litigation in accordance with Section III, Evaluation and Qualification Criteria, Sub-Factor 2.3 as indicated below.			
<b>Year of award</b>	<b>Outcome as percentage of Net Worth</b>	<b>Contract Identification</b>	<b>Total Contract Amount (currency), USD Equivalent (exchange rate)</b>
		Contract Identification: _____ Name of Employer: _____ Address of Employer: _____ Matter in dispute: _____ Party who initiated the dispute: _____ Status of dispute: _____	

## Form FIN – 3.1:

### Financial Situation and Performance

Bidder's Name: \_\_\_\_\_

Date: \_\_\_\_\_

JV Member's Name \_\_\_\_\_

ICB No. and title: \_\_\_\_\_

Page \_\_\_\_\_ of \_\_\_\_\_ 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	Year 4	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 ITB 15 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		

## 2. Financial documents

The Bidder 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 Bidder 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<sup>15</sup> for the \_\_\_\_\_ years required above; and complying with the requirements

<sup>15</sup> 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**

Bidder's Name: \_\_\_\_\_

Date: \_\_\_\_\_

JV Member's Name \_\_\_\_\_

ICB No. and title: \_\_\_\_\_

Page \_\_\_\_\_ of \_\_\_\_\_ pages

		<b>Annual turnover data (construction only)</b>	
<b>Year</b>	<b>Amount Currency</b>	<b>Exchange rate</b>	<b>USD equivalent</b>
<i>[indicate year]</i>	<i>[insert amount and indicate currency]</i>		
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 specified in Section III (Evaluation and Qualification Criteria)

Financial Resources		
No.	Source of financing	Amount (US\$ equivalent)
1		
2		
3		

**Form FIN – 3.4:****Current Contract Commitments / Works in Progress**

Bidders and each member 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.

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

## Form EXP - 4.1

### General Construction Experience

Bidder's Name: \_\_\_\_\_

Date: \_\_\_\_\_

JV Member's Name \_\_\_\_\_

ICB No. and title: \_\_\_\_\_

Page \_\_\_\_\_ of \_\_\_\_\_ pages

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

**Form EXP - 4.2(a)****Specific Construction and Contract Management  
Experience**

Bidder's Name: \_\_\_\_\_

Date: \_\_\_\_\_

JV Member's Name \_\_\_\_\_

ICB No. and title: \_\_\_\_\_

Page \_\_\_\_\_ of \_\_\_\_\_ pages

<b>Similar Contract No.</b>	<b>Information</b>			
Contract Identification				
Award date				
Completion date				
Role in Contract	Prime Contractor <input type="checkbox"/>	Member in JV <input type="checkbox"/>	Management Contractor <input type="checkbox"/>	Sub-contractor <input type="checkbox"/>
Total Contract Amount			US\$	
If member in a JV or sub-contractor, 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

Bidder's Name: \_\_\_\_\_

Date: \_\_\_\_\_

Bidder's JV Member Name: \_\_\_\_\_

Sub-contractor's Name<sup>16</sup> (as per ITB 34.2 and 34.3): \_\_\_\_\_

ICB No. and title: \_\_\_\_\_

Page \_\_\_\_\_ of \_\_\_\_\_ pages

All Sub-contractors for key activities must complete the information in this form as per ITB 34.2 and 34.3 and Section III, Qualification Criteria and Requirements, Sub-Factor 4.2.

1. Key Activity No One: \_\_\_\_\_

	Information			
Contract Identification				
Award date				
Completion date				
Role in Contract	Prime Contractor <input type="checkbox"/>	Member in JV <input type="checkbox"/>	Management Contractor <input type="checkbox"/>	Sub-contractor <input type="checkbox"/>
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				

---

<sup>16</sup> If applicable

	<b>Information</b>
Employer's Name:	
Address:	
Telephone/fax number	
E-mail:	

2. Activity No. Two

3. ....

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

## Form of Bid Security

(Demand Guarantee)

\_\_\_\_\_  
**Beneficiary:** \_\_\_\_\_

**Invitation for Bids No:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**BID GUARANTEE No.:** \_\_\_\_\_

**Guarantor:** \_\_\_\_\_

We have been informed that \_\_\_\_\_ (hereinafter called "the Applicant") has submitted or will submit to the Beneficiary its bid (hereinafter called "the Bid") for the execution of \_\_\_\_\_ under Invitation for Bids No. \_\_\_\_\_ ("the IFB").

Furthermore, we understand that, according to the Beneficiary's conditions, bids must be supported by a bid 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 Bid during the period of bid validity set forth in the Applicant's Letter of Bid ("the Bid Validity Period"), or any extension thereto provided by the Applicant; or
- (b) having been notified of the acceptance of its Bid by the Beneficiary during the Bid Validity Period 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, in accordance with the Instructions to Bidders ("ITB") of the Beneficiary's bidding document.

This guarantee will expire: (a) if the Applicant is the successful bidder, upon our receipt of copies of the contract agreement signed by the Applicant and the performance security issued to the Beneficiary in relation to such contract agreement; or (b) if the Applicant is not the successful bidder, upon the earlier of (i) our receipt of a copy of the Beneficiary's notification to the Applicant of the results of the bidding process; or (ii) twenty-eight days after the end of the Bid Validity Period.

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.

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*[signature(s)]*

## **Section V. Eligible Countries**

**Eligibility for the Provision of Goods, Works and Non Consulting Services in  
Bank-Financed Procurement**

1. In reference to ITB 4.7 and 5.1, for the information of the Bidders, at the present time firms, goods and services from the following countries are excluded from this bidding process: Israel.

## Section VI. Bank Policy - Corrupt and Fraudulent Practices

Guidelines for Procurement of Goods, Works, and Non-Consulting Services under IBRD Loans and IDA Credits & Grants by World Bank Borrowers, dated January 2011.

### “Fraud and Corruption:

1.16 It is the Bank’s policy to require that Borrowers (including beneficiaries of Bank loans), bidders, suppliers, contractors and their agents (whether declared or not), sub-contractors, sub-consultants, service providers or suppliers, and any personnel thereof, observe the highest standard of ethics during the procurement and execution of Bank-financed contracts.<sup>17</sup> In pursuance of this policy, 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;<sup>18</sup>;
- (ii) “fraudulent practice” is any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation;<sup>19</sup>
- (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;<sup>20</sup>

(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;<sup>21</sup>

<sup>17</sup> In this context, any action to influence the procurement process or contract execution for undue advantage is improper.

<sup>18</sup> For the purpose of this sub-paragraph, “*another party*” refers to a public official acting in relation to the procurement process or contract execution. In this context, “*public official*” includes World Bank staff and employees of other organizations taking or reviewing procurement decisions.

<sup>19</sup> For the purpose of this sub-paragraph, “*party*” refers to a public official; the terms “benefit” and “obligation” relate to the procurement process or contract execution; and the “act or omission” is intended to influence the procurement process or contract execution.

<sup>20</sup> For the purpose of this sub-paragraph, “*parties*” refers to participants in the procurement process (including public officials) attempting either themselves, or through another person or entity not participating in the procurement or selection process, to simulate competition or to establish bid prices at artificial, non-competitive levels, or are privy to each other’s bid prices or other conditions.

<sup>21</sup> For the purpose of this sub-paragraph, “*party*” refers to a participant in the procurement process or contract execution.

- (v) "obstructive practice" is
  - (aa) 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
  - (bb) acts intended to materially impede the exercise of the Bank's inspection and audit rights provided for under paragraph 1.16(e) below.
- (b) will reject a proposal for award if it determines that the bidder recommended for award, or 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) will declare misprocurement and cancel the portion of the loan allocated to a contract if it 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 or the implementation 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) will sanction a firm or individual, at any time, in accordance with the prevailing Bank's sanctions procedures,<sup>22</sup> including by publicly declaring such firm or individual ineligible, either indefinitely or for a stated period of time: (i) to be awarded a Bank-financed contract; and (ii) to be a nominated<sup>23</sup>;
- (e) will require that a clause be included in bidding documents and in contracts financed by a Bank loan, requiring bidders, suppliers and contractors, and their sub-contractors, agents, personnel, consultants, service providers, or suppliers, to permit the Bank to inspect all accounts, records, and other documents relating to

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<sup>22</sup> A firm or individual may be declared ineligible to be awarded a Bank financed contract upon: (i) completion of the Bank's sanctions proceedings as per its sanctions procedures, including, inter alia, cross-debarment as agreed with other International Financial Institutions, including Multilateral Development Banks, and through the application the World Bank Group corporate administrative procurement sanctions procedures for fraud and corruption; and (ii) as a result of temporary suspension or early temporary suspension in connection with an ongoing sanctions proceeding. See footnote 14 and paragraph 8 of Appendix 1 of these Guidelines.

<sup>23</sup> A nominated sub-contractor, consultant, manufacturer or supplier, or service provider (different names are used depending on the particular bidding document) is one which has either 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.

the submission of bids and contract performance, and to have them audited by auditors appointed by the Bank.”

## **PART 2 –WORKS REQUIREMENTS**

## **Section VII. Works Requirements**

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## **Sub-Section. A : Scope of Works**

### **1 BACKGROUND:**

- 1.1 Establishment of Economic zones in Bangladesh is a groundbreaking initiative of the present government. Honorable Prime Minister of the People's Republic of Bangladesh Sheikh Hasina has taken this commendable initiative to materialize the dream of the Father of the Nation Bangabandhu Sheikh MujiburRahman to create "Sonar Bangla".
- 1.2 BEZA has been established to facilitate development and operation of Economic Zones throughout the country. The main objective of BEZA is to act as a change agent for faster economic growth by creating investment friendly environment and attracting FDI.
- 1.3 BEZA's mission is to persistently create value for the investors by establishing attractive investment facilities in the economic zones through One-Stop Service and competitive incentive packages.
- 1.4 BEZA wants to establish 100 Economic Zones on 30000 hectares of land in the next 15 years with an employment generation for 10 million people.
- 1.5 In November 2010, Government of Bangladesh Established Bangladesh Economic Zones Authority (BEZA) under the Bangladesh Economic Zones Act to drive new Economic zone regime. The authority is attached with the Prime Minister's Office (PMO) and is mandated to establish, license, perate, and control economic zones in Bangladesh. Moreover, the authority is also committed to develop backward linkage industries, creating employment opportunities and contribute ot poverty reduction program.
- 1.6 BEZA's Vision for Industrial Development is in line with Government's long-term outlook, defined in its Vision 2021, wherein, the Government of Bangladesh has set its development targets with the objectives to achieve middle-income country threshold by 2021, provide its citizens a higher standard of living, better access to education, improved social justice, and a more equitable socio-economic environment.
- 1.7 BEZA is created with the objective of delivering on the industry growth target. The duties and functions of BEZA are aligned to realize the development priorities as outlaid in the Vision 2021. Bangladesh Economic Zones Development Project (Phase-1) that is under BEZA, implementing Economic Zones in Bangladessh.
- 1.8 Industrialization is expected to play a pivotal role in achieving the above targets. Bangladesh government is committed to provide right policy intervention and framework to facilitate this growth and promote private

participation in the economy's growth. Among 100 nos Economic Zones Mirsarai Economic Zone is pioneer Economic Zone.

- 1.9 Mirsarai Economic Zone will be the first multi-sector Economic Zone in the country, with a large area of 30,000 acres. The Zone has the potential to fulfill the conditions necessary to become a successful economic zone. Once it is established, it is expected that there will be a huge demand for plots in the Mirsharai Economic Zone by both local and foreign investors.
- 1.10 The site is suitable for garment, garment accessories, integrated textile, motorbike assembling, automobile parts manufacturing industries etc. segment of industries. Gas supply is available within 10 km.
- 1.11 Site has access to waterways, Chittagong Port, railway station. It is situated at 67 km from Chittagong port, 182 km from Dhaka, 79 km from Chittagong airport. Development of Economics Zones is expected to create employment for more than 700,000 workers and shall protect the people of that locality from cyclone and tidal surge.
- 1.12 For sustainability of the economic zone at Mirsarai, Chittagong, It is necessary to protect project area from inundation during high tide. Thus construction of embankment as well as land filling is essential.
- 1.13 The proposed project involves development of EZ and off-site facilities for the upcoming Mirsarai EZ-II. These off-site facilities will be developed by BEZA. Development of these off-site infrastructure facilities will attract the investors and make the proposed site location more accessible for trading and business. Proximity of the proposed project site to the Chittagong Dhaka Highway and an already existing inland water transportation system further adds to the suitability of site for setting up the industries. As enhancement plan, it is proposed that BEZA should develop a thick green belt all around the EZ site, proper storm water drainage to prevent flooding and rain water harvesting system to harvest rain water and use it to meet daily water demand and reduce pressure on ground water resources. Thick green buffer of 30 m will be developed all along the EZ site and along the Ichakhale channel.
- 1.14 Also a lake together with green development besides the lake will be developed at site measuring 100 acres. Green buffer and Lake Site will act as landing site for water birds and habitat for mudcrabs and other species.
- 1.15 It is planned to develop the area facing River Feni as river front which can be used for recreational purpose. A platform/footpath of 2 m width will be developed on the proposed peripheral embankment which can be used for recreational purpose by nearby villagers. This platform will be accessible through staircase from top of the proposed road. Level of this platform will be 8 m which is again higher than the HFL of Feni River and tidal surge level during cyclones occurred in last 56 years.

## 2 OBJECTIVE OF THE WORK:

- 2.1 To protect the project area from erosion due to tidal surge and natural hazard.
- 2.2 To safeguard the BEZA area including its infrastructures and communication network for uninterrupted economic authorities.
- 2.3 To provide safety of human lives, Property and enhance economic activities as well as natural environmental balance against devastation.

## 3 THE SCOPE OF WORK:

- 3.1 The scope of work under the Contract mainly comprises land filling by dredging, construction of embankment (with mechanical compaction to attain 90% maximum dry density), protection of embankment from tidal thrust by manufacturing and placing of C.C Block, supply and placing of stone boulders & geo-textile fabrics etc. in slopes of embankment.
- 3.2 The summary of works under the contract include:
  - (A) Construction of Embankment - 4.852 km
  - (B) Slope Protection of Embankment - 4.852 km
  - (C) Land Filling by dredging - 30,75,518.20 Cum
- 3.3 The location maps indicating sites are presented in Map -1. In terms of quantity, the major work items are presented in Table 1 below:

Table 1: Tentative Quantity of Works.

Sl. No.	Description of Items	Unit	Quantity
1	Earth work for Embankment Construction	cum	9,60,500
2	C.C. Block for Slope Protections	Nos.	6,61,729
3	Earth/Sand Filling	cum	16,543
4	Geo-Textile	sqm	1,89,692

## 4 LOCATION OF WORK:

- 4.1 The proposed work is to be accomplished located in Mirsarai, Chittagong and Geographical location are stated below in UTM format (to be taken as guide only):

Sl. No.	Longitude	Latitude	Remarks
1	339960	2515860	
2	339990	2515830	
3	340590	2514990	
4	341670	2514360	
5	341760	2514330	
6	342480	2514570	
7	342750	2514960	
8	342780	2515560	
9	342750	2515590	
10	341940	2515620	
11	341760	2516730	
12	340890	2515830	
13	340470	2516190	
14	340320	2516190	
15	340050	2516130	
Map-1:			



## Specification

### Sub-Section-B : Technical Specification

#### 1 GENERAL

1.1 Description of Works: Description of Work is included in Specifications

1.2 Programme

(A) Construction Programme

- (1) Within 7 days of the Notice of Award being issued, the Contractor shall submit to the Engineer for his approval a bar-chart programme showing the sequence in which he proposes to carry out the Works, including the procurement and delivery of equipment and material. He should also submit implementation matrix and CPM as directed by the Engineer.
- (2) The Contractor shall, whenever required by the Engineer, also provide in writing of his information a general description of the arrangements and methods which the Contractor proposes to adopt for the execution of the Works.
- (3) If at any time it would appear to the Engineer that the actual progress of the works does not conform to the approved programme, the Contractor shall be obliged to produce for the approval of the Engineer, the reasons for any change and a revised programme showing the modifications to the approved programme necessary to complete the works within the scheduled time for completion. The submission to and approval by the Competent Authority of such programme or the furnishing of such particulars shall not relive the Contractor of any of his duties and responsibilities under the Contract.

(B) Notice of Operation

- (1) The Contractor shall give full and complete written notice of all important operations, including setting out, to the Engineer sufficiently in advance to enable the Engineer to make such arrangements as the Engineer may consider necessary for inspection and for any other purpose. The Contractor shall not start any important operation without the written approval of the Engineer.

1.3 Monitoring Progress

(A) Monthly Reports

- (1) The Contractor shall furnish the Engineer, without cost to the Owner at regular monthly interval and in a form and number of copies determined by the Engineer, with the following:
  - (a) Physical Progress for the preceding month and estimated progress for the report month;
  - (b) Completion schedules (target and actual) based on the approved construction programme;
  - (c) A tabulation of construction equipment, listing the major items and pieces of equipments comprising the Contraction plant which were utilized for performance of the Works during the preceding month;
  - (d) A tabulation of employees countersigned by the Engineer's Representative, showing the supervisory staff and the numbers of the several classes of labor employed by the contractor in the preceding month;
  - (e) Any report which may be specifically requested by the owner and/or the Engineer.

(B) Attendance at Site Meetings

- (1) The Contractor shall provide attendance at progress and other meetings on site as requested by the Engineer.

(C) As Built Drawings

- (1) The Contractor shall submit whole sets of as-built drawings of the completed works, one set comprising one negative drawings of high quality reproducible polyester transparent "Mylar" film (or similar material) from which clear copy can be made and three clearly printed drawings, to the owner before the expiration of period of Maintenance.
- (2) The as-built drawing shall clearly show the lines and dimensions of the permanent construction actually made based on the change of design from time to time ordered by the Engineer or proposed by the contractor and approved by the Engineer.
- (3) The design drawings will be lent to the Contractor upon request by him in not more than 3(three) copies free of charge.

#### 1.4 Contractor's Site Facilities

- (A) The Contractor shall be responsible for the provision, maintenance, operation and subsequent removal of the following facilities and services on site at his own expenses:
- (B) Temporary stores (including godowns for cement and other perishable materials), warehouse and workshop;
- (C) Temporary buildings for office accommodation for his staff;
- (D) Living accommodation for his staff outside site limits;
- (E) Fencing, Lighting and guarding;
- (F) Carnage or other means of off-loading plant and equipment, placing in temporary storage and moving from storage to equipment locations;
- (G) Site transport for his staff;
- (H) Electric supply for temporary building and tools;
- (I) Raw water from site tube-wells and provision of adequate potable water.
- (J) The Contractor shall submit for the approval of the Engineer within 7 (seven) days from the detail work order to commence work (commencement date), his detailed plans and/or to commence construction drawings of his temporary buildings, godowns, workshops and labour camp that he proposes to construct or rent, including his proposals for water and power supply and sewage facilities.
- (K) The labor camp shall be at a location approved by the Engineer and conform to all of the requirements required by the local law. It shall be laid out and constructed in accordance with a drawing prepared by the Contractor and approved by the Engineer.
- (L) The Contractor shall be responsible for acquiring the land he deems necessary at his own expenses for works beyond the owner's land and for his temporary buildings, godown, workshops, staff quarters, labour camp and any temporary access roads. The Contractor shall maintain the Site and all working areas in a safe and sanitary condition and in all matters of health and sanitation shall comply with the requirements of the local medical officer of health or other competent authority.

#### 1.5 SUFFICIENCY OF MEANS EMPLOYED. The Contractor shall have upon himself the full and entire responsibility for the sufficiency of his supervisory and

other personnel, plant, machinery, tools or implements, scaffolding, timbering and generally for all means used for the fulfillment of the Contractor. In the event of any of these means proving insufficient, the Contractor is still fully and entirely responsible for the sufficiency of these means notwithstanding any previous approval or recommendation that may have been given by the Engineer.

## **2 CARE OF WORKS**

**2.1 Movement of Plant.** The Contractor shall exercise diligence and care in the movement of all plant within the Contract area so as not to cause injury or damage to life or property. The Contractor shall be responsible for restoring any roadway, bridge, culvert etc damaged by his plant to the satisfaction of the Engineer or appropriate Authority.

**2.2 Keeping Works Free of Water.**

(A) The Contractor shall Construct the ring dykes, any cofferdams, temporary bulkheads, watercourses and other works and supply and operate such pumping plant as may be necessary for the construction of the works.

(B) Notwithstanding any approval by the Engineer of the arrangements made for the exclusion of water from the works, the Contractor will be held responsible for the sufficiency thereof and will be liable for keeping the works safe during water fluctuations and floods and shall make good any damage to the works that may be attributable to them at his own expense. Any loss of production, additional overheads or additional costs of any kind that may result from floods are at the Contractor's risk.

**2.3 Material on and Under the Site**

(A) All Soil, turf, gravel, stone, timber, or other materials obtained in the excavations, clearing of the Site of the works and soil stripping, shall belong to the owner and must not be removed from the works site without the written consent of the Engineer. The Contractor, however, may use for the construction of the works timber felled on the site and any of the materials excavated under the Contract which the Engineer may determine to be fit for such use and shall use such materials if directed by the Engineer. In such case an adjustment of rate of that particular item shall be made in accordance with Boa's guidelines.

## **3 SURVEY WORKS**

**3.1 System of units.** The metric system of units shall be used unless otherwise instructed by the Engineer.

### 3.2 Survey and Datum for Levels

- (A) The levels shown on the Drawing are referred to Public works Department (PWD) datum.
- (B) Prior to the start of the Works, the Contractor will receive from the Engineer a list of Project bench Marks and their values and reference points on the Site. The Contractor shall be responsible for checking the level of these bench marks prior to their use. Levels shall close within 10 mm multiplied by the square root of the length of the circuit in km. thereafter, the Contractor shall establish all setting out necessary for the performance of the work, to the approval of the Engineer including levels of the original ground surface at the site and final survey of the completed works for the final measurement.
- (C) From the centre line and grades established, the Contractor shall furnish and place all additional stakes, templates and bench mark necessary for marking and maintaining points, lines and sections for layout of the works.
- (D) The Contractor's methods of recording survey data shall be subject to approval and field books and tabulated data shall be well maintained and made available for inspection and checking by the Engineer when ordered.
- (E) Instruments and equipment for surveys shall be subject to rigorous inspection by both the Contractor and the Engineer and any item found to be defective, in the opinion of the Engineer, shall be promptly replaced, repaired or adjusted as directed. All surveying shall be directly supervised by a qualified surveyor or Engineer.
- (F) The checking of the setting-out of the Works by the Engineer's staff shall not relieve the Contractor of any of his liabilities or responsibilities under the Contract.

## 4. FABRICATED ITEMS INCORPORATED IN WORKS

- 4.1 Whenever required by Specification to fabricate or manufacture and furnish equipment for incorporation in the permanent works, the Contractor shall submit to the Engineer for his approval the names of the manufacturers or fabricators he proposes to use and also his detailed shop drawings for approval before proceeding with the work. All such drawings shall be adequately and properly checked before being submitted to the Engineer for approval and shall be so designated.
- 4.2 Any fabricating or manufacturing undertaken during or before the approval of the drawings will be at the Contractor's risk. The Engineer shall have the right to require the Contractor to make any changes in the design which may be

necessary, in the opinion of the Engineer, to make the equipment or component materials conform to the requirements and intent of these Specifications without additional cost to the Employer.

- 4.3 Approval of the Contractor's drawings shall not be held to relieve the Contractor of any part of his obligation to meet all of the requirements of these Specifications or of the responsibility for the correctness of his drawings. At the time of delivery of the equipment, the Contractor, if requested to do so, shall furnish to the Engineer two complete sets of negatives of the final approved Drawings.

## **5. INSPECTION/TESTS AT FABRICATOR'S WORKSHOP**

- 5.1 All equipment furnished under these specifications and all work performed in connection therewith will be subject to inspection by the Engineer or his authorized agent. Inspection at the manufacturer's plant will be made to determine that the equipment and the materials used for their manufacture meet the requirements of the technical Specification.
- 5.2 The Contractor shall notify the Engineer not less than 15 days in advance of the date and place equipment/material will be available for inspection. No equipment or material shall be transported to site until the Engineer's inspection at the manufacturer's plant has been made, the Engineer's approval is given, final drawing have been furnished by the Contractor and the Contractor's responsibility for furnishing equipment and materials meeting the requirements of the Contract Document are complied with; the cost of the Engineer's necessary inspection shall be borne by the Contractor.

## **6. MATERIAL AND WORKMANSHIP**

### **6.1 General**

- (A) Workmanship shall be of the best quality appropriate to each category of work. Materials used in the Works shall be of the best quality of their respective kinds as specified or described in the Contract. All workmanship and materials shall be to the approval and entire satisfaction of the Engineer. The Contractor shall supply copies of orders or sub-contracts placed by him for materials for the Works.

### **6.2 Standards**

- (A) Any standard or Code of Practice referred to in the Documents relating to the Contract or any other Standard or Code of Practice that may be substituted therefore shall be held to be the latest edition published 3 months prior to the date for submission of Tenders.
- (B) All relevant particulars and conditions in Standards relating to the Contract or any other Standard or code of Practice that may be

substituted therefore shall be held to be the latest edition published 3 months prior to the last date for submission of Tenders.

- (C) All relevant particulars and conditions in Standards relating to standard of material, quality and workmanship shall be complied with and all tests specified shall be conformed to. In cases where no particular specification is given for any article or material to be used under the Contract, the relevant BDS, JIS, ASTM, AASHTO, British Standard or Code of Practice, where one exists, shall apply.

### 6.3 Materials

- (A) Materials shall be delivered to the Site a sufficient Period before they are required to be used to enable the Engineer to take such samples as he may think proper for testing and examination and the Contractor shall supply such information as to their quality, weight and strength and other particulars as may be required. Any materials condemned by the Engineer shall be removed immediately from the site.
- (B) All materials stored on the site shall be adequately protected against contamination or deterioration.

### 6.4 Tests

- (A) The Contractor shall arrange for the tests required by the Technical Specification or as directed by the Engineer to confirm the quality of construction materials and work at no extra cost to the Contract. The number of tests shall be in accordance with relevant ASTM, NBC, ACI, AASHTO, British Standard or Cod of Practices or normal practice. Material shall be tested in a testing laboratory and manner approved by the Engineer. Test results shall be submitted expeditiously, in an approved form, to the Engineer.

### 6.5 Tolerances

- (A) All works shall be constructed within the tolerance shown in Appendix A of this volume of the Technical Specification.

## 7. MEASUREMENT AND PAYMENT:

### 7.1 Introduction

- (A) The Contractor's attention is drawn to the Conditions of Contract, Technical Specifications and Contract Drawings, which are to be read in conjunction with the schedule of Rates.
- (B) The Contractor shall have been deemed to have taken full account of all information contained in the Tender Documents and made available

during the tender period as affects, inter alias, working methods, haulage requirements and sequence of operations and have made full allowance for the same in the rates and sums entered against the various items in the Schedule of Rates.

- (C) The specified measurement and payment clauses shall apply to any additional or varied work which the Contractor may be required to execute under the Contract except where specifically varied therein.

7.2 **Quantities.** The quantities given in the Schedule of Rates are estimated and provisional, and are given to provide a common basis for bidding and the Owner does not expressly not by implication agree that the actual volume of work to be performed will correspond therewith. The basis of payment will be the actual quantities of work ordered and carried out, as measured by the Engineer (based on as-built drawing) and valued at the rates and prices tendered in the priced Schedule of Rates, where applicable, or otherwise at such rates and prices as (in case of non-tendered/non-scheduled items) the Competent Authority may fix within the terms of the contract.

### 7.3 Rates and Sums

- (A) Notwithstanding any limits which may be implied by the working of the individual items and or the explanations in this section,
- (B) it is to be clearly understood by the contractor that the rate the quotes in the Schedule of Rates is to be for the work finished complete in every respect; he will be deemed to have taken full account of all requirements and obligations, whether expressed or implied, covered by all parts of this Contract. The rate must therefore include for all incidental and contingent expenses (including all taxes) and risks of every kind necessary to construct, complete and maintain the whole of the works in accordance with the Contract. Full allowance is to be made in the quoted rate in the Schedule of rate for all costs involved in the following, inter alia, which are referred to and/or specified herein:
  - (1) all setting out and survey works;
  - (2) temporary access unless separately billed, fencing, guarding, lighting, and all temporary works, including their removal on completion;
  - (3) paying fees and giving notices to Authorities;
  - (4) reinstatement of the Site;
  - (5) safety precautions and all measures to prevent and suppress fire and other hazards;

- (6) interference to the works by persons or vehicles being legitimate users of the facilities on or in the vicinity of the Site;
- (7) the protection and safety of adjacent structures in so far as they may be affected by the Works or Temporary works;
- (8) Supplying, maintaining and removing on completion the Contractor's own housing for staff and labour, offices, workshop, plant yard, transport, welfare, services in connection other with and other facilities required by the Contractor unless separately billed;
- (9) Working in the dry except where otherwise permitted by the Specification;
- (10) The supply, inspection and testing of materials intended for use in the works including the provision and use of equipment;
- (11) Maintaining public roads and footpaths and maintaining access upon existing roads or recognized routes;
- (12) Maintaining public roads opening quarries and borrow pits, including all survey, site investigations, removal and disposal of overburden, trimming of quarry or borrow pit faces and floors and all measures necessary to render quarries or pits safe and free draining on completion;
- (13) Providing, transporting to site, setting work, operating (including all fuel and consumable stores), maintaining and removal from the site upon completion all construction plant and equipment necessary for the execution of the work and including the cost of all test and other requirements in respect of such plant and equipment;
- (14) The requirements and all incidental costs and expenses involved in the provision of all necessary skilled and unskilled labor and supervision;
- (15) Protecting Completed work from following operations, making good damage to completed work due to any cause whatsoever, for clearing away rubbish as it accumulates and leaving the site in a tidy condition;
- (16) All cost associated with the provision and submission of progress Reports, record photographs, preparation of the necessary shop and working drawings etc. except for those provided in the Schedule of Rates.

(17) Workmen's compensation and Owner's liability insurance.

- 7.4 **Breakdown/Analysis of Rate.** The Contractor shall, when directed by the Engineer, submit detail breakdown for the rate entered in the Schedule of Rates for composite units of work into their component elements in such detail as may be required by the Engineer in accordance with the provisions laid down in the tender/bidding document.
- 7.5 **Method of Measurement.** In general the Schedule of rates has been drawn up in accordance with the standard method of measurement of Civil Engineering rate currently used by Bangladesh Water Development Board for preparation of Schedules of Rates in individual Water Development circle. Any clarification regarding Schedule of Rates, Method of Measurement and payment shall be judged by the Engineer in accordance with the BWDB Standards in conjunction with the Technical Specification, clauses, Schedule of rates and other Tender Documentation.
- 7.6 **Method of Payment**
- (A) The works as executed complying Drawings and Instructions of the Engineer will be measured for payment in accordance with the method adopted in the Schedule of Rates and the item therein set forth notwithstanding any custom to the contrary. The net quantity of the finished work in place will always be taken except where otherwise specified.
  - (B) Payment of Royalties for fill material obtained from privately owned land shall be at the contract rates. The volume of borrow material for payment of royalties mentioning specific chainages in the Measurement Book shall be calculated on the basis of pre-Work and post work measurements. Finished section as per drawing will be the basis for post work measurement while the work complete as per specification.
  - (C) For execution of earth works on payment of royalties, specific order mentioning chainages and quantity (based on pre-work survey) shall be obtained by the contractor from the Engineer prior to the execution of such work.
  - (D) Payment shall mean gross payable amount on the rates of Schedule of Rates including retention money.
  - (E) No direct payment shall be made for works required under other clauses: the cost for such works shall be deemed to be included in related items of Schedule of Rates.

## 8. SITE PREPARATION

- 8.1 **Commencement.** The Contractor shall give the Engineer at least seven days written notice of his intention to commence work on any part of the Site. Works shall not be commenced until written approval has been received by the Contractor from the Engineer.
- 8.2 **Drawings.** The works are to be constructed in accordance with the Drawings and as directed by the Engineer. It may become necessary or desirable, during the progress of the work to change the slopes or dimensions. Whenever this occurs, the Contractor shall perform the required work to the revised slopes and dimensions in accordance with the written instruction of the engineer.
- 8.3 **Setting Out**
- (A) Prior to the commencement of the Works, the Contractor shall study the Drawings and fully understand all the aspects of the work and correlate the same with the dimensions shown in the structural drawings, and shall fix up the alignment, set the B.M pillars, levels, pegs etc.
  - (B) Before works are permitted to commence, channel invert levels and alignment of the bed and top of side slopes and embankment toe and crest levels and alignment shall be accurately set out at every 100 meter for new and 150 meter for old works and at bends to the satisfaction of the Engineer.
  - (C) Cutting or filling charts, prepared by the Engineer, will be given to the Contractor to sign as a token of his agreement.

## 9. SITE CLEARANCES AND REMOVAL OF EXISTING STRUCTURES

- 9.1 **Cleaning and Grubbing:**
- (A) During the Contractor's operations the removal of weeds, organic materials, unsuitable materials, shrubs, vegetation and small trees with a girth not exceeding 0.3 m measured 1 m above ground level may be required, in which case, the Contractor shall remove such materials, shrubs, vegetation and trees after obtaining prior written approval from the Engineer. All trees and shrubs to remain in place shall be protected from damage. Where clearing is required, in the right-of-way and borrow area outside the right-of-way, all combustible materials from clearing operations shall be burned or removed from the Site of work or disposed of as directed. However, the felled trees shall not be burned; but shall be deposited at the area designated by the Engineer.
  - (B) All materials to be burned shall be piled neatly and when in a suitable condition shall be burned completely. Piling for burning shall be done

in such manner and in such location as to cause the least fire risk. All burning shall be so performed that the cleared materials will be reduced to ashes. The Contractor shall at all times take special precautions to prevent fire from spreading and shall have at all times, suitable equipment and supplies for use in preventing and fighting fires.

- (C) Grubbing shall consist of the removal of the stumps, jungle growth, brush and rubbish from the work areas to be occupied by permanent structures, embankments, resettlement village area and from the surface of borrow areas, stockpile sites and elsewhere as directed by the Engineer.
- (D) No tree felling will generally be permitted unless essential for the construction of the works and no tree shall be cut without the written permission of the Engineer.
- (E) Where a particular Bill/Sub-Bill of the Bill of Quantities does not include an item for Clearing and Grubbing, no separate payment shall be made for such work and all costs therein shall be deemed to be included in the unit rates for various types of excavation/embankment construction/filling area for villages.

## 9.2 Tree Removal

- (A) Where shown on the Drawings or directed by the Engineer trees exceeding 0.3 m girth measured 1 m above ground level shall be uprooted or cut down as near to ground level as possible and the root ball extracted separately. The Contractor shall clearly demarcate and count the number of trees to be removed and mark them as instructed by the Engineer. No tree shall be felled without obtaining such approval from the Engineer. The prior permission for cutting trees shall be obtained from concerned authorities as per the prevailing laws of Bangladesh.
- (B) The Contractor shall take necessary precautions to prevent damage to structures and public property. If necessary, trees shall be cut in sections from the top downwards. In order to prevent damage to trees that are to be left standing, trees shall be felled towards the centre of the area being cleared.
- (C) The trees shall be felled, and the roots shall be dug out as far as possible, or directed by the Engineer. The earth-filling in the area where roots have been dug out shall be compacted in 200 mm layer-wise with a suitable compacting machine.
- (D) The trees shall not be burned, but shall be transported to an area designated by the Employer and shall be stacked and deposited. Such

timber shall not be used by the Contractor for any purpose and the felled trees shall be property of the Employer/Government.

- (E) The Contractor shall be responsible for any theft and unauthorized removal of the felled trees, and shall maintain a register showing the number of trees felled and stored in the designated area.
- (F) Payment for removal of trees and roots including chopping branches, transportation, loading, unloading, stacking at the designated area by the Employer shall be made at the unit rate per square metre as indicated on corresponding Item of Bill of Quantities.
- (G) Where a particular Bill/Sub-Bill of the Bill of Quantities does not include an item for Removal of Trees, no separate payment shall be made for such work and all costs therein shall be deemed to be included in the unit rates for various types of excavation/embankment construction or structures.

9.3 **Notice of Commencement.** The Contractor shall give to the Engineer notice of his intention to commence the Clearing and Grubbing operations. The works shall not be commenced until written approval has been received from the Engineer.

9.4 **Stripping of Top Soil**

- (A) Stripping shall consist of the removal of all organic materials such as sod, topsoil and roots from all embankment foundations, from areas where the excavated material is to be further used in embankments, from the base of all roads and in all other areas shown on the Drawings or directed by the Engineer, and the stockpiling or disposal thereof.
- (B) Materials from stripping which are suitable for topsoil shall be selected during stripping operations and stockpiled for further use as directed by the Engineer.
- (C) Materials not suitable for topsoil or further use shall be disposed of in spoil banks as instructed by the Engineer.
- (D) Materials from stripping shall be stockpiled or disposed thereof as provided in relevant clauses of this Specifications. The disposal of all materials wasted from stripping shall be subject to the approval of the Engineer.
- (E) Measurement for payment for all stripping operations shall include only the stripping, on locations instructed by the Engineer and to a depth of 150 mm or as shown on the Drawings.

- (F) Where a particular Bill/Sub-Bill of the Bill of Quantities does not include an item for Stripping, no separate payment shall be made for such work and all costs therein shall be deemed to be included in the unit rates for various types of earthworks under the contract.

## 10. EARTHWORKS

### 10.1 Earthwork in Construction / Re- sectioning of Embankment

- (A) General: Construction / Re-sectioning of Embankment/Spur consist of furnishing, placing and compacting materials to the lines and grades shown on the Drawings or as directed by the Engineer. It includes collecting suitable soil, throwing to a profile in layers not exceeding 230mm in thickness, breaking clods, benching the side slopes, stripping the base of embankment and borrow pit area, dug bailing, profiling, cutting trees up to 200mm girth with uprooting stumps, clearing jungles, mechanical compaction, bailing out of water, rough dressing and 150mm cambering at the centre of the crest etc. complete as per design, specification and direction of Engineer in charge.

- 10.2 **Materials.** The material to be used for Construction / Re-sectioning of Embankment/Spur shall be suitable earth and shall not contain any stumps, peat, logs, weeds, roots, clods, or any organic matter that may decay and shall be capable of being compacted to the required standard. The soil shall be with minimum 16% clay, 0-60 % silt and 0- 30% sand. The material shall be tested in authorized laboratory to ascertain its grain size distribution, liquid and plasticity. Liquid limit of soil passing 0.425 mm sieve shall not exceed 50% (STP-3.2: Atterberg Limits) and Plastic Limit passing 0.424 mm sieve shall not exceed 25% (STP-3.2: Atterberg Limits). The moisture content of fill materials before compaction shall be within +/- 5% of the optimum moisture content as determined in accordance with STP 4.4 (Standard Compaction Modified hammer of 4.5 Kg). One density test for each **1000 square meter** of a completed layer will be carried out according to STP 6.2 (Sand Replacement Method), unless otherwise directed by the Engineer. The clods of the earth shall be broken down to a maximum size of 100mm before compaction operation.

## 11 MECHANICALLY COMPACTED EMBANKMENT

- 11.1 Embankments designated on the Drawings or by the Engineer to be mechanically compacted shall be compacted to the lines and grades shown on the Drawings or established by the Engineer. The Contractor's operations in the excavation of material designated for use in compacted embankments or compacted backfill shall be such as will result in an acceptable gradation of material, as determined by the Engineer, when placed.

- 11.2 Just prior to and during placement operations, the materials shall have a moisture content of not greater than 5 percent wet or less than 5 percent dry of optimum moisture required for the purpose or compaction, as determined by Test No. 12 of BS 1337 and approved by the Engineer, and the moisture content shall be uniform throughout each layer. In-so-far as practicable, as determined by the Engineer, the material shall be brought to the proper moisture content at the site of excavation.
- 11.3 If the moisture content is less than optimum for compaction, the moisture shall be supplemented by sprinkling and reworking the material at the site of compaction. If the moisture content is more than optimum for compaction, the material shall be dried by reworking, mixing with dry materials or other approved means. If the moisture content is less than optimum by more than 2 percent or is greater than optimum by 2 percent, the compaction operations shall not proceed, except with specific approval of the Engineer, until the material is wetted or allowed to dry out, as may be required, to obtain optimum moisture content within the tolerances permitted above, and no adjustment in price shall be made on account of any operations of the Contractor in wetting or drying the materials or on account of any delays occasioned thereby.
- 11.4 If the material being excavated from canal or other water logged areas for use as embankment material is saturated, then it shall be initially stockpiled to drain the excess water before placing it for construction of embankment.
- 11.5 The material to be compacted shall be deposited in horizontal layers not more than 230 mm thick, and the distribution of Materials shall be such that the compacted material will be homogeneous and free from lenses, pockets, streaks or other imperfections. The excavating and placing operations shall be such that the materials when compacted will be blended sufficiently to secure the best practicable degree of compaction, impermeability and stability, and for this reason the preceding compacted layer shall be scarified before placing the new layer.
- 11.6 When the material has been conditioned and placed as specified or directed, it shall be compacted with appropriate motorized vibratory compaction equipment or tampers of adequate weight and size as approved by the Engineer.
- 11.7 The material in compacted embankment on which a road is to be laid shall be compacted until the dry density of compacted material is not less than 90% of the laboratory maximum dry density as determined by Test No. 13 of BS 1377 (4.5 kg rammer method) or similar approved test for the material being compacted. Materials forming all other embankments on which limited vehicular traffic might be allowed after completion shall be compacted until its dry density reaches at least 85% of the laboratory value as tested above. The Engineer will take samples of the material being compacted and will

perform tests required to determine that the compacted is meeting the requirements of these Specifications. The Contractor shall provide all necessary aid to the Engineer in obtaining representative samples for testing at no extra cost.

- 11.8 The insitu dry density of the compacted fill shall be determined by the sand replacement method described in Test No. 15 of BS 1377 or similar approved test at locations ordered by the Engineer.
- 11.9 Given below is the sequence of work and procedures to be followed by the Contractors for earthworks:
- (A) Joint pre-work survey - Establishment of design centerline, embankment limits (toe line) and permanent offsets to identify the centerline and toe line in addition to the volume of earthworks to be completed.
  - (B) On completion of pre-work survey the Contractor should start clearing and grubbing. Then the Contractor should remove and stockpile top soil.
  - (C) Then the Contractor should identify the material sources (borrow pits). Each borrow pit should have a number, chainage etc. Borrow pits should not be nearer than 10m from the toe.
  - (D) After identification by the Contractor the Engineer should approve the borrow pit location
  - (E) After approval by the Engineer the Contractor should test the materials (borrow pit) and submit the test results (Atterberg limits, moisture density relations, 4 day soaked CBR) and samples of material to the Engineer for approval.
  - (F) Then the Engineer should carry out his own testing and approve or reject the material.
  - (G) After the Engineer's approval, the Contractor should remove and stockpile top soil from the approved borrow pits and stack approved fill material.
  - (H) Then the Contractor starts earthworks.
  - (G) If the embankment foundation has unsuitable material, remove unsuitable material and replace with approved material.
  - (I) In case of widening, if the existing embankment has unsuitable material, then the Contractor should remove unsuitable material and replace with approved material.

- (J) In case of widening, new fill material should be fully keyed into the existing embankment by means of benching the existing embankment
- (K) First the Contractor should prepare existing ground and obtain the Engineers approval for ground preparation and/or benching
- (L) After approval of the ground preparation and/or benching, the Contractor should place the first layer. When placing the first layer and subsequent layers, the Contractor must carry out the work in accordance with the following:
  - (1) Break clods or hard lumps;
  - (2) Ensure moisture content of the fill material before compaction should be within + or – 5% of OMC;
  - (3) Allowable compacted layer thickness not greater than 150mm;  
  
The material should be compacted to achieve not less than 90% MDD for layers other than the layers within 300mm below the top level of subgrade. The Contractor must identify the borrow pit from which the material was taken;
  - (4) The material should be compacted to achieve not less than 95% MDD for layers within 300mm below the top level of subgrade and 4 day soaked CBR should be greater than 4% at 95% MDD.
  - (5) The Contractor must identify the material was taken from which borrow pit;
  - (6) The Contractor should test and confirm first layer satisfies above mentioned compaction requirements and additionally CBR requirement for the layers within 300mm below the top level of subgrade;
  - (7) The Contractor will request the Engineer for approval of the first layer;
  - (8) The Engineer should test and confirm first layer satisfies above mentioned compaction requirements and additionally CBR requirement for the layers within 300mm below the top level of subgrade;
  - (9) Based on test results the Engineer should approve or reject the layer;
  - (10) The Contractor should repeat this process for each layer;

- (11) The Contractor must not place any layer until the Engineer approves the previous layer; and
- (12) The Contractor should have on his daily records the locations where earthworks carried out on that day and identification of the source of material approved by the Engineer used in the works on that day.

## **12. FILLING BY DREDGING**

- 12.1 Land filling shall include filling within the acquired area according to lines and levels shown on the Drawings or as directed by the Engineer. The type of soil to be used for filling shall be only limited to sand sourced from Bay of Bengal or sandy materials as approved by the Engineer. The contractor can use dredging equipment for this purpose. The materials for filling shall not contain any stumps, brush, weeds, roots, clods and any matter that may decay.
- 12.2 Not less than seven (7) days before he intends to commence the works, the Contractor shall submit to the Engineer for his approval the details of his proposed method of obtaining fill materials. The Contractor shall not commence any work necessary for furnishing the materials until the Engineer's approval has been obtained.
- 12.3 The entire ground surface to be under fill area shall be scarified or ploughed thoroughly and be compacted to meet requirements as specified by these Specifications. This operation shall commence only after the completion of stripping, as specified in Sub-Clause 2.4 of these Specifications.
- 12.4 Before commencing filling, and from time to time as may be considered necessary by the Engineer, the Contractor shall carry out compaction trials in the presence of the Engineer on each type of soil to be used. He shall carry out all necessary laboratory and field testing as required by the Engineer and shall submit to the Engineer the results of all tests.
- 12.5 Following the completion of compaction trials, the Contractor shall submit to the Engineer, for his approval, proposals for the compaction of each type of material. The Contractor's proposal shall include reference to the types of equipment, operating weights and tyre pressure, method of adjusting moisture content, number of passes and loose depth of each layer.
- 12.6 If, in the opinion of the Engineer, the results of the compaction trials indicate that the Contractor's proposed equipment and methods will achieve the densities specified, the Engineer shall approve the same.
- 12.7 Notwithstanding the Engineer's approval of any of the Contractor's equipment or methods, the Contractor shall at all times be solely responsible for executing the works in accordance with the Specifications.

- 12.8 The entire earthwork shall be spread in layers of uniform thickness not exceeding 200 mm over the entire width. The moisture content of the spread material shall be checked prior to commencement of compaction. If it is found to be outside the specified limits, the same shall be adjusted by watering or drying to the permissible limits specified, only then the soil shall be compacted by mechanical rollers to not less than the specified percentages of the maximum dry density. The compacted layer shall be tested by the Contractors for checking the density and other parameters in accordance with the frequencies specified in Technical Specifications.
- 12.9 For the filling of area, if the results of the field density tests show less than the specified density (Related density for sand 35%) in a certain layer, the whole reach will be rejected and re-compaction shall be required. Successive layers shall not be placed until the Engineer approves the layer under construction.

### **13. FINE DRESSING AND CLOSE TURFING**

This work shall consist of furnishing all topsoil, grass and fertilizers and placing and incorporating the same on fill slopes and other locations or directed by the Engineer.

- 13.1 **Description.** Fine dressing and close turfing including ramming, watering until the turf grows properly, maintaining etc. on the slopes of fill should be done with 75mm thick good quality durba or charkanta sods of size 200mmx200mm. Other grass types proven to grow well under the local conditions may also be used subject to the prior approval of the Engineer.
- 13.2 **Materials.**
- (A) Grass shall be harmless to persons and animals and not of a kind recognized as a nuisance to agriculture. It shall be free of disease and noxious weeds, deep-rooted and sufficiently rapid growing and spreading to give complete cover over the planted area within the final construction inspection period.
  - (B) The term “grass” embraces turf and sods and, if the Engineer permits, may include plants of other types capable of giving effective protection. Fertilizer shall be approved lime or mixtures of plant nutrients or both. Fertilisers shall consist of standard commercial materials such as Nitrogen-Phosphate-Potassium shared in ratio of 16:5:12 or in other suitable ratio approved by the Engineer. The application rate shall be determined through soil analysis of soil samples taken from the area to be grassed.
- 13.3 **Construction**
- (A) Sodding or turfing shall be done by planting sods or turfs, as indicated on the Drawings, to give continuous cover over the whole area. They shall be planted with their roots system substantially undamaged, well

buried in firm material, and packed around the moist earth in which they have grown.

- (B) Grass planting shall be started well in advance of the monsoon season to ensure establishment of growth before the rain sets in and shall not be performed when the ground is muddy or when the soil or weather conditions would otherwise prevent proper soil preparation and subsequent operations
- (C) The Contractor shall maintain the grass at his expense until the end of the Defect Liability Period. Maintenance shall consist of preserving, protecting and replacing grass and such other work as may be necessary to keep it in a satisfactory condition to prevent erosion and present a dense and uniform appearance. The Contractor shall be responsible for satisfactory growth and shall water, fertilize, and mow the grass at such intervals as will ensure good ground cover of live grass all through the Defect Liability Period.

#### 13.4 Measurement and Payment

- (A) The quantity measured for payment shall be in square meters of finished and accepted work i.e. of turfed or sodded surface whether horizontal or sloping of required and accepted grassing well established in place.
- (B) The unit rate shall be deemed to include the cost of furnishing all labour, material, incidentals for carrying out the work including preparation of grass-bed, fertilizing and planting of grass as specified, watering, maintenance and all other procedures specified herein. The Payment of the item grass turfing shall be in square meter as indicated in Bill of Quantities.

### 14. MANUFACTURING AND SUPPLYING CEMENT CONCRETE (CC) BLOCKS

- 14.1 **General.** Pre-cast concrete blocks shall be made to the dimensions shown on the Drawings or as specified in the Bill of Quantities. The materials and workmanship shall comply with the specifications in all respect and to the satisfaction of the Engineer. Except otherwise shown on the Drawings, precast concrete blocks (cc blocks) shall be **made from concrete having minimum cylinder strength at 28 days of 25 Mpa for Protective Work** and cast in moulds formed from steel sheet. The moulds shall be sufficiently tight fitting to prevent grout losses and sufficiently rigid to withstand the effects of placing and vibratory the concrete without distorting and capable of releasing the hardened concrete blocks without causing damages to the blocks

#### 14.2 Cement

- (A) The cement used in the Works shall be Ordinary Portland Cement complying with BS BN 197-1:2011. The cement shall be delivered to the site of the Works in sound and properly sealed bags. The Contractor shall provide from each consignment of cement, delivered to the site, such samples as the Engineer may require for testing.
- (B) In addition to the tests required in BS BN 197-1:2011, the Engineer may also make any further tests, which he may consider advisable or necessary to ascertain if the cement has deteriorated in any manner during transit or storage. Cement showing lumps which cannot be broken to the original fineness by finger pressure will be rejected irrespective of age and shall be removed from the site.
- (C) Any cement which in the opinion of the Engineer is of doubtful quality shall not be used in the Works until it has been re-tested and test result sheets, showing that it complies in all respects with the relevant standard, have been delivered to the Engineer.

Days	Compressive strength (N/mm <sup>2</sup> )	Tensile strength (N/mm <sup>2</sup> )
3	13	1.00
7	20	2.00
28	28	2.50

- (D) The initial setting time shall be not less than 45 minutes and the final setting time shall be not more than 8 hours. The cement when tested for fineness shall have a specific surface of not less than 160 m<sup>2</sup>/kg. The cement when tested for soundness shall not have an expansion of more than 10 mm. The unit weight of cement shall be 14.16 kN/m<sup>3</sup>.
- (E) Cement shall be delivered to the work site in sound and properly sealed jute/paper bags, each plainly marked with manufacturer's name or registered mark. The cement shall be protected from the weather by tarpaulins or other approved covering during transit. The weight of individual bag containing cement shall be 50 kg and weight of all bags shall be uniform. The weight of cement shall be legibly marked on each bag. Bags in broken or damaged condition shall be rejected.
- (F) Each consignment of cement delivered to the site must be accompanied by a certificate showing the place of manufacture and the results of standard tests carried out on the bulk supply from which the cement was extracted. The Contractor shall provide waterproof and well ventilated pucca godowns at the specified or approved location at the site, having a floor of wood or concrete raised at least 450 mm above

- (G) The initial setting time shall be not less than 45 minutes and the final setting time shall be not more than 8 hours. The cement when tested for fineness shall have a specific surface of not less than 160 m<sup>2</sup>/kg. The cement when tested for soundness shall not have an expansion of more than 10 mm. The unit weight of cement shall be 14.16KN/m<sup>3</sup>.
- (H) Cement shall be delivered to the work site in sound and properly sealed jute/paper bags, each plainly marked with manufacture's name or registered mark. The cement shall be protected from the weather by tarpaulins or other approved covering during transit. The weight of individual bag containing cement shall be 50 kg and weight of all bags shall be uniform. The weight of cement shall be legibly marked on each bag. Bags in broken or damaged condition shall be rejected.
- (I) Each consignment of cement delivered to the site must be accompanied by a certificate showing the place of manufacture and the results of standard tests carried out on the bulk supply from which the cement was extracted.
- (J) The Contractor shall provide waterproof and well ventilated pucca godowns at the specified or approved location at the site, having a floor of wood or concrete raised at least 450 mm above the ground. The sheds shall be large enough to allow a minimum 300mm gap between the stacked cement and the godown walls, to store sufficient cement stored to ensure continuity of work and to permit each consignment to be stacked separately therein to permit easy access for inspection. All storage facilities shall be subject to approval by the Engineer.
- (K) Immediately upon arrival at the site, cement shall be stored in the godowns with adequate provision to prevent absorption of moisture. The Contractor shall use the consignments in the order in which they are received. Cement delivered to the site in drums or bags provided by the supplier or manufacturer shall be stored in the drums or bags until used in the Works. Any cement in drums or bags which have been opened shall be used immediately after opening. The cement shall not be stored in a godown for more than three months or a lesser period as directed by the Engineer. After this period has expired, any unused cement shall be removed from the site.
- (L) The cement shall be placed in the sheds immediately upon delivery to the site and shall be used in the order in which it has been delivered. Any cement in bags which have been opened shall be used immediately after opening.

### 14.3 Coarse Aggregate

- (A) The coarse aggregates shall be crushed stone chips (40 mm downgraded or as specified in the design) and well shaped. The amount of clay, fine silt and fine dust occurring in a free state or as a loose adherent shall not exceed one percent by weight. Crushed stone chips aggregates shall comply with B.S 882 - Part 2 and shall be hard, strong, durable, dense and free from injurious amounts of adherent coatings, clay, lumps, dust, soft or flaky particles, shell, mica, alkali, organic matter and other deleterious substances. The various sizes of particles of which an aggregate is composed shall be uniformly distributed throughout the mass. The aggregates shall be stored on hard and dry ground with adequate partitions to ensure the separation of different types and grading. Care shall be taken in storage to avoid inclusion of any foreign material in the aggregates. The aggregates shall be handled carefully so as to avoid segregation of various sizes within each grade. Testing of aggregates shall be in accordance with B.S 812. The Engineer reserves the right to approve or reject the sources of aggregates. No materials shall be used in the work until it has been tested and test result sheets showing that it complies with the relevant standard, have been delivered to the Engineer.
- (B) Coarse aggregates shall be well graded within the grading given in the table below: Percentage by Weight Passing Standard Sieves

**Table 2.3.3 Grading of coarse aggregate 40 mm maximum size**

US Standard Square Mesh	40 mm
50.80 mm	100
38.10 mm	95 – 100
25.40 mm	-
19.05 mm	35 – 70
12.70 mm	-
9.52 mm	10 – 30
No. 4	0 – 5
No. 8	-

Stone Chips shall satisfy the following criteria:

Water absorption as determined by STP 7.5 (or AASHTO T-85) or BS-812 shall not be more than 2%.

The Aggregate Impact Value (AIV) shall not exceed 30% limit as per BS 812: Part 3, Chapter 6.

The percentage of wear according to Los Angeles Test shall not be more than 35 as per ASTM C535.

#### 14.4 Fine Aggregates

- (A) Fine aggregates shall be non-saline and consist of hard, dense, durable materials and shall be free from injurious amounts of clay lumps, light weight materials or other deleterious substances. No materials shall be used in the work until it has been tested and test result sheets showing that it complies with the relevant standard, have been delivered to the Engineer.
- (B) Fine aggregates shall have a fineness modulus (FM) equal to or greater than 1.5 and shall conform to the following requirements:

**Table 2.3.4 Grading of fine aggregate**

Sieve No.	Sieve Size (mm)	Percentage by weight passing
4	4.76	95-100
16	1.18	45-80
50	0.30	10-30
100	0.15	2 – 10
Pan	-	3 – 7

#### 14.5 Water

- (A) The water used for concrete mixing and curing shall be drinkable water, clean and free from any substances injurious to the finished product. It shall be taken from an approved source and free from objectionable quantities of silt, organic matter, alkali, salt and other impurities. Whenever required to do so by the Engineer, the Contractor shall take samples of the water being used or which is proposed to be used for mixing concrete and test them in accordance with BS 3148. No concrete shall be made with unapproved water.

#### 14.6 Formwork

- (A) Formwork and moulds shall be constructed to ensure designed uniform shapes and block sizes. They shall be of steel sheet of minimum 18 gauges with arrangement of nuts and bolts or other mechanism so that they can be easily removed in two parts without any impairment to the cast C.C. Block. Wherever any defect is

noticed in a formwork should immediately be replaced as per direction of Engineer or Engineer's Representative.

#### 14.7 Concrete Type

- (A) Concrete shall be of compressive strengths as shown on the Drawings or as directed by the Engineer. Each mix shall be designed to ensure optimum workability, prevent segregation and produce a dense, durable concrete by adjusting the fine and coarse aggregate proportions following the procedures set out in the specification. The Blocks will be used in River Bank Protection Work shall have minimum 28 days Cylinder Strength of 25 Mpa .

#### 14.8 Mix Design

- (A) The Contractor shall prepare trial mixes having workability, strength and surface finish as criteria, to satisfy the Engineer regarding these qualities. The trial mixes shall be made and compacted in the presence of the Engineer, using the same type of equipment as will be used for the Works. Not later than 7 days before commencement of concreting operations, the Contractor shall inform the Engineer in writing about mix designs he proposes to use, and his target slumps for the various Items. These trials shall not cease until the Contractor has demonstrated that the requirements of these Technical Specifications have been met.
- (B) The margin of the trial mix should be taken as 1.5 times of the characteristics strength of the concrete. Twelve concrete cylinder samples shall be made from the trial mix in the presence of the Engineer. The concrete cylinders shall be made, cured, stored and tested in accordance with BS 1881. Six cylinders shall be tested at 7 days and six cylinders shall be tested at 28 days. If the strength of any of the cylinders tested at 28 days is below the characteristic strength, the Contractor shall redesign the mix, make further preliminary mixes for the Engineer's approval, then undertake additional trial mixes and test the resultant samples until a satisfactory mix is obtained and approved by the Engineer. The trial mix proportions should be approved if the required strength is obtained from tests carried out and the consistency and surface is to the satisfaction of the Engineer.
- (C) When a mix has been approved, no variations shall be made in the mix proportions, or in the type, size, grading zone or source, of any of the constituents without the consent of the Engineer, who may require further trial mixes to be made before any such variations are approved.

#### 14.9 Mixing

- (A) All concrete shall be mixed in modern mechanically operated mixers (Concrete Batch Plant) capable of combining aggregate, cement and water into a uniform mixture and discharging without segregation. The mixer machine without hopper shall not be allowed for mixing and wooden box shall have to use to discharge coarse and fine aggregate into the hopper. Unless otherwise permitted by the Engineer, hand mixing of concrete is prohibited. Mixing should be done thoroughly to ensure that concrete of uniform color and consistency is obtained. Mixing time shall be at least one minute after the last ingredient has been added to the mixer or so much more time as may be recommended by the Engineer. Specified vibrator shall be used in casting of the blocks. The forms of CC blocks shall not be opened before 24 hours or as directed by the Engineer. Honey combed or damaged blocks shall not be acceptable

#### 14.10 Water Cement Ratio

- (A) The maximum water cement ratios specified shall be the ratios by weight of free water to cement in the mix based on the aggregates being in a saturated surface dry condition. The Contractor shall test aggregates for moisture content and so determine the water/cement ratio of the fresh concrete. Water cement ratio shall not exceed 0.45, unless otherwise indicated in the Drawings or approved by the Engineer. Throughout concrete production the actual water cement ratio shall be strictly monitored and the batch quantities of aggregates and water regularly adjusted to maintain the design water cement ratio. Determinations of water/cement ratio shall be carried out as required by the Engineer and the calculations submitted to him

#### 14.11 Slump

- (A) The Contractor shall make available required number slump cone at site. The Contractor shall undertake slump tests of the freshly made concrete in accordance with BS 1881 and the slump shall be within the range of 50 to 100 mm unless otherwise indicated in the drawings or approved by the Engineer. If the range does not comply with the mix, it should not be used. Slump tests shall be carried out on each batch of concrete of 25m<sup>3</sup> or as directed by the Engineer.
- (B) The records of slump tests result shall be maintained in a register and be made available to inspection

#### 14.12 Concrete Test Cylinder

- (A) The sampling of concrete for preparing Concrete Test Cylinders shall, where possible, be undertaken at the place of concrete mix. Each sampling shall provide sufficient concrete to make 6 (six) cylinders

and allow a slump test. Samples shall be taken for each 50 m<sup>3</sup> for blocks of concrete batched or at a frequency agreed by the Engineer. The cylinders shall be cured properly and sent to a field laboratory/recognized laboratory through the representative of the Engineer. All cost of such tests shall be borne by the Contractor.

- (B) After stripping, each cylinder shall be indelibly marked with the date taken and engraving signature of the Engineer or his representative, and the prescribed number be sent regularly for test to a testing laboratory acceptable to the Engineer. If the specified values are not obtained from cylinder tests on any concrete mix, no further concrete of that mix shall be used in the Works and the Contractor shall establish the cause of the failure and undertake such remedies as are necessary. The Contractor shall demonstrate by trial mixes and the results of cylinder tests that the revised mix is in accordance with the specification. The above mentioned activities be recorded in a register and be made available as and when asked for.

#### 14.13 Non-destructive Test

- (A) The Contractor shall provide on site a 'rebound' (Schmidt or similar) hammer duly calibrated from reputed designated laboratory for checking the in-situ strength of the concrete for use by the Engineer. Testing shall be carried out frequently or at the frequency and in the locations directed by the Engineer. The field test may be taken by rebound hammer on blocks; the strength should be > 25 Mpa at 28 days. Any concrete blocks found to be of strength less than specified will be removed from the Works site and have to be replaced by the

#### 14.14 Casting of C.C Block

- (A) CC Blocks Casting/Concreting yards should be leveled well compacted ground with neat sand-cement mortar finished brick soling/lean concrete finish over it. Casting Moulds/Forms are to be placed over thick polythene sheeting to prevent leakage through bottom face of the shutter. Inner sides of the Moulds/Forms are to be cleaned and oiled before each batch of casting operation.
- (B) Mixing of concrete shall be done by machine mixing. Unless otherwise permitted by the Engineer, hand mixing of concrete is prohibited. Mixing should be done thoroughly to ensure that concrete is of uniform color and consistency.. The concrete shall be placed in the Moulds/Forms in full and be thoroughly compacted by vibrators supplemented by hand spading and tamping. In no way the vibrator should touch the Mould/Form during vibration operation. The vibrators shall at all times be adequate in numbers to compact the concrete properly and quickly throughout the whole operation of

Block casting in each batch. The duration of vibration shall be limited to that required to produce satisfactory compaction without causing segregation. Care should be taken that no leakage of cement mortar takes place. After compaction the exposed concrete at top surface shall be struck off smooth with hand held steel floats.

- (C) The Moulds/Forms shall not be opened until the concrete is firmly set. Honey combed or partly damaged blocks shall not be acceptable
- (D) The contractor shall arrange all land required for the CC Blocks Casting/Concreting yards, preparation of yard with brick soling, polythene sheeting, oiling of Moulds / Forms etc for which no extra cost will be paid. All compensations in this regards are deemed to have covered by the BoQ item “Cement Concrete Blocks (CC Blocks)”

#### 14.15 Curing of Concrete Blocks

- (A) Concrete Blocks shall be protected from the effects of sunshine, dry wind, rain, running water or mechanical damage for a continuous period, until the concrete has reached at least three quarters of its 28 day strength, but for not less than 10 days. The Contractor shall submit his proposals to achieve this protection for Engineer’s approval. The water used for concrete curing shall be fresh water, clean and free from any substances injurious to the concrete. The use of saline water for curing purposes will not be permitted. Curing and protection of concrete may be done following the methods:
  - (1) By water spray in continuous operation or a layer of water;
  - (2) By covering with Hessian or similar absorbent material, or sand, kept continuously wet;
  - (3) After thorough wetting, by covering with a layer of water proof fabric kept in contact with concrete surface;
- (B) All materials spray equipment and an ample supply of water for curing shall be ready on site before manufacturing of Precast C.C Block starts. C.C Blocks that is, in the opinion of the Engineer, not cured according to the approved curing procedure will be regarded as inferior and shall be dealt with as damaged blocks.

#### 14.16 Numbering of Blocks

- (A) Each block shall be marked with a consecutive number and the date of casting. The Contractor shall maintain a manufacturing register with signature of Engineer or his representative. The number, date of casting, date and location of placing of each block shall be

recorded in the register and shall make the register available at all times for inspection by the Engineer.

#### 14.17 Stockpiles of Block

- (A) Blocks shall not be stockpiled until they have been cured for at least 21 days. They should be stockpiled with consecutive numbers and in measurable stack. The stacks shall not contain more than 4 layers and shall not be stacks very closed to the river bank.

#### 14.18 Damaged Blocks and Rejected Blocks

- (A) Blocks which are found unspecified through visual inspection by the Engineer or his representative shall be rejected. If laboratory test results are found not conforming to the desired strengths, all the Blocks manufactured on the day representing the date of sample collection shall be rejected (all the Blocks manufactured on the date representing the Test). All those Blocks shall be stacked separately. Blocks which are damaged during stockpiling, transport or handling and shall be rejected and stacked separately. The Contractor shall remove those rejected and damaged Blocks from the site within 24 hours ordered by the Engineer. The contractor has to supplement the damaged or rejected number of blocks at his/their at his/their own cost.

14.19 **Measurement.** Measurement of concrete blocks shall be made on Blocks in numbers (size-wise) casted, cured and stockpiled.

14.20 **Payment.** Payment shall be made in number at the unit rate of block (size-wise) against the Items for two types of CC Blocks as included in the Bill of quantities.

### 15. SUPPLY OF BOULDER

#### 15.1 General

- (A) Stone Boulder shall be used in development of the Launching Apron of the Cross Bar. Stone Boulder shall conform to the sizes/weights and grading shown on the Drawings. The material shall not be polluted, and shall be free from objectionable quantities of dirt, sand, dust and elongated or flaky stones. The ratio between the smallest and largest dimension of single stone shall generally be not less than 0.4.
- (B) The Stone Boulder can be procured from any sources inside or outside Bangladesh which conform to the specifications. But the Contractor must take approval of Project Director of the quarry of Stone Boulder from where he planned to procure the material. For this purpose, he shall arrange visit for 3 (three) authorized Representatives of the Project

Director to the Quarry Site including stay as will be required for investigation and testing. The expenditure thus incurred shall be borne by the Contractor

- (C) The Stone Boulder shall be free from cracks and veins, which could lead to breakage during loading, unloading and dumping.

- 15.2 **Size and Void.** The following size of rock shall be used in development of launching apron of river bank revetment work shall be considered to have void as shown below;

size: 10 cm to 15 cm. (Void = 8.5 %), 15 cm to 22 cm. (Void = 10 %), 22 cm to 30 cm. (Void = 10 %) and other size specified in BoQ.

- 15.3 **Procurement Schedule.** The Contractor shall have to furnish the Procurement Schedule mentioning quantity of materials to be procured in each consignment with definite period. The contractual quantity of Stone Boulder shall have to be procured by maximum three consignments. No measurement shall be taken unless one third materials is procured and stockpiled at site

- 15.4 **Measurement.** Measurement of Stone Boulder shall be made on Cubic Meter procured and stockpiled at site. The respective percentage of void shall be deducted from the measured volume for payment. The stack-wise measurement shall be recorded in a register duly signed by the Engineer. The measured stack shall be fully coloured using power spray and permanent colour for clear distinguishing between measured and unmeasured stack of Stone Boulder at site.

- 15.5 **Payment.** Payment shall be made at the unit rate per Cubic Meter as included in the Bill of quantities.

## 16 SUPPLYING AND LAYING OF SAND FILTER

- 16.1 **General.** The fine filter shall consist of natural sand of FM 1.0 to 1.5 or as specified in the drawing. The material shall not contain any flint, chip or lime. The quantity of silt, clay and dust, determined in accordance with the decantation method given in BS 812, shall not exceed 3% by weight of the sample. The content of mica shall not exceed 3% by weight of the sample. The material shall not contain any deleterious material in such form or in sufficient quantity as to affect adversely on the geo-textile filter above.

### 16.2 Construction

- (A) The foundation for the sand filter shall be thoroughly compacted and graded to the elevations shown on the Drawings prior to the placement. The filter material shall be placed in a uniform layer of the thickness shown on the drawing or directed by the Engineer.

Minimum 100 mm thickness sand or as specified in the drawing having FM 1.0 to 1.5 shall be placed on prepared, well dressed and compacted slope above LWL

(B) Following steps to be followed in laying sand filter:

- (1) The Contractor shall prepare the foundation for sand filter;
- (2) The Contractor shall use sand which has been previously approved by the Engineer through test at field laboratory;
- (3) Before placing the sand filter, it should be ensured through joint inspection that the slope of revetment/foundation has duly been developed (leveled/compacted) as per design;
- (4) The Contractor shall place the sand filter to the lines, grades and thickness shown on the drawings following the approval of the Engineer;
- (5) The Contractor shall notify the Engineer when each section of the sand filter placement is completed

**16.3 Measurement.** Measurement of item sand filter shall be made in cubic meter derived by multiplying area covered by the sand filter with the thickness

**16.4 Payment.** Payment of item Sand Filter shall be made at the unit rate per Cubic Meter against the item as included in the Bill of Quantities

## **17. SUPPLYING AND LAYING OF GEO-TEXTILE FILTER**

### **17.1 Geo-textile Fabrics**

- (A) All geo-textile fabric shall meet in full the requirements of Physical, Mechanical and Hydraulic properties. The geo-textile manufacturer must be ISO 9000 certified by an accredited register. Geo-textile in standard rolls shall be clearly marked at regular intervals (every square meter or continuous marking at 1 m distance) with the product name and grade. Marking in every 100 sqm. is required to identify the supplier. Each roll of geo-textile shall be protected in a plastic foil wrapper, clearly labeled with the roll number, production of lot number and description of the product, product name, grade and manufacturers details. Geo-textile filter shall be extended up to 1000 mm below LWL. Geo-textile filter shall be protected from ultra violet ray and any sort of damage during handling and placing.
- (B) The geo-textiles shall be manufactured from polypropylene or polyester fabric and shall be non-woven needle-punched and not solely

thermally bonded. The thermal bond shall not influence the flexibility under water. The required porosity of geo-textile shall be minimum 80%. Porosity is a calculated value out of tested material characteristics and the specific weight of the fibers

## 17.2 Specification

- (A) The geo-textiles shall be manufactured from polypropylene or polyester fabric and shall be non-woven and needle punched and not solely thermally bonded. The thermal bond shall not influence the flexibility of the sand bags including their launching behavior. The Geo-textile shall comply the following properties:

Sl	Test Parameter	Standard Value
1	Mass per unit area	$\geq 400 \text{ gm/ m}^2$
2	Thickness under a pressure of 2 kPa	$\geq 3 \text{ mm}$
3	Apparent / Effective Opening size	$\geq 0.08 \text{ mm}$
4	Horizontal Permeability	$\geq 3 \times 10\text{E}^{-3} \text{ m/sec}$
5	Vertical Permeability	$\geq 5 \times 10\text{E}^{-3} \text{ m/sec}$
6	Grab Tensile Strength	$\geq 1500 \text{ N}$
7	Strip Tensile Strength	$\geq 25 \text{ KN / m}$
8	CBR Puncture Resistance	$\geq 3800 \text{ N}$
9	Elongation at maximum force (machine direction MD)	$\geq 60\%$ and $\leq 100\%$
10	Elongation at maximum force (CMD)	$\geq 40\%$ and $\leq 100\%$
11	Permeability ( Velocity Index for a head loss of 50 mm- VH50	$\geq 2 \times 10^{-3} \text{ m/sec}$
12	Ultra-Violet (UV) Resistance	$\geq 70\%$ of original tensile strength before exposure

## 17.3 Testing of Geo-textile Fabric

- (A) Geo-textile delivered at site should be certified by ISO with brand name.
- (B) The properties of geo-textile to be delivered at site shall be tested at BRTC, BUET /CUET according to relevant test standard given in the specification.

- (C) Tests shall be carried out from each quantity of 10,000 square meter of geo-textile fabric supplied. Seams shall be tested for tensile strength every 10,000 m of seam.
- (D) The sample size for the fabric shall be 2 m<sup>2</sup> and shall be marked to indicate its upper side, longitudinal and transverse directions, type of geo-textile and the date that the sample was taken. Seam samples shall be at least one meter in length and the ends of the threads are to be firmly tied off by the Contractor or Supplier at the time the samples are taken. Each test shall be carried out on at least three samples.
- (E) The Contractor shall bear the expenses of all routine tests. Notwithstanding the submission of reports to the effect that the geo-textile conforms to the Specification, the Engineer shall at all times be entitled to have additional samples of geo-textile tested if he is of the opinion that the geo-textile does not conform to the Specification. The Engineer shall only select samples from any lot of bags procured at site by the contractor.

17.4 **Construction.** The Geo-textile fabrics shall be placed above the inverted filter on the surface of slope of embankment / river bank as per design and drawing. The fabric shall be placed in position, providing machine seamed joints (with 100% polypropylene or nylon thread) or minimum 35 cm lap in dry condition and minimum 100 cm lap under water including protecting the geo-textile materials from UV sun ray and from any other damages

17.5 **Measurement.** Measurement of item geo-textile filter shall be made based on the area in square meters measured parallel to the face on the slopes as shown on the drawings or as directed by the Engineer. No additional payment will be made for fabric used to provide specified laps.

17.6 **Payment.** Payment of item of Geo-textile Filter Fabric shall be at the unit rate per Square Meter as included in the Bill of Quantities

## 18. SUPPLYING AND LAYING 1ST CLASS/PICK JHAMA CHIPS AS FILTER

18.1 **General.** Coarse (aggregate) filter materials shall be made from first class/picked jhama bricks. The bricks shall be sound, hard and wellburnt, uniform color, homogeneous in texture and free from flaws & cracks. A fractured surface shall show a uniform compact structure, free from holes, lumps or grits. The unit weight shall not be less than 1100 kg/m<sup>3</sup>; minimum crushing strength 14 N/m<sup>2</sup> and above; increase in weight after one hour absorption in water shall not more than 15% of dry weight. Any dust or fine materials below 5mm size are to be removed by screening and be thoroughly washed by an approved method.

18.2 **Construction**

- (A) The aggregate filter materials shall be laid on two layers of equal thickness or as shown in the drawings. The filter material of thickness **100 mm** (40mm to 20 mm well graded at top & 20mm to 5mm at bottom) shall laid in accordance with the grading shown on the drawings
- (B) Following steps are to be followed in laying khoa filter:
  - (1) The Contractor shall use the khoa filter which has been previously approved by the Engineer for use as filter through test at field laboratory;
  - (2) Before placing the khoa filter it should be ensured through joint inspection (Executive Engineer or his/her Representative and the Contractor or his Representative) that the geo-textile fabrics have been placed as per design;
  - (3) The Contractor shall place the filter to the lines, grades and thickness shown on the drawings following the approval of the Engineer;
  - (4) Placing of the khoa filter shall be done so carefully that the geo-textile fabrics is not impaired or perforated. If it happen so, the contractor shall replace that segment with new one at his own cost;
  - (5) The Engineer shall inspect the work to check compliance with the specified requirements. Samples shall be taken jointly by the Engineer's Representative and Contractor's Representative for laboratory testing;
  - (6) The Contractor shall notify the Engineer when each section of the khoa filter placement is complete

18.3 **Measurement.** Measurement of item sand filter shall be made in cubic meter derived by multiplying area covered by the khoa filter with the thickness for the **2 (two) types ( 40 mm to 20mm & 20 mm to 5 mm)** separately as provided in the BOQ.

18.4 **Payment.** Payment of item Khoa Filter shall be made at the unit rate per Cubic Meter against the items for separately as included in the Bill of Quantities

## 19. PLACING/LAYING OF DIFFERENT SIZE OF CEMENT CONCRETE BLOCKS

19.1 **General.** The CC blocks shall be placed on the on slopes of protective works to cover the surface over a geo-textile fabric filter and granular

filter underneath in the profile shown on the drawing. Placing of CC Blocks shall commence from the most upstream part of the eroded bank, based on a chainage to be furnished by the Engineer. The toe foundation shall be either excavated or built up to the lines and levels shown on the drawing. The placing of blocks shall start from the toe and progress up the slope at the segment where launching apron of protective work has been fully developed as per design.

## 19.2 Construction Procedures

- (A) The blocks shall be laid in manner so that underlying filter layer and geo-filter is not displaced /damaged. Any damage caused to the geo-filter during placing of the blocks shall be repaired by the Contractor at his own cost and to the satisfaction of the Engineer. The entire outer face above LWL shall have a smooth and even appearance.
- (B) During the placement of the blocks, the underlying filter shall not be disturbed by removing or denting a portion thereof by any manner harmful to the filter. Any damage to the filter during overlaying shall be repaired by the Contractor at his own cost.
- (C) The outer surface of the completed revetment shall have a smooth appearance with minimal unevenness.
- (D) The inverted filter layers and CC blocks placement shall start from the toe and progress up the slope of the embankment/dyke.
- (E) The fine filter layers shall be placed and lightly tamped into place, followed by the coarse filter layer which shall be sufficiently compacted to support the overlaying material.
- (F) The inverted filter shall not advance more than 1 m up the slope before being covered by the specified overlaying material to assist placement and prevent damage to the filter layer.
- (G) The CC block shall be laid on the filter in rows parallel to the direction of the current. The blocks in each row shall be staggered half a block width from those in the row below. Adjacent blocks in the same row shall be laid with a gap between them of the minimum dimensions given below:

Block Size	Gap (mm)
0.60 m and less	10
larger than 0.6 m	15

- 19.3 Measurement. Measurement of item Placing Concrete Blocks shall be made in cubic meter based on the numbers and size of Blocks used to

cover the area as shown in the drawing. The initial distance of laying/placing is within 200 m. Works accomplished beyond the initial distance of 200 m shall be measured & recorded under separate Item as provided in the BoQ.

- 19.4 **Payment.** Payment of item Placing Concrete Blocks shall be at the unit rate per Cubic Meter as included in the Bill of Quantities. Extra rate beyond the initial distance as recorded will be paid under separate Item at the Unit Price as included in the BoQ

## **20. LAYING/ DUMPING OF BOULDERS/CC BLOCKS**

- 20.1 **General.** The revetment works shall commence from the most upstream part of the segment, based on a chainage to be furnished by the Engineer. The toe foundation shall be either excavated or built up to the lines and levels shown on the drawing.
- 20.2 **Stockpile of Boulder/CC Blocks.** Hard Rocks/Boulders/C.C Blocks for use in launching aprons shall be stockpiled in different sizes and in the percentages shown on the Drawings to the satisfaction of the Engineer. Prior to the commencement of placing / dumping the Hard Rocks/Boulders/C.C Blocks, the Contractor's proposal to ensure that the different Hard Rocks/Boulders/C.C Blocks sizes are well distributed shall have been approved by the Engineer. If required, the effectiveness of the Contractor's proposal shall be demonstrated to the Engineer.
- 20.3 **Dumping/Placing Plan.** The contractor shall have to prepare a Dumping/Placing Plan, conduct survey, mentioning global positional coordinate based on survey using applicable software and submit to the Engineer for approval prior to commencement of dumping work. Once dumping started in a segment, it must be completed prior to start dumping in another segment.
- 20.4 **Dumping/Placing of Boulders/C.C Blocks.** The rock/boulders/CC Blocks dumping shall be performed using flat top barge, anchored and positioned by double drum mooring winch. Rock/Boulder/C.C Blocks for use in launching apron shall be stockpiled to the satisfaction of the Engineer. Prior to the commencement of dumping, the contractor proposal to ensure the quality & quantity shall have to be approved by the Engineer. Dumping of rocks/boulders/CC Blocks below low water level must start early December or at such time while river attains its LWL and must be accomplished by the engineer-in-charge or as specified in the design. The entire revetment / protective work length shall be divided into suitable panels or batches and dumping area shall be delineated by GPS coordinate using total station. Dumping shall be done in suitable batches / panel simultaneously in continuous reach with the aid of barge or floating pontoon. The material of each batch / panel shall be stored in several

stacks. After full development of launching apron of each batch / panel as per design, then dumping of new batch / panel can be started.

- 20.5 **Laying/ Dumping Records.** The contractor shall maintain dumping register duly signed by the Engineer or his representative. The quantity of rocks/boulder/CC Block to be dumped shall be recorded in a certified register with date and shall make it available at site for inspection. The dumping volume will be checked by taking Pre-work and Post-work cross sections. The dumping area shall be verified by engaging divers who identify the uncovered area through installation of buoy. The contractor shall take immediate action to cover the identified bare area through dumping Hard Rocks/Boulders/ C.C Blocks.
- 20.6 **Measurement.** Measurement of Dumping of Hard Rocks/Boulders/C.C Blocks shall be the same quantity (stack-wise) in cubic Meter as measured, coloured, recorded in the certified register. A cross checking will be made between the quantity actually supplied/manufactured and the quantity dumped taking accounts of the existing quantity (if any). The initial distance of dumping is considered to be within 200 m. Works accomplished beyond the initial distance of 200 m shall be measured & recorded under separate Item as provided in the BoQ.

## Sub-Section-C :Specification for Environmental Compliance

### GENERAL :

The Contractor shall take all reasonable steps to protect the environment (both on and off the Site) and to limit damage and nuisance to people and property resulting from pollution, noise and other results of his operations as per the Environmental Management Plan (EMP) specified in the related Environmental Impact Assessment (EIA) approved by Department of Environment (DoE) under Ministry of Environment and Forests, Government of the People's Republic of Bangladesh.

#### 1.1 Development of Lake:

Mobilization and cleaning site before commencing actual physical work and during contract period and demobilization after completion of the Works under contract accepted by Engineer. This work shall also covers clayey cleaning and clearing, cutting (slope at least 1:6), dressing the project area on and in the ground to an extent that all the events of works of the project can be executed smoothly in a working environment with a particular attention on safety and security in all respects, and to stockpile the end outcome to a place for disposal agreed by the Engineer, where, payments are to be based on ground area determined by the Engineer and be proportionate to the percentage progress of work under contract as a whole in all respects and approved by the Engineer. Bailing out of water from work site including supply, operation and maintenance of requisite numbers of water pumps. It should be carried out in such a manner as to produce possibilities of the movement of water through or alongside any concrete being placed, etc. all complete as per direction of the Engineer-in-Charge. However, Engineer's approval shall not relieve the contractor of his responsibilities and obligations under the contract

#### 1.2 Green Belt development beside lake:

- (A) Introduction: **No tree cutting is proposed to be undertaken as per the current proposal of the EZ development. It is proposed to develop green buffer Besides the lake. The plantation in the green buffer should be carried out in accordance to the following guidelines:**
- (B) Pattern of the green belt: A green belt for an area of 30 Acres to be developed besides all the sides of lake. Native plantation of the region should be planted. 6 rows of plantation can be planted in this buffer besides the lake boundary as per master plan of Mirsari-2 EZ. The green belt should consist of Flower trees, herbs, shrubs, short-medium height trees and tall trees. First two rows from the lake should be planted with Flower tress, herbs and shrubs. Next two rows should be

short to medium heighted trees and last two rows should be planted with tall trees. Space of 1X1 m should be kept for planting herbs, space of 3X 3 m should be kept for planting shrubs and small heighted trees and space of 5X 5 m should be kept for planting medium and tall trees. The pits are then filled with earth, sand, silt and manure in pre-determined proportions. Saplings planted in such pits are watered liberally during dry months. The pits are to be filled with earth, sand, silt and manure in pre-determined proportions. Saplings planted in such pits are watered liberally during dry months.

(C) **Selection of Tree Species:** The Project involve movement of vehicle for transportation of material Thus emissions like particulate matter, SO<sub>2</sub>, NO<sub>x</sub> & CO shall be generated at site. Also there is potential of generation of coal dust while unloading the materials at stock piles. Thus the plantation species tolerant to these pollutants and mitigate these from air shall be planted. Species selecting criteria is given below:

- (1) Native species including Mangroves
- (2) Tolerant to expected pollutants at site
- (3) Longer duration of foliage
- (4) Freely exposed foliage (adequate height of crown, openness of foliage, big leaves, small stomata apertures, stomata well exposed)
- (5) Leaves supported on firm petioles

(D) **Recommended Plant species:** Based on nature of soil and surrounding environment following tentative tree species are recommended to be planted:

Species Name	Local Name	Family
Acacia moniliformes	Akashmoni	Leguminosae
Areca catechu	Supari	Palmae
Avecenia alba/ Avicennia Marinavierh	Baen	Aviceniaceae
Azadirachta indica	Neem	Meliaceae
Carica papaya	Pepey	Caricaceae
Cocos nucifera	Narikel	Palmae

Species Name	Local Name	Family
<i>Excoecaria agallocha</i>	Gewa	Euphorbiaceae
<i>Herritiera fomes</i>	Sundari	Sterculiaceae
<i>Sonneratia apetala</i>	Kewda/Keora	Lyrthaceae
<i>Tamarindus indica</i>	Tentul	Leguminosae
<i>Terminalia catapa</i>	Kathbadam	Combrataceae
<i>Tectonia grandis</i>	Teak	Lamiaceae
<i>Gmelina arborea</i>	Gamari	Verbenaceae
<i>Brassica juncea</i>	Raisharisha	Brassicaceae
<i>Olea europaea</i>	Olives	Oleaceae
<i>Terminalia bellirica</i>	Bohera	Combretaceae
<i>Terminalia chebula</i>	Horitoki	Combretaceae
<i>Phyllanthus emblica</i>	Amla	Phyllanthaceae
<i>Protium serratum</i>	Gutgutiya	Burseraceae
<i>Propospis cineraria</i>	Jand	Fabaceae
<i>Casuarina equisetifolia</i>	Jhao Ghas	Casuarinaceae
<i>Albizia lebbeck</i>	Koroi	Fabaceae
<i>Delonix regia</i>	Krishnachura	Fabaceae
<i>Leucaena leucocephala</i>	Ipil Ipil	Fabaceae
<i>Carissa carandas</i>	Karamcha tree	Apocynaceae
<i>Artocarpus heterophyllus</i>	Jack fruit	Moraceae
<i>Polyalthia longifolia</i>	Pseudo Ashoka	Annonaceae
<i>Musa parasisiaca</i>	Banana	Musaceae
<i>Garuga pinnat</i>	Bhadi	Burseraceae

Species Name	Local Name	Family
<i>Acacia mangium</i>	Mangiam	Fabaceae
<i>Dalbergia sissoo</i>	Sheeshu	Fabaceae
<i>Lawsonia inermis</i>	Kat Mehndi	Lythraceae
<i>Swietenia mahagony</i>	Mahagony	Meliaceae
<i>Arundinaria</i>	Cane Ghas	Poaceae
<i>Samanea saman</i>	Rain Tree	Fabaceae
<i>Zizyphus mauritiana</i>	Boroi	Rhamnaceae
<i>Calotropis</i>	Calotropis	Apocynaceae
<i>Ceriops decandra</i>	Gora	Rhizophoraceae
<i>Ficus benamina</i>	Dumur	Moraceae
<i>Pinus densiflora</i>	Pine	Pinaceae
<i>Excoecaria agallocha</i>	Gewa	Euphorbiaceae
<i>Nypa fruticans</i>	Golpata	Arecaceae
<i>Heritiera littoralis</i>	Sundri	Lauraceae

- (E) Plantation Methodology: Components of green belts on walkway fence should be both absorbers of gases as well as of dust particles, including even lead particulates. Thus the choice of plants should include pollution tolerant shrubs of height 1 to 1.5 m and trees of 3 to 5m. The intermixing of trees and shrubs should be such that the foliage area density in vertical is almost uniform. For effective removal of pollutants, it is necessary that (i) plants should grow under conditions of adequate nutrient supply, (ii) absence of water stress and (iii) plants are well exposed to atmospheric conditions (light & breeze).

Multiple rows of green belt shall be developed. Green belt should be pyramidal in shape. Plantation pattern shall be kept as given below:

- (1) Short trees and tall shrubs shall be planted as first row (from road) followed by tall tree plantation which will be followed by another row of medium and small trees and tall shrubs.

- (2) **Planting of trees should be in appropriate encircling rows, each rows alternating the previous one to prevent further fanning and horizontal pollution dispersion;**
  - (3) Since tree trunks are normally devoid of foliage, it would be appropriate to have small shrubs in front and in between the tree spaces;
  - (4) The open areas between the process installations where trees cannot be planted should be covered with lawn grasses for effective trapping and absorptions of air pollutants.
  - (5) Fast growing trees with thick canopy and perennial foliage should be selected so that the effective tree height with envisaged objective will be attained in minimum span of time
- (F) **Time of Plantation:** Plantation of the tree sapling should be done only after the first shower during the rainy season. The best time for plantation is after 15 days from the day of first shower during rainy season.
- (G) **Protection of Tree saplings:** Circular tree guard should be placed after the plantation of the saplings for the protection of these young plants from the ravages of cattle, sheep and goat and other animals. If tree saplings died or damage occur after placing the circular tree guard, timely replacements of damaged plant and thereafter care is important.
- (H) **After Care & Monitoring:** The growing plants are to cared at least for the first two years by the contractors under favorable conditions of climate and irrigation. Nutrients in pits are supplemented and the juveniles provided protection. Minimum 70% survival rate shall be achieved.
- (I) **Records Keeping & Reporting:** The following records shall be maintained:
- (1) **Record of Tree plantation**
  - (2) **Record of Survivability rate**
- Inspection shall be carried out at site to know the survival rate of the plantation. The tree plantation and survivability report shall be prepared every six monthly.
- (J) **Responsibility:** Compensatory plantation shall be carried out by forest department. Survival rate of plantation shall be inspected of the by

BEZA. Plantation within the terminal/jetty/lock site shall be carried out by BEZA and shall be monitored by BEZA.

- 1.3 Personal protective Equipment to all labour involved in construction of proposed off-site Provision developments (4-5 camp): All construction workers should wear a safety jacket and other protective equipment like helmet, gloves, gum boots, ear plugs, mask as appropriate while working at the site.

1.4 **Construction of Toilets & Septic Tanks/Soak Pits (4-5 camp):**

A Septic Tank is a rectangular chamber of brickwork or of RCC with all inside wall cement plastered, usually built underground. Septic Tanks are constructed of different sizes depending upon the number of users.

The tanks are made airtight and watertight. Entering of light is also prevented to help decomposition of sewage. The layers of scum and sludge are not disturbed by the flow of water and the inflow and outflow of the tank are also arranged as to give least disturbance. Both the inlet and outlet pipes are bent downwards and their open ends should rest at a position midway in the water. The centre of the outlet pipe is generally kept about 150mm below the centre of the inlet. Inlets and outlets should be of standard 'T' fittings of glazed earthenware pipes. When the tank width is more than 1.5m, there should be two inlets. Another precaution taken against possible disturbance of the scum is by making a vertical partition in the tank, called a hanging 'baffle wall', extending from above top-water level to 45cm from the floor, and from 25 to 45 cm away from the inlet pipe. The baffle walls need to be made in small tanks. In long tanks, a second baffle wall is sometimes provided which is built from the floor to a little below the water level in the tank and at a distance of about 60cm from the outlet end. Instead of the second baffle, a 'scum board' may be provided to prevent movement of the scum by wave action or any other disturbance. A scum board is made of a thin slate, flagstone, RCC, or even wood often suspended from the top in to the grooves in the sides of the tank to remain submerged about 25cm to 35cm in to the liquid. The outlet pipe may be straight instead of bent down, where a scum board has been provided.

The size of the Septic Tank is based on the number of users and the amount of dilution water in the sewage. Average retention period of sewage in the septic tank is 12-24 hours. It may be even more where the sewage is fresh as in residential installations, and which are generally designed to hold 24 hours supply, and 8-12 hours retention where the sewage has traveled a long distance and has been subject to a process of some disintegration.

According to IS 2470, Septic Tank shall have minimum width of 75cm, minimum depth of 1m below water level and a minimum liquid capacity of

one cubic meter. Length of the tank shall be two to four times the width.

The Tank should be built as far away from the house as possible on the leeward side. If the Tank is located at a greater distance, the vent pipe may be taken to a height of about 3.5-4.5m. The floor of the Tank should be sloped at 1 in 30 towards one side or the centre to facilitate cleaning of deposits and the manhole should be above this. IS 2470 has recommended a slope of 5-10 percent towards the inlet. The Tank is usually covered with RCC slabs, removable or fixed, with manhole covers.

A Septic Tank should be initially filled with water. Disinfectants should not be used beyond very small quantities which may be absolutely necessary as they kill bacterial life making the Septic Tank non-functioning. Soap and grease from the bath-rooms are also harmful.

#### 1.5 Construction of Temporary storm water drainage system and sedimentation Tank:

Runoff into storm sewers can be minimized by including sustainable urban drainage systems or low impact development or green infrastructure practices. To reduce storm water from rooftops, flows from eaves troughs (rain gutters and downspouts) may be infiltrated into adjacent soil, rather than discharged into the storm sewer system. Storm water runoff from paved surfaces can be directed to unlined ditches (sometimes called swales or bioswales) before flowing into the storm sewers, again to allow the runoff to soak into the ground. Permeable paving materials can be used in building sidewalks, driveways and in some cases, parking lots, to infiltrate a portion of the storm water volume.

In many areas, detention tanks are required to be installed inside a property and are used to temporarily hold rainwater runoff during heavy rains and restrict the outlet flow to the public sewer. This lessens the risk of the public sewer being overburdened during heavy rain. An overflow outlet may also be utilized which connects higher on the outlet side of the detention tank. This overflow would prevent the detention tank from completely filling up. By restricting the flow of water in this way and temporarily holding the water in a detention tank public sewers are far less likely to become surcharged.

Detention-sedimentation basins are frequently used for stormwater treatment prior to its draining into natural waters. The random character of rainfall events and unsteady flow conditions make it difficult to evaluate the technological effect of such facilities. It is well-known that elimination of suspended solids is essential for stormwater treatment and allows for elimination of other pollutants (like heavy metals and organic contaminants) associated with suspended solids. In detention-sedimentation basins, various processes occur: detention of water as a consequence of throttling of the outflow, flocculation and sedimentation of (mainly mineral) particles,

resuspension of sediments, flotation of oils, light particles and so on. In practical engineering analyses, there is an urgent need to evaluate the efficiency of such tanks depending on their size, hydraulic loading, pollutant level of influent storm water and other factors. Long-term computer simulation is one of techniques used for this purpose. A detention tank usually is an element of sewerage network and often is situated at the outlet of a main stormwater sewer. The tank receives all the catchment runoff and depending of the tank size (area, active depth) a removal of certain portion of incoming load of suspended solids is possible.

Sedimentation basins have two keys roles when designed as part of a stormwater treatment train. The primary function is as a sedimentation basin to target coarse to medium sized sediment (i.e. 125  $\mu\text{m}$  or larger) prior to waters entering the downstream treatment systems (e.g. macrophyte zone of a constructed wetland or a bioretention basin). This ensures the vegetation in the downstream treatment system is not smothered by coarse sediment and allows downstream treatment systems to target finer particulates, nutrients and other pollutants.

The second function is the control or regulation of flows entering the downstream treatment system during ‘design operation’ and ‘above design’ conditions. The outlet structures from the sedimentation basin are designed such that flows up to the ‘design operation flow’ (typically the 1 year ARI) enter the downstream treatment system, whereas ‘above design flows’ are bypassed around the downstream treatment system. In providing this function, the sedimentation basin protects the vegetation in the downstream treatment system against scour during high flows. The configuration of outlet structures within sedimentation basins depends on the design flows entering the basin and the type of treatment systems located downstream as described in Section 4.2.4. Where the sedimentation basin forms part of a treatment train and when available space is constrained, it is important to ensure that the size of the sedimentation basin (i.e. inlet zone of a constructed wetland) is not reduced. This ensures the larger sediments are effectively trapped and prevented from smothering the downstream treatment system. If the site constrains the total area available for the treatment train, the downstream treatment system should be reduced accordingly.

The required size of a sedimentation basin is calculated to match the settling velocity of a target sediment size with a design flow (typically 1 year ARI). Selecting a target sediment size is an important design consideration. As a pretreatment facility, it is recommended that particles of 125  $\mu\text{m}$  or larger be the selected target sediment size because analysis of typical catchment sediment loads suggest that between 50 - 80 % of suspended solids conveyed in urban stormwater are 125  $\mu\text{m}$  or larger. Almost all sediment bed loads are larger than this target sediment size.

Analysis of the characteristics of particulate nutrients and metals indicates that coarse to medium sized sediments (i.e.  $> 125 \mu\text{m}$ ) have low concentrations of attached pollutants (e.g. nutrients, heavy metals) when compared to finer sediment and colloidal particles. Basins sized to target coarse to medium sized sediment are therefore expected to capture sediment that has low levels of contamination and is unlikely to require special handling and disposal. Removal of particles  $< 125 \mu\text{m}$  is best undertaken by treatment measures other than sedimentation basins (e.g. constructed wetlands and bioretention systems). Therefore, while a basin must have adequate size for capturing the target sediment size, they should not be grossly oversized. Conversely, a sedimentation basin that is too small could have limited effectiveness, resulting in sediment smothering of downstream treatment measures.

A further consideration in the design of a sedimentation basin is the provision of adequate storage for settled sediment to prevent the need for frequent desilting. A desirable frequency of basin desilting is once every five years (generally triggered when sediment accumulates to half the basin depth). The volume of accumulated sediment can be estimated from regular monitoring of sediment levels with a measuring post and reference against the top water level.

An outlet structure of a sedimentation basin can be configured in many ways and is generally dependant on the design flow entering the basin and the type of stormwater treatment system or conveyance system downstream of its outlet. For example, a sedimentation basin forming the inlet zone of a constructed wetland would typically include an overflow pit located within the sedimentation basin with one or more pipes connecting the sedimentation basin to an open water zone at the head of the wetland macrophyte zone. A sedimentation basin pretreating stormwater runoff entering a bioretention basin would typically use a weir outlet to keep stormwater flows at surface, to enable the flow to discharge onto the surface of the bioretention filter media. Where the sedimentation basin is formed by constructing an embankment across a drainage gully, it may also be possible to use an overflow pit and pipe outlet and still be able to discharge to the bioretention surface.

In most cases, the outlet design of a sedimentation basin will consist of a 'control' outlet structure and a 'spillway' outlet structure:

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The 'control' outlet can be either an overflow pit/ pipe or weir which delivers flows up to the 'design,operation flow' to the downstream treatment system(s).

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The 'spillway' outlet structure ensures that flows above the 'design operation flow' are discharged to a bypass channel or conveyance system. The 'spillway' bypass weir level is set above the 'control' outlet structure and typically at the top of the extended detention depth of the downstream

treatment system.

Where the sedimentation basin discharges to a conveyance system (e.g. swale or piped system), a 'control' outlet may not be required and one outlet can be designed to allow discharge of all flows including flood flows.

Sedimentation basins are often located within open space zones areas and can be landscaped to create a focal point for passive recreation. Landscape design treatments to sedimentation basins generally focus on dense littoral vegetation planting to restrict access to the open water zone, and therefore increase public safety, but can also include pathways and information signs. Plant species selection and placement should aim at creating a barrier to restrict public access to the open water zone and integrate with the surrounding landscape (i.e. constructed wetland landscape) and community character as discussed below, as well as providing or enhancing local habitat. Landscape design must also consider access to the sedimentation basin for maintenance (e.g. excavator).

The role of vegetation in sedimentation basin design is to provide scour and erosion protection to the basin batters. In addition, dense planting of the littoral zones will restrict public access to the open water, reducing the potential safety risks posed by water bodies. Terrestrial planting may also be recommended to screen areas and provide a barrier to steeper batters. Planting of the shallow marsh zone (to a depth of 0.2 m) and ephemeral marsh zone (to 0.2 m above water level) around the perimeter of a sedimentation basin is recommended to bind the bank and reduce erosion at the waters edge. Plant species should be selected based on the water level regime, soil types of the region, and the life histories, physiological and structural characteristics, natural distribution, and community groups of the plants.

The planting densities recommended in the list should ensure that 70 – 80 % cover is achieved after two growing seasons. Only the waters edge and batters of sedimentation basins should be planted and care needs to be taken in species selection to ensure vegetative growth will not spread to cover the deeper water zones. Similarly, floating or submerged macrophytes should be avoided. A sedimentation basin should primarily consist of open water to allow for settling of only the target sediments (e.g. > 125 µm) and to permit periodic sediment removal. All work shall be done in accordance with the instruction of the Engineer

- 1.6 Construction waste management and disposal: Identification of dumping sites for debris and Disposal of Debris and any waste generated mentioned in EMP in section -XI of the bid document which are given below:

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- (A) Provision of clean drinking water supply: Sufficient clean potable drinking water facility should be provided to all workers and employees at the site.
  - (B) Water sprinkling: Water sprinkling at the site has to be executed regularly on the roads and dust generated area. Every equipment and machinery will be fitted with dust suppression devices such as water sprinklers, dust bags etc. as appropriate.
  - (C) Environmental monitoring:
    - (1) Air quality (Survey & observations; Levels of PM10, PM2.5, SO<sub>2</sub>, NO<sub>x</sub>, CO),
    - (2) Noise level [Ambient Equivalent continuous Sound Pressure Levels (Leq) at day and Night time) at 6 to 8 locations], and
    - (3) Drinking water quality (All physio-chemical & biological parameters as per Environmental Conservation Rules-1997 ) of the site have to be monitored by Department of Environment or other relevant Govt. agency on a quarterly basis
  - (D) Safety & Quality inspections: Quarterly inspection have to be carried out by authorized and experienced company on a quarterly basis and report to BEZA accordingly. The site inspection will be based on the following criteria:
    - (1) Administrative requirements
    - (2) Training, risk management, and general requirements
    - (3) Consultation, cooperation, and coordination
    - (4) Safe work method statements
    - (5) The work environment
    - (6) Confined spaces
    - (7) Falling objects and public protection
    - (8) Ladders and platforms supported by ladders
    - (9) Scaffolding
    - (10) Demolition
    - (11) Welding and hot work

- (12) Essential underground services
- (13) Excavation
- (14) Electrical
- (15) Tilt-up and pre-cast concrete construction
- (16) Manual tasks
- (17) Hazardous substances and dangerous goods
- (18) Noise
- (19) General traffic management
- (20) Hazardous atmosphere
- (21) Other hazards and risks

(E) **Environmental Training:** Onsite training has to be carried out by authorized and experienced training company to all labors and engineers of the site regarding health, safety and environmental issues and awareness. Training deliverable will be :

- (1) Training outline
- (2) Training session plan and agenda
- (3) Training materials
- (4) Training report
- (5) Training evaluation forms
- (6) Attendance sheet
- (7) Conduct training session
- (8) Post training result indicators

(F) **Project Monitoring Firm / Individual:** Contractor will engage experienced Project Monitoring firm / individuals as per approval from BEZA as per following specification:

- (1) Project Monitoring firm is an agency responsible for monitoring the contractor's activities and to ensure adequate implementation of the EMP by contractor. Project Monitoring firm will also be responsible in providing guidance to the

BEZA whenever required, should update the BEZA for the amendment in the existing laws and development of new laws as applicable for project for environment & social management and management of labour and their rights and facilitate BEZA in obtaining the clearances as and when required. Project Monitoring firm should keep track of contractors day to day activities, their commitment for implementation of EMP, assurance of the quality of the material used for construction, assurance for following of waste management system, compliance to the laws, adherence to safety guidelines and method statements and reporting of accidents occurring on and off-site. Project Monitoring firm also have right to suggest BEZA to take punitive action against contractor in case of non compliance of the EMP. Following tasks should be undertaken by Project Monitoring firm

- (a) Project Monitoring firm should have environment health and safety management cell which should have adequate expertise in field of environment, social and safety management
  - (i) EHS head-25 years of national & international experience
  - (ii) Sr. Safety Health Officers-10 years
  - (iii) Sr. Env Expert-10 years
  - (iv) Jr. Safety Health Officers-5 years
  - (v) Jr. Env Expert-5 years
  - (vi) Ecologist/Horticulturist-5 years
- (b) Project monitoring firm quality expert/engineer will assure the construction material used should be as per the prescribed relevant national and international codes. PMC should ensure that raw material is procured by contractor from authorized suppliers only. Tag in tag out system should be in place at the raw material storage site
- (c) Project Monitoring firm will monitor the quality of construction and construction of the structures and facilities and it should be as per the method statement submitted by contractor based on national & international codes PMC will assure the suggestive EMP in the EIA is being implemented.

- (d) No construction activity by contractor should be carried out without approval of the PMC
- (e) Project Monitoring firm will review the Environment Management Action Plan submitted by contractor and should check adequacy as per this EIA document and ESMF prepared for this project. This EMAP should be amendable and can be updated time to time by Project Monitoring firm
- (f) A comprehensive SHE plan covering various construction activities, health of workers/labours should be submitted by contractor for each activity. This plan should include evacuation plan, emergency management & response plan
- (g) Project Monitoring firm should closely monitor the sanitation and hygiene at the construction labour camp, construction site, first aid facilities at sites and labour camps, accident monitoring at the site, safety aspects, PPE usage,
- (h) Project monitoring firm should ensure that all construction and site vehicles should abide by the latest emission norms of the country
- (i) Project Monitoring firm should monitor that adequate safety trainings are being given to the workers, adequate mock drills are conducted at site by contractor, availability of emergency evacuation plan, emergency assembly area, availability of certified first aid trainer at all the construction site
- (j) Project monitoring firm should assure that vehicle operators should have valid license & should be given self defensive driving by contractor
- (k) Project monitoring firm should assure that contractor has carried out proper TPI inspection for lifting equipment like crane.
- (l) The firm should provide monthly monitoring report on the overall activities

## **Sub-section-D :Drawings**

List of drawins (Attached-Annexure 2) :

Site plan & Cross-section of embankment (section FF to Section LL)

## **Sub-section-E: Supplementary Information**

### **TENDER DRAWINGS**

- 1.1 All the drawing of works is enclosed in separate Volume as listed in the Section 9 of the Tender Documents. Final drawings may be delivered to the Contractor prior to the commencement of the works before “Work Programme be submitted” .

### **2. FINAL DRAWINGS**

- 2.1 Drawings attached to the Tender Documents (hereinafter referred to as “Tender Drawings”) accompany and form part of the Contract Documents. In addition to the Tender Drawings, Final Drawings may also be delivered by the Engineer to the Contractor for execution of work and such drawings shall thereupon become part of the Contract.
- 2.2 During the progress of the work, Drawings that will be issued by the Engineer prior to commencement of the Works and as necessity arises to supplement and/or supersede the Tender Drawings.
- 2.3 The Contractor shall scrutinise such drawings as issued from time to time to the Contractor. If any ambiguity, discrepancy or mistake is found in the drawings, the same shall be referred to the Engineer before proceeding with the works, and the Engineer’s decision on resolving such ambiguity, discrepancy or mistake shall be final, conclusive and binding.

### **3. DRAWINGS AND CALCULATIONS TO BE FURNISHED BY THE CONTRACTOR**

- 3.1 The Contractor shall at his own expense prepare detailed Construction Drawings of the individual works (hereinafter referred to as “Construction Drawings”) based on the Tender Drawings and the Final Drawings as needed for performance of the works. All Construction Drawings prepared by the Contractor shall be submitted to the Engineer for his approval. The drawings submitted by the Contractor shall be clear and complete. In addition to the above, the Contractor shall at his own expense prepare reinforcement drawings as needed for the performance of the works and shall be submitted to the Engineer for approval.
- 3.2 Fabrication, manufacture or construction of any part of the works shall not commence until the drawings have been approved and no change shall be made to any drawings so approved. If any changes needed during construction shall be informed by sending another set of revised drawing.

#### 4. RIGHT TO CHANGE DESIGN AND DRAWINGS

- 4.1 When additional information regarding foundation conditions become available as a result of excavation work and further testing, and if found desirable to make changes in the alignment, cross-sections, dimensions or design to conform to such conditions, the Employer/Engineer reserves the right to make the necessary or desirable changes to the opinion of the Engineer.

#### 5. “AS-BUILT” DRAWINGS

- 5.1 The Contractor shall submit three (3) sets of printed “As-Built” Drawings of the completed Works along with two (2) sets of CD to the Employer before the expiration of Defect Liability Period.
- 5.2 **The “As-Built” Drawings shall clearly show the lines and dimensions of the permanent construction actually made based on the original design and/or change of design from time to time ordered by the Engineer or proposed by the Contractor and approved by the Engineer.**

#### 6. MEASUREMENT AND PAYMENT

- 6.1 All costs including Contractor's margin, overhead, taxes, etc, incurred by the Contractor to provide and submit “As-Built” Drawings shall be deemed to be included in the provisional sum of .

#### 7. SETTING-OUT AND SURVEY OF THE WORKS

- 7.1 The Contractor shall re-survey the Base Lines, Traverse Points, Bench Marks and confirm the co-ordinates and levels of the Stations before using them for setting out the Works. The Contractor shall immediately notify the Engineer of any discrepancies and shall agree with the Engineer any amended values to be used in the Contract, including replacement of any Stations missing from the original location.
- 7.2 The Contractor shall employ well-qualified and experienced surveyors for the execution of survey and setting-out works.
- 7.3 The Contractor shall be responsible for the setting-out centre-lines, longitudinal and cross sections of the ground, and position of the structures in accordance with the drawings. Before commencing the works for Cross Bars, protective works etc, the Contractor shall carry out topo- survey / bathymetric survey of all works and take levels for longitudinal profile and cross sections along the routes/locations in which the works are to be executed out at his own expenses. The Contractor shall use benchmarks approved by the Engineer for such survey works.

- 7.4 Along structures, embankments, or combination thereof, the Contractor shall install temporary benchmarks at intervals of 500m. Ground levels shall be taken jointly by the contractor and the Engineer's representative both prior to commencing and after completion of earth works.
- 7.5 The Contractor shall carry out engineering survey and draw the plan and cross section for all protective works as below:
- (A) Longitudinal section
  - (B) Cross-sections at an interval not exceeding 50 m or as specified by the Engineer before and after the execution of the Works. The formation level shall be taken as reference while cross-sections shall cover at least a width as necessary for the Works to be constructed, including related earth works.
- 7.6 All field-books, calculations, maps, etc. of the survey activities shall be handed over to the Engineer, immediately after the completion of the survey. All field data, derived from the survey activities, entered in the field-books, shall also be entered into EXCEL spreadsheet or a compatible spreadsheet in a format approved by the Engineer. The data shall be submitted on a CD.

## **8. LAYOUTS AND SCHEDULES PROVISIONAL**

- 8.1 The locations, levels and dimensions as shown on the Drawings or given in the design data or structure schedules are subject to amendment. The Contractor will be required to undertake surveys for confirmation of alignment and levels of embankments, cross bar, bank protection works as detailed in this Section of the Document. Details of any such amendment or confirmation of the original design will be given by the Engineer or the Engineer's Representative during the course of construction.

## **9. SUPPLIERS OF MATERIALS**

- 9.1 Before ordering a material for any description intended for the Works, the Contractor shall submit the name of the maker or supplier proposed and details of the place of origin and specification of the material to the Engineer for approval. If requested by Engineer, the Contractor shall supply a copy of any such order place. The Contractor shall make necessary arrangements (e.g. jetty) at the construction side where needed for loading & unloading of his equipment, materials etc.

## **10. NATURAL MATERIALS**

- 10.1 The Contractor shall make all arrangements for locating, selecting and processing natural materials to comply with the Specification and shall submit to the Engineer for approval with full information regarding the proposed location well in advance of commencement of working of the

materials. Approval of a source does not imply that all material in that source is approved.

## **11. DISRUPTION OF LOCAL COMMUNITIES**

- 11.1 The Contractor shall take all measures necessary to avoid nuisance and disruption to local communities. In particular the Contractor shall ensure no damage is done to existing road, standing crops, pasture or woodland. Trees etc. and that the Contractor's operations do not cause flooding or pollution hazards.

## **12. DELAY AND INCREASED COSTS DUE TO FLOODS, WASH-OUT OF ROADS OR IMPASSABLE ROADS**

- 12.1 Notwithstanding Clause 45.1 of the General Conditions of Contract no extension of time or increase in the Contract Rates shall be granted to the Contractor if he is delayed or impeded in the completion of the Works or involved in additional costs by flood, cyclone, high river water levels, wash-out of roads or tracks or impassable roads.

## **13. TEMPORARY WORKS**

- 13.1 Not less than fourteen days before commencing any portion of the Works, the Contractor, if ordered, shall submit to the Engineer for his approval complete drawings of all Temporary Works the Contractor may require for the construction of that part of the Works.
- 13.2 Notwithstanding approval by the Engineer of any design for the Temporary Works the Contractor shall be entirely responsible for their efficiency, security and maintenance and for all obligations and risks in regard to such temporary Works which are specified or implied in the Contract

## **14. NOTICE OF OPERATION**

- 14.1 The Contractor shall give full and complete written notice of all important operations, including setting out, to the Engineer sufficiently in advance to enable the Engineer to make such arrangements as the Engineer may consider necessary for inspection and for any other purpose. The Contractor shall not start any important operation without the written approval of the Engineer/Project Director.

## **15. SUPPLY OF FUEL/LUBRICANT**

- 15.1 The Contractor shall be responsible for arranging and ensuring that adequate supplies of High Speed Diesel (HSD), motor spirits, kerosene, lubricants and other petroleum produces are available at all times to meet his requirements for the purposes of or in connection with the contract; the Contractor's

particular attention is drawn to this requirements as from time to time shortages and interruptions in the supply of fuel oils, etc occur in the region.

## **16. ENGINEER'S REQUIREMENTS**

- 16.1 The Contractor shall be responsible for construct and maintenance of site office for the employer and engineers including all necessary facilities during execution of the work.
- 16.2 All costs including Contractor's margin, overhead, taxes etc, incurred by the Contractor to provide, construct, supply, fabricate, erect, install in accordance with the specifications mentioned elsewhere, shall be deemed to be included in the rates/price quoted in the Bill of Quantities of the respective items. All facilities shall be ready for occupation by the Engineer within one month after receiving the instruction.
- 16.3 If the Contractor fails to provide this service the Engineer shall be entitled to withhold the issue of Payment Certificate until the service is resumed.

## **17. ASSISTANCE TO ENGINEER'S STAFF**

- 17.1 The Contractor shall render all necessary assistance to the Engineer's staff and shall provide for checking the Contractor's setting-out and the measurement of the Works.
- 17.2 The Contractor shall provide such full time or part time surveyors as may be required. The cost of all laborers, surveyors, survey equipment and tools, for checking the setting-out and the measurement of the Works shall be covered by the Contractor's expense and no separate payment shall be made thereof.

## **18. CONSTRUCTION PROGRAMME**

- 18.1 Within fifteen (15) days from the date of signing the Contract Agreement, the Contractor shall submit to the Engineer for approval a complete and practicable construction programme (GCC Clause 42.1) showing the orderly performance of the Works. The Construction Programme shall show in detail the proposed method of operations, including purchase and delivery of materials and equipment, as well as the construction. The Construction Programme shall show in a bar chart each major item of the Works on separate horizontal lines, sequence of operation and the period required for the completion of each activity. The Construction Programme shall when approved by the Engineer become a part of the Contract.
- 18.2 The construction programmes shall include the followings:

- (A) Statement giving the numbers and categories of supervisory and technical staff and skilled/unskilled labor to be employed on the Works;
- (B) List and type/details of Contractor's Equipment (including vehicles) which the Contractor proposes to employ on the Works stating whether they are to be acquired from inside or outside Bangladesh including schedule dates for order and delivery;
- (C) List detailing the purchase and delivery of materials and Plant from both inside and outside Bangladesh;
- (D) Details of the Contractor's methods of working for all operations including construction by sequence. The programme shall also indicate the proposed temporary flow diversions illustrating the sequence of various critical stages of construction;
- (E) Statement and outline layout giving the proposals for location or locations and sizes of constructional camps, accommodation, offices, workshops and stores at the Site; and details of the programme for the construction of the works from the date of receipt of the Notice to Commence, including a complete resource allocation showing the number of units and allotted times for each unit of Contractor's Equipment, Plant, materials and labor allocated for each part of the works.
- (F) The construction programme shall be reviewed and revised if necessary at intervals mentioned in this document.

## **19. GCC CLAUSE 42.2**

- 19.1 No separate payment shall be made to the Contractor for complying with this Sub-Clause.

## **20. REPORTS, MEETINGS AND DATA OF THE WORKS**

- 20.1 **Monthly Report.** The Contractor shall furnish Monthly Report to the Engineer, at the Contractor's own costs, at regular monthly interval and in a form and number of copies determined by the Engineer, with the followings:

- (A) Physical progress for the preceding month and estimated progress for the reporting month;
- (B) Completion schedules (target and actual) based on the approved Construction Programme;

- (C) At a bulation of construction equipment, listing the major items and pieces of equipment which were 164tilized for performance of the Works during the preceding month;
- (D) Tabulation of employees, showing the supervisory staff and the numbers of several classes of labourers employed by the Contractor in the preceding month; report covering the Plant and materials furnished by the Contractor for the Works; and
- (E) **Any report which may be specifically asked for by the Employer and/or the Engineer.**

**20.2** Site/Work Meetings. The Contractor shall attend all the Site/Work Meetings whenever called by the Engineer.

**20.3** Photographs and Videos. The Contractor shall make all arrangements to provide photographs in albums, but not pasted, showing the work progress and shall promptly supply one electronic copy and four printed copies of such photographs of 4R size, of such portions of the works in progress and/or completed as may be directed by the Engineer. Each print shall contain on its back the date and title of the view taken. The Contractor shall also take Videos of work sequences time to time and supply the same in a CD.

#### **20.4 AUDITS BY THE EMPLOYER**

- (A) The Contractor shall note that the Employer shall be entitled at its discretion to conduct audits in respect to:
  - (1) Costs incurred in the event of termination; and any other costs that the Contractor claims from the Employer which are not specifically covered by the terms of the Contract.
- (B) The Contractor shall be obliged to keep accurate up-to-date accounts with records concerning the above items.

#### **20.5 Measurement and Payment.**

- (A) No separate payment shall be made for preparation of all documents, correspondence, returns and reports etc., to be prepared by the Contractor and submitted to the Engineer and/or the Employer in accordance with the provisions of the Contract.
- (B) All costs including Contractor's margin, overhead, taxes, etc, incurred by the Contractor shall be deemed to be included in the unit rate of the Bill of Quantities.

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**21. SAFETY MEASURES AND PUBLIC CONVENIENCE**

- 21.1 The Contractor shall provide necessary protection for all persons and properties at all times. The Contractor shall comply with the stipulations of the safe construction methods specified in the “Safety Manual”, to the extent that such provisions do not conflict with the applicable laws of Bangladesh. The Contractor shall take all necessary measures to protect the work and prevent accidents during the construction. He shall provide and maintain sufficient night-lights, barricades, guards, temporary sidewalks, temporary bridges, danger signals, watchmen and necessary alliances and safeguards to properly protect life and property. He shall also protect all excavations, equipment and materials so that the public are not be endangered.
- 21.2 No separate payment shall be made to the Contractor in complying with the provisions of this Sub-Clause.

**22. PRECAUTIONS**

- 22.1 The Contractor is to execute the Works in such a manner that he does not damage or interfere with existing services which are located in proximity to the Site. The Contractor shall be responsible for any damage or interference which may be caused to these services due to execution of the Works and shall carry out all necessary repairs at his own expense and to the satisfaction of the Engineer.
- 22.2 No excavating machines shall be used in the immediate surroundings of cables and/or pipe- lines, unless approved by the Engineer.
- 22.3 Temporary Works which have to be made in the surroundings of the system during the execution of works, shall be maintained by the Contractor and shall be removed as soon as practicable.

**23. INTERFERENCE WITH EXISTING WORKS**

- 23.1 The Contractor shall not interfere in any way with any existing works whether they are the property of the Employer or of a third party and whether the position of such works is indicated to the Contractor by the Engineer or not, except where such interference is specifically described as part of the Works either in the Contract or in the Engineer’s instructions.
- 23.2 The Contractor shall at his own expense provide and erect to the approval of the Engineer such supports as may be required to protect efficiently all structures or works which may be endangered by the execution of the Works and he shall remove such supports on completion of the Works or otherwise take such permanent measures as may be required by the Engineer to protect the structures or works.

**24. SIGNBOARD**

24.1 The Contractor shall erect a Signboard of a size of not less than 2m by 3m at work site. The signboard shall be erected at a suitable place prior to the commencement of the work and to be maintained in good condition during the whole contract period. All information on the Sign board will be written in English and Bengali. Each Sign board shall show the following:

- (A) **The name of the Project**
- (B) The name of the Employer
- (C) All other details of the Contract or as directed by the EngineerNo separate payment shall be made for the provision of the Signboard.

**25. CLEAN UP THE SITE**

25.1 Prior to the issue of the latest Defect Liability Certificate by the Employer the Contractor shall remove from the Site all plant and equipment, tools, rubbish, concrete forms, boulders, bricks and other materials not incorporated in the permanent works.

25.2 No separate payment shall be made to the Contractor for complying with the provisions of this Sub-Clause.

**26. CONTRACTOR'S OFFICES, WORKSHOPS, ACCOMMODATIONS, LABORATORY ETC.**

26.1 The Contractor shall be responsible for the land he deems necessary for his offices, stores, warehouse, motor pool, laboratory, workshops, pre-cast concrete factory, staff quarters and labour camp. Separate accommodation and toilet facilities to be kept for male and female workers. The Contractor shall be also responsible for construction, maintenance, operation of such temporary facilities as his office, stores, warehouse, motor pool, laboratory, workshops, pre-cast concrete factory, staff quarters and labourer camps including feeding and accommodation. These facilities shall be equipped with adequate electricity and potable water supplies. Bangladesh labour law would be strictly followed in administering the workers (labours). The Contractor shall also keep sufficient first aid kit and preventive medicines of viral and water borne diseases.

26.2 The Contractor shall submit for approval of the Engineer within fourteen (14) days from the date of the Notice to Commence his detailed plan and/or construction drawings of his offices, stores, warehouse, motor pool, workshops, pre-cast concrete factory, staff quarters, labourer camps and field laboratory that he proposes to construct or rent, including his proposals for water and power supply and sewage facilities and Inspection Sheds. All buildings and facilities shall conform to the Employer's standards.

- 26.3 Beyond the space as mentioned above, arranging of land that deemed necessary in fulfilment the obligations under this Clause shall be the full responsibilities of the Contractor.
- 26.4 All costs including Contractor's margin, overhead, taxes, etc, incurred by the Contractor in complying with requirements of this Clause shall be deemed to be included in the lump sum price of Contractor's facilities of the Bill of Quantities (Item No.1.02). Payment for this item shall be made on pro-rata basis depending upon the total progress accomplished.

## **27. QUALITY ASSURANCE PLAN**

- 27.1 The Contractor shall within twenty-eight (28) days from the date of the Notice to Commence submit a Quality Assurance Plan. The plan shall include testing schedules, list of material sources, quality control procedures and other items as required by the Engineer. The Contractor shall implement the quality control procedures in compliance with the approved Quality Assurance Plan.
- 27.2 The Contractor shall also provide testing equipment and apparatus and furnish all testing staff, labours and consumable necessary for carrying out his testing. All the costs incurred in operation of testing shall also be borne by the Contractor.
- 27.3 The Contractor shall when requested by the Engineer or the Engineer's Representative carry out any test.

## **28. STANDARDS AND SUPPLEMENTAL SPECIFICATIONS**

- 28.1 Unless otherwise stated in the Contract, all workmanship, materials, and equipment shall comply with the relevant American, British and Bangladesh Standard viz. AASHTO, ACI, AISC, ASTM, AWSAWWA, BSI, DIN, DNA, ISO, and SSPC, U.S. Fed. Spec and USBR
- 28.2 Wherever reference is made in the Contract to specific standards and codes to be met by the materials, Plant, and other supplies to be furnished, and work performed or tested, the provisions of the latest current edition or revision of the relevant standards and codes in effect shall apply, unless otherwise expressly stated in the contract.

## **29. SANITATION**

- 29.1 The Contractor is to arrange for a high standard of sanitation to be maintained through out the Camp and the Work sites. He shall construct and maintain at his own cost a system of surface drainage and waste disposal. Sanitary conveniences for the use of persons employed in the works shall be provided and maintained by the Contractor in accordance with the appropriate laws and regulations in force in Bangladesh to the extent and in such a manner and at

such places as may be approved by the Engineer, and all persons connected with the works shall be obliged to use them.

### **30. MEDICAL ARRANGEMENTS AND FIRST-AID FACILITIES**

- 30.1 The Contractor shall make arrangements according to the regulations in force in Bangladesh for treatment on the site of casualties and sick persons. The Contractor shall make his own arrangements for treatment of casualties on the Site in such first-aid units as may be thought necessary.
- 30.2 In addition, the Contractor shall manage and operate appropriate ambulances for the transportation of injured or sick employees to nearby hospitals. This facility shall be available for the Employer's, Engineer's, Subcontractors' and Contractor's personnel and workmen.
- 30.3 No separate payment shall be made for this provision.

### **31. CONSTRUCTION AND MAINTENANCE OF TEMPORARY ACCESS ROAD**

- 31.1 The Contractor shall construct and maintain the temporary access roads including temporary access bridges necessary for construction of the Works and transportation of the materials. The Contractor shall also pay compensation to the owner(s) if he constructs the temporary access roads on a privately owned land.
- 31.2 The public and village roads may also be used as temporary access road. The Contractor shall maintain and repair them to the satisfaction of the authorities concerned.
- 31.2 The Contractor shall facilitate the use of such roads for other contractors of the Project and public in a friendly co-operative manner without maintenance of the roads required by them.

### **32. ENVIRONMENTAL MITIGATION WORKS**

- 32.1 The Environment is defined to mean surrounding area including human and natural resources to be affected by execution and completion of Works.
- 32.2 The Contractor shall take all precautions for safeguarding the environment during the course of the construction of the Works. The Contractor shall fully comply with the environmental protection mitigation measures specified in the related EIA Guidelines published by the Ministry of Environment and Forests, of Government of Bangladesh.
- 32.3 The Contractor shall prohibit employees from unauthorized use of explosives, poaching wildlife and cutting trees. The Contractor shall be responsible for the action of his employees. The Contractor shall plan his works in such a way that there is no spillage of petroleum products to the surface or sub-surface

water. The Contractor shall provide requisite devices in all his equipment and machineries to diminish carbon dioxide coming out during operation of the equipment and machineries.

### **33. PERMITS, LICENSES OR APPROVALS:**

- 33.1 The Contractor shall, in performing the Contract, comply with the applicable Laws of Bangladesh. The Contractor shall give all notices, pay all taxes, duties and fees, and obtain all permits, licenses and approvals, as required by the applicable Laws in relation to the execution and completion of the Works and the remedying of any defects.
- 33.2 Contractor shall be allowed to re-export, out of Bangladesh, his equipment, including essential spare parts therefore, and any material imported by the Contractor for the sole purpose of executing the Contract, on completion of the contract. If the Contractor wishes to dispose them of locally, subject to the local laws, BEZA shall be given first preference to purchase at the negotiated price. Import and re-export of equipment, including essential spare parts will be subject to applicable laws of National Board of Revenue (NBR).

### **34. ENGINEER'S SITE FACILITIES**

- 34.1 The Contractor shall be responsible for the provision, maintenance and operation of the following facilities and services for Engineer.

In addition to the office space required for his own use, the Contractor shall provide and maintain Field Office with toilet facilities, furniture and office equipment for the use of the Engineer and his staff.

Field Office for the Engineer shall mean a building having a minimum 15 square meter net clear internal floor area exclusive of walls and partitions, staircase and toilet and have number of rooms as required by the Engineer. It shall be constructed in 250mm thick brick wall in appropriate cement mortar with C.I. sheet roofing and a protective ceiling made of hard board and timber to the satisfaction of the Engineer. The floor shall be 75mm thick lean concrete with 30mm thick mortar on the top with a neat cement finish to give a smooth look. The foundation of this building shall be sound to the satisfaction of the Engineer. The building shall have required number of doors and windows. Uninterrupted power supply facility, if necessary, shall be made available by means of arranging a stand-by generator.

Access road to the Field Office, sufficient parking accommodation and hard standing sheds for vehicles along with boundary fencing shall be constructed by the Contractor.

The Contractor shall provide, for each office, one office table and four chairs of standard, approved by the Engineer. Safety helmets in adequate numbers be always made available for use of the staff and the visitors.

Offices shall be maintained watertight and shall be provided with ventilation. All doors shall be fitted with approved locks. Windows shall be provided with separate screens and blinds and shall have interior locking devices too.

All offices, complete with furnishings, fittings, access roads and hard standings, shall be ready, for occupation by the Engineer within four weeks of the date when the Contractor first occupies the Site.

All offices shall be regularly and properly cleaned as long as they are in use.

All access roads and hard standings shall be maintained in a convenient trafficable condition throughout the Contract period.

The general location of the Field Office shall be decided by the Engineer in consideration of the Contractor's Work Plans. The Field Office shall be situated at locations that shall be free from flooding.

The Contractor shall submit for the approval of the Engineer, along with the Tender, Plans and Drawings showing the details for the building including plans and designs for foundations, access roads, sheds, etc. Plans shall also be submitted showing architectural and structural details and the proposed layout of electrical and running water supply, roads and hard standings thereto. The Engineer may require revision of the said plan prior to the approval for construction.

Prior to the occupation of the office, the Engineer may specify to the Contractor the defects in the work whereupon he may occupy the office and withhold payment for the work in this item until the Contractor remedies and makes good the said defects to the satisfaction of the Engineer.

On completion of the Contract the Field Office including furnishings shall become the property of the Employer.

#### Office equipment and stationary articles

The Contractor shall require to purchase and supply the following Office equipment and consumables to the Engineer:

- (i) One Computer (English) of approved brand with printer and Auto CAD facilities
- (ii) One Photocopy Machine (A3 size)
- (iii) Minor items of field office equipment such as file trays, punches, staplers etc. in reasonable number/quantities as requested by the Engineer.
- (iv) Consumables such as papers, pens, files etc. in reasonable number/quantities as requested from time to time by the Engineer.

Upon completion of the Contract, the office equipment listed above shall remain the property of the Employer.

#### Survey equipment

As per requirement of the program, survey equipment shall be provided on each contract Site for use by the staff of the Contractor and the Engineer. A tentative list of such survey equipment is given below:

Optical square	1 no
Spirit level (metal 1m long)	1 no.
Steel measuring tape 25m long	1 no.
Steel measuring tape 5m long	1 no.
Leveling staff 3m long	1 no.
Ranging poles	5 nos.
Surveyor's plumb bob	1 no.
Wild T-1A Theodolite with tripod (or equivalent)	1 no.
Wild NA-2 Automatic level with tripod (or equivalent)	1 no.
Traversing targets with tripods	1 no.
Magnetic Compass	1 no.

Miscellaneous tools and minor items of survey equipment such as umbrellas, hammers, knives etc. shall be made available at Site in reasonable numbers at all times for use by the staff of the Contractor and the Engineer.

Consumables such as pegs, stakes, string lines, paint, marking crayons, etc., shall be made available at Site in reasonable numbers and quantities at all times for use by the staff of the Contractor and the Engineer.

Upon completion of the Contract, the survey equipment listed above shall remain the property of the Contractor.

#### Offices and equipment

The Contractor shall provide and maintain an inventory of all furnishings and equipment and shall replace any equipment, which is lost or irreparably damaged subject to the condition that the Engineer shall ensure his staff to take all reasonable precautions in the handling, operation and transportation of such equipment.

The Contractor shall pay all expenses in respect of water, electricity (where available), garbage cleaning etc. necessary for running the Office and maintaining conducive environment.

The Contractor shall place all necessary support staff such as office boys, cleaners, messengers, road-men, chain-men etc. in required number to the Engineer and his personnel in smooth performing of his responsibilities.

#### Signboards

The Contractor shall supply, erect and maintain in good condition at least two Identification Signboards of sizes to be specified by the Engineer to be fixed one at each end of the Work at a place clearly visible to the public. The Signboards shall be mounted on steel pipe frames with the required sizes at a height 2m above the ground and shall be sufficiently strong to withstand the wind forces. The board shall be fabricated from steel angle and plates and painted with suitable colours and written in English and/or Bengali as per direction of the Engineer.

Each board shall display:

- The name of the Project
- The name of the Work
- The name of the Employer
- Contract value
- Date of commencement of work
- Date of completion of work
- Other particulars, which will be asked by the Engineer.

Progress in photographs and videos

Photographs and videos showing the progress of works and special photographs showing particular features or other matters of interest in connection with the Work or their surroundings shall be taken every month by an approved qualified photographer/cameraman to the choice of the Engineer. Number of photographs/video clips will not exceed 10 (ten) per month.

Four colour un-mounted prints of a size 250mm on approved photographic paper of every such photograph inscribed with its serial number, date of shooting and a short title shall be furnished to the Engineer every month.

All negatives and video clips shall be numbered, filed and retained at the Site. On completion of the Contract, those shall become the properties of the Employer and shall be handed over to the Employer by the Contractor.

6 (six) complete sets of colour prints of the finished permanent Work, not exceeding 20 (twenty) photographs in number, shall be taken when and as directed by the Engineer prior to finally granting the Contractor the Certificate of Completion and shall be suitably mounted, titled and supplied to the Engineer.

Measurement and payment

Provisions for Office space and facilities for the Engineer shall not be measured.

Payment for all the items as stated below shall be for the full period of the Contract including any extension, if allowed.

Payment for all equipment, signboards, photographs, video clips, services etc. of the Field Office detailed in this Sub-section shall be made as described below, where price and payment shall be the full compensation for complying with this Section of the Specification and the Conditions of the Contract.

Payment of rates for the pay items shall be the full compensation for supplying, erecting and maintaining the Field Office for the Engineer including all furniture, fixtures and fittings, access roads, office equipment, signboards, photographs, video clips etc. all in full compliance with the requirements of this Section.

No separate payment shall be made to the Contractor for providing the requisite tools, minor items and the consumables. Compensation for these items shall be deemed to be included in the other pay items of the BOQ.

Pay Items shall be as Ls.

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**35. CONTRACTOR'S SITE FACILITIES**

35. The Contractor shall be responsible for the provision, maintenance and operation facilities and services on site at his own expenses.

**36. CONTRACTOR'S RESPONSIBILITY FOR TESTING**

- 36.1 Contractor shall bear all Contingency and Laboratory testing charge as may be required for Geo-textile, Concrete, Hard Rock and other materials from BUET/CUET or any other recognized Laboratory as will be selected by the Engineer.
- 36.2 The Contractor when requested by the Engineer or his Representative to carry out any test in the presence of the Engineer or his Representative, shall provide all necessary assistances in carrying out the tests providing concerned Material Engineer, Laboratory Assistants and labors required to the Engineer free of charge. The Contractor shall ensure that the Engineer and his staff have unrestricted access to these facilities free of charge
- 36.3 Testing equipment and apparatus as are needed for the performance of the above tests as specified in the Technical Specifications for the materials and construction of earthworks, concrete, gravels etc. are to be supplied by the Contractor.
- 36.4 All costs including Contractor's margin, overhead, taxes, etc, incurred by the Contractor in complying with requirements of this sub-clause shall be deemed to be included in the lump sum price of Contractor's site facilities of the Bill of Quantities. Payment for this item shall be made on pro-rata basis depending upon the total progress accomplished. Prior approval from the Engineer will be required for utilization of this sum.

# **PART 3 – CONDITIONS OF CONTRACT AND CONTRACT FORMS**

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## Section VIII. General Conditions (GC)

Bangladesh Economic Zones Authority  
[Name of Employer]

Site development & Construction of embankment for Mirsarai-2A EZ  
[Name of Contract]

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## **General Conditions**

### **1. General Provisions**

#### **1.1 Definitions**

In the Conditions of Contract (“these Conditions”), which include Particular Conditions, Parts A and B, and these General Conditions, the following words and expressions shall have the meanings stated. Words indicating persons or parties include corporations and other legal entities, except where the context requires otherwise.

##### **1.1.1 The Contract**

1.1.1.1 “Contract” means the Contract Agreement, the Letter of Acceptance, the Letter of Tender, these Conditions, the Specification, the Drawings, the Schedules, and the further documents (if any) which are listed in the Contract Agreement or in the Letter of Acceptance.

1.1.1.2 “Contract Agreement” means the contract agreement referred to in Sub-Clause 1.6 [Contract Agreement].

1.1.1.3 “Letter of Acceptance” means the letter of formal acceptance, signed by the Employer, of the Letter of Tender, including any annexed memoranda comprising agreements between and signed by both Parties. If there is no such letter of acceptance, the expression “Letter of Acceptance” means the Contract Agreement and the date of issuing or receiving the Letter of Acceptance means the date of signing the Contract Agreement.

1.1.1.4 “Letter of Tender” means the document entitled letter of tender or letter of bid, which was completed by the Contractor and includes the signed offer to the Employer for the Works.

1.1.1.5 “Specification” means the document entitled specification, as included in the Contract, and any additions and modifications to the specification in accordance with the Contract. Such document specifies the Works.

1.1.1.6 “Drawings” means the drawings of the Works, as included in the Contract, and any additional and modified drawings issued by (or on behalf of) the Employer in accordance with the Contract.

1.1.1.7 “Schedules” means the document(s) entitled schedules, completed by the Contractor and

submitted with the Letter of Tender, as included in the Contract. Such document may include the Bill of Quantities, data, lists, and schedules of rates and/or prices.

1.1.1.8 “Tender” means the Letter of Tender and all other documents which the Contractor submitted with the Letter of Tender, as included in the Contract.

1.1.1.9 “Bill of Quantities”, “Daywork Schedule” and “Schedule of Payment Currencies” mean the documents so named (if any) which are comprised in the Schedules.

1.1.1.10 “Contract Data” means the pages completed by the Employer entitled contract data which constitute Part A of the Particular Conditions.

## **1.1.2 Parties and Persons**

1.1.2.1 “Party” means the Employer or the Contractor, as the context requires.

1.1.2.2 “Employer” means the person named as employer in the Contract Data and the legal successors in title to this person.

1.1.2.3 “Contractor” means the person(s) named as contractor in the Letter of Tender accepted by the Employer and the legal successors in title to this person(s).

1.1.2.4 “Engineer” means the person appointed by the Employer to act as the Engineer for the purposes of the Contract and named in the Contract Data, or other person appointed from time to time by the Employer and notified to the Contractor under Sub-Clause 3.4 [Replacement of the Engineer].

1.1.2.5 “Contractor’s Representative” means the person named by the Contractor in the Contract or appointed from time to time by the Contractor under Sub-Clause 4.3 [Contractor’s Representative], who acts on behalf of the Contractor.

1.1.2.6 “Employer’s Personnel” means the Engineer, the assistants referred to in Sub-Clause 3.2 [Delegation by the Engineer] and all other staff, labour and other employees of the Engineer and of the Employer; and any other personnel notified to the Contractor, by the

Employer or the Engineer, as Employer's Personnel.

1.1.2.7 "Contractor's Personnel" means the Contractor's Representative and all personnel whom the Contractor utilises on Site, who may include the staff, labour and other employees of the Contractor and of each Subcontractor; and any other personnel assisting the Contractor in the execution of the Works.

1.1.2.8 "Subcontractor" means any person named in the Contract as a subcontractor, or any person appointed as a subcontractor, for a part of the Works; and the legal successors in title to each of these persons.

1.1.2.9 "DB" means the person or three persons appointed under Sub-Clause 20.2 [Appointment of the Dispute Board] or Sub-Clause 20.3 [Failure to Agree on the Composition of the Dispute Board]

1.1.2.10 "FIDIC" means the Fédération Internationale des Ingénieurs-Conseils, the international federation of consulting engineers.

1.1.2.11 "Bank" means the financing institution (if any) named in the Contract Data.

1.1.2.12 "Borrower" means the person (if any) named as the borrower in the Contract Data.

### **1.1.3 Dates, Tests, Periods and Completion**

1.1.3.1 "Base Date" means the date 28 days prior to the latest date for submission of the Tender.

1.1.3.2 "Commencement Date" means the date notified under Sub-Clause 8.1 [Commencement of Works].

1.1.3.3 "Time for Completion" means the time for completing the Works or a Section (as the case may be) under Sub-Clause 8.2 [Time for Completion], as stated in the Contract Data (with any extension under Sub-Clause 8.4 [Extension of Time for Completion]), calculated from the Commencement Date.

1.1.3.4 "Tests on Completion" means the tests which are specified in the Contract or agreed by both Parties or instructed as a Variation, and which are carried out under Clause 9 [Tests on Completion] before the Works or a Section (as the case may be) are taken over by the Employer.

- 1.1.3.5 “Taking-Over Certificate” means a certificate issued under Clause 10 [Employer’s Taking Over].
- 1.1.3.6 “Tests after Completion” means the tests (if any) which are specified in the Contract and which are carried out in accordance with the Specification after the Works or a Section (as the case may be) are taken over by the Employer.
- 1.1.3.7 “Defects Notification Period” means the period for notifying defects in the Works or a Section (as the case may be) under Sub-Clause 11.1 [Completion of Outstanding Work and Remedying Defects], which extends over 365 days except if otherwise stated in the Contract Data (with any extension under Sub-Clause 11.3 [Extension of Defects Notification Period]), calculated from the date on which the Works or Section is completed as certified under Sub-Clause 10.1 [Taking Over of the Works and Sections]..
- 1.1.3.8 “Performance Certificate” means the certificate issued under Sub-Clause 11.9 [Performance Certificate]..
- 1.1.3.9 “Day” means a calendar day and “year” means 365 days.

#### **1.1.4 Money and Payments**

- 1.1.4.1 “Accepted Contract Amount” means the amount accepted in the Letter of Acceptance for the execution and completion of the Works and the remedying of any defects.
- 1.1.4.2 “Contract Price” means the price defined in Sub-Clause 14.1 [The Contract Price], and includes adjustments in accordance with the Contract.
- 1.1.4.3 “Cost” means all expenditure reasonably incurred (or to be incurred) by the Contractor, whether on or off the Site, including overhead and similar charges, but does not include profit.
- 1.1.4.4 “Final Payment Certificate” means the payment certificate issued under Sub-Clause 14.13 [Issue of Final Payment Certificate].
- 1.1.4.5 “Final Statement” means the statement defined in Sub-Clause 14.11 [Application for Final Payment Certificate].

- 1.1.4.6 “Foreign Currency” means a currency in which part (or all) of the Contract Price is payable, but not the Local Currency.
- 1.1.4.7 “Interim Payment Certificate” means a payment certificate issued under Clause 14 [Contract Price and Payment], other than the Final Payment Certificate.
- 1.1.4.8 “Local Currency” means the currency of the Country.
- 1.1.4.9 “Payment Certificate” means a payment certificate issued under Clause 14 [Contract Price and Payment].
- 1.1.4.10 “Provisional Sum” means a sum (if any) which is specified in the Contract as a provisional sum, for the execution of any part of the Works or for the supply of Plant, Materials or services under Sub-Clause 13.5 [Provisional Sums].
- 1.1.4.11 “Retention Money” means the accumulated retention moneys which the Employer retains under Sub-Clause 14.3 [Application for Interim Payment Certificates] and pays under Sub-Clause 14.9 [Payment of Retention Money].
- 1.1.4.12 “Statement” means a statement submitted by the Contractor as part of an application, under Clause 14 [Contract Price and Payment], for a payment certificate.

### **1.1.5 Works and Goods**

- 1.1.5.1 “Contractor’s Equipment” means all apparatus, machinery, vehicles and other things required for the execution and completion of the Works and the remedying of any defects. However, Contractor’s Equipment excludes Temporary Works, Employer’s Equipment (if any), Plant, Materials and any other things intended to form or forming part of the Permanent Works.
- 1.1.5.2 “Goods” means Contractor’s Equipment, Materials, Plant and Temporary Works, or any of them as appropriate.
- 1.1.5.3 “Materials” means things of all kinds (other than Plant) intended to form or forming part of the Permanent Works, including the supply-only materials (if any) to be supplied by the Contractor under the Contract.
- 1.1.5.4 “Permanent Works” means the permanent works to be

executed by the Contractor under the Contract.

1.1.5.5 “Plant” means the apparatus, machinery and other equipment intended to form or forming part of the Permanent Works, including vehicles purchased for the Employer and relating to the construction or operation of the Works.

1.1.5.6 “Section” means a part of the Works specified in the Contract Data as a Section (if any).

1.1.5.7 “Temporary Works” means all temporary works of every kind (other than Contractor’s Equipment) required on Site for the execution and completion of the Permanent Works and the remedying of any defects.

1.1.5.8 “Works” mean the Permanent Works and the Temporary Works, or either of them as appropriate.

#### **1.1.6 Other Definitions**

1.1.6.1 “Contractor’s Documents” means the calculations, computer programs and other software, drawings, manuals, models and other documents of a technical nature (if any) supplied by the Contractor under the Contract.

1.1.6.2 “Country” means the country in which the Site (or most of it) is located, where the Permanent Works are to be executed.

1.1.6.3 “Employer’s Equipment” means the apparatus, machinery and vehicles (if any) made available by the Employer for the use of the Contractor in the execution of the Works, as stated in the Specification; but does not include Plant which has not been taken over by the Employer.

1.1.6.4 “Force Majeure” is defined in Clause 19 [Force Majeure].

1.1.6.5 “Laws” means all national (or state) legislation, statutes, ordinances and other laws, and regulations and by-laws of any legally constituted public authority.

1.1.6.6 “Performance Security” means the security (or securities, if any) under Sub-Clause 4.2 [Performance Security].

1.1.6.7 “Site” means the places where the Permanent Works are to be executed, including storage and working

areas, and to which Plant and Materials are to be delivered, and any other places as may be specified in the Contract as forming part of the Site.

1.1.6.8 “Unforeseeable” means not reasonably foreseeable by an experienced contractor by the Base Date.

1.1.6.9 “Variation” means any change to the Works, which is instructed or approved as a variation under Clause 13 [Variations and Adjustments].

1.1.6.10 “Notice of Dissatisfaction” means the notice given by either Party to the other under Sub-Clause 20.4 [Obtaining Dispute Board’s Decision] indicating its dissatisfaction and intention to commence arbitration.

## **1.2 Interpretation**

In the Contract, except where the context requires otherwise:

- (a) words indicating one gender include all genders;
- (b) words indicating the singular also include the plural and words indicating the plural also include the singular;
- (c) provisions including the word “agree”, “agreed” or “agreement” require the agreement to be recorded in writing;
- (d) “written” or “in writing” means hand-written, type-written, printed or electronically made, and resulting in a permanent record; and
- (e) the word “tender” is synonymous with “bid” and “tenderer” with “bidder” and the words “tender documents” with “bidding documents”

The marginal words and other headings shall not be taken into consideration in the interpretation of these Conditions.

In these Conditions, provisions including the expression "Cost plus profit" require this profit to be one-twentieth (5%) of this Cost unless otherwise indicated in the Contract Data.

## **1.3 Communications**

Wherever these Conditions provide for the giving or issuing of approvals, certificates, consents, determinations, notices, requests and discharges, these communications shall be:

- (a) in writing and delivered by hand (against receipt), sent by mail or courier, or transmitted using any of the agreed systems of electronic transmission as stated in the

Contract Data; and

- (b) delivered, sent or transmitted to the address for the recipient's communications as stated in the Contract Data. However:
  - (i) if the recipient gives notice of another address, communications shall thereafter be delivered accordingly; and
  - (ii) if the recipient has not stated otherwise when requesting an approval or consent, it may be sent to the address from which the request was issued.

Approvals, certificates, consents and determinations shall not be unreasonably withheld or delayed. When a certificate is issued to a Party, the certifier shall send a copy to the other Party. When a notice is issued to a Party, by the other Party or the Engineer, a copy shall be sent to the Engineer or the other Party, as the case may be.

**1.4 Law and Language** The Contract shall be governed by the law of the country or other jurisdiction stated in the Contract Data.

The ruling language of the Contract shall be that stated in the Contract Data.

The language for communications shall be that stated in the Contract Data. If no language is stated there, the language for communications shall be the ruling language of the Contract.

**1.5 Priority of Documents** 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 the following sequence:

- (a) the Contract Agreement (if any),
- (b) the Letter of Acceptance,
- (c) the Letter of Tender,
- (d) the Particular Conditions – Part A,
- (e) the Particular Conditions – Part B
- (f) these General Conditions
- (g) the Specification,

- (h) the Drawings, and
- (i) the Schedules and any other documents forming part of the Contract.

If an ambiguity or discrepancy is found in the documents, the Engineer shall issue any necessary clarification or instruction.

#### **1.6 Contract Agreement**

The Parties shall enter into a Contract Agreement within 28 days after the Contractor receives the Letter of Acceptance, unless the Particular Conditions establish otherwise. The Contract Agreement shall be based upon the form annexed to the Particular Conditions. The costs of stamp duties and similar charges (if any) imposed by law in connection with entry into the Contract Agreement shall be borne by the Employer.

#### **1.7 Assignment**

Neither Party shall assign the whole or any part of the Contract or any benefit or interest in or under the Contract. However, either Party:

- (a) may assign the whole or any part with the prior agreement of the other Party, at the sole discretion of such other Party, and
- (b) may, as security in favour of a bank or financial institution, assign its right to any moneys due, or to become due, under the Contract.

#### **1.8 Care and Supply of Documents**

The Specification and Drawings shall be in the custody and care of the Employer. Unless otherwise stated in the Contract, two copies of the Contract and of each subsequent Drawing shall be supplied to the Contractor, who may make or request further copies at the cost of the Contractor.

Each of the Contractor's Documents shall be in the custody and care of the Contractor, unless and until taken over by the Employer. Unless otherwise stated in the Contract, the Contractor shall supply to the Engineer six copies of each of the Contractor's Documents.

The Contractor shall keep, on the Site, a copy of the Contract, publications named in the Specification, the Contractor's Documents (if any), the Drawings and Variations and other communications given under the Contract. The Employer's Personnel shall have the right of access to all these documents at all reasonable times.

If a Party becomes aware of an error or defect in a document

which was prepared for use in executing the Works, the Party shall promptly give notice to the other Party of such error or defect.

**1.9 Delayed Drawings or Instructions**

The Contractor shall give notice to the Engineer whenever the Works are likely to be delayed or disrupted if any necessary drawing or instruction is not issued to the Contractor within a particular time, which shall be reasonable. The notice shall include details of the necessary drawing or instruction, details of why and by when it should be issued, and the nature and amount of the delay or disruption likely to be suffered if it is late.

If the Contractor suffers delay and/or incurs Cost as a result of a failure of the Engineer to issue the notified drawing or instruction within a time which is reasonable and is specified in the notice with supporting details, the Contractor shall give a further notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

- (a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
- (b) payment of any such Cost plus profit, which shall be included in the Contract Price.

After receiving this further notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

However, if and to the extent that the Engineer's failure was caused by any error or delay by the Contractor, including an error in, or delay in the submission of, any of the Contractor's Documents, the Contractor shall not be entitled to such extension of time, Cost or profit.

**1.10 Employer's Use of Contractor's Documents**

As between the Parties, the Contractor shall retain the copyright and other intellectual property rights in the Contractor's Documents and other design documents made by (or on behalf of) the Contractor.

The Contractor shall be deemed (by signing the Contract) to give to the Employer a non-terminable transferable non-exclusive royalty-free licence to copy, use and communicate the Contractor's Documents, including making and using modifications of them. This licence shall:

- (a) apply throughout the actual or intended working life (whichever is longer) of the relevant parts of the Works,
- (b) entitle any person in proper possession of the relevant part of the Works to copy, use and communicate the Contractor's Documents for the purposes of completing, operating, maintaining, altering, adjusting, repairing and demolishing the Works, and
- (c) in the case of Contractor's Documents which are in the form of computer programs and other software, permit their use on any computer on the Site and other places as envisaged by the Contract, including replacements of any computers supplied by the Contractor.

The Contractor's Documents and other design documents made by (or on behalf of) the Contractor shall not, without the Contractor's consent, be used, copied or communicated to a third party by (or on behalf of) the Employer for purposes other than those permitted under this Sub-Clause.

**1.11 Contractor's Use  
of Employer's  
Documents**

As between the Parties, the Employer shall retain the copyright and other intellectual property rights in the Specification, the Drawings and other documents made by (or on behalf of) the Employer. The Contractor may, at his cost, copy, use, and obtain communication of these documents for the purposes of the Contract. They shall not, without the Employer's consent, be copied, used or communicated to a third party by the Contractor, except as necessary for the purposes of the Contract.

**1.12 Confidential  
Details**

The Contractor's and the Employer's Personnel shall disclose all such confidential and other information as may be reasonably required in order to verify compliance with the Contract and allow its proper implementation.

Each of them shall treat the details of the Contract as private and confidential, except to the extent necessary to carry out their respective obligations under the Contract or to comply with applicable Laws. Each of them shall not publish or disclose any particulars of the Works prepared by the other Party without the previous agreement of the other Party. However, the Contractor shall be permitted to disclose any publicly available information, or information otherwise required to establish his qualifications to compete for other projects.

### **1.13 Compliance with Laws**

The Contractor shall, in performing the Contract, comply with applicable Laws. Unless otherwise stated in the Particular Conditions:

- (a) the Employer shall have obtained (or shall obtain) the planning, zoning, building permit or similar permission for the Permanent Works, and any other permissions described in the Specification as having been (or to be) obtained by the Employer; and the Employer shall indemnify and hold the Contractor harmless against and from the consequences of any failure to do so; and
- (b) the Contractor shall give all notices, pay all taxes, duties and fees, and obtain all permits, licences and approvals, as required by the Laws in relation to the execution and completion of the Works and the remedying of any defects; and the Contractor shall indemnify and hold the Employer harmless against and from the consequences of any failure to do so, unless the Contractor is impeded to accomplish these actions and shows evidence of its diligence.

### **1.14 Joint and Several Liability**

If the Contractor constitutes (under applicable Laws) a joint venture, consortium or other unincorporated grouping of two or more persons:

- (a) these persons shall be deemed to be jointly and severally liable to the Employer for the performance of the Contract;
- (b) these persons shall notify the Employer of their leader who shall have authority to bind the Contractor and each of these persons; and
- (c) the Contractor shall not alter its composition or legal status without the prior consent of the Employer.

### **1.15 Inspections and Audit by the Bank**

The Contractor shall permit the Bank and/or persons appointed by the Bank to inspect the Site and/or the Contractor's accounts and records relating to the performance of the Contract and to have such accounts and records audited by auditors appointed by the Bank if required by the Bank.

## **2. The Employer**

### **2.1 Right of Access to the Site**

The Employer shall give the Contractor right of access to, and possession of, all parts of the Site within the time (or times) stated in the Contract Data. The right and possession may not

be exclusive to the Contractor. If, under the Contract, the Employer is required to give (to the Contractor) possession of any foundation, structure, plant or means of access, the Employer shall do so in the time and manner stated in the Specification. However, the Employer may withhold any such right or possession until the Performance Security has been received.

If no such time is stated in the Contract Data, the Employer shall give the Contractor right of access to, and possession of, the Site within such times as required to enable the Contractor to proceed without disruption in accordance with the programme submitted under Sub-Clause 8.3 [Programme].

If the Contractor suffers delay and/or incurs Cost as a result of a failure by the Employer to give any such right or possession within such time, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

- (a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
- (b) payment of any such Cost plus profit, which shall be included in the Contract Price.

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

However, if and to the extent that the Employer's failure was caused by any error or delay by the Contractor, including an error in, or delay in the submission of, any of the Contractor's Documents, the Contractor shall not be entitled to such extension of time, Cost or profit.

## **2.2 Permits, Licences or Approvals**

The Employer shall provide, at the request of the Contractor, such reasonable assistance as to allow the Contractor to obtain properly:

- (a) copies of the Laws of the Country which are relevant to the Contract but are not readily available, and
- (b) any permits, licences or approvals required by the Laws of the Country:
  - (i) which the Contractor is required to obtain under Sub-Clause 1.13 [Compliance with Laws],
  - (ii) for the delivery of Goods, including clearance

through customs, and

- (iii) for the export of Contractor's Equipment when it is removed from the Site.

### **2.3 Employer's Personnel**

The Employer shall be responsible for ensuring that the Employer's Personnel and the Employer's other contractors on the Site:

- (a) co-operate with the Contractor's efforts under Sub-Clause 4.6 [Co-operation], and
- (b) take actions similar to those which the Contractor is required to take under sub-paragraphs (a), (b) and (c) of Sub-Clause 4.8 [Safety Procedures] and under Sub-Clause 4.18 [Protection of the Environment].

### **2.4 Employer's Financial Arrangements**

The Employer shall submit, before the Commencement Date and thereafter within 28 days after receiving any request from the Contractor, reasonable evidence that financial arrangements have been made and are being maintained which will enable the Employer to pay the Contract Price punctually (as estimated at that time) in accordance with Clause 14 [Contract Price and Payment]. Before the Employer makes any material change to his financial arrangements, the Employer shall give notice to the Contractor with detailed particulars.

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 his notice of the extent to which such funds will be available.

### **2.5 Employer's Claims**

If the Employer considers himself to be entitled to any payment under any Clause of these Conditions or otherwise in connection with the Contract, and/or to any extension of the Defects Notification Period, the Employer or the Engineer shall give notice and particulars to the Contractor. However, notice is not required for payments due under Sub-Clause 4.19 [Electricity, Water and Gas], under Sub-Clause 4.20 [Employer's Equipment and Free-Issue Materials], or for other

services requested by the Contractor.

The notice shall be given as soon as practicable and no longer than 28 days after the Employer became aware, or should have become aware, of the event or circumstances giving rise to the claim. A notice relating to any extension of the Defects Notification Period shall be given before the expiry of such period.

The particulars shall specify the Clause or other basis of the claim, and shall include substantiation of the amount and/or extension to which the Employer considers himself to be entitled in connection with the Contract. The Engineer shall then proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine (i) the amount (if any) which the Employer is entitled to be paid by the Contractor, and/or (ii) the extension (if any) of the Defects Notification Period in accordance with Sub-Clause 11.3 [Extension of Defects Notification Period].

This amount may be included as a deduction in the Contract Price and Payment Certificates. The Employer shall only be entitled to set off against or make any deduction from an amount certified in a Payment Certificate, or to otherwise claim against the Contractor, in accordance with this Sub-Clause.

### **3. The Engineer**

#### **3.1 Engineer's Duties and Authority**

The Employer shall appoint the Engineer who shall carry out the duties assigned to him in the Contract. The Engineer's staff shall include suitably qualified engineers and other professionals who are competent to carry out these duties.

The Engineer shall have no authority to amend the Contract.

The Engineer may exercise the authority attributable to the Engineer as specified in or necessarily to be implied from the Contract. If the Engineer is required to obtain the approval of the Employer before exercising a specified authority, the requirements shall be as stated in the Particular Conditions. The Employer shall promptly inform the Contractor of any change to the authority attributed to the Engineer.

However, whenever the Engineer exercises a specified authority for which the Employer's approval is required, then (for the purposes of the Contract) the Employer shall be deemed to have

given approval.

Except as otherwise stated in these Conditions:

- (a) whenever carrying out duties or exercising authority, specified in or implied by the Contract, the Engineer shall be deemed to act for the Employer;
- (b) the Engineer has no authority to relieve either Party of any duties, obligations or responsibilities under the Contract;
- (c) any approval, check, certificate, consent, examination, inspection, instruction, notice, proposal, request, test, or similar act by the Engineer (including absence of disapproval) shall not relieve the Contractor from any responsibility he has under the Contract, including responsibility for errors, omissions, discrepancies and non-compliances; and
- (d) any act by the Engineer in response to a Contractor's request except as otherwise expressly specified shall be notified in writing to the Contractor within 28 days of receipt.

The following provisions shall apply:

The Engineer shall obtain the specific approval of the Employer before taking action under the following Sub-Clauses of these Conditions:

- (a) Sub-Clause 4.12: agreeing or determining an extension of time and/or additional cost.
- (b) Sub-Clause 13.1: 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.
- (c) Sub-Clause 13.3: Approving a proposal for Variation submitted by the Contractor in accordance with Sub Clause 13.1 or 13.2.
- (d) Sub-Clause 13.4: Specifying the amount payable in each of the applicable currencies

Notwithstanding the obligation, as set out above, to obtain approval, if, in the opinion of the Engineer, an emergency occurs affecting the safety of life or of the Works or of adjoining property, he 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 approval 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, in accordance with Clause 13 and shall notify the Contractor accordingly, with a copy to the Employer.

### **3.2 Delegation by the Engineer**

The Engineer may from time to time assign duties and delegate authority to assistants, and may also revoke such assignment or delegation. These assistants may include a resident engineer, and/or independent inspectors appointed to inspect and/or test items of Plant and/or Materials. The assignment, delegation or revocation shall be in writing and shall not take effect until copies have been received by both Parties. However, unless otherwise agreed by both Parties, the Engineer shall not delegate the authority to determine any matter in accordance with Sub-Clause 3.5 [Determinations].

Each assistant, to whom duties have been assigned or authority has been delegated, shall only be authorised to issue instructions to the Contractor to the extent defined by the delegation. Any approval, check, certificate, consent, examination, inspection, instruction, notice, proposal, request, test, or similar act by an assistant, in accordance with the delegation, shall have the same effect as though the act had been an act of the Engineer. However:

- (a) any failure to disapprove any work, Plant or Materials shall not constitute approval, and shall therefore not prejudice the right of the Engineer to reject the work, Plant or Materials;
- (b) if the Contractor questions any determination or instruction of an assistant, the Contractor may refer the matter to the Engineer, who shall promptly confirm, reverse or vary the determination or instruction.

### **3.3 Instructions of the Engineer**

The Engineer may issue to the Contractor (at any time) instructions and additional or modified Drawings which may be necessary for the execution of the Works and the remedying of any defects, all in accordance with the Contract. The Contractor

shall only take instructions from the Engineer, or from an assistant to whom the appropriate authority has been delegated under this Clause. If an instruction constitutes a Variation, Clause 13 [Variations and Adjustments] shall apply.

The Contractor shall comply with the instructions given by the Engineer or delegated assistant, on any matter related to the Contract. Whenever practicable, their instructions shall be given in writing. If the Engineer or a delegated assistant:

- (a) gives an oral instruction,
- (b) receives a written confirmation of the instruction, from (or on behalf of) the Contractor, within two working days after giving the instruction, and
- (c) does not reply by issuing a written rejection and/or instruction within two working days after receiving the confirmation,

then the confirmation shall constitute the written instruction of the Engineer or delegated assistant (as the case may be).

### **3.4 Replacement of the Engineer**

If the Employer intends to replace the Engineer, the Employer shall, not less than 21 days before the intended date of replacement, give notice to the Contractor of the name, address and relevant experience of the intended replacement Engineer. If the Contractor considers the intended replacement Engineer to be unsuitable, he has the right to raise objection against him by notice to the Employer, with supporting particulars, and the Employer shall give full and fair consideration to this objection.

### **3.5 Determinations**

Whenever these Conditions provide that the Engineer shall proceed in accordance with this Sub-Clause 3.5 to agree or determine any matter, the Engineer shall consult with each Party in an endeavour to reach agreement. If agreement is not achieved, the Engineer shall make a fair determination in accordance with the Contract, taking due regard of all relevant circumstances.

The Engineer shall give notice to both Parties of each agreement or determination, with supporting particulars, within 28 days from the receipt of the corresponding claim or request except when otherwise specified. Each Party shall give effect to each agreement or determination unless and until revised under Clause 20 [Claims, Disputes and Arbitration].

## **4. The Contractor**

### **4.1 Contractor's General Obligations**

The Contractor shall design (to the extent specified in the Contract), execute and complete the Works in accordance with the Contract and with the Engineer's instructions, and shall remedy any defects in the Works.

The Contractor shall provide the Plant and Contractor's Documents specified in the Contract, and all Contractor's Personnel, Goods, consumables and other things and services, whether of a temporary or permanent nature, required in and for this design, execution, completion and remedying of defects.

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 Contractor shall be responsible for the adequacy, stability and safety of all Site operations and of all methods of construction. Except to the extent specified in the Contract, the Contractor (i) shall be responsible for all Contractor's Documents, Temporary Works, and such design of each item of Plant and Materials as is required for the item to be in accordance with the Contract, and (ii) shall not otherwise be responsible for the design or specification of the Permanent Works.

The Contractor shall, whenever required by the Engineer, submit details of the arrangements and methods which the Contractor proposes to adopt for the execution of the Works. No significant alteration to these arrangements and methods shall be made without this having previously been notified to the Engineer..

If the Contract specifies that the Contractor shall design any part of the Permanent Works, then unless otherwise stated in the Particular Conditions:

- (a) the Contractor shall submit to the Engineer the Contractor's Documents for this part in accordance with the procedures specified in the Contract;
- (b) these Contractor's Documents shall be in accordance with the Specification and Drawings, shall be written in the language for communications defined in Sub-Clause 1.4 [Law and Language], and shall include additional information required by the Engineer to add to the Drawings for co-ordination of each Party's designs;
- (c) the Contractor shall be responsible for this part and it shall,

when the Works are completed, be fit for such purposes for which the part is intended as are specified in the Contract; and

- (d) prior to the commencement of the Tests on Completion, the Contractor shall submit to the Engineer the “as-built” documents and, if applicable, operation and maintenance manuals in accordance with the Specification and in sufficient detail for the Employer to operate, maintain, dismantle, reassemble, adjust and repair this part of the Works. Such part shall not be considered to be completed for the purposes of taking-over under Sub-Clause 10.1 [Taking Over of the Works and Sections] until these documents and manuals have been submitted to the Engineer.

#### **4.2 Performance Security**

The Contractor shall obtain (at his cost) a Performance Security for proper performance, in the amount 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 an amount is not stated in the Contract Data, this Sub-Clause shall not apply.

The Contractor shall deliver the 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 shall be issued by a reputable bank or financial institution selected by the Contractor, and shall be in the form annexed to the Particular Conditions, as stipulated by the Employer in the Contract Data, or in another form approved by the Employer.

The Contractor shall ensure that the Performance Security is valid and enforceable until the Contractor has executed and completed the Works and remedied any defects. If the terms of the Performance Security specify its expiry date, and the Contractor has not become entitled to receive the Performance Certificate by the date 28 days prior to the expiry date, the Contractor shall extend the validity of the Performance Security until the Works have been completed and any defects have been remedied.

The Employer shall not make a claim under the Performance Security, except for amounts to which the Employer is entitled under the Contract.

The Employer shall indemnify and hold the Contractor harmless against and from all damages, losses and expenses (including

legal fees and expenses) resulting from a claim under the Performance Security to the extent to which the Employer was not entitled to make the claim.

The Employer shall return the Performance Security to the Contractor within 21 days after receiving a copy of the Performance Certificate.

Without limitation to the provisions of the rest of this Sub-Clause, whenever the Engineer determines an addition or a reduction to the Contract Price as a result of a change in cost and/or legislation, or as a result of a Variation, amounting to more than 25 percent of the portion of the Contract Price payable in a specific currency, the Contractor shall at the Engineer's request promptly increase, or may decrease, as the case may be, the value of the Performance Security in that currency by an equal percentage.

#### **4.3 Contractor's Representative**

The Contractor shall appoint the Contractor's Representative and shall give him all authority necessary to act on the Contractor's behalf under the Contract.

Unless the Contractor's Representative is named in the Contract, the Contractor shall, prior to the Commencement Date, submit to the Engineer for consent the name and particulars of the person the Contractor proposes to appoint as Contractor's Representative. If consent is withheld or subsequently revoked in terms of Sub-Clause 6.9 [Contractor's Personnel], or if the appointed person fails to act as Contractor's Representative, the Contractor shall similarly submit the name and particulars of another suitable person for such appointment.

The Contractor shall not, without the prior consent of the Engineer, revoke the appointment of the Contractor's Representative or appoint a replacement.

The whole time of the Contractor's Representative shall be given to directing the Contractor's performance of the Contract. If the Contractor's Representative is to be temporarily absent from the Site during the execution of the Works, a suitable replacement person shall be appointed, subject to the Engineer's prior consent, and the Engineer shall be notified accordingly.

The Contractor's Representative shall, on behalf of the Contractor, receive instructions under Sub-Clause 3.3 [Instructions of the Engineer].

The Contractor's Representative may delegate any powers,

functions and authority to any competent person, and may at any time revoke the delegation. Any delegation or revocation shall not take effect until the Engineer has received prior notice signed by the Contractor's Representative, naming the person and specifying the powers, functions and authority being delegated or revoked.

The Contractor's Representative shall be fluent in the language for communications defined in Sub-Clause 1.4 [Law and Language]. If the Contractor's Representative's delegates are not fluent in the said language, the Contractor shall make competent interpreters available during all working hours in a number deemed sufficient by the Engineer.

#### **4.4 Subcontractors**

The Contractor shall not subcontract the whole of the Works.

The Contractor shall be responsible for the acts or defaults of any Subcontractor, his agents or employees, as if they were the acts or defaults of the Contractor. Unless otherwise stated in the Particular Conditions:

- (a) the Contractor shall not be required to obtain consent to suppliers solely of Materials, or to a subcontract for which the Subcontractor is named in the Contract;
- (b) the prior consent of the Engineer shall be obtained to other proposed Subcontractors;
- (c) the Contractor shall give the Engineer not less than 28 days' notice of the intended date of the commencement of each Subcontractor's work, and of the commencement of such work on the Site; and
- (d) each subcontract shall include provisions which would entitle the Employer to require the subcontract to be assigned to the Employer under Sub-Clause 4.5 [Assignment of Benefit of Subcontract] (if or when applicable) or in the event of termination under Sub-Clause 15.2 [Termination by Employer].

The Contractor shall ensure that the requirements imposed on the Contractor by Sub-Clause 1.12 [Confidential Details] apply equally to each Subcontractor.

Where practicable, the Contractor shall give fair and reasonable opportunity for contractors from the Country to be appointed as Subcontractors.

#### **4.5 Assignment of Benefit of Subcontract**

If a Subcontractor's obligations extend beyond the expiry date of the relevant Defects Notification Period and the Engineer, prior to this date, instructs the Contractor to assign the benefit of

such obligations to the Employer, then the Contractor shall do so. Unless otherwise stated in the assignment, the Contractor shall have no liability to the Employer for the work carried out by the Subcontractor after the assignment takes effect.

#### **4.6 Co-operation**

The Contractor shall, as specified in the Contract or as instructed by the Engineer, allow appropriate opportunities for carrying out work to:

- (a) the Employer's Personnel,
- (b) any other contractors employed by the Employer, and
- (c) the personnel of any legally constituted public authorities,

who may be employed in the execution on or near the Site of any work not included in the Contract.

Any such instruction shall constitute a Variation if and to the extent that it causes the Contractor to suffer delays and/or to incur Unforeseeable Cost. Services for these personnel and other contractors may include the use of Contractor's Equipment, Temporary Works or access arrangements which are the responsibility of the Contractor.

If, under the Contract, the Employer is required to give to the Contractor possession of any foundation, structure, plant or means of access in accordance with Contractor's Documents, the Contractor shall submit such documents to the Engineer in the time and manner stated in the Specification.

#### **4.7 Setting Out**

The Contractor shall set out the Works in relation to original points, lines and levels of reference specified in the Contract or notified by the Engineer. The Contractor shall be responsible for the correct positioning of all parts of the Works, and shall rectify any error in the positions, levels, dimensions or alignment of the Works.

The Employer shall be responsible for any errors in these specified or notified items of reference, but the Contractor shall use reasonable efforts to verify their accuracy before they are used.

If the Contractor suffers delay and/or incurs Cost from executing work which was necessitated by an error in these items of reference, and an experienced contractor could not reasonably have discovered such error and avoided this delay and/or Cost, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's

Claims] to:

- (a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
- (b) payment of any such Cost plus profit, which shall be included in the Contract Price.

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine (i) whether and (if so) to what extent the error could not reasonably have been discovered, and (ii) the matters described in sub-paragraphs (a) and (b) above related to this e.

**4.8 Safety Procedures** The Contractor shall:

- (a) comply with all applicable safety regulations,
- (b) take care for the safety of all persons entitled to be on the Site,
- (c) use reasonable efforts to keep the Site and Works clear of unnecessary obstruction so as to avoid danger to these persons,
- (d) provide fencing, lighting, guarding and watching of the Works until completion and taking over under Clause 10 [Employer's Taking Over], and
- (e) provide any Temporary Works (including roadways, footways, guards and fences) which may be necessary, because of the execution of the Works, for the use and protection of the public and of owners and occupiers of adjacent land.

**4.9 Quality Assurance**

The Contractor shall institute a quality assurance system to demonstrate compliance with the requirements of the Contract. The system shall be in accordance with the details stated in the Contract. The Engineer shall be entitled to audit any aspect of the system.

Details of all procedures and compliance documents shall be submitted to the Engineer for information before each design and execution stage is commenced. When any document of a technical nature is issued to the Engineer, evidence of the prior approval by the Contractor himself shall be apparent on the document itself.

Compliance with the quality assurance system shall not relieve the Contractor of any of his duties, obligations or responsibilities under the Contract.

#### **4.10 Site Data**

The Employer shall have made available to the Contractor for his information, prior to the Base Date, all relevant data in the Employer's possession on sub-surface and hydrological conditions at the Site, including environmental aspects. The Employer shall similarly make available to the Contractor all such data which come into the Employer's possession after the Base Date. The Contractor shall be responsible for interpreting all such data.

To the extent which was practicable (taking account of cost and time), the Contractor shall be deemed to have obtained all necessary information as to risks, contingencies and other circumstances which may influence or affect the Tender or Works. To the same extent, the Contractor shall be deemed to have inspected and examined the Site, its surroundings, the above data and other available information, and to have been satisfied before submitting the Tender as to all relevant matters, including (without limitation):

- (a) the form and nature of the Site, including sub-surface conditions,
- (b) the hydrological and climatic conditions,
- (c) the extent and nature of the work and Goods necessary for the execution and completion of the Works and the remedying of any defects,
- (d) the Laws, procedures and labour practices of the Country, and
- (e) the Contractor's requirements for access, accommodation, facilities, personnel, power, transport, water and other services.

#### **4.11 Sufficiency of the Accepted Contract Amount**

The Contractor shall be deemed to:

- (a) have satisfied himself as to the correctness and sufficiency of the Accepted Contract Amount, and
- (b) have based the Accepted Contract Amount on the data, interpretations, necessary information, inspections, examinations and satisfaction as to all relevant matters

referred to in Sub-Clause 4.10 [Site Data].

Unless otherwise stated in the Contract, the Accepted Contract Amount covers all the Contractor's obligations under the Contract (including those under Provisional Sums, if any) and all things necessary for the proper execution and completion of the Works and the remedying of any defects.

#### **4.12 Unforeseeable Physical Conditions**

In this Sub-Clause, "physical conditions" means natural physical conditions and man-made and other physical obstructions and pollutants, which the Contractor encounters at the Site when executing the Works, including sub-surface and hydrological conditions but excluding climatic conditions.

If the Contractor encounters adverse physical conditions which he considers to have been Unforeseeable, the Contractor shall give notice to the Engineer as soon as practicable.

This notice shall describe the physical conditions, so that they can be inspected by the Engineer, and shall set out the reasons why the Contractor considers them to be Unforeseeable. The Contractor shall continue executing the Works, using such proper and reasonable measures as are appropriate for the physical conditions, and shall comply with any instructions which the Engineer may give. If an instruction constitutes a Variation, Clause 13 [Variations and Adjustments] shall apply.

If and to the extent that the Contractor encounters physical conditions which are Unforeseeable, gives such a notice, and suffers delay and/or incurs Cost due to these conditions, the Contractor shall be entitled subject to notice under Sub-Clause 20.1 [Contractor's Claims] to:

- (a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
- (b) payment of any such Cost, which shall be included in the Contract Price.

Upon receiving such notice and inspecting and/or investigating these physical conditions, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine (i) whether and (if so) to what extent these physical conditions were Unforeseeable, and (ii) the matters described in sub-paragraphs (a) and (b) above related to this extent.

However, before additional Cost is finally agreed or determined under sub-paragraph (ii), the Engineer may also review whether

other physical conditions in similar parts of the Works (if any) were more favourable than could reasonably have been foreseen when the Contractor submitted the Tender. If and to the extent that these more favourable conditions were encountered, the Engineer may proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine the reductions in Cost which were due to these conditions, which may be included (as deductions) in the Contract Price and Payment Certificates. However, the net effect of all adjustments under sub-paragraph (b) and all these reductions, for all the physical conditions encountered in similar parts of the Works, shall not result in a net reduction in the Contract Price.

The Engineer shall take account of any evidence of the physical conditions foreseen by the Contractor when submitting the Tender, which shall be made available by the Contractor, but shall not be bound by the Contractor's interpretation of any such evidence.

**4.13 Rights of Way and Facilities**

Unless otherwise specified in the Contract the Employer shall provide effective access to and possession of the Site including special and/or temporary rights-of-way which are necessary for the Works. The Contractor shall obtain, at his risk and cost, any additional rights of way or facilities outside the Site which he may require for the purposes of the Works.

**4.14 Avoidance of Interference**

The Contractor shall not interfere unnecessarily or improperly with:

- (a) the convenience of the public, or
- (b) the access to and use and occupation of all roads and footpaths, irrespective of whether they are public or in the possession of the Employer or of others.

The Contractor shall indemnify and hold the Employer harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from any such unnecessary or improper interference.

**4.15 Access Route**

The Contractor shall be deemed to have been satisfied as to the suitability and availability of access routes to the Site at Base Date. The Contractor shall use reasonable efforts to prevent any road or bridge from being damaged by the Contractor's traffic or by the Contractor's Personnel. These efforts shall include the proper use of appropriate vehicles and routes.

Except as otherwise stated in these Conditions:

- (a) the Contractor shall (as between the Parties) be responsible for any maintenance which may be required for his use of access routes;
- (b) the Contractor shall provide all necessary signs or directions along access routes, and shall obtain any permission which may be required from the relevant authorities for his use of routes, signs and directions;
- (c) the Employer shall not be responsible for any claims which may arise from the use or otherwise of any access route;
- (d) the Employer does not guarantee the suitability or availability of particular access routes; and
- (e) Costs due to non-suitability or non-availability, for the use required by the Contractor, of access routes shall be borne by the Contractor.

#### **4.16 Transport of Goods**

Unless otherwise stated in the Particular Conditions:

- (a) the Contractor shall give the Engineer not less than 21 days' notice of the date on which any Plant or a major item of other Goods will be delivered to the Site;
- (b) the Contractor shall be responsible for packing, loading, transporting, receiving, unloading, storing and protecting all Goods and other things required for the Works; and
- (c) the Contractor shall indemnify and hold the Employer harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from the transport of Goods, and shall negotiate and pay all claims arising from their transport.

#### **4.17 Contractor's Equipment**

The Contractor shall be responsible for all Contractor's Equipment. When brought on to the Site, Contractor's Equipment shall be deemed to be exclusively intended for the execution of the Works. The Contractor shall not remove from the Site any major items of Contractor's Equipment without the consent of the Engineer. However, consent shall not be required for vehicles transporting Goods or Contractor's Personnel off Site.

#### **4.18 Protection of the Environment**

The Contractor shall take all reasonable steps to protect the environment (both on and off the Site) and to limit damage and nuisance to people and property resulting from pollution, noise

and other results of his operations.

The Contractor shall ensure that emissions, surface discharges and effluent from the Contractor's activities shall not exceed the values stated in the Specification or prescribed by applicable Laws.

**4.19 Electricity, Water and Gas**

The Contractor shall, except as stated below, be responsible for the provision of all power, water and other services he may require for his construction activities and to the extent defined in the Specifications, for the tests.

The Contractor shall be entitled to use for the purposes of the Works such supplies of electricity, water, gas and other services as may be available on the Site and of which details and prices are given in the Specification. The Contractor shall, at his risk and cost, provide any apparatus necessary for his use of these services and for measuring the quantities consumed.

The quantities consumed and the amounts due (at these prices) for such services shall be agreed or determined by the Engineer in accordance with Sub-Clause 2.5 [Employer's Claims] and Sub-Clause 3.5 [Determinations]. The Contractor shall pay these amounts to the Employer.

**4.20 Employer's Equipment and Free-Issue Materials**

The Employer shall make the Employer's Equipment (if any) available for the use of the Contractor in the execution of the Works in accordance with the details, arrangements and prices stated in the Specification. Unless otherwise stated in the Specification:

- (a) the Employer shall be responsible for the Employer's Equipment, except that
- (b) the Contractor shall be responsible for each item of Employer's Equipment whilst any of the Contractor's Personnel is operating it, driving it, directing it or in possession or control of it.

The appropriate quantities and the amounts due (at such stated prices) for the use of Employer's Equipment shall be agreed or determined by the Engineer in accordance with Sub-Clause 2.5 [Employer's Claims] and Sub-Clause 3.5 [Determinations]. The Contractor shall pay these amounts to the Employer.

The Employer shall supply, free of charge, the "free-issue materials" (if any) in accordance with the details stated in the Specification. The Employer shall, at his risk and cost, provide

these materials at the time and place specified in the Contract. The Contractor shall then visually inspect them, and shall promptly give notice to the Engineer of any shortage, defect or default in these materials. Unless otherwise agreed by both Parties, the Employer shall immediately rectify the notified shortage, defect or default.

After this visual inspection, the free-issue materials shall come under the care, custody and control of the Contractor. The Contractor's obligations of inspection, care, custody and control shall not relieve the Employer of liability for any shortage, defect or default not apparent from a visual inspection.

#### **4.21 Progress Reports**

Unless otherwise stated in the Particular Conditions, monthly progress reports shall be prepared by the Contractor and submitted to the Engineer in six copies. The first report shall cover the period up to the end of the first calendar month following the Commencement Date. Reports shall be submitted monthly thereafter, each within 7 days after the last day of the period to which it relates.

Reporting shall continue until the Contractor has completed all work which is known to be outstanding at the completion date stated in the Taking-Over Certificate for the Works.

Each report shall include:

- (a) charts and detailed descriptions of progress, including each stage of design (if any), Contractor's Documents, procurement, manufacture, delivery to Site, construction, erection and testing; and including these stages for work by each nominated Subcontractor (as defined in Clause 5 [Nominated Subcontractors]),
- (b) photographs showing the status of manufacture and of progress on the Site;
- (c) for the manufacture of each main item of Plant and Materials, the name of the manufacturer, manufacture location, percentage progress, and the actual or expected dates of:
  - (i) commencement of manufacture,
  - (ii) Contractor's inspections,
  - (iii) tests, and

- (iv) shipment and arrival at the Site;
- (d) the details described in Sub-Clause 6.10 [Records of Contractor's Personnel and Equipment];
- (e) copies of quality assurance documents, test results and certificates of Materials;
- (f) list of notices given under Sub-Clause 2.5 [Employer's Claims] and notices given under Sub-Clause 20.1 [Contractor's Claims];
- (g) safety statistics, including details of any hazardous incidents and activities relating to environmental aspects and public relations; and
- (h) comparisons of actual and planned progress, with details of any events or circumstances which may jeopardise the completion in accordance with the Contract, and the measures being (or to be) adopted to overcome delays.

#### **4.22 Security of the Site**

Unless otherwise stated in the Particular Conditions:

- (a) the Contractor shall be responsible for keeping unauthorised persons off the Site, and
- (b) authorised persons shall be limited to the Contractor's Personnel and the Employer's Personnel; and to any other personnel notified to the Contractor, by the Employer or the Engineer, as authorised personnel of the Employer's other contractors on the Site.

#### **4.23 Contractor's Operations on Site**

The Contractor shall confine his operations to the Site, and to any additional areas which may be obtained by the Contractor and agreed by the Engineer as additional working areas. The Contractor shall take all necessary precautions to keep Contractor's Equipment and Contractor's Personnel within the Site and these additional areas, and to keep them off adjacent land..

During the execution of the Works, the Contractor shall keep the Site free from all unnecessary obstruction, and shall store or dispose of any Contractor's Equipment or surplus materials. The Contractor shall clear away and remove from the Site any wreckage, rubbish and Temporary Works which are no longer required.

Upon the issue of a Taking-Over Certificate, the Contractor shall clear away and remove, from that part of the Site and Works to which the Taking-Over Certificate refers, all

Contractor's Equipment, surplus material, wreckage, rubbish and Temporary Works. The Contractor shall leave that part of the Site and the Works in a clean and safe condition. However, the Contractor may retain on Site, during the Defects Notification Period, such Goods as are required for the Contractor to fulfil obligations under the Contract.

#### **4.24 Fossils**

All fossils, coins, articles of value or antiquity, and structures and other remains or items of geological or archaeological interest found on the Site shall be placed under the care and authority of the Employer. The Contractor shall take reasonable precautions to prevent Contractor's Personnel or other persons from removing or damaging any of these findings.

The Contractor shall, upon discovery of any such finding, promptly give notice to the Engineer, who shall issue instructions for dealing with it. If the Contractor suffers delay and/or incurs Cost from complying with the instructions, the Contractor shall give a further notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

- (a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
- (b) payment of any such Cost, which shall be included in the Contract Price.

After receiving this further notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

### **5. Nominated Subcontractors**

#### **5.1 Definition of "nominated Subcontractor"**

In the Contract, "nominated Subcontractor" means a Subcontractor:

- (a) who is stated in the Contract as being a nominated Subcontractor, or
- (b) whom the Engineer, under Clause 13 [Variations and Adjustments], instructs the Contractor to employ as a Subcontractor subject to Sub-Clause 5.2 [Objection to Notification].

#### **5.2 Objection to Nomination**

The Contractor shall not be under any obligation to employ a nominated Subcontractor against whom the Contractor raises reasonable objection by notice to the Engineer as soon as practicable, with supporting particulars. An objection shall be

deemed reasonable if it arises from (among other things) any of the following matters, unless the Employer agrees in writing to indemnify the Contractor against and from the consequences of the matter:

- (a) there are reasons to believe that the Subcontractor does not have sufficient competence, resources or financial strength;
- (b) the nominated Subcontractor does not accept to indemnify the Contractor against and from any negligence or misuse of Goods by the nominated Subcontractor, his agents and employees; or
- (c) the nominated Subcontractor does not accept to enter into a subcontract which specifies that, for the subcontracted work (including design, if any), the nominated Subcontractor shall:
  - (i) undertake to the Contractor such obligations and liabilities as will enable the Contractor to discharge his obligations and liabilities under the Contract;
  - (ii) indemnify the Contractor against and from all obligations and liabilities arising under or in connection with the Contract and from the consequences of any failure by the Subcontractor to perform these obligations or to fulfil these liabilities, and
  - (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 5.3 [Payment to nominated Subcontractors].

**5.3 Payments to  
nominated  
Subcontractors**

The Contractor shall pay to the nominated Subcontractor the amounts shown on the nominated Subcontractor's invoices approved by the Contractor which the Engineer certifies to be due in accordance with the subcontract. These amounts plus other charges shall be included in the Contract Price in accordance with sub-paragraph (b) of Sub-Clause 13.5 [Provisional Sums], except as stated in Sub-Clause 5.4 [Evidence of Payments].

**5.4 Evidence of  
Payments**

Before issuing a Payment Certificate which includes an amount payable to a nominated Subcontractor, the Engineer may request the Contractor to supply reasonable evidence that the nominated Subcontractor has received all amounts due in accordance with previous Payment Certificates, less applicable deductions for

retention or otherwise. Unless the Contractor:

- (a) submits this reasonable evidence to the Engineer, or
- (b)
  - (i) satisfies the Engineer in writing that the Contractor is reasonably entitled to withhold or refuse to pay these amounts, and
  - (ii) submits to the Engineer reasonable evidence that the nominated Subcontractor has been notified of the Contractor's entitlement,

then the Employer may (at his sole discretion) pay, direct to the nominated Subcontractor, part or all of such amounts previously certified (less applicable deductions) as are due to the nominated Subcontractor and for which the Contractor has failed to submit the evidence described in sub-paragraphs (a) or (b) above. The Contractor shall then repay, to the Employer, the amount which the nominated Subcontractor was directly paid by the Employer.

## **6. Staff and Labour**

### **6.1 Engagement of Staff and Labour**

Except as otherwise stated in the Specification, the Contractor shall make arrangements for the engagement of all staff and labour, local or otherwise, and for their payment, feeding, transport, and, when appropriate, housing.

The Contractor is encouraged, to the extent practicable and reasonable, to employ staff and labour with appropriate qualifications and experience from sources within the Country.

### **6.2 Rates of Wages and Conditions of Labour**

The Contractor shall pay rates of wages, and observe conditions of labour, which are not lower than those established for the trade or industry where the work is carried out. If no established rates or conditions are applicable, the Contractor shall pay rates of wages and observe conditions which are not lower than the general level of wages and conditions observed locally by employers whose trade or industry is similar to that of the Contractor.

The Contractor shall inform the Contractor's Personnel about 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, and the Contractor shall perform such

- duties in regard to such deductions thereof as may be imposed on him by such Laws.
- 6.3 Persons in the Service of Employer** The Contractor shall not recruit, or attempt to recruit, staff and labour from amongst the Employer's Personnel.
- 6.4 Labour Laws** The Contractor shall comply with all the relevant labour Laws applicable to the Contractor's Personnel, including Laws relating to their employment, health, safety, welfare, immigration and emigration, and shall allow them all their legal rights.
- The Contractor shall require his employees to obey all applicable Laws, including those concerning safety at work.
- 6.5 Working Hours** No work shall be carried out on the Site on locally recognised days of rest, or outside the normal working hours stated in the Contract Data, unless:
- (a) otherwise stated in the Contract,
  - (b) the Engineer gives consent, or
  - (c) the work is unavoidable, or necessary for the protection of life or property or for the safety of the Works, in which case the Contractor shall immediately advise the Engineer.
- 6.6 Facilities for Staff and Labour** Except as otherwise stated in the Specification, the Contractor shall provide and maintain all necessary accommodation and welfare facilities for the Contractor's Personnel. The Contractor shall also provide facilities for the Employer's Personnel as stated in the Specification.
- The Contractor shall not permit any of the Contractor's Personnel to maintain any temporary or permanent living quarters within the structures forming part of the Permanent Works.
- 6.7 Health and Safety** The Contractor shall at all times take all reasonable precautions to maintain the health and safety of the Contractor's Personnel. In collaboration with local health authorities, the Contractor shall ensure that medical staff, first aid facilities, sick bay and ambulance service are available at all times at the Site and at any accommodation for Contractor's and Employer's Personnel, and that suitable arrangements are made for all necessary welfare and hygiene requirements and for the prevention of epidemics.

The Contractor shall appoint an accident prevention officer at the Site, responsible for maintaining safety and protection against accidents. This person shall be qualified for this responsibility, and shall have the authority to issue instructions and take protective measures to prevent accidents. Throughout the execution of the Works, the Contractor shall provide whatever is required by this person to exercise this responsibility and authority.

The Contractor shall send, to the Engineer, details of any accident as soon as practicable after its occurrence. The Contractor shall maintain records and make reports concerning health, safety and welfare of persons, and damage to property, as the Engineer may reasonably require.

**HIV-AIDS Prevention.** The Contractor shall conduct an HIV-AIDS awareness programme via an approved service provider, and shall undertake such other measures as are specified in this Contract to reduce the risk of the transfer of the HIV virus between and among the Contractor's Personnel and the local community, to promote early diagnosis and to assist affected individuals.

The Contractor shall throughout the contract (including the Defects Notification Period): (i) conduct Information, Education and Communication (IEC) campaigns, at least every other month, addressed to all the Site staff and labour (including all the Contractor's employees, all Subcontractors and any other Contractor's or Employer's personnel employees, and all truck drivers and crew making deliveries to Site for construction activities) and to the immediate local communities, concerning the risks, dangers and impact, and appropriate avoidance behaviour with respect to, of Sexually Transmitted Diseases (STD) - or Sexually Transmitted Infections (STI) in general and HIV/AIDS in particular; (ii) provide male or female condoms for all Site staff and labour as appropriate; and (iii) provide for STI and HIV/AIDS screening, diagnosis, counselling and referral to a dedicated national STI and HIV/AIDS programme, (unless otherwise agreed) of all Site staff and labour.

The Contractor shall include in the programme to be submitted for the execution of the Works under Sub-Clause 8.3 an alleviation programme for Site staff and labour and their families in respect of Sexually Transmitted Infections (STI) and Sexually Transmitted Diseases (STD) including HIV/AIDS. The STI, STD and HIV/AIDS alleviation programme shall indicate when, how and at what cost the Contractor plans to satisfy the requirements of this Sub-Clause and the related specification.

For each component, the programme shall detail the resources to be provided or utilised and any related sub-contracting proposed. The programme shall also include provision of a detailed cost estimate with supporting documentation. Payment to the Contractor for preparation and implementation this programme shall not exceed the Provisional Sum dedicated for this purpose.

**6.8 Contractor's  
Superintendence**

Throughout the execution of the Works, and as long thereafter as is necessary to fulfil the Contractor's obligations, the Contractor shall provide all necessary superintendence to plan, arrange, direct, manage, inspect and test the work.

Superintendence shall be given by a sufficient number of persons having adequate knowledge of the language for communications (defined in Sub-Clause 1.4 [Law and Language]) and of the operations to be carried out (including the methods and techniques required, the hazards likely to be encountered and methods of preventing accidents), for the satisfactory and safe execution of the Works.

**6.9 Contractor's  
Personnel**

The Contractor's Personnel shall be appropriately qualified, skilled and experienced 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 if applicable, who:

- (a) persists in any misconduct or lack of care,
- (b) carries out duties incompetently or negligently,
- (c) fails to conform with any provisions of the Contract, or
- (d) persists in any conduct which is prejudicial to safety, health, or the protection of the environment.

If appropriate, the Contractor shall then appoint (or cause to be appointed) a suitable replacement person.

**6.10 Records of  
Contractor's  
Personnel and  
Equipment**

The Contractor shall submit, to the Engineer, details showing the number of each class of Contractor's Personnel and of each type of Contractor's Equipment on the Site. Details shall be submitted each calendar month, in a form approved by the Engineer, until the Contractor has completed all work which is known to be outstanding at the completion date stated in the Taking-Over Certificate for the Works.

**6.11 Disorderly  
Conduct**

The Contractor shall at all times take all reasonable precautions to prevent any unlawful, riotous or disorderly conduct by or

amongst the Contractor's Personnel, and to preserve peace and protection of persons and property on and near the Site.

**6.12 Foreign Personnel**

The Contractor may bring in to 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 his 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.

**6.13 Supply of Foodstuffs**

The Contractor shall arrange for the provision of a sufficient supply of suitable food as may be stated in the Specification at reasonable prices for the Contractor's Personnel for the purposes of or in connection with the Contract.

**6.14 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.

**6.15 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.

**6.16 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 thereof by Contractor's Personnel.

**6.17 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.

**6.18 Festivals and Religious Customs**

The Contractor shall respect the Country's recognized festivals, days of rest and religious or other customs.

- 6.19 Funeral Arrangements** The Contractor shall be responsible, to the extent required by local regulations, for making any funeral arrangements for any of his local employees who may die while engaged upon the Works.
- 6.20 Prohibition of Forced or Compulsory Labour** The Contractor shall not employ forced labour, which 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.
- 6.21 Prohibition of Harmful Child Labour** The Contractor shall not employ children in a manner that is economically exploitative, or 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. Where the relevant labour laws of the Country have provisions for employment of minors, the Contractor shall follow those laws applicable to the Contractor. Children below the age of 18 years shall not be employed in dangerous work.
- 6.22 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 names, ages, genders, hours worked and wages paid to all workers. These records shall be summarized on a monthly basis and submitted to the Engineer. These records shall be included in the details to be submitted by the Contractor under Sub-Clause 6.10 [Records of Contractor's Personnel and Equipment].
- 6.23 Workers' Organisations** In countries where the relevant labour laws recognise workers' rights to form and to join workers' organisations of their choosing without interference and to bargain collectively, the Contractor shall comply with such laws. 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. In either case described above, and where the relevant labour laws are silent, the Contractor shall not discourage the Contractor's Personnel from forming or joining workers' organisations of their choosing or from bargaining collectively, and shall not discriminate or retaliate against the Contractor's Personnel who participate, or seek to participate, in such organisations and bargain collectively. The Contractor shall engage with such workers' representatives. Workers' organisations are expected to fairly represent the workers in the workforce.

**6.24 Non-Discrimination and Equal Opportunity**

The Contractor shall not make employment decisions on the basis of personal characteristics unrelated to inherent job requirements. The Contractor shall base the employment relationship on the principle of equal opportunity and fair treatment, and shall not discriminate with respect to aspects of the employment relationship, including recruitment and hiring, compensation (including wages and benefits), working conditions and terms of employment, access to training, promotion, termination of employment or retirement, and discipline. In countries where the relevant labour laws provide for non-discrimination in employment, the Contractor shall comply with such laws. When the relevant labour laws are silent on non-discrimination in employment, the Contractor shall meet this Sub-Clause's requirements. 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.

**7. Plant, Materials and Workmanship**

**7.1 Manner of Execution**

The Contractor shall carry out the manufacture of Plant, the production and manufacture of Materials, and all other execution of the Works:

- (a) in the manner (if any) specified in the Contract,
- (b) in a proper workmanlike and careful manner, in accordance with recognised good practice, and
- (c) with properly equipped facilities and non-hazardous Materials, except as otherwise specified in the Contract.

**7.2 Samples**

The Contractor shall submit the following samples of Materials, and relevant information, to the Engineer for consent prior to using the Materials in or for the Works:

- (a) manufacturer's standard samples of Materials and samples specified in the Contract, all at the Contractor's cost, and
- (b) additional samples instructed by the Engineer as a Variation.

Each sample shall be labelled as to origin and intended use in the Works.

**7.3 Inspection**

The Employer's Personnel shall at all reasonable times:

- (a) have full access to all parts of the Site and to all places from which natural Materials are being obtained, and

- (b) during production, manufacture and construction (at the Site and elsewhere), be entitled to examine, inspect, measure and test the materials and workmanship, and to check the progress of manufacture of Plant and production and manufacture of Materials.

The Contractor shall give the Employer's Personnel full opportunity to carry out these activities, including providing access, facilities, permissions and safety equipment. No such activity shall relieve the Contractor from any obligation or responsibility.

The Contractor shall give notice to the Engineer whenever any work is ready and before it is covered up, put out of sight, or packaged for storage or transport. The Engineer shall then either carry out the examination, inspection, measurement or testing without unreasonable delay, or promptly give notice to the Contractor that the Engineer does not require to do so. If the Contractor fails to give the notice, he shall, if and when required by the Engineer, uncover the work and thereafter reinstate and make good, all at the Contractor's cost.

#### **7.4 Testing**

This Sub-Clause shall apply to all tests specified in the Contract, other than the Tests after Completion (if any).

Except as otherwise specified in the Contract, the Contractor shall provide all apparatus, assistance, documents and other information, electricity, equipment, fuel, consumables, instruments, labour, materials, and suitably qualified and experienced staff, as are necessary to carry out the specified tests efficiently. The Contractor shall agree, with the Engineer, the time and place for the specified testing of any Plant, Materials and other parts of the Works.

The Engineer may, under Clause 13 [Variations and Adjustments], vary the location or details of specified tests, or instruct the Contractor to carry out additional tests. If these varied or additional tests show that the tested Plant, Materials or workmanship is not in accordance with the Contract, the cost of carrying out this Variation shall be borne by the Contractor, notwithstanding other provisions of the Contract.

The Engineer shall give the Contractor not less than 24 hours' notice of the Engineer's intention to attend the tests. If the Engineer does not attend at the time and place agreed, the Contractor may proceed with the tests, unless otherwise instructed by the Engineer, and the tests shall then be deemed to

have been made in the Engineer's presence.

If the Contractor suffers delay and/or incurs Cost from complying with these instructions or as a result of a delay for which the Employer is responsible, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

- (a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
- (b) payment of any such Cost plus profit, which shall be included in the Contract Price.

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

The Contractor shall promptly forward to the Engineer duly certified reports of the tests. When the specified tests have been passed, the Engineer shall endorse the Contractor's test certificate, or issue a certificate to him, to that effect. If the Engineer has not attended the tests, he shall be deemed to have accepted the readings as accurate.

## **7.5 Rejection**

If, as a result of an examination, inspection, measurement or testing, any Plant, Materials or workmanship is found to be defective or otherwise not in accordance with the Contract, the Engineer may reject the Plant, Materials or workmanship by giving notice to the Contractor, with reasons. The Contractor shall then promptly make good the defect and ensure that the rejected item complies with the Contract.

If the Engineer requires this Plant, Materials or workmanship to be retested, the tests shall be repeated under the same terms and conditions. If the rejection and retesting cause the Employer to incur additional costs, the Contractor shall subject to Sub-Clause 2.5 [Employer's Claims] pay these costs to the Employer.

## **7.6 Remedial Work**

Notwithstanding any previous test or certification, the Engineer may instruct the Contractor to:

- (a) remove from the Site and replace any Plant or Materials which is not in accordance with the Contract,
- (b) remove and re-execute any other work which is not in

accordance with the Contract, and

- (c) execute any work which is urgently required for the safety of the Works, whether because of an accident, unforeseeable event or otherwise.

The Contractor shall comply with the instruction within a reasonable time, which shall be the time (if any) specified in the instruction, or immediately if urgency is specified under subparagraph (c).

If the Contractor fails to comply with the instruction, the Employer shall be entitled to employ and pay other persons to carry out the work. Except to the extent that the Contractor would have been entitled to payment for the work, the Contractor shall subject to Sub-Clause 2.5 [Employer's Claims] pay to the Employer all costs arising from this failure.

#### **7.7 Ownership of Plant and Materials**

Except as otherwise provided in the Contract, each item of Plant and Materials shall, to the extent consistent with the Laws of the Country, become the property of the Employer at whichever is the earlier of the following times, free from liens and other encumbrances:

- (a) when it is incorporated in the Works;
- (b) when the Contractor is paid the corresponding value of the Plant and Materials under Sub-Clause 8.10 [Payment for Plant and Materials in Event of Suspension].

#### **7.8 Royalties**

Unless otherwise stated in the Specification, the Contractor shall pay all royalties, rents and other payments for:

- (a) natural Materials obtained from outside the Site, and
- (b) the disposal of material from demolitions and excavations and of other surplus material (whether natural or man-made), except to the extent that disposal areas within the Site are specified in the Contract.

### **8. Commencement, Delays and Suspension**

#### **8.1 Commencement of Works**

Except as otherwise specified in the Particular Conditions of Contract, the Commencement Date shall be the date at which the following precedent conditions have all been fulfilled and the Engineer's notification recording the agreement of both Parties on such fulfilment and instructing to commence the Work is received by the Contractor:

- (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.

If the said Engineer's instruction is not received by the Contractor within 180 days from his receipt of the Letter of Acceptance, the Contractor shall be entitled to terminate the Contract under Sub-Clause 16.2 [Termination by Contractor].

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.

## **8.2 Time for Completion**

The Contractor shall complete the whole of the Works, and each Section (if any), within the Time for Completion for the Works or Section (as the case may be), including:

- (a) achieving the passing of the Tests on Completion, and
- (b) completing all work which is stated in the Contract as being required for the Works or Section to be considered to be completed for the purposes of taking-over under Sub-Clause 10.1 [Taking Over of the Works and Sections].

## **8.3 Programme**

The Contractor shall submit a detailed time programme to the Engineer within 28 days after receiving the notice under Sub-Clause 8.1 [Commencement of Works]. The Contractor shall also submit a revised programme whenever the previous programme is inconsistent with actual progress or with the Contractor's obligations. Each programme shall include:

- (a) the order in which the Contractor intends to carry out the

Works, including the anticipated timing of each stage of design (if any), Contractor's Documents, procurement, manufacture of Plant, delivery to Site, construction, erection and testing,

- (b) each of these stages for work by each nominated Subcontractor (as defined in Clause 5 [Nominated Subcontractors]),
- (c) the sequence and timing of inspections and tests specified in the Contract, and
- (d) a supporting report which includes:
  - (i) a general description of the methods which the Contractor intends to adopt, and of the major stages, in the execution of the Works, and
  - (ii) details showing the Contractor's reasonable estimate of the number of each class of Contractor's Personnel and of each type of Contractor's Equipment, required on the Site for each major stage.

Unless the Engineer, within 21 days after receiving a programme, gives notice to the Contractor stating the extent to which it does not comply with the Contract, the Contractor shall proceed in accordance with the programme, subject to his other obligations under the Contract. The Employer's Personnel shall be entitled to rely upon the programme when planning their activities.

The Contractor shall promptly give notice to the Engineer of specific probable future events or circumstances which may adversely affect the work, increase the Contract Price or delay the execution of the Works. The Engineer may require the Contractor to submit an estimate of the anticipated effect of the future event or circumstances, and/or a proposal under Sub-Clause 13.3 [Variation Procedure].

If, at any time, the Engineer gives notice to the Contractor that a programme fails (to the extent stated) to comply with the Contract or to be consistent with actual progress and the Contractor's stated intentions, the Contractor shall submit a revised programme to the Engineer in accordance with this Sub-Clause.

#### **8.4 Extension of Time for Completion**

The Contractor shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to an extension of the Time for Completion if and to the extent that completion for the purposes of Sub-Clause 10.1 [Taking Over of the Works and Sections] is

or will be delayed by any of the following causes:

- (a) a Variation (unless an adjustment to the Time for Completion has been agreed under Sub-Clause 13.3 [Variation Procedure]) or other substantial change in the quantity of an item of work included in the Contract,
- (b) a cause of delay giving an entitlement to extension of time under a Sub-Clause of these Conditions,
- (c) exceptionally adverse climatic conditions,
- (d) Unforeseeable shortages in the availability of personnel or Goods caused by epidemic or governmental actions, or
- (e) any delay, impediment or prevention caused by or attributable to the Employer, the Employer's Personnel, or the Employer's other contractors.

If the Contractor considers himself to be entitled to an extension of the Time for Completion, the Contractor shall give notice to the Engineer in accordance with Sub-Clause 20.1 [Contractor's Claims]. When determining each extension of time under Sub-Clause 20.1, the Engineer shall review previous determinations and may increase, but shall not decrease, the total extension of time.

#### **8.5 Delays Caused by Authorities**

If the following conditions apply, namely:

- (a) the Contractor has diligently followed the procedures laid down by the relevant legally constituted public authorities in the Country,
- (b) these authorities delay or disrupt the Contractor's work, and
- (c) the delay or disruption was Unforeseeable,

then this delay or disruption will be considered as a cause of delay under sub-paragraph (b) of Sub-Clause 8.4 [Extension of Time for Completion].

#### **8.6 Rate of Progress**

If, at any time:

- (a) actual progress is too slow to complete within the Time for Completion, and/or
- (b) progress has fallen (or will fall) behind the current programme under Sub-Clause 8.3 [Programme],

other than as a result of a cause listed in Sub-Clause 8.4 [Extension of Time for Completion], then the Engineer may instruct the Contractor to submit, under Sub-Clause 8.3 [Programme], a revised programme and supporting report describing the revised methods which the Contractor proposes to adopt in order to expedite progress and complete within the Time for Completion.

Unless the Engineer notifies otherwise, the Contractor shall adopt these revised methods, which may require increases in the working hours and/or in the numbers of Contractor's Personnel and/or Goods, at the risk and cost of the Contractor. If these revised methods cause the Employer to incur additional costs, the Contractor shall subject to notice under Sub-Clause 2.5 [Employer's Claims] pay these costs to the Employer, in addition to delay damages (if any) under Sub-Clause 8.7 below.

Additional costs of revised methods including acceleration measures, instructed by the Engineer to reduce delays resulting from causes listed under Sub-Clause 8.4 [Extension of Time for Completion] shall be paid by the Employer, without generating, however, any other additional payment benefit to the Contractor.

#### **8.7 Delay Damages**

If the Contractor fails to comply with Sub-Clause 8.2 [Time for Completion], the Contractor shall subject to notice under Sub-Clause 2.5 [Employer's Claims] pay delay damages to the Employer for this default. These delay damages shall be the sum stated in the Contract Data, which shall be paid for every day which shall elapse between the relevant Time for Completion and the date stated in the Taking-Over Certificate. However, the total amount due under this Sub-Clause shall not exceed the maximum amount of delay damages (if any) stated in the Contract Data.

These delay damages shall be the only damages due from the Contractor for such default, other than in the event of termination under Sub-Clause 15.2 [Termination by Employer] prior to completion of the Works. These damages shall not relieve the Contractor from his obligation to complete the Works, or from any other duties, obligations or responsibilities which he may have under the Contract.

#### **8.8 Suspension of Work**

The Engineer may at any time instruct the Contractor to suspend progress of part or all of the Works. During such suspension, the Contractor shall protect, store and secure such part or the Works against any deterioration, loss or damage.

The Engineer may also notify the cause for the suspension. If and to the extent that the cause is notified and is the responsibility of the Contractor, the following Sub-Clauses 8.9, 8.10 and 8.11 shall not apply.

**8.9 Consequences of Suspension**

If the Contractor suffers delay and/or incurs Cost from complying with the Engineer's instructions under Sub-Clause 8.8 [Suspension of Work] and/or from resuming the work, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

- (a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
- (b) payment of any such Cost, which shall be included in the Contract Price.

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

The Contractor shall not be entitled to an extension of time for, or to payment of the Cost incurred in, making good the consequences of the Contractor's faulty design, workmanship or materials, or of the Contractor's failure to protect, store or secure in accordance with Sub-Clause 8.8 [Suspension of Work].

**8.10 Payment for Plant and Materials in Event of Suspension**

The Contractor shall be entitled to payment of the value (as at the date of suspension) of Plant and/or Materials which have not been delivered to Site, if:

- (a) the work on Plant or delivery of Plant and/or Materials has been suspended for more than 28 days, and
- (b) the Contractor has marked the Plant and/or Materials as the Employer's property in accordance with the Engineer's instructions.

**8.11 Prolonged Suspension**

If the suspension under Sub-Clause 8.8 [Suspension of Work] has continued for more than 84 days, the Contractor may request the Engineer's permission to proceed. If the Engineer does not give permission within 28 days after being requested to do so, the Contractor may, by giving notice to the Engineer, treat the suspension as an omission under Clause 13 [Variations and Adjustments] of the affected part of the Works. If the suspension affects the whole of the Works, the Contractor may give notice

of termination under Sub-Clause 16.2 [Termination by Contractor].

#### **8.12 Resumption of Work**

After the permission or instruction to proceed is given, the Contractor and the Engineer shall jointly examine the Works and the Plant and Materials affected by the suspension. The Contractor shall make good any deterioration or defect in or loss of the Works or Plant or Materials, which has occurred during the suspension after receiving from the Engineer an instruction to this effect under Clause 13 [Variations and Adjustments].

### **9. Tests on Completion**

#### **9.1 Contractor's Obligations**

The Contractor shall carry out the Tests on Completion in accordance with this Clause and Sub-Clause 7.4 [Testing], after providing the documents in accordance with sub-paragraph (d) of Sub-Clause 4.1 [Contractor's General Obligations].

The Contractor shall give to the Engineer not less than 21 days' notice of the date after which the Contractor will be ready to carry out each of the Tests on Completion. Unless otherwise agreed, Tests on Completion shall be carried out within 14 days after this date, on such day or days as the Engineer shall instruct.

In considering the results of the Tests on Completion, the Engineer shall make allowances for the effect of any use of the Works by the Employer on the performance or other characteristics of the Works. As soon as the Works, or a Section, have passed any Tests on Completion, the Contractor shall submit a certified report of the results of these Tests to the Engineer.

#### **9.2 Delayed Tests**

If the Tests on Completion are being unduly delayed by the Employer, Sub-Clause 7.4 [Testing] (fifth paragraph) and/or Sub-Clause 10.3 [Interference with Tests on Completion] shall be applicable.

If the Tests on Completion are being unduly delayed by the Contractor, the Engineer may by notice require the Contractor to carry out the Tests within 21 days after receiving the notice. The Contractor shall carry out the Tests on such day or days within that period as the Contractor may fix and of which he shall give notice to the Engineer.

If the Contractor fails to carry out the Tests on Completion within the period of 21 days, the Employer's Personnel may proceed with the Tests at the risk and cost of the Contractor. The Tests on Completion shall then be deemed to have been carried

out in the presence of the Contractor and the results of the Tests shall be accepted as accurate.

### **9.3 Retesting**

If the Works, or a Section, fail to pass the Tests on Completion, Sub-Clause 7.5 [Rejection] shall apply, and the Engineer or the Contractor may require the failed Tests, and Tests on Completion on any related work, to be repeated under the same terms and conditions.

### **9.4 Failure to Pass Tests on Completion**

If the Works, or a Section, fail to pass the Tests on Completion repeated under Sub-Clause 9.3 [Retesting], the Engineer shall be entitled to:

- (a) order further repetition of Tests on Completion under Sub-Clause 9.3;
- (b) if the failure deprives the Employer of substantially the whole benefit of the Works or Section, reject the Works or Section (as the case may be), in which event the Employer shall have the same remedies as are provided in sub-paragraph (c) of Sub-Clause 11.4 [Failure to Remedy Defects]; or
- (c) issue a Taking-Over Certificate, if the Employer so requests.

In the event of sub-paragraph (c), the Contractor shall proceed in accordance with all other obligations under the Contract, and the Contract Price shall be reduced by such amount as shall be appropriate to cover the reduced value to the Employer as a result of this failure. Unless the relevant reduction for this failure is stated (or its method of calculation is defined) in the Contract, the Employer may require the reduction to be (i) agreed by both Parties (in full satisfaction of this failure only) and paid before this Taking-Over Certificate is issued, or (ii) determined and paid under Sub-Clause 2.5 [Employer's Claims] and Sub-Clause 3.5 [Determinations].

## **10. Employer's Taking Over**

### **10.1 Taking Over of the Works and Sections**

Except as stated in Sub-Clause 9.4 [Failure to Pass Tests on Completion], the Works shall be taken over by the Employer when (i) the Works have been completed in accordance with the Contract, including the matters described in Sub-Clause 8.2 [Time for Completion] and except as allowed in sub-paragraph (a) below, and (ii) a Taking-Over Certificate for the Works has been issued, or is deemed to have been issued in accordance with this Sub-Clause.

The Contractor may apply by notice to the Engineer for a

Taking-Over Certificate not earlier than 14 days before the Works will, in the Contractor's opinion, be complete and ready for taking over. If the Works are divided into Sections, the Contractor may similarly apply for a Taking-Over Certificate for each Section.

The Engineer shall, within 28 days after receiving the Contractor's application:

- (a) issue the Taking-Over Certificate to the Contractor, stating the date on which the Works or Section were completed in accordance with the Contract, except for any minor outstanding work and defects which will not substantially affect the use of the Works or Section for their intended purpose (either until or whilst this work is completed and these defects are remedied); or
- (b) reject the application, giving reasons and specifying the work required to be done by the Contractor to enable the Taking-Over Certificate to be issued. The Contractor shall then complete this work before issuing a further notice under this Sub-Clause.

If the Engineer fails either to issue the Taking-Over Certificate or to reject the Contractor's application within the period of 28 days, and if the Works or Section (as the case may be) are substantially in accordance with the Contract, the Taking-Over Certificate shall be deemed to have been issued on the last day of that period.

## **10.2 Taking Over of Parts of the Works**

The Engineer may, at the sole discretion of the Employer, issue a Taking-Over Certificate for any part of the Permanent Works.

The Employer shall not use any part of the Works (other than as a temporary measure which is either specified in the Contract or agreed by both Parties) unless and until the Engineer has issued a Taking-Over Certificate for this part. However, if the Employer does use any part of the Works before the Taking-Over Certificate is issued:

- (a) the part which is used shall be deemed to have been taken over as from the date on which it is used,
- (b) the Contractor shall cease to be liable for the care of such part as from this date, when responsibility shall pass to the Employer, and
- (c) if requested by the Contractor, the Engineer shall issue a Taking-Over Certificate for this part.

After the Engineer has issued a Taking-Over Certificate for a part of the Works, the Contractor shall be given the earliest opportunity to take such steps as may be necessary to carry out any outstanding Tests on Completion. The Contractor shall carry out these Tests on Completion as soon as practicable before the expiry date of the relevant Defects Notification Period.

If the Contractor incurs Cost as a result of the Employer taking over and/or using a part of the Works, other than such use as is specified in the Contract or agreed by the Contractor, the Contractor shall (i) give notice to the Engineer and (ii) be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to payment of any such Cost plus profit, which shall be included in the Contract Price. After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine this Cost and profit.

If a Taking-Over Certificate has been issued for a part of the Works (other than a Section), the delay damages thereafter for completion of the remainder of the Works shall be reduced. Similarly, the delay damages for the remainder of the Section (if any) in which this part is included shall also be reduced. For any period of delay after the date stated in this Taking-Over Certificate, the proportional reduction in these delay damages shall be calculated as the proportion which the value of the part so certified bears to the value of the Works or Section (as the case may be) as a whole. The Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these proportions. The provisions of this paragraph shall only apply to the daily rate of delay damages under Sub-Clause 8.7 [Delay Damages], and shall not affect the maximum amount of these damages.

### **10.3 Interference with Tests on Completion**

If the Contractor is prevented, for more than 14 days, from carrying out the Tests on Completion by a cause for which the Employer is responsible, the Employer shall be deemed to have taken over the Works or Section (as the case may be) on the date when the Tests on Completion would otherwise have been completed.

The Engineer shall then issue a Taking-Over Certificate accordingly, and the Contractor shall carry out the Tests on Completion as soon as practicable, before the expiry date of the Defects Notification Period. The Engineer shall require the Tests on Completion to be carried out by giving 14 days' notice and in accordance with the relevant provisions of the Contract.

If the Contractor suffers delay and/or incurs Cost as a result of this delay in carrying out the Tests on Completion, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

- (a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
- (b) payment of any such Cost plus profit, which shall be included in the Contract Price.

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

**10.4 Surfaces  
Requiring  
Reinstatement**

Except as otherwise stated in a Taking-Over Certificate, a certificate for a Section or part of the Works shall not be deemed to certify completion of any ground or other surfaces requiring reinstatement.

## **11. Defects Liability**

**11.1 Completion of  
Outstanding  
Work and  
Remedying  
Defects**

In order that the Works and Contractor's Documents, and each Section, shall be in the condition required by the Contract (fair wear and tear excepted) by the expiry date of the relevant Defects Notification Period or as soon as practicable thereafter, the Contractor shall:

- (a) complete any work which is outstanding on the date stated in a Taking-Over Certificate, within such reasonable time as is instructed by the Engineer, and
- (b) execute all work required to remedy defects or damage, as may be notified by (or on behalf of) the Employer on or before the expiry date of the Defects Notification Period for the Works or Section (as the case may be).

If a defect appears or damage occurs, the Contractor shall be notified accordingly, by (or on behalf of) the Employer.

**11.2 Cost of  
Remedying  
Defects**

All work referred to in sub-paragraph (b) of Sub-Clause 11.1 [Completion of Outstanding Work and Remedying Defects] shall be executed at the risk and cost of the Contractor, if and to the extent that the work is attributable to:

- (a) any design for which the Contractor is responsible,
- (b) Plant, Materials or workmanship not being in accordance

with the Contract, or

- (c) failure by the Contractor to comply with any other obligation.

If and to the extent that such work is attributable to any other cause, the Contractor shall be notified promptly by (or on behalf of) the Employer, and Sub-Clause 13.3 [Variation Procedure] shall apply.

### **11.3 Extension of Defects Notification Period**

The Employer shall be entitled subject to Sub-Clause 2.5 [Employer's Claims] to an extension of the Defects Notification Period for the Works or a Section if and to the extent that the Works, Section or a major item of Plant (as the case may be, and after taking over) cannot be used for the purposes for which they are intended by reason of a defect or by reason of damage attributable to the Contractor. However, a Defects Notification Period shall not be extended by more than two years.

If delivery and/or erection of Plant and/or Materials was suspended under Sub-Clause 8.8 [Suspension of Work] or Sub-Clause 16.1 [Contractor's Entitlement to Suspend Work], the Contractor's obligations under this Clause shall not apply to any defects or damage occurring more than two years after the Defects Notification Period for the Plant and/or Materials would otherwise have expired.

### **11.4 Failure to Remedy Defects**

If the Contractor fails to remedy any defect or damage within a reasonable time, a date may be fixed by (or on behalf of) the Employer, on or by which the defect or damage is to be remedied. The Contractor shall be given reasonable notice of this date.

If the Contractor fails to remedy the defect or damage by this notified date and this remedial work was to be executed at the cost of the Contractor under Sub-Clause 11.2 [Cost of Remedying Defects], the Employer may (at his option):

- (a) carry out the work himself or by others, in a reasonable manner and at the Contractor's cost, but the Contractor shall have no responsibility for this work; and the Contractor shall subject to Sub-Clause 2.5 [Employer's Claims] pay to the Employer the costs reasonably incurred by the Employer in remedying the defect or damage;
- (b) require the Engineer to agree or determine a reasonable reduction in the Contract Price in accordance with Sub-Clause 3.5 [Determinations]; or

- (c) if the defect or damage deprives the Employer of substantially the whole benefit of the Works or any major part of the Works, terminate the Contract as a whole, or in respect of such major part which cannot be put to the intended use. Without prejudice to any other rights, under the Contract or otherwise, the Employer shall then be entitled to recover all sums paid for the Works or for such part (as the case may be), plus financing costs and the cost of dismantling the same, clearing the Site and returning Plant and Materials to the Contractor.

#### **11.5 Removal of Defective Work**

If the defect or damage cannot be remedied expeditiously on the Site and the Employer gives consent, the Contractor may remove from the Site for the purposes of repair such items of Plant as are defective or damaged. This consent may require the Contractor to increase the amount of the Performance Security by the full replacement cost of these items, or to provide other appropriate security.

#### **11.6 Further Tests**

If the work of remedying of any defect or damage may affect the performance of the Works, the Engineer may require the repetition of any of the tests described in the Contract. The requirement shall be made by notice within 28 days after the defect or damage is remedied.

These tests shall be carried out in accordance with the terms applicable to the previous tests, except that they shall be carried out at the risk and cost of the Party liable, under Sub-Clause 11.2 [Cost of Remedying Defects], for the cost of the remedial work.

#### **11.7 Right of Access**

Until the Performance Certificate has been issued, the Contractor shall have such right of access to the Works as is reasonably required in order to comply with this Clause, except as may be inconsistent with the Employer's reasonable security restrictions.

#### **11.8 Contractor to Search**

The Contractor shall, if required by the Engineer, search for the cause of any defect, under the direction of the Engineer. Unless the defect is to be remedied at the cost of the Contractor under Sub-Clause 11.2 [Cost of Remedying Defects], the Cost of the search plus profit shall be agreed or determined by the Engineer in accordance with Sub-Clause 3.5 [Determinations] and shall be included in the Contract Price.

#### **11.9 Performance Certificate**

Performance of the Contractor's obligations shall not be considered to have been completed until the Engineer has issued the Performance Certificate to the Contractor, stating the date on

which the Contractor completed his obligations under the Contract.

The Engineer shall issue the Performance Certificate within 28 days after the latest of the expiry dates of the Defects Notification Periods, or as soon thereafter as the Contractor has supplied all the Contractor's Documents and completed and tested all the Works, including remedying any defects. A copy of the Performance Certificate shall be issued to the Employer.

Only the Performance Certificate shall be deemed to constitute acceptance of the Works.

#### **11.10 Unfulfilled Obligations**

After the Performance Certificate has been issued, each Party shall remain liable for the fulfilment of any obligation which remains unperformed at that time. For the purposes of determining the nature and extent of unperformed obligations, the Contract shall be deemed to remain in force.

#### **11.11 Clearance of Site**

Upon receiving the Performance Certificate, the Contractor shall remove any remaining Contractor's Equipment, surplus material, wreckage, rubbish and Temporary Works from the Site.

If all these items have not been removed within 28 days after receipt by the Contractor of the Performance Certificate, the Employer may sell or otherwise dispose of any remaining items. The Employer shall be entitled to be paid the costs incurred in connection with, or attributable to, such sale or disposal and restoring the Site.

Any balance of the moneys from the sale shall be paid to the Contractor. If these moneys are less than the Employer's costs, the Contractor shall pay the outstanding balance to the Employer.

### **12. Measurement and Evaluation**

#### **12.1 Works to be Measured**

The Works shall be measured, and valued for payment, in accordance with this Clause. The Contractor shall show in each application under Sub-Clauses 14.3 [Application for Interim Payment Certificates], 14.10 [Statement on Completion] and 14.11 [Application for Final Payment Certificate] the quantities and other particulars detailing the amounts which he considers to be entitled under the Contract.

Whenever the Engineer requires any part of the Works to be measured, reasonable notice shall be given to the Contractor's

Representative, who shall:

- (a) promptly either attend or send another qualified representative to assist the Engineer in making the measurement, and
- (b) supply any particulars requested by the Engineer.

If the Contractor fails to attend or send a representative, the measurement made by (or on behalf of) the Engineer shall be accepted as accurate.

Except as otherwise stated in the Contract, wherever any Permanent Works are to be measured from records, these shall be prepared by the Engineer. The Contractor shall, as and when requested, attend to examine and agree the records with the Engineer, and shall sign the same when agreed. If the Contractor does not attend, the records shall be accepted as accurate.

If the Contractor examines and disagrees the records, and/or does not sign them as agreed, then the Contractor shall give notice to the Engineer of the respects in which the records are asserted to be inaccurate. After receiving this notice, the Engineer shall review the records and either confirm or vary them and certify the payment of the undisputed part. If the Contractor does not so give notice to the Engineer within 14 days after being requested to examine the records, they shall be accepted as accurate.

## **12.2 Method of Measurement**

Except as otherwise stated in the Contract and notwithstanding local practice:

- (a) measurement shall be made of the net actual quantity of each item of the Permanent Works, and
- (b) the method of measurement shall be in accordance with the Bill of Quantities or other applicable Schedules.

## **12.3 Evaluation**

Except as otherwise stated in the Contract, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine the Contract Price by evaluating each item of work, applying the measurement agreed or determined in accordance with the above Sub-Clauses 12.1 and 12.2 and the appropriate rate or price for the item.

For each item of work, the appropriate rate or price for the item shall be the rate or price specified for such item in the Contract or, if there is no such item, specified for similar work.

Any item of work included in the Bill of Quantities for which no rate or price was specified shall be considered as included in other rates and prices in the Bill of Quantities and will not be paid for separately.

However, a new rate or price shall be appropriate for an item of work if:

(a)

- (i) the measured quantity of the item is changed by more than 25% from the quantity of this item in the Bill of Quantities or other Schedule,
- (ii) this change in quantity multiplied by such specified rate for this item exceeds 0.25% of the Accepted Contract Amount,
- (iii) this change in quantity directly changes the Cost per unit quantity of this item by more than 1%, and
- (iv) this item is not specified in the Contract as a “fixed rate item”;

or

(b)

- (i) the work is instructed under Clause 13 [Variations and Adjustments],
- (ii) no rate or price is specified in the Contract for this item, and
- (iii) no specified rate or price is appropriate because the item of work is not of similar character, or is not executed under similar conditions, as any item in the Contract.

Each new rate or price shall be derived from any relevant rates or prices in the Contract, with reasonable adjustments to take account of the matters described in sub-paragraph (a) and/or (b), as applicable. If no rates or prices are relevant for the derivation of a new rate or price, it shall be derived from the reasonable Cost of executing the work, together with profit, taking account of any other relevant matters.

Until such time as an appropriate rate or price is agreed or determined, the Engineer shall determine a provisional rate or

price for the purposes of Interim Payment Certificates as soon as the concerned work commences.

#### **12.4 Omissions**

Whenever the omission of any work forms part (or all) of a Variation, the value of which has not been agreed, if:

- (a) the Contractor will incur (or has incurred) cost which, if the work had not been omitted, would have been deemed to be covered by a sum forming part of the Accepted Contract Amount;
- (b) the omission of the work will result (or has resulted) in this sum not forming part of the Contract Price; and
- (c) this cost is not deemed to be included in the evaluation of any substituted work;

then the Contractor shall give notice to the Engineer accordingly, with supporting particulars. Upon receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine this cost, which shall be included in the Contract Price.

### **13. Variations and Adjustments**

#### **13.1 Right to Vary**

Variations may be initiated by the Engineer at any time prior to issuing the Taking-Over Certificate for the Works, either by an instruction or by a request for the Contractor to submit a proposal.

The Contractor shall execute and be bound by each Variation, unless the Contractor promptly gives notice to the Engineer stating (with supporting particulars) that (i) the Contractor cannot readily obtain the Goods required for the Variation, or (ii) such Variation triggers a substantial change in the sequence or progress of the Works. Upon receiving this notice, the Engineer shall cancel, confirm or vary the instruction.

Each Variation may include:

- (a) changes to the quantities of any item of work included in the Contract (however, such changes do not necessarily constitute a Variation),
- (b) changes to the quality and other characteristics of any item of work,
- (c) changes to the levels, positions and/or dimensions of any part of the Works,

- (d) omission of any work unless it is to be carried out by others,
- (e) any additional work, Plant, Materials or services necessary for the Permanent Works, including any associated Tests on Completion, boreholes and other testing and exploratory work, or
- (f) changes to the sequence or timing of the execution of the Works.

The Contractor shall not make any alteration and/or modification of the Permanent Works, unless and until the Engineer instructs or approves a Variation.

### **13.2 Value Engineering**

The Contractor may, at any time, submit to the Engineer a written proposal which (in the Contractor's opinion) will, if adopted, (i) accelerate completion, (ii) reduce the cost to the Employer of executing, maintaining or operating the Works, (iii) improve the efficiency or value to the Employer of the completed Works, or (iv) otherwise be of benefit to the Employer.

The proposal shall be prepared at the cost of the Contractor and shall include the items listed in Sub-Clause 13.3 [Variation Procedure].

If a proposal, which is approved by the Engineer, includes a change in the design of part of the Permanent Works, then unless otherwise agreed by both Parties:

- (a) the Contractor shall design this part,
- (b) sub-paragraphs (a) to (d) of Sub-Clause 4.1 [Contractor's General Obligations] shall apply, and
- (c) if this change results in a reduction in the contract value of this part, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine a fee, which shall be included in the Contract Price. This fee shall be half (50%) of the difference between the following amounts:
  - (i) such reduction in contract value, resulting from the change, excluding adjustments under Sub-Clause 13.7 [Adjustments for Changes in Legislation] and Sub-Clause 13.8 [Adjustments for Changes in Cost], and
  - (ii) the reduction (if any) in the value to the Employer of

the varied works, taking account of any reductions in quality, anticipated life or operational efficiencies.

However, if amount (i) is less than amount (ii), there shall not be a fee.

### **13.3 Variation Procedure**

If the Engineer requests a proposal, prior to instructing a Variation, the Contractor shall respond in writing as soon as practicable, either by giving reasons why he cannot comply (if this is the case) or by submitting:

- (a) a description of the proposed work to be performed and a programme for its execution,
- (b) the Contractor's proposal for any necessary modifications to the programme according to Sub-Clause 8.3 [Programme] and to the Time for Completion, and
- (c) the Contractor's proposal for evaluation of the Variation.

The Engineer shall, as soon as practicable after receiving such proposal (under Sub-Clause 13.2 [Value Engineering] or otherwise), respond with approval, disapproval or comments. The Contractor shall not delay any work whilst awaiting a response.

Each instruction to execute a Variation, with any requirements for the recording of Costs, shall be issued by the Engineer to the Contractor, who shall acknowledge receipt.

Each Variation shall be evaluated in accordance with Clause 12 [Measurement and Evaluation], unless the Engineer instructs or approves otherwise in accordance with this Clause.

### **13.4 Payment in Applicable Currencies**

If the Contract provides for payment of the Contract Price in more than one currency, then whenever an adjustment is agreed, approved or determined as stated above, the amount payable in each of the applicable currencies shall be specified. For this purpose, reference shall be made to the actual or expected currency proportions of the Cost of the varied work, and to the proportions of various currencies specified for payment of the Contract Price.

### **13.5 Provisional Sums**

Each Provisional Sum shall only be used, in whole or in part, in accordance with the Engineer's instructions, and the Contract Price shall be adjusted accordingly. The total sum paid to the Contractor shall include only such amounts, for the work, supplies or services to which the Provisional Sum relates, as the Engineer shall have instructed. For each Provisional Sum, the

Engineer may instruct:

- (a) work to be executed (including Plant, Materials or services to be supplied) by the Contractor and valued under Sub-Clause 13.3 [Variation Procedure]; and/or
- (b) Plant, Materials or services to be purchased by the Contractor, from a nominated Subcontractor (as defined in Clause 5 [Nominated Subcontractors]) or otherwise; and for which there shall be included in the Contract Price:
  - (i) the actual amounts paid (or due to be paid) by the Contractor, and
  - (ii) a sum for overhead charges and profit, calculated as a percentage of these actual amounts by applying the relevant percentage rate (if any) stated in the appropriate Schedule. If there is no such rate, the percentage rate stated in the Contract Data shall be applied.

The Contractor shall, when required by the Engineer, produce quotations, invoices, vouchers and accounts or receipts in substantiation.

### **13.6 Daywork**

For work of a minor or incidental nature, the Engineer may instruct that a Variation shall be executed on a daywork basis. The work shall then be valued in accordance with the Daywork Schedule included in the Contract, and the following procedure shall apply. If a Daywork Schedule is not included in the Contract, this Sub-Clause shall not apply.

Before ordering Goods for the work, the Contractor shall submit quotations to the Engineer. When applying for payment, the Contractor shall submit invoices, vouchers and accounts or receipts for any Goods.

Except for any items for which the Daywork Schedule specifies that payment is not due, the Contractor shall deliver each day to the Engineer accurate statements in duplicate which shall include the following details of the resources used in executing the previous day's work:

- (a) the names, occupations and time of Contractor's Personnel,
- (b) the identification, type and time of Contractor's Equipment and Temporary Works, and

- (c) the quantities and types of Plant and Materials used.

One copy of each statement will, if correct, or when agreed, be signed by the Engineer and returned to the Contractor. The Contractor shall then submit priced statements of these resources to the Engineer, prior to their inclusion in the next Statement under Sub-Clause 14.3 [Application for Interim Payment Certificates].

### **13.7 Adjustments for Changes in Legislation**

The Contract Price shall be adjusted to take account of any increase or decrease in Cost resulting from a change in the Laws of the Country (including the introduction of new Laws and the repeal or modification of existing Laws) or in the judicial or official governmental interpretation of such Laws, made after the Base Date, which affect the Contractor in the performance of obligations under the Contract.

If the Contractor suffers (or will suffer) delay and/or incurs (or will incur) additional Cost as a result of these changes in the Laws or in such interpretations, made after the Base Date, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

- (a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
- (b) payment of any such Cost, which shall be included in the Contract Price.

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

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 13.8 [Adjustments for Changes in Cost].

### **13.8 Adjustments for Changes in Cost**

In this Sub-Clause, "table of adjustment data" means the completed table of adjustment data for local and foreign currencies included in the Schedules. If there is no such table of adjustment data, this Sub-Clause shall not apply.

If this Sub-Clause applies, the amounts payable to the

Contractor shall be adjusted for rises or falls in the cost of labour, Goods and other inputs to the Works, by the addition or deduction of the amounts determined by the formulae prescribed in this Sub-Clause. To the extent that full compensation for any rise or fall in Costs is not covered by the provisions of this or other Clauses, the Accepted Contract Amount shall be deemed to have included amounts to cover the contingency of other rises and falls in costs.

The adjustment to be applied to the amount otherwise payable to the Contractor, as valued in accordance with the appropriate Schedule and certified in Payment Certificates, shall be determined from formulae for each of the currencies in which the Contract Price is payable. No adjustment is to be applied to work valued on the basis of Cost or current prices. The formulae shall be of the following general type:

$$P_n = a + b \frac{L_n}{L_o} + c \frac{E_n}{E_o} + d \frac{M_n}{M_o} + \dots \text{ where:}$$

“P<sub>n</sub>” 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;

“b”, “c”, “d”, ... 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;

“L<sub>n</sub>”, “E<sub>n</sub>”, “M<sub>n</sub>”, ... 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

“L<sub>o</sub>”, “E<sub>o</sub>”, “M<sub>o</sub>”, ... 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) for the purposes of clarification of the source; although these dates (and thus these values) may not correspond to the base cost indices.

In cases where the “currency of index” is not the relevant currency of payment, each index shall be converted into the relevant currency of payment at the selling rate, established by the central bank of the Country, of this relevant currency on the above date for which the index is required to be applicable.

Until such time as each current cost index is available, the Engineer shall determine a provisional index for the issue of Interim Payment Certificates. When a current cost index is available, the adjustment shall be recalculated accordingly.

If the Contractor fails to complete the Works within the Time for Completion, adjustment of prices thereafter shall be made using either (i) each index or price applicable on the date 49 days prior to the expiry of the Time for Completion of the Works, or (ii) the current index or price, whichever is more favourable to the Employer.

The weightings (coefficients) for each of the factors of cost stated in the table(s) of adjustment data shall only be adjusted if they have been rendered unreasonable, unbalanced or inapplicable, as a result of Variations.

## **14. Contract Price and Payment**

### **14.1 The Contract Price**

Unless otherwise stated in the Particular Conditions:

- (a) the Contract Price shall be agreed or determined under Sub-Clause 12.3 [Evaluation] and be subject to adjustments in accordance with the Contract;
- (b) the Contractor shall pay all taxes, duties and fees required to be paid by him under the Contract, and the Contract Price shall not be adjusted for any of these costs except as stated in Sub-Clause 13.7 [Adjustments for Changes in Legislation];
- (c) any quantities which may be set out in the Bill of Quantities or other Schedule are estimated quantities and are not to be taken as the actual and correct quantities:
  - (i) of the Works which the Contractor is required to execute, or

- (ii) for the purposes of Clause 12 [Measurement and Evaluation]; and
- (d) the Contractor shall submit to the Engineer, within 28 days after the Commencement Date, a proposed breakdown of each lump sum price in the Schedules. The Engineer may take account of the breakdown when preparing Payment Certificates, but shall not be bound by it.

Notwithstanding the provisions of subparagraph (b), Contractor's Equipment, including essential spare parts therefor, imported by the Contractor for the sole purpose of executing the Contract shall be exempt from the payment of import duties and taxes upon importation.

**14.2 Advance Payment** The Employer shall make an advance payment, as an interest-free loan for mobilisation and cash flow support, when the Contractor submits a guarantee in accordance with this Sub-Clause. The total advance payment, the number and timing of instalments (if more than one), and the applicable currencies and proportions, shall be as stated in the Contract Data.

Unless and until the Employer receives this guarantee, or if the total advance payment is not stated in the Contract Data, this Sub-Clause shall not apply.

The Engineer shall deliver to the Employer and to the Contractor an Interim Payment Certificate for the advance payment or its first instalment after receiving a Statement (under Sub-Clause 14.3 [Application for Interim Payment Certificates]) and after the Employer receives (i) the Performance Security in accordance with Sub-Clause 4.2 [Performance Security] and (ii) a guarantee in amounts and currencies equal to the advance payment. This guarantee shall be issued by a reputable bank or financial institution selected by the Contractor and shall be in the form annexed to the Particular Conditions or in another form approved by the Employer.

The Contractor shall ensure that the guarantee is valid and enforceable until the advance payment has been repaid, but its amount shall be progressively reduced by the amount repaid by the Contractor as indicated in the Payment Certificates. If the terms of the guarantee specify its expiry date, and the advance payment has not been repaid by the date 28 days prior to the expiry date, the Contractor shall extend the validity of the guarantee until the advance payment has been repaid.

Unless stated otherwise in the Contract Data, the advance

payment shall be repaid through percentage deductions from the interim payments determined by the Engineer in accordance with Sub-Clause 14.6 [Issue of Interim Payment Certificates], as follows:

- (a) deductions shall commence in the next interim Payment Certificate following that in which the total of all certified interim payments (excluding the advance payment and deductions and repayments of retention) exceeds 30 percent (30%) of the Accepted Contract Amount less Provisional Sums; and
- (b) deductions shall be made at the amortisation rate stated in the Contract Data of the amount of each Interim Payment Certificate (excluding the advance payment and deductions for its repayments as well as deductions for retention money) in the currencies and proportions of the advance payment until such time as the advance payment has been repaid; 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.

If the advance payment has not been repaid prior to the issue of the Taking-Over Certificate for the Works or prior to termination under Clause 15 [Termination by Employer], Clause 16 [Suspension and Termination by Contractor] or Clause 19 [Force Majeure] (as the case may be), the whole of the balance then outstanding shall immediately become due and in case of termination under Clause 15 [Termination by Employer], except for Sub-Clause 15.5 [Employer's Entitlement to Termination for Convenience], payable by the Contractor to the Employer.

### **14.3 Application for Interim Payment Certificates**

The Contractor shall submit a Statement in six copies to the Engineer after the end of each month, in a form approved by the Engineer, showing in detail the amounts to which the Contractor considers himself to be entitled, together with supporting documents which shall include the report on the progress during this month in accordance with Sub-Clause 4.21 [Progress Reports].

The Statement shall include the following items, as applicable, which shall be expressed in the various currencies in which the Contract Price is payable, in the sequence listed:

- (a) the estimated contract value of the Works executed and the Contractor's Documents produced up to the end of the month (including Variations but excluding items described

in sub-paragraphs (b) to (g) below);

- (b) any amounts to be added and deducted for changes in legislation and changes in cost, in accordance with Sub-Clause 13.7 [Adjustments for Changes in Legislation] and Sub-Clause 13.8 [Adjustments for Changes in Cost];
- (c) any amount to be deducted for retention, calculated by applying the percentage of retention stated in the Contract Data to the total of the above amounts, until the amount so retained by the Employer reaches the limit of Retention Money (if any) stated in the Contract Data;
- (d) any amounts to be added for the advance payment and (if more than one instalment) and to be deducted for its repayments in accordance with Sub-Clause 14.2 [Advance Payment];
- (e) any amounts to be added and deducted for Plant and Materials in accordance with Sub-Clause 14.5 [Plant and Materials intended for the Works];
- (f) any other additions or deductions which may have become due under the Contract or otherwise, including those under Clause 20 [Claims, Disputes and Arbitration]; and
- (g) the deduction of amounts certified in all previous Payment Certificates.

#### **14.4 Schedule of Payments**

If the Contract includes a schedule of payments specifying the instalments in which the Contract Price will be paid, then unless otherwise stated in this schedule:

- (a) the instalments quoted in this schedule of payments shall be the estimated contract values for the purposes of sub-paragraph (a) of Sub-Clause 14.3 [Application for Interim Payment Certificates];;
- (b) Sub-Clause 14.5 [Plant and Materials intended for the Works] shall not apply; and
- (c) if these instalments are not defined by reference to the actual progress achieved in executing the Works, and if actual progress is found to be less or more than that on which this schedule of payments was based, then the Engineer may proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine revised instalments, which shall take account of the extent to which progress is less or more than that on which the

instalments were previously based.

If the Contract does not include a schedule of payments, the Contractor shall submit non-binding estimates of the payments which he expects to become due during each quarterly period. The first estimate shall be submitted within 42 days after the Commencement Date. Revised estimates shall be submitted at quarterly intervals, until the Taking-Over Certificate has been issued for the Works.

**14.5 Plant and  
Materials  
intended for the  
Works**

If this Sub-Clause applies, Interim Payment Certificates shall include, under sub-paragraph (e) of Sub-Clause 14.3, (i) an amount for Plant and Materials which have been sent to the Site for incorporation in the Permanent Works, and (ii) a reduction when the contract value of such Plant and Materials is included as part of the Permanent Works under sub-paragraph (a) of Sub-Clause 14.3 [Application for Interim Payment Certificates].

If the lists referred to in sub-paragraphs (b)(i) or (c)(i) below are not included in the Schedules, this Sub-Clause shall not apply.

The Engineer shall determine and certify each addition if the following conditions are satisfied:

- (a) the Contractor has:
  - (i) kept satisfactory records (including the orders, receipts, Costs and use of Plant and Materials) which are available for inspection, and
  - (ii) submitted a statement of the Cost of acquiring and delivering the Plant and Materials to the Site, supported by satisfactory evidence;

and either:

- (b) the relevant Plant and Materials:
  - (i) are those listed in the Schedules for payment when shipped,
  - (ii) have been shipped to the Country, en route to the Site, in accordance with the Contract; and
  - (iii) are described in a clean shipped bill of lading or other evidence of shipment, which has been submitted to the Engineer together with evidence of payment of freight and insurance, any other documents reasonably required, and a bank guarantee in a form and issued by an entity approved by the Employer in

amounts and currencies equal to the amount due under this Sub-Clause: this guarantee may be in a similar form to the form referred to in Sub-Clause 14.2 [Advance Payment] and shall be valid until the Plant and Materials are properly stored on Site and protected against loss, damage or deterioration;

or

(c) the relevant Plant and Materials:

- (i) are those listed in the Schedules for payment when delivered to the Site, and
- (ii) have been delivered to and are properly stored on the Site, are protected against loss, damage or deterioration, and appear to be in accordance with the Contract.

The additional amount to be certified shall be the equivalent of eighty percent (80%) of the Engineer's determination of the cost of the Plant and Materials (including delivery to Site), taking account of the documents mentioned in this Sub-Clause and of the contract value of the Plant and Materials.

The currencies for this additional amount shall be the same as those in which payment will become due when the contract value is included under sub-paragraph (a) of Sub-Clause 14.3 [Application for Interim Payment Certificates]. At that time, the Payment Certificate shall include the applicable reduction which shall be equivalent to, and in the same currencies and proportions as, this additional amount for the relevant Plant and Materials.

#### **14.6 Issue of Interim Payment Certificates**

No amount will be certified or paid until the Employer has received and approved the Performance Security. Thereafter, the Engineer shall, within 28 days after receiving a Statement and supporting documents, deliver to the Employer and to the Contractor an Interim Payment Certificate which shall state the amount which the Engineer fairly determines to be due, with all supporting particulars for any reduction or withholding made by the Engineer on the Statement if any.

However, prior to issuing the Taking-Over Certificate for the Works, the Engineer shall not be bound to issue an Interim Payment Certificate in an amount which would (after retention and other deductions) be less than the minimum amount of Interim Payment Certificates (if any) stated in the Contract Data. In this event, the Engineer shall give notice to the

Contractor accordingly.

An Interim Payment Certificate shall not be withheld for any other reason, although:

- (a) if any thing supplied or work done by the Contractor is not in accordance with the Contract, the cost of rectification or replacement may be withheld until rectification or replacement has been completed; and/or
- (b) if the Contractor was or is failing to perform any work or obligation in accordance with the Contract, and had been so notified by the Engineer, the value of this work or obligation may be withheld until the work or obligation has been performed.

The Engineer may in any Payment Certificate make any correction or modification that should properly be made to any previous Payment Certificate. A Payment Certificate shall not be deemed to indicate the Engineer's acceptance, approval, consent or satisfaction.

#### **14.7 Payment**

The Employer shall pay to the Contractor:

- (a) the first instalment of the advance payment within 42 days after issuing the Letter of Acceptance or within 21 days after receiving the documents in accordance with Sub-Clause 4.2 [Performance Security] and Sub-Clause 14.2 [Advance Payment], whichever is later;
- (b) the amount certified in each Interim Payment Certificate within 56 days after the Engineer receives the Statement and supporting documents; 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 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
- (c) the amount certified in the Final Payment Certificate within 56 days after the Employer receives this Payment Certificate; 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].

Payment of the amount due in each currency shall be made into the bank account, nominated by the Contractor, in the payment country (for this currency) specified in the Contract.

**14.8 Delayed Payment**

If the Contractor does not receive payment in accordance with Sub-Clause 14.7 [Payment], the Contractor shall be entitled to receive financing charges compounded monthly on the amount unpaid during the period of delay. This period shall be deemed to commence on the date for payment specified in Sub-Clause 14.7 [Payment], irrespective (in the case of its sub-paragraph (b)) of the date on which any Interim Payment Certificate is issued.

Unless otherwise stated in the Particular Conditions, these financing charges shall be calculated at the annual rate of three percentage points above the discount rate of the central bank in the country of the currency of payment, or if not available, the interbank offered rate, and shall be paid in such currency.

The Contractor shall be entitled to this payment without formal notice or certification, and without prejudice to any other right or remedy.

**14.9 Payment of Retention Money**

When the Taking-Over Certificate has been issued for the Works, the first half of the Retention Money shall be certified by the Engineer for payment to the Contractor. If a Taking-Over Certificate is issued for a Section or part of the Works, a proportion of the Retention Money shall be certified and paid. This proportion shall be half (50%) of the proportion calculated by dividing the estimated contract value of the Section or part, by the estimated final Contract Price.

Promptly after the latest of the expiry dates of the Defects Notification Periods, the outstanding balance of the Retention Money shall be certified by the Engineer for payment to the Contractor. If a Taking-Over Certificate was issued for a Section, a proportion of the second half of the Retention Money shall be certified and paid promptly after the expiry date of the Defects Notification Period for the Section. This proportion shall be half (50%) of the proportion calculated by dividing the estimated contract value of the Section by the estimated final Contract Price.

However, if any work remains to be executed under Clause 11 [Defects Liability], the Engineer shall be entitled to withhold certification of the estimated cost of this work until it has been

executed.

When calculating these proportions, no account shall be taken of any adjustments under Sub-Clause 13.7 [Adjustments for Changes in Legislation] and Sub-Clause 13.8 [Adjustments for Changes in Cost].

Unless otherwise stated in the Particular Conditions, 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 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 under the second paragraph of this Sub-Clause. The Employer shall return the guarantee to the Contractor within 21 days after receiving a copy of the Performance Certificate.

If the Performance Security required under Sub-Clause 4.2 is in the form of a demand guarantee, and the amount guaranteed under it 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 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.

#### **14.10 Statement at Completion**

Within 84 days after receiving the Taking-Over Certificate for the Works, the Contractor shall submit to the Engineer six copies of a Statement at completion with supporting documents, in accordance with Sub-Clause 14.3 [Application for Interim Payment Certificates], showing:

- (a) the value of all work done in accordance with the Contract up to the date stated in the Taking-Over Certificate for the

Works,

- (b) any further sums which the Contractor considers to be due, and
- (c) an estimate of any other amounts which the Contractor considers will become due to him under the Contract. Estimated amounts shall be shown separately in this Statement at completion.

The Engineer shall then certify in accordance with Sub-Clause 14.6 [Issue of Interim Payment Certificates].

#### **14.11 Application for Final Payment Certificate**

Within 56 days after receiving the Performance Certificate, the Contractor shall submit, to the Engineer, six copies of a draft final statement with supporting documents showing in detail in a form approved by the Engineer:

- (a) the value of all work done in accordance with the Contract, and
- (b) any further sums which the Contractor considers to be due to him under the Contract or otherwise.

If the Engineer disagrees with or cannot verify any part of the draft final statement, the Contractor shall submit such further information as the Engineer may reasonably require within 28 days from receipt of said draft and shall make such changes in the draft as may be agreed between them. The Contractor shall then prepare and submit to the Engineer the final statement as agreed. This agreed statement is referred to in these Conditions as the "Final Statement".

However if, following discussions between the Engineer and the Contractor and any changes to the draft final statement which are agreed, it becomes evident that a dispute exists, the Engineer shall deliver to the Employer (with a copy to the Contractor) an Interim Payment Certificate for the agreed parts of the draft final statement. Thereafter, if the dispute is finally resolved under Sub-Clause 20.4 [Obtaining Dispute Board's Decision] or Sub-Clause 20.5 [Amicable Settlement], the Contractor shall then prepare and submit to the Employer (with a copy to the Engineer) a Final Statement.

#### **14.12 Discharge**

When submitting the Final Statement, the Contractor shall submit a discharge which confirms that the total of the Final Statement represents full and final settlement of all moneys due to the Contractor under or in connection with the Contract. This discharge may state that it becomes effective when the

Contractor has received the Performance Security and the outstanding balance of this total, in which event the discharge shall be effective on such date.

**14.13 Issue of Final  
Payment  
Certificate**

Within 28 days after receiving the Final Statement and discharge in accordance with Sub-Clause 14.11 [Application for Final Payment Certificate] and Sub-Clause 14.12 [Discharge], the Engineer shall deliver, to the Employer and to the Contractor, the Final Payment Certificate which shall state:

- (a) the amount which he fairly determines is finally due, and
- (b) after giving credit to the Employer for all amounts previously paid by the Employer and for all sums to which the Employer is entitled, the balance (if any) due from the Employer to the Contractor or from the Contractor to the Employer, as the case may be.

If the Contractor has not applied for a Final Payment Certificate in accordance with Sub-Clause 14.11 [Application for Final Payment Certificate] and Sub-Clause 14.12 [Discharge], the Engineer shall request the Contractor to do so. If the Contractor fails to submit an application within a period of 28 days, the Engineer shall issue the Final Payment Certificate for such amount as he fairly determines to be due.

**14.14 Cessation of  
Employer's  
Liability**

The Employer shall not be liable to the Contractor for any matter or thing under or in connection with the Contract or execution of the Works, except to the extent that the Contractor shall have included an amount expressly for it:

- (a) in the Final Statement and also
- (b) (except for matters or things arising after the issue of the Taking-Over Certificate for the Works) in the Statement at completion described in Sub-Clause 14.10 [Statement at Completion].

However, this Sub-Clause shall not limit the Employer's liability under his indemnification obligations, or the Employer's liability in any case of fraud, deliberate default or reckless misconduct by the Employer.

**14.15 Currencies of  
Payment**

The Contract Price shall be paid in the currency or currencies named in the Schedule of Payment Currencies. If more than one currency is so named, payments shall be made as follows:

- (a) if the Accepted Contract Amount was expressed in Local Currency only:

- (i) the proportions or amounts of the Local and Foreign Currencies, and the fixed rates of exchange to be used for calculating the payments, shall be as stated in the Schedule of Payment Currencies, except as otherwise agreed by both Parties;
- (ii) payments and deductions under Sub-Clause 13.5 [Provisional Sums] and Sub-Clause 13.7 [Adjustments for Changes in Legislation] shall be made in the applicable currencies and proportions; and
- (iii) other payments and deductions under sub-paragraphs (a) to (d) of Sub-Clause 14.3 [Application for Interim Payment Certificates] shall be made in the currencies and proportions specified in sub-paragraph (a)(i) above;
- (b) payment of the damages specified in the Contract Data, shall be made in the currencies and proportions specified in the Schedule of Payment Currencies;
- (c) other payments to the Employer by the Contractor shall be made in the currency in which the sum was expended by the Employer, or in such currency as may be agreed by both Parties;
- (d) if any amount payable by the Contractor to the Employer in a particular currency exceeds the sum payable by the Employer to the Contractor in that currency, the Employer may recover the balance of this amount from the sums otherwise payable to the Contractor in other currencies; and
- (e) if no rates of exchange are stated in the Schedule of Payment Currencies, they shall be those prevailing on the Base Date and determined by the central bank of the Country.

## **15. Termination by Employer**

**15.1 Notice to Correct** If the Contractor fails to carry out any obligation under the Contract, the Engineer may by notice require the Contractor to make good the failure and to remedy it within a specified reasonable time.

**15.2 Termination by Employer** The Employer shall be entitled to terminate the Contract if the Contractor:

- (a) fails to comply with Sub-Clause 4.2 [Performance Security] or with a notice under Sub-Clause 15.1 [Notice to Correct],
- (b) abandons the Works or otherwise plainly demonstrates the intention not to continue performance of his obligations under the Contract,
- (c) without reasonable excuse fails:
  - (i) to proceed with the Works in accordance with Clause 8 [Commencement, Delays and Suspension], or
  - (ii) to comply with a notice issued under Sub-Clause 7.5 [Rejection] or Sub-Clause 7.6 [Remedial Work], within 28 days after receiving it,
- (d) subcontracts the whole of the Works or assigns the Contract without the required agreement,
- (e) becomes bankrupt or insolvent, goes into liquidation, has a receiving or administration order made against him, compounds with his creditors, or carries on business under a receiver, trustee or manager for the benefit of his creditors, or if any act is done or event occurs which (under applicable Laws) has a similar effect to any of these acts or events, or
- (f) gives or offers to give (directly or indirectly) to any person any bribe, gift, gratuity, commission or other thing of value, as an inducement or reward:
  - (i) for doing or forbearing to do any action in relation to the Contract, or
  - (ii) for showing or forbearing to show favour or disfavour to any person in relation to the Contract,

or if any of the Contractor's Personnel, agents or Subcontractors gives or offers to give (directly or indirectly) to any person any such inducement or reward as is described in this sub-paragraph (f). However, lawful inducements and rewards to Contractor's Personnel shall not entitle termination.

In any of these events or circumstances, the Employer may, upon giving 14 days' notice to the Contractor, terminate the Contract and expel the Contractor from the Site. However, in the case of sub-paragraph (e) or (f), the Employer may by notice terminate the Contract immediately.

The Employer's election to terminate the Contract shall not prejudice any other rights of the Employer, under the Contract or otherwise.

The Contractor shall then leave the Site and deliver any required Goods, all Contractor's Documents, and other design documents made by or for him, to the Engineer. However, the Contractor shall use his best efforts to comply immediately with any reasonable instructions included in the notice (i) for the assignment of any subcontract, and (ii) for the protection of life or property or for the safety of the Works.

After termination, the Employer may complete the Works and/or arrange for any other entities to do so. The Employer and these entities may then use any Goods, Contractor's Documents and other design documents made by or on behalf of the Contractor.

The Employer shall then give notice that the Contractor's Equipment and Temporary Works will be released to the Contractor at or near the Site. The Contractor shall promptly arrange their removal, at the risk and cost of the Contractor. However, if by this time the Contractor has failed to make a payment due to the Employer, these items may be sold by the Employer in order to recover this payment. Any balance of the proceeds shall then be paid to the Contractor.

**15.3 Valuation at Date of Termination**

As soon as practicable after a notice of termination under Sub-Clause 15.2 [Termination by Employer] has taken effect, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine the value of the Works, Goods and Contractor's Documents, and any other sums due to the Contractor for work executed in accordance with the Contract.

**15.4 Payment after Termination**

After a notice of termination under Sub-Clause 15.2 [Termination by Employer] has taken effect, the Employer may:

- (a) proceed in accordance with Sub-Clause 2.5 [Employer's Claims],
- (b) withhold further payments to the Contractor until the costs of execution, completion and remedying of any defects, damages for delay in completion (if any), and all other costs incurred by the Employer, have been established, and/or
- (c) recover from the Contractor any losses and damages incurred by the Employer and any extra costs of completing the Works, after allowing for any sum due to

the Contractor under Sub-Clause 15.3 [Valuation at Date of Termination]. After recovering any such losses, damages and extra costs, the Employer shall pay any balance to the Contractor.

**15.5 Employer's Entitlement to Termination for Convenience**

The Employer shall be entitled to terminate the Contract, at any time for the Employer's convenience, by giving notice of such termination to the Contractor. The termination shall take effect 28 days after the later of the dates on which the Contractor receives this notice or the Employer returns the Performance Security. The Employer shall not terminate the Contract under this Sub-Clause in order to execute the Works himself or to arrange for the Works to be executed by another contractor or to avoid a termination of the Contract by the Contractor under Clause 16.2 [Termination by Contractor].

After this termination, the Contractor shall proceed in accordance with Sub-Clause 16.3 [Cessation of Work and Removal of Contractor's Equipment] and shall be paid in accordance with Sub-Clause 16.4 [Payment on Termination].

**15.6 Corrupt or Fraudulent Practices**

If the Employer determines, based on reasonable evidence, that the Contractor has engaged in corrupt, fraudulent, collusive or coercive practices, in competing for or in executing the Contract, then the Employer may, after giving 14 days notice to the Contractor, terminate the Contract and expel him from the Site, and the provisions of Clause 15 shall apply as if such termination had been made under Sub-Clause 15.2 [Termination by Employer].

Should any employee of the Contractor be determined, based on reasonable evidence, to have engaged in corrupt, fraudulent or coercive practice during the execution of the work then that employee shall be removed in accordance with Sub-Clause 6.9 [Contractor's Personnel].

For the purposes of this Sub-Clause:

- (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;<sup>24</sup>
- (ii) "fraudulent practice" is any act or omission, including a misrepresentation, that knowingly or

<sup>24</sup> "Another party" refers to a public official acting in relation to the procurement process or contract execution]. In this context, "public official" includes World Bank staff and employees of other organizations taking or reviewing procurement decisions.

recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation;<sup>25</sup>

- (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;<sup>26</sup>
- (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;<sup>27</sup>
- (v) “obstructive practice” is
  - (aa) 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
  - (bb) acts intended to materially impede the exercise of the Bank’s inspection and audit rights provided for under Sub-Clause 1.15 [Inspections and Audits by the Bank].

## 16. Suspension and Termination by Contractor

### 16.1 Contractor’s Entitlement to Suspend Work

If the Engineer fails to certify in accordance with Sub-Clause 14.6 [Issue of Interim Payment Certificates] or the Employer fails to comply with Sub-Clause 2.4 [Employer’s Financial Arrangements] or Sub-Clause 14.7 [Payment], the Contractor may, after giving not less than 21 days’ notice to the Employer, suspend work (or reduce the rate of work) unless and until the Contractor has received the Payment Certificate, reasonable evidence or payment, as the case

<sup>25</sup> “Party” refers to a public official; the terms “benefit” and “obligation” relate to the procurement process or contract execution; and the “act or omission” is intended to influence the procurement process or contract execution.

<sup>26</sup> “Parties” refers to participants in the procurement process (including public officials) attempting to establish bid prices at artificial, non competitive levels.

<sup>27</sup> “Party” refers to a participant in the procurement process or contract execution.

may be and as described in the notice.

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.

The Contractor's action shall not prejudice his entitlements to financing charges under Sub-Clause 14.8 [Delayed Payment] and to termination under Sub-Clause 16.2 [Termination by Contractor].

If the Contractor subsequently receives such Payment Certificate, evidence or payment (as described in the relevant Sub-Clause and in the above notice) before giving a notice of termination, the Contractor shall resume normal working as soon as is reasonably practicable.

If the Contractor suffers delay and/or incurs Cost as a result of suspending work (or reducing the rate of work) in accordance with this Sub-Clause, the Contractor shall give notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

- (a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
- (b) payment of any such Cost plus profit, which shall be included in the Contract Price.

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

## **16.2 Termination by Contractor**

The Contractor shall be entitled to terminate the Contract if:

- (a) the Contractor does not receive the reasonable evidence within 42 days after giving notice under Sub-Clause 16.1 [Contractor's Entitlement to Suspend Work] in respect of a failure to comply with Sub-Clause 2.4 [Employer's Financial Arrangements],

- (b) the Engineer fails, within 56 days after receiving a Statement and supporting documents, to issue the relevant Payment Certificate,
- (c) the Contractor does not receive the amount due under an Interim Payment Certificate within 42 days after the expiry of the time stated in Sub-Clause 14.7 [Payment] within which payment is to be made (except for deductions in accordance with Sub-Clause 2.5 [Employer's Claims]),
- (d) the Employer substantially fails to perform his obligations under the Contract in such manner as to materially and adversely affect the economic balance of the Contract and/or the ability of the Contractor to perform the Contract,
- (e) the Employer fails to comply with Sub-Clause 1.6 [Contract Agreement] or Sub-Clause 1.7 [Assignment],
- (f) a prolonged suspension affects the whole of the Works as described in Sub-Clause 8.11 [Prolonged Suspension], or
- (g) the Employer becomes bankrupt or insolvent, goes into liquidation, has a receiving or administration order made against him, compounds with his creditors, or carries on business under a receiver, trustee or manager for the benefit of his creditors, or if any act is done or event occurs which (under applicable Laws) has a similar effect to any of these acts or events.
- (h) the Contractor does not receive the Engineer's instruction recording the agreement of both Parties on the fulfilment of the conditions for the Commencement of Works under Sub-Clause 8.1 [Commencement of Works].

In any of these events or circumstances, the Contractor may, upon giving 14 days' notice to the Employer, terminate the Contract. However, in the case of sub-paragraph (f) or (g), the Contractor may by notice terminate the Contract immediately.

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.

The Contractor's election to terminate the Contract shall not prejudice any other rights of the Contractor, under the Contract or otherwise.

### **16.3 Cessation of Work and Removal of Contractor's Equipment**

After a notice of termination under Sub-Clause 15.5 [Employer's Entitlement to Termination for Convenience], Sub-Clause 16.2 [Termination by Contractor] or Sub-Clause 19.6 [Optional Termination, Payment and Release] has taken effect, the Contractor shall promptly:

- (a) cease all further work, except for such work as may have been instructed by the Engineer for the protection of life or property or for the safety of the Works,
- (b) hand over Contractor's Documents, Plant, Materials and other work, for which the Contractor has received payment, and
- (c) remove all other Goods from the Site, except as necessary for safety, and leave the Site.

### **16.4 Payment on Termination**

After a notice of termination under Sub-Clause 16.2 [Termination by Contractor] has taken effect, the Employer shall promptly:

- (a) return the Performance Security to the Contractor,
- (b) pay the Contractor in accordance with Sub-Clause 19.6 [Optional Termination, Payment and Release], and
- (c) pay to the Contractor the amount of any loss or damage sustained by the Contractor as a result of this termination.

## **17. Risk and Responsibility**

### **17.1 Indemnities**

The Contractor shall indemnify and hold harmless the Employer, the Employer's Personnel, and their respective agents, against and from all claims, damages, losses and expenses (including legal fees and expenses) in respect of:

- (a) bodily injury, sickness, disease or death, of any person whatsoever arising out of or in the course of or by reason of the Contractor's design (if any), the execution and completion of the Works and the remedying of any

defects, unless attributable to any negligence, wilful act or breach of the Contract by the Employer, the Employer's Personnel, or any of their respective agents, and

- (b) damage to or loss of any property, real or personal (other than the Works), to the extent that such damage or loss arises out of or in the course of or by reason of the Contractor's design (if any), the execution and completion of the Works and the remedying of any defects, unless and to the extent that any such damage or loss is attributable to any negligence, wilful act or breach of the Contract by the Employer, the Employer's Personnel, their respective agents, or anyone directly or indirectly employed by any of them.

The Employer shall indemnify and hold harmless the Contractor, the Contractor's Personnel, and their respective agents, against and from all claims, damages, losses and expenses (including legal fees and expenses) in respect of (1) bodily injury, sickness, disease or death, which is attributable to any negligence, wilful act or breach of the Contract by the Employer, the Employer's Personnel, or any of their respective agents, and (2) the matters for which liability may be excluded from insurance cover, as described in sub-paragraphs (d)(i), (ii) and (iii) of Sub-Clause 18.3 [Insurance Against Injury to Persons and Damage to Property].

## **17.2 Contractor's Care of the Works**

The Contractor shall take full responsibility for the care of the Works and Goods from the Commencement Date until the Taking-Over Certificate is issued (or is deemed to be issued under Sub-Clause 10.1 [Taking Over of the Works and Sections]) for the Works, when responsibility for the care of the Works shall pass to the Employer. If a Taking-Over Certificate is issued (or is so deemed to be issued) for any Section or part of the Works, responsibility for the care of the Section or part shall then pass to the Employer.

After responsibility has accordingly passed to the Employer, the Contractor shall take responsibility for the care of any work which is outstanding on the date stated in a Taking-Over Certificate, until this outstanding work has been completed.

If any loss or damage happens to the Works, Goods or Contractor's Documents during the period when the Contractor is responsible for their care, from any cause not listed in Sub-Clause 17.3 [Employer's Risks], the Contractor shall rectify the loss or damage at the Contractor's risk and cost, so that the Works, Goods and

Contractor's Documents conform with the Contract.

The Contractor shall be liable for any loss or damage caused by any actions performed by the Contractor after a Taking-Over Certificate has been issued. The Contractor shall also be liable for any loss or damage which occurs after a Taking-Over Certificate has been issued and which arose from a previous event for which the Contractor was liable.

**17.3 Employer's Risks** The risks referred to in Sub-Clause 17.4 [Consequences of Employer's Risks] below, insofar as they directly affect the execution of the Works in the Country, are:

- (a) war, hostilities (whether war be declared or not), invasion, act of foreign enemies,
- (b) rebellion, terrorism, sabotage by persons other than the Contractor's Personnel, revolution, insurrection, military or usurped power, or civil war, within the Country,
- (c) riot, commotion or disorder within the Country by persons other than the Contractor's Personnel,
- (d) munitions of war, explosive materials, ionising radiation or contamination by radio-activity, within the Country, except as may be attributable to the Contractor's use of such munitions, explosives, radiation or radio-activity,
- (e) pressure waves caused by aircraft or other aerial devices travelling at sonic or supersonic speeds,
- (f) use or occupation by the Employer of any part of the Permanent Works, except as may be specified in the Contract,
- (g) design of any part of the Works by the Employer's Personnel or by others for whom the Employer is responsible, and
- (h) any operation of the forces of nature which is Unforeseeable or against which an experienced contractor could not reasonably have been expected to have taken adequate preventive precautions.

**17.4 Consequences of Employer's Risks** If and to the extent that any of the risks listed in Sub-Clause 17.3 above results in loss or damage to the Works, Goods or Contractor's Documents, the Contractor shall promptly give notice to the Engineer and shall rectify this loss or damage to the extent required by the Engineer.

If the Contractor suffers delay and/or incurs Cost from

rectifying this loss or damage, the Contractor shall give a further notice to the Engineer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

- (a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
- (b) payment of any such Cost, which shall be included in the Contract Price. In the case of sub-paragraphs (f) and (g) of Sub-Clause 17.3 [Employer's Risks], Cost plus profit shall be payable.

After receiving this further notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

#### **17.5 Intellectual and Industrial Property Rights**

In this Sub-Clause, "infringement" means an infringement (or alleged infringement) of any patent, registered design, copyright, trade mark, trade name, trade secret or other intellectual or industrial property right relating to the Works; and "claim" means a claim (or proceedings pursuing a claim) alleging an infringement.

Whenever a Party does not give notice to the other Party of any claim within 28 days of receiving the claim, the first Party shall be deemed to have waived any right to indemnity under this Sub-Clause.

The Employer shall indemnify and hold the Contractor harmless against and from any claim alleging an infringement which is or was:

- (a) an unavoidable result of the Contractor's compliance with the Contract, or
- (b) a result of any Works being used by the Employer:
  - (i) for a purpose other than that indicated by, or reasonably to be inferred from, the Contract, or
  - (ii) in conjunction with any thing not supplied by the Contractor, unless such use was disclosed to the Contractor prior to the Base Date or is stated in the Contract.

The Contractor shall indemnify and hold the Employer harmless against and from any other claim which arises out of or in

relation to (i) the manufacture, use, sale or import of any Goods, or (ii) any design for which the Contractor is responsible.

If a Party is entitled to be indemnified under this Sub-Clause, the indemnifying Party may (at its cost) conduct negotiations for the settlement of the claim, and any litigation or arbitration which may arise from it. The other Party shall, at the request and cost of the indemnifying Party, assist in contesting the claim. This other Party (and its Personnel) shall not make any admission which might be prejudicial to the indemnifying Party, unless the indemnifying Party failed to take over the conduct of any negotiations, litigation or arbitration upon being requested to do so by such other Party.

#### **17.6 Limitation of Liability**

Neither Party shall be liable to the other Party for loss of use of any Works, loss of profit, loss of any contract or for any indirect or consequential loss or damage which may be suffered by the other Party in connection with the Contract, other than as specifically provided in Sub-Clause 8.7 [Delay Damages]; Sub-Clause 11.2 [Cost of Remedying Defects]; Sub-Clause 15.4 [Payment after Termination]; Sub-Clause 16.4 [Payment on Termination]; Sub-Clause 17.1 [Indemnities]; Sub-Clause 17.4(b) [Consequences of Employer's Risks] and Sub-Clause 17.5 [Intellectual and Industrial Property Rights].

The total liability of the Contractor to the Employer, under or in connection with the Contract other than under Sub-Clause 4.19 [Electricity, Water and Gas], Sub-Clause 4.20 [Employer's Equipment and Free-Issue Materials], Sub-Clause 17.1 [Indemnities] and Sub-Clause 17.5 [Intellectual and Industrial Property Rights], shall not exceed the sum resulting from the application of a multiplier (less or greater than one) to the Accepted Contract Amount, as stated in the Contract Data, or (if such multiplier or other sum is not so stated) the Accepted Contract Amount.

This Sub-Clause shall not limit liability in any case of fraud, deliberate default or reckless misconduct by the defaulting Party.

**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 Specification, 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 his own cost, rectify the loss or damage to the satisfaction of the Engineer.

## **18. Insurance**

**18.1 General  
Requirements for  
Insurances**

In this Clause, "insuring Party" means, for each type of insurance, the Party responsible for effecting and maintaining the insurance specified in the relevant Sub-Clause.

Wherever the Contractor is the insuring Party, each insurance shall be effected with insurers and in terms approved by the Employer. These terms shall be consistent with any terms 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.

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 any terms 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.

If a policy is required to indemnify joint insured, the cover shall apply separately to each insured as though a separate policy had been issued for each of the joint insured. If a policy indemnifies additional joint insured, namely in addition to the insured specified in this Clause, (i) the Contractor shall act under the policy on behalf of these additional joint insured except that the Employer shall act for Employer's Personnel, (ii) additional joint insured shall not be entitled to receive payments directly from the insurer or to have any other direct dealings with the insurer, and (iii) the insuring Party shall require all additional joint insured to comply with the conditions stipulated in the policy.

Each policy insuring against loss or damage shall provide for payments to be made in the currencies required to rectify the

loss or damage. Payments received from insurers shall be used for the rectification of the loss or damage.

The relevant insuring Party shall, within the respective periods stated in the Contract Data (calculated from the Commencement Date), submit to the other Party:

- (a) evidence that the insurances described in this Clause have been effected, and
- (b) copies of the policies for the insurances described in Sub-Clause 18.2 [Insurance for Works and Contractor's Equipment] and Sub-Clause 18.3 [Insurance against Injury to Persons and Damage to Property].

When each premium is paid, the insuring Party shall submit evidence of payment to the other Party. Whenever evidence or policies are submitted, the insuring Party shall also give notice to the Engineer.

Each Party shall comply with the conditions stipulated in each of the insurance policies. The insuring Party shall keep the insurers informed of any relevant changes to the execution of the Works and ensure that insurance is maintained in accordance with this Clause.

Neither Party shall make any material alteration to the terms of any insurance without the prior approval of the other Party. If an insurer makes (or attempts to make) any alteration, the Party first notified by the insurer shall promptly give notice to the other Party.

If the insuring Party fails to effect and keep in force any of the insurances it is required to effect and maintain under the Contract, or fails to provide satisfactory evidence and copies of policies in accordance with this Sub-Clause, the other Party may (at its option and without prejudice to any other right or remedy) effect insurance for the relevant coverage and pay the premiums due. The insuring Party shall pay the amount of these premiums to the other Party, and the Contract Price shall be adjusted accordingly.

Nothing in this Clause limits the obligations, liabilities or responsibilities of the Contractor or the Employer, under the other terms of the Contract or otherwise. Any amounts not insured or not recovered from the insurers shall be borne by the Contractor and/or the Employer in accordance with these obligations, liabilities or responsibilities. However, if the

insuring Party fails to effect and keep in force an insurance which is available and which it is required to effect and maintain under the Contract, and the other Party neither approves the omission nor effects insurance for the coverage relevant to this default, any moneys which should have been recoverable under this insurance shall be paid by the insuring Party.

Payments by one Party to the other Party shall be subject to Sub-Clause 2.5 [Employer's Claims] or Sub-Clause 20.1 [Contractor's Claims], as applicable.

The Contractor shall be entitled to place all insurance relating to the Contract (including, but not limited to the insurance referred to Clause 18) with insurers from any eligible source country.

## **18.2 Insurance for Works and Contractor's Equipment**

The insuring Party shall insure the Works, Plant, Materials and Contractor's Documents for not less than the full reinstatement cost including the costs of demolition, removal of debris and professional fees and profit. This insurance shall be effective from the date by which the evidence is to be submitted under sub-paragraph (a) of Sub-Clause 18.1 [General Requirements for Insurances], until the date of issue of the Taking-Over Certificate for the Works.

The insuring Party shall maintain this insurance to provide cover until the date of issue of the Performance Certificate, for loss or damage for which the Contractor is liable arising from a cause occurring prior to the issue of the Taking-Over Certificate, and for loss or damage caused by the Contractor in the course of any other operations (including those under Clause 11 [Defects Liability]).

The insuring Party shall insure the Contractor's Equipment for not less than the full replacement value, including delivery to Site. For each item of Contractor's Equipment, the insurance shall be effective while it is being transported to the Site and until it is no longer required as Contractor's Equipment.

Unless otherwise stated in the Particular Conditions, insurances under this Sub-Clause:

- (a) shall be effected and maintained by the Contractor as insuring Party,
- (b) shall be in the joint names of the Parties, who shall be jointly entitled to receive payments from the insurers, payments being held or allocated to the Party actually

bearing the costs of rectifying the loss or damage,

- (c) shall cover all loss and damage from any cause not listed in Sub-Clause 17.3 [Employer's Risks],
- (d) shall also cover, to the extent specifically required in the bidding documents of the Contract, loss or damage to a part of the Works which is attributable to the use or occupation by the Employer of another part of the Works, and loss or damage from the risks listed in sub-paragraphs (c), (g) and (h) of Sub-Clause 17.3 [Employer's Risks], excluding (in each case) risks which are not insurable at commercially reasonable terms, with deductibles per occurrence of not more than the amount stated in the Contract Data (if an amount is not so stated, this sub-paragraph (d) shall not apply), and
- (e) may however exclude loss of, damage to, and reinstatement of:
  - (i) a part of the Works which is in a defective condition due to a defect in its design, materials or workmanship (but cover shall include any other parts which are lost or damaged as a direct result of this defective condition and not as described in sub-paragraph (ii) below),
  - (ii) a part of the Works which is lost or damaged in order to reinstate any other part of the Works if this other part is in a defective condition due to a defect in its design, materials or workmanship,
  - (iii) a part of the Works which has been taken over by the Employer, except to the extent that the Contractor is liable for the loss or damage, and
  - (iv) Goods while they are not in the Country, subject to Sub-Clause 14.5 [Plant and Materials intended for the Works].

If, more than one year after the Base Date, the cover described in sub-paragraph (d) above ceases to be available at commercially reasonable terms, the Contractor shall (as insuring Party) give notice to the Employer, with supporting particulars. The Employer shall then (i) be entitled subject to Sub-Clause 2.5 [Employer's Claims] to payment of an amount equivalent to such commercially reasonable terms as the Contractor should have expected to have paid for such cover, and (ii) be deemed,

unless he obtains the cover at commercially reasonable terms, to have approved the omission under Sub-Clause 18.1 [General Requirements for Insurances].

**18.3 Insurance against Injury to Persons and Damage to Property**

The insuring Party shall insure against each Party's liability for any loss, damage, death or bodily injury which may occur to any physical property (except things insured under Sub-Clause 18.2 [Insurance for Works and Contractor's Equipment]) or to any person (except persons insured under Sub-Clause 18.4 [Insurance for Contractor's Personnel]), which may arise out of the Contractor's performance of the Contract and occurring before the issue of the Performance Certificate.

This insurance shall be for a limit per occurrence of not less than the amount stated in the Contract Data, with no limit on the number of occurrences. If an amount is not stated in the Contract Data, this Sub-Clause shall not apply.

Unless otherwise stated in the Particular Conditions, the insurances specified in this Sub-Clause:

- (a) shall be effected and maintained by the Contractor as insuring Party,
- (b) shall be in the joint names of the Parties,
- (c) shall be extended to cover liability for all loss and damage to the Employer's property (except things insured under Sub-Clause 18.2) arising out of the Contractor's performance of the Contract, and
- (d) may however exclude liability to the extent that it arises from:
  - (i) the Employer's right to have the Permanent Works executed on, over, under, in or through any land, and to occupy this land for the Permanent Works,
  - (ii) damage which is an unavoidable result of the Contractor's obligations to execute the Works and remedy any defects, and
  - (iii) a cause listed in Sub-Clause 17.3 [Employer's Risks], except to the extent that cover is available at commercially reasonable terms.

**18.4 Insurance for Contractor's**

The Contractor shall effect and maintain insurance against liability for claims, damages, losses and expenses (including

**Personnel**

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.

The insurance shall cover the Employer and the Engineer 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.

The insurance shall be maintained in full force and effect during the whole time that these personnel are assisting in the execution of the Works. For a Subcontractor's employees, the insurance may be effected by the Subcontractor, but the Contractor shall be responsible for compliance with this Clause.

**19. Force Majeure****19.1 Definition of Force Majeure**

In this Clause, "Force Majeure" means an exceptional event or circumstance:

- (a) which is beyond a Party's control,
- (b) which such Party could not reasonably have provided against before entering into the Contract,
- (c) which, having arisen, such Party could not reasonably have avoided or overcome, and
- (d) which is not substantially attributable to the other Party.

Force Majeure may include, but is not limited to, exceptional events or circumstances of the kind listed below, so long as conditions (a) to (d) above are satisfied:

- (i) war, hostilities (whether war be declared or not), invasion, act of foreign enemies,
- (ii) rebellion, terrorism, sabotage by persons other than the Contractor's Personnel, revolution, insurrection, military or usurped power, or civil war,
- (iii) riot, commotion, disorder, strike or lockout by persons other than the Contractor's Personnel,
- (iv) munitions of war, explosive materials, ionising radiation or contamination by radio-activity, except

as may be attributable to the Contractor's use of such munitions, explosives, radiation or radio-activity, and

- (v) natural catastrophes such as earthquake, hurricane, typhoon or volcanic activity.

### **19.2 Notice of Force Majeure**

If a Party is or will be prevented from performing its substantial obligations under the Contract by Force Majeure, then it shall give notice to the other Party of the event or circumstances constituting the Force Majeure and shall specify the obligations, the performance of which is or will be prevented. The notice shall be given within 14 days after the Party became aware, or should have become aware, of the relevant event or circumstance constituting Force Majeure.

The Party shall, having given notice, be excused performance of its obligations for so long as such Force Majeure prevents it from performing them.

Notwithstanding any other provision of this Clause, Force Majeure shall not apply to obligations of either Party to make payments to the other Party under the Contract.

### **19.3 Duty to Minimise Delay**

Each Party shall at all times use all reasonable endeavours to minimise any delay in the performance of the Contract as a result of Force Majeure.

A Party shall give notice to the other Party when it ceases to be affected by the Force Majeure.

### **19.4 Consequences of Force Majeure**

If the Contractor is prevented from performing his substantial obligations under the Contract by Force Majeure of which notice has been given under Sub-Clause 19.2 [Notice of Force Majeure], and suffers delay and/or incurs Cost by reason of such Force Majeure, the Contractor shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

- (a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
- (b) if the event or circumstance is of the kind described in sub-paragraphs (i) to (iv) of Sub-Clause 19.1 [Definition of Force Majeure] and, in sub-paragraphs (ii) to (iv), occurs in the Country, payment of any such Cost, including the costs of rectifying or replacing the Works and/or Goods damaged or destroyed by Force Majeure, to the extent they are not indemnified through the insurance policy referred to in Sub-Clause 18.2 [Insurance for

Works and Contractor's Equipment].

After receiving this notice, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

**19.5 Force Majeure  
Affecting  
Subcontractor**

If any Subcontractor is entitled under any contract or agreement relating to the Works to relief from force majeure on terms additional to or broader than those specified in this Clause, such additional or broader force majeure events or circumstances shall not excuse the Contractor's non-performance or entitle him to relief under this Clause.

**19.6 Optional  
Termination,  
Payment and  
Release**

If the execution of substantially all the Works in progress is prevented for a continuous period of 84 days by reason of Force Majeure of which notice has been given under Sub-Clause 19.2 [Notice of Force Majeure], or for multiple periods which total more than 140 days due to the same notified Force Majeure, then either Party may give to the other Party a notice of termination of the Contract. In this event, the termination shall take effect 7 days after the notice is given, and the Contractor shall proceed in accordance with Sub-Clause 16.3 [Cessation of Work and Removal of Contractor's Equipment].

Upon such termination, the Engineer shall determine the value of the work done and issue a Payment Certificate which shall include:

- (a) the amounts payable for any work carried out for which a price is stated in the Contract;
- (b) the Cost of Plant and Materials ordered for the Works which have been delivered to the Contractor, or of which the Contractor is liable to accept delivery: this Plant and Materials shall become the property of (and be at the risk of) the Employer when paid for by the Employer, and the Contractor shall place the same at the Employer's disposal;
- (c) other Cost or liabilities which in the circumstances were reasonably and necessarily incurred by the Contractor in the expectation of completing the Works;
- (d) the Cost of removal of Temporary Works and Contractor's Equipment from the Site and the return of these items to the Contractor's works in his country (or to any other destination at no greater cost); and

- (e) the Cost of repatriation of the Contractor's staff and labour employed wholly in connection with the Works at the date of termination.

### **19.7 Release from Performance**

Notwithstanding any other provision of this Clause, if any event or circumstance outside the control of the Parties (including, but not limited to, Force Majeure) arises which makes it impossible or unlawful for either or both Parties to fulfil its or their contractual obligations or which, under the law governing the Contract, entitles the Parties to be released from further performance of the Contract, then upon notice by either Party to the other Party of such event or circumstance:

- (a) the Parties shall be discharged from further performance, without prejudice to the rights of either Party in respect of any previous breach of the Contract, and
- (b) the sum payable by the Employer to the Contractor shall be the same as would have been payable under Sub-Clause 19.6 [Optional Termination, Payment and Release] if the Contract had been terminated under Sub-Clause 19.6.

## **20. Claims, Disputes and Arbitration**

### **20.1 Contractor's Claims**

If the Contractor considers himself to be entitled to any extension of the Time for Completion and/or any additional payment, under any Clause of these Conditions or otherwise in connection with the Contract, the Contractor shall give notice to the Engineer, describing the event or circumstance giving rise to the claim. The notice shall be given as soon as practicable, and not later than 28 days after the Contractor became aware, or should have become aware, of the event or circumstance.

If the Contractor fails to give notice of a claim within such period of 28 days, the Time for Completion shall not be extended, the Contractor shall not be entitled to additional payment, and the Employer shall be discharged from all liability in connection with the claim. Otherwise, the following provisions of this Sub-Clause shall apply.

The Contractor shall also submit any other notices which are required by the Contract, and supporting particulars for the claim, all as relevant to such event or circumstance.

The Contractor shall keep such contemporary records as may be necessary to substantiate any claim, either on the Site or at another location acceptable to the Engineer. Without admitting

the Employer's liability, the Engineer may, after receiving any notice under this Sub-Clause, monitor the record-keeping and/or instruct the Contractor to keep further contemporary records. The Contractor shall permit the Engineer to inspect all these records, and shall (if instructed) submit copies to the Engineer.

Within 42 days after the Contractor became aware (or should have become aware) of the event or circumstance giving rise to the claim, or within such other period as may be proposed by the Contractor and approved by the Engineer, the Contractor shall send to the Engineer a fully detailed claim which includes full supporting particulars of the basis of the claim and of the extension of time and/or additional payment claimed. If the event or circumstance giving rise to the claim has a continuing effect:

- (a) this fully detailed claim shall be considered as interim;
- (b) the Contractor shall send further interim claims at monthly intervals, giving the accumulated delay and/or amount claimed, and such further particulars as the Engineer may reasonably require; and
- (c) the Contractor shall send a final claim within 28 days after the end of the effects resulting from the event or circumstance, or within such other period as may be proposed by the Contractor and approved by the Engineer.

Within 42 days after receiving a claim or any further particulars supporting a previous claim, or within such other period as may be proposed by the Engineer and approved by the Contractor, the Engineer shall respond with approval, or with disapproval and detailed comments. He may also request any necessary further particulars, but shall nevertheless give his response on the principles of the claim within the above defined time period.

Within the above defined period of 42 days, the Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine (i) the extension (if any) of the Time for Completion (before or after its expiry) in accordance with Sub-Clause 8.4 [Extension of Time for Completion], and/or (ii) the additional payment (if any) to which the Contractor is entitled under the Contract.

Each Payment Certificate shall include such additional payment for any claim as has been reasonably substantiated as due under the relevant provision of the Contract. Unless and until the

particulars supplied are sufficient to substantiate the whole of the claim, the Contractor shall only be entitled to payment for such part of the claim as he has been able to substantiate.

If the Engineer does not respond within the timeframe defined in this Clause, either Party may consider that the claim is rejected by the Engineer and any of the Parties may refer to the Dispute Board in accordance with Sub-Clause 20.4 [Obtaining Dispute Board's Decision].

The requirements of this Sub-Clause are in addition to those of any other Sub-Clause which may apply to a claim. If the Contractor fails to comply with this or another Sub-Clause in relation to any claim, any extension of time and/or additional payment shall take account of the extent (if any) to which the failure has prevented or prejudiced proper investigation of the claim, unless the claim is excluded under the second paragraph of this Sub-Clause.

## **20.2 Appointment of the Dispute Board**

Disputes shall be referred to a DB for decision in accordance with Sub-Clause 20.4 [Obtaining Dispute Board's Decision]. The Parties shall appoint a DB by the date stated in the Contract Data.

The DB shall comprise, as stated in the Contract Data, either one or three suitably qualified persons ("the members"), each of whom shall be fluent in the language for communication defined in the Contract and shall be a professional experienced in the type of construction involved in the Works and with the interpretation of contractual documents. If the number is not so stated and the Parties do not agree otherwise, the DB shall comprise three persons.

If the Parties have not jointly appointed the DB 21 days before the date stated in the Contract Data and the DB is to comprise three persons, each Party shall nominate one member for the approval of the other Party. The first two members shall recommend and the Parties shall agree upon the third member, who shall act as chairman.

However, if a list of potential members has been agreed by the Parties and is included in the Contract, the members shall be selected from those on the list, other than anyone who is unable or unwilling to accept appointment to the DB.

The agreement between the Parties and either the sole member or each of the three members shall incorporate by reference the

General Conditions of Dispute Board Agreement contained in the Appendix to these General Conditions, with such amendments as are agreed between them.

The terms of the remuneration of either the sole member or each of the three members, including the remuneration of any expert whom the DB consults, shall be mutually agreed upon by the Parties when agreeing the terms of appointment. Each Party shall be responsible for paying one-half of this remuneration.

If at any time the Parties so agree, they may jointly refer a matter to the DB for it to give its opinion. Neither Party shall consult the DB on any matter without the agreement of the other Party.

If a member declines to act or is unable to act as a result of death, disability, resignation or termination of appointment, a replacement shall be appointed in the same manner as the replaced person was required to have been nominated or agreed upon, as described in this Sub-Clause.

The appointment of any member may be terminated by mutual agreement of both Parties, but not by the Employer or the Contractor acting alone. Unless otherwise agreed by both Parties, the appointment of the DB (including each member) shall expire when the discharge referred to in Sub-Clause 14.12 [Discharge] shall have become effective.

**20.3 Failure to Agree  
on the  
Composition of  
the Dispute  
Board**

If any of the following conditions apply, namely:

- (a) the Parties fail to agree upon the appointment of the sole member of the DB by the date stated in the first paragraph of Sub-Clause 20.2, [Appointment of the Dispute Board],
- (b) either Party fails to nominate a member (for approval by the other Party), or fails to approve a member nominated by the other Party, of a DB of three persons by such date,
- (c) the Parties fail to agree upon the appointment of the third member (to act as chairman) of the DB by such date, or
- (d) the Parties fail to agree upon the appointment of a replacement person within 42 days after the date on which the sole member or one of the three members declines to act or is unable to act as a result of death, disability, resignation or termination of appointment,

then the appointing entity or official named in the Contract Data shall, upon the request of either or both of the Parties and after

due consultation with both Parties, appoint this member of the DB. This appointment shall be final and conclusive. Each Party shall be responsible for paying one-half of the remuneration of the appointing entity or official.

#### **20.4 Obtaining Dispute Board's Decision**

If a dispute (of any kind whatsoever) arises between the Parties in connection with, or arising out of, the Contract or the execution of the Works, including any dispute as to any certificate, determination, instruction, opinion or valuation of the Engineer, either Party may refer the dispute in writing to the DB for its decision, with copies to the other Party and the Engineer. Such reference shall state that it is given under this Sub-Clause.

For a DB of three persons, the DB shall be deemed to have received such reference on the date when it is received by the chairman of the DB.

Both Parties shall promptly make available to the DB all such additional information, further access to the Site, and appropriate facilities, as the DB may require for the purposes of making a decision on such dispute. The DB shall be deemed to be not acting as arbitrator(s).

Within 84 days after receiving such reference, or within such other period as may be proposed by the DB and approved by both Parties, the DB shall give its decision, which shall be reasoned and shall state that it is given under this Sub-Clause. The decision shall be binding on both Parties, who shall promptly give effect to it unless and until it shall be revised in an amicable settlement or an arbitral award as described below. Unless the Contract has already been abandoned, repudiated or terminated, the Contractor shall continue to proceed with the Works in accordance with the Contract.

If either Party is dissatisfied with the DB's decision, then either Party may, within 28 days after receiving the decision, give a Notice of Dissatisfaction to the other Party indicating its dissatisfaction and intention to commence arbitration. If the DB fails to give its decision within the period of 84 days (or as otherwise approved) after receiving such reference, then either Party may, within 28 days after this period has expired, give a Notice of Dissatisfaction to the other Party.

In either event, this Notice of Dissatisfaction shall state that it is given under this Sub-Clause, and shall set out the matter in dispute and the reason(s) for dissatisfaction. Except as stated in Sub-Clause 20.7 [Failure to Comply with Dispute Board's Decision] and Sub-Clause 20.8 [Expiry of Dispute Board's

Appointment], neither Party shall be entitled to commence arbitration of a dispute unless a Notice of Dissatisfaction has been given in accordance with this Sub-Clause.

If the DB has given its decision as to a matter in dispute to both Parties, and no Notice of Dissatisfaction has been given by either Party within 28 days after it received the DB's decision, then the decision shall become final and binding upon both Parties.

#### **20.5 Amicable Settlement**

Where a Notice of Dissatisfaction has been given under Sub-Clause 20.4 above, both Parties shall attempt to settle the dispute amicably before the commencement of arbitration. However, unless both Parties agree otherwise, the Party giving a Notice of Dissatisfaction in accordance with Sub-Clause 20.4 above should move to commence arbitration after the fifty-sixth day from the day on which a Notice of Dissatisfaction was given, even if no attempt at an amicable settlement has been made.

#### **20.6 Arbitration**

Any dispute between the Parties arising out of or in connection with the Contract not settled amicably in accordance with Sub-Clause 20.5 above and in respect of which the DB's decision (if any) has not become final and binding shall be finally settled by arbitration. Arbitration shall be conducted as follows:

- (a) if the contract is with foreign contractors,
  - (i) for contracts financed by all participating Banks except under sub-paragraph (a) (2) below: international arbitration (1) with proceedings administered by the arbitration institution designated in the Contract Data, and conducted under the rules of arbitration of such institution; or, if so specified in the Contract Data, (2) international arbitration in accordance with the arbitration rules of the United Nations Commission on International Trade Law (UNCITRAL); or (3) if neither an arbitration institution nor UNCITRAL arbitration rules are specified in the Contract Data, with proceedings administered by the International Chamber of Commerce (ICC) and conducted under the ICC Rules of Arbitration; by one or more arbitrators appointed in accordance with said arbitration rules
- (b) if the Contract is with domestic contractors, arbitration with proceedings conducted in

accordance with the laws of the Employer's country.

The place of arbitration shall be the neutral location specified in the Contract Data; and the arbitration shall be conducted in the language for communications defined in Sub-Clause 1.4 [Law and Language].

The arbitrators shall have full power to open up, review and revise any certificate, determination, instruction, opinion or valuation of the Engineer, and any decision of the DB, relevant to the dispute. Nothing shall disqualify representatives of the Parties and the Engineer from being called as a witness and giving evidence before the arbitrators on any matter whatsoever relevant to the dispute.

Neither Party shall be limited in the proceedings before the arbitrators to the evidence or arguments previously put before the DB to obtain its decision, or to the reasons for dissatisfaction given in its Notice of Dissatisfaction. Any decision of the DB shall be admissible in evidence in the arbitration.

Arbitration may be commenced prior to or after completion of the Works. The obligations of the Parties, the Engineer and the DB shall not be altered by reason of any arbitration being conducted during the progress of the Works.

**20.7 Failure to  
Comply with  
Dispute Board's  
Decision**

In the event that a Party fails to comply with a final and binding DB decision, then the other Party may, without prejudice to any other rights it may have, refer the failure itself to arbitration under Sub-Clause 20.6 [Arbitration]. Sub-Clause 20.4 [Obtaining Dispute Board's Decision] and Sub-Clause 20.5 [Amicable Settlement] shall not apply to this reference.

**20.8 Expiry of Dispute  
Board's  
Appointment**

If a dispute arises between the Parties in connection with, or arising out of, the Contract or the execution of the Works and there is no DB in place, whether by reason of the expiry of the DB's appointment or otherwise:

- (a) Sub-Clause 20.4 [Obtaining Dispute Board's Decision] and Sub-Clause 20.5 [Amicable Settlement] shall not apply, and
- (b) the dispute may be referred directly to arbitration under Sub-Clause 20.6 [Arbitration].

## APPENDIX

### A General Conditions of Dispute Board Agreement

#### 1. Definitions

Each “Dispute Board Agreement” is a tripartite agreement by and between:

- (a) the “Employer”;
- (b) the “Contractor”; and
- (c) the “Member” who is defined in the Dispute Board Agreement as being:
  - (i) the sole member of the "DB" and, where this is the case, all references to the “Other Members” do not apply, or
  - (ii) one of the three persons who are jointly called the “DB” (or “Dispute Board”) and, where this is the case, the other two persons are called the “Other Members”.

The Employer and the Contractor have entered (or intend to enter) into a contract, which is called the "Contract" and is defined in the Dispute Board Agreement, which incorporates this Appendix. In the Dispute Board Agreement, words and expressions which are not otherwise defined shall have the meanings assigned to them in the Contract.

#### 2. General Provisions

Unless otherwise stated in the Dispute Board Agreement, it shall take effect on the latest of the following dates:

- (a) the Commencement Date defined in the Contract,
- (b) when the Employer, the Contractor and the Member have each signed the Dispute Board Agreement, or
- (c) when the Employer, the Contractor and each of the Other Members (if any) have respectively each signed a dispute board agreement.

This employment of the Member is a personal appointment. At any time, the Member may give not less than 70 days’ notice of resignation to the Employer and to the Contractor, and the Dispute Board Agreement shall terminate upon the expiry of this period.

#### 3. Warranties

The Member warrants and agrees that he/she is and shall be impartial and independent of the Employer, the Contractor and the Engineer. The Member shall promptly disclose, to each of them and to the Other Members (if any), any fact or circumstance which might appear inconsistent with his/her warranty and agreement of

impartiality and independence.

When appointing the Member, the Employer and the Contractor relied upon the Member's representations that he/she is:

- (a) experienced in the work which the Contractor is to carry out under the Contract,
- (b) experienced in the interpretation of contract documentation, and
- (c) fluent in the language for communications defined in the Contract.

**4. General  
Obligations of the  
Member**

The Member shall:

- (a) have no interest financial or otherwise in the Employer, the Contractor or Engineer, nor any financial interest in the Contract except for payment under the Dispute Board Agreement;
- (b) not previously have been employed as a consultant or otherwise by the Employer, the Contractor or the Engineer, except in such circumstances as were disclosed in writing to the Employer and the Contractor before they signed the Dispute Board Agreement;
- (c) have disclosed in writing to the Employer, the Contractor and the Other Members (if any), before entering into the Dispute Board Agreement and to his/her best knowledge and recollection, any professional or personal relationships with any director, officer or employee of the Employer, the Contractor or the Engineer, and any previous involvement in the overall project of which the Contract forms part;
- (d) not, for the duration of the Dispute Board Agreement, be employed as a consultant or otherwise by the Employer, the Contractor or the Engineer, except as may be agreed in writing by the Employer, the Contractor and the Other Members (if any);
- (e) comply with the annexed procedural rules and with Sub-Clause 20.4 of the Conditions of Contract;
- (f) not give advice to the Employer, the Contractor, the Employer's Personnel or the Contractor's Personnel concerning the conduct of the Contract, other than in accordance with the annexed procedural rules;
- (g) not while a Member enter into discussions or make any agreement with the Employer, the Contractor or the Engineer

regarding employment by any of them, whether as a consultant or otherwise, after ceasing to act under the Dispute Board Agreement;

- (h) ensure his/her availability for all site visits and hearings as are necessary;
- (i) become conversant with the Contract and with the progress of the Works (and of any other parts of the project of which the Contract forms part) by studying all documents received which shall be maintained in a current working file;
- (j) treat the details of the Contract and all the DB's activities and hearings as private and confidential, and not publish or disclose them without the prior written consent of the Employer, the Contractor and the Other Members (if any); and
- (k) be available to give advice and opinions, on any matter relevant to the Contract when requested by both the Employer and the Contractor, subject to the agreement of the Other Members (if any).

**5. General  
Obligations of the  
Employer and the  
Contractor**

The Employer, the Contractor, the Employer's Personnel and the Contractor's Personnel shall not request advice from or consultation with the Member regarding the Contract, otherwise than in the normal course of the DB's activities under the Contract and the Dispute Board Agreement. The Employer and the Contractor shall be responsible for compliance with this provision, by the Employer's Personnel and the Contractor's Personnel respectively.

The Employer and the Contractor undertake to each other and to the Member that the Member shall not, except as otherwise agreed in writing by the Employer, the Contractor, the Member and the Other Members (if any):

- (a) be appointed as an arbitrator in any arbitration under the Contract;
- (b) be called as a witness to give evidence concerning any dispute before arbitrator(s) appointed for any arbitration under the Contract; or
- (c) be liable for any claims for anything done or omitted in the discharge or purported discharge of the Member's functions, unless the act or omission is shown to have been in bad faith.

The Employer and the Contractor hereby jointly and severally indemnify and hold the Member harmless against and from claims from which he is relieved from liability under the preceding

paragraph.

Whenever the Employer or the Contractor refers a dispute to the DB under Sub-Clause 20.4 of the Conditions of Contract, which will require the Member to make a site visit and attend a hearing, the Employer or the Contractor shall provide appropriate security for a sum equivalent to the reasonable expenses to be incurred by the Member. No account shall be taken of any other payments due or paid to the Member.

## **6. Payment**

The Member shall be paid as follows, in the currency named in the Dispute Board Agreement:

- (a) a retainer fee per calendar month, which shall be considered as payment in full for:
  - (i) being available on 28 days' notice for all site visits and hearings;
  - (ii) becoming and remaining conversant with all project developments and maintaining relevant files;
  - (iii) all office and overhead expenses including secretarial services, photocopying and office supplies incurred in connection with his duties; and
  - (iv) all services performed hereunder except those referred to in sub-paragraphs (b) and (c) of this Clause.

The retainer fee shall be paid with effect from the last day of the calendar month in which the Dispute Board Agreement becomes effective; until the last day of the calendar month in which the Taking-Over Certificate is issued for the whole of the Works.

With effect from the first day of the calendar month following the month in which the Taking-Over Certificate is issued for the whole of the Works, the retainer fee shall be reduced by one third. This reduced fee shall be paid until the first day of the calendar month in which the Member resigns or the Dispute Board Agreement is otherwise terminated.

- (b) a daily fee which shall be considered as payment in full for:
  - (i) each day or part of a day up to a maximum of two days' travel time in each direction for the journey between the Member's home and the Site, or another location of a meeting with the Other Members (if any);
  - (ii) each working day on Site visits, hearings or preparing

decisions; and

(iii) each day spent reading submissions in preparation for a hearing.

- (c) all reasonable expenses including necessary travel expenses (air fare in less than first class, hotel and subsistence and other direct travel expenses) incurred in connection with the Member's duties, as well as the cost of telephone calls, courier charges, faxes and telexes: a receipt shall be required for each item in excess of five percent of the daily fee referred to in sub-paragraph (b) of this Clause;
- (d) any taxes properly levied in the Country on payments made to the Member (unless a national or permanent resident of the Country) under this Clause 6.

The retainer and daily fees shall be as specified in the Dispute Board Agreement. Unless it specifies otherwise, these fees shall remain fixed for the first 24 calendar months, and shall thereafter be adjusted by agreement between the Employer, the Contractor and the Member, at each anniversary of the date on which the Dispute Board Agreement became effective.

If the parties fail to agree on the retainer fee or the daily fee, the appointing entity or official named in the Contract Data shall determine the amount of the fees to be used.

The Member shall submit invoices for payment of the monthly retainer and air fares quarterly in advance. Invoices for other expenses and for daily fees shall be submitted following the conclusion of a Site visit or hearing. All invoices shall be accompanied by a brief description of activities performed during the relevant period and shall be addressed to the Contractor.

The Contractor shall pay each of the Member's invoices in full within 56 calendar days after receiving each invoice and shall apply to the Employer (in the Statements under the Contract) for reimbursement of one-half of the amounts of these invoices. The Employer shall then pay the Contractor in accordance with the Contract.

If the Contractor fails to pay to the Member the amount to which he/she is entitled under the Dispute Board Agreement, the Employer shall pay the amount due to the Member and any other amount which may be required to maintain the operation of the DB; and without prejudice to the Employer's rights or remedies. In addition to all other rights arising from this default, the Employer shall be entitled to reimbursement of all sums paid in excess of one-

half of these payments, plus all costs of recovering these sums and financing charges calculated at the rate specified in Sub-Clause 14.8 of the Conditions of Contract.

If the Member does not receive payment of the amount due within 70 days after submitting a valid invoice, the Member may (i) suspend his/her services (without notice) until the payment is received, and/or (ii) resign his/her appointment by giving notice under Clause 7.

## **7. Termination**

At any time: (i) the Employer and the Contractor may jointly terminate the Dispute Board Agreement by giving 42 days' notice to the Member; or (ii) the Member may resign as provided for in Clause 2.

If the Member fails to comply with the Dispute Board Agreement, the Employer and the Contractor may, without prejudice to their other rights, terminate it by notice to the Member. The notice shall take effect when received by the Member.

If the Employer or the Contractor fails to comply with the Dispute Board Agreement, the Member may, without prejudice to his other rights, terminate it by notice to the Employer and the Contractor. The notice shall take effect when received by them both.

Any such notice, resignation and termination shall be final and binding on the Employer, the Contractor and the Member. However, a notice by the Employer or the Contractor, but not by both, shall be of no effect.

## **8. Default of the Member**

If the Member fails to comply with any of his obligations under Clause 4 (a) - (d) above, he shall not be entitled to any fees or expenses hereunder and shall, without prejudice to their other rights, reimburse each of the Employer and the Contractor for any fees and expenses received by the Member and the Other Members (if any), for proceedings or decisions (if any) of the DB which are rendered void or ineffective by the said failure to comply.

If the Member fails to comply with any of his obligations under Clause 4 (e) - (k) above, he shall not be entitled to any fees or expenses hereunder from the date and to the extent of the non-compliance and shall, without prejudice to their other rights, reimburse each of the Employer and the Contractor for any fees and expenses already received by the Member, for proceedings or decisions (if any) of the DB which are rendered void or ineffective by the said failure to comply.

## **9. Disputes**

Any dispute or claim arising out of or in connection with this Dispute Board Agreement, or the breach, termination or invalidity

thereof, shall be finally settled by institutional arbitration. If no other arbitration institute is agreed, the arbitration shall be conducted under the Rules of Arbitration of the International Chamber of Commerce by one arbitrator appointed in accordance with these Rules of Arbitration.

## PROCEDURAL RULES

Unless otherwise agreed by the Employer and the Contractor, the DB shall visit the Site at intervals of not more than 140 days, including times of critical construction events, at the request of either the Employer or the Contractor. Unless otherwise agreed by the Employer, the Contractor and the DB, the period between consecutive visits shall not be less than 70 days, except as required to convene a hearing as described below.

The timing of and agenda for each Site visit shall be as agreed jointly by the DB, the Employer and the Contractor, or in the absence of agreement, shall be decided by the DB. The purpose of Site visits is to enable the DB to become and remain acquainted with the progress of the Works and of any actual or potential problems or claims, and, as far as reasonable, to endeavour to prevent potential problems or claims from becoming disputes.

Site visits shall be attended by the Employer, the Contractor and the Engineer and shall be co-ordinated by the Employer in co-operation with the Contractor. The Employer shall ensure the provision of appropriate conference facilities and secretarial and copying services. At the conclusion of each Site visit and before leaving the site, the DB shall prepare a report on its activities during the visit and shall send copies to the Employer and the Contractor.

The Employer and the Contractor shall furnish to the DB one copy of all documents which the DB may request, including Contract documents, progress reports, variation instructions, certificates and other documents pertinent to the performance of the Contract. All communications between the DB and the Employer or the Contractor shall be copied to the other Party. If the DB comprises three persons, the Employer and the Contractor shall send copies of these requested documents and these communications to each of these persons.

If any dispute is referred to the DB in accordance with Sub-Clause 20.4 of the Conditions of Contract, the DB shall proceed in accordance with Sub-Clause 20.4 and these Rules. Subject to the time allowed to give notice of a decision and other relevant factors, the DB shall:

- (a) act fairly and impartially as between the Employer and the Contractor, giving each of them a reasonable opportunity of putting his case and responding to the other's case, and
- (b) adopt procedures suitable to the dispute, avoiding unnecessary delay or expense.

The DB may conduct a hearing on the dispute, in which event it will decide on the date and place for the hearing and may request that written documentation and arguments from the Employer and the Contractor be presented to it prior to or at the hearing.

Except as otherwise agreed in writing by the Employer and the Contractor, the DB shall have power to adopt an inquisitorial procedure, to refuse admission to hearings or audience at hearings to any persons other than representatives of the Employer, the Contractor and the Engineer, and to proceed in the absence of any party who the DB is satisfied received notice of the hearing; but shall have discretion to decide whether and to what extent this power may be exercised.

The Employer and the Contractor empower the DB, among other things, to:

- (a) establish the procedure to be applied in deciding a dispute,
- (b) decide upon the DB's own jurisdiction, and as to the scope of any dispute referred to it,
- (c) conduct any hearing as it thinks fit, not being bound by any rules or procedures other than those contained in the Contract and these Rules,
- (d) take the initiative in ascertaining the facts and matters required for a decision,
- (e) make use of its own specialist knowledge, if any,
- (f) decide upon the payment of financing charges in accordance with the Contract,
- (g) decide upon any provisional relief such as interim or conservatory measures, and
- (h) open up, review and revise any certificate, decision, determination, instruction, opinion or valuation of the Engineer, relevant to the dispute.

The DB shall not express any opinions during any hearing concerning the merits of any arguments advanced by the Parties. Thereafter, the DB shall make and give its decision in accordance with Sub-Clause 20.4, or as otherwise agreed by the Employer and the Contractor in writing. If the DB comprises three persons:

it shall convene in private after a hearing, in order to have discussions and prepare its decision;

it shall endeavour to reach a unanimous decision: if this proves impossible the applicable decision shall be made by a majority of the Members, who may require the minority Member to prepare a written report for submission to the Employer and the Contractor; and

if a Member fails to attend a meeting or hearing, or to fulfil any required function, the other two Members may nevertheless proceed to make a decision, unless:

- (i) either the Employer or the Contractor does not agree that they do so, or

- (ii) the absent Member is the chairman and he/she instructs the other Members not to make a decision.

## **Section IX. Particular Conditions (PC)**

The following Particular Conditions shall supplement the GC. Whenever there is a conflict, the provisions herein shall prevail over those in the GC.

## Part A - Contract Data

Conditions	Sub-Clause	Data
<b>Employer's name and address</b>	1.1.2.2 & 1.3	Bangladesh Economic Zones Authority BDBL Building (Level-15), 12 Kawran Bazar, Dhaka-1215. Phone : +880255013691 E-mail : bezaproject1@gmail.com
<b>Engineer's name and address</b>	1.1.2.4 & 1.3	To be mentioned later
<b>Bank's name</b>	1.1.2.11	The World Bank/IDA
<b>Borrower's name</b>	1.1.2.12	Government of the Peoples Republic of Bangladesh represented by the Project Director, Bangladesh Economic Zones Development Project (Phase-1).
<b>Time for Completion</b>	1.1.3.3	<u>540</u> days <i>If Sections are to be used, refer to Table: Summary of Sections below</i>
<b>Defects Notification Period</b>	1.1.3.7	365 days.
<b>Sections</b>	1.1.5.6	<i>If Sections are to be used, refer to Table: Summary of Sections below</i>
<b>Electronic transmission systems</b>	1.3	Not Applicable
<b>Governing Law</b>	1.4	Law of the Country (Peoples Republic of Bangladesh)
<b>Ruling language</b>	1.4	English
<b>Language for communications</b>	1.4	English
<b>Time for the Parties entering into a Contract Agreement</b>	1.6	28 days
<b>Inspections and Audit by the Bank</b>	1.15	This clause shall be amended as follows: The Contractor shall permit, and shall cause its agents (whether declared or not), sub-contractors, sub-consultants, service providers, or suppliers and any personnel thereof, to permit, the Bank and/or persons appointed by the Bank to inspect the Site

Conditions	Sub-Clause	Data
		and all accounts and records relating to the performance of the Contract and the submission of the bid, and to have such accounts and records audited by auditors appointed by the Bank if requested by the Bank. The Contractor's attention is drawn to Sub-Clause 15.6 [Corrupt or Fraudulent Practices] which provides, inter alia, that acts intended to materially impede the exercise of the Bank's inspection and audit rights provided for under Sub-Clause 1.15 constitute a prohibited practice subject to contract termination (as well as to a determination of ineligibility pursuant to the Bank's prevailing sanctions procedures.
<b>Time for access to the Site</b>	2.1	<u>No later than the Commencement Day.</u>
<b>Engineer's Duties and Authority</b>	3.1(b)(ii)	Variations resulting in an increase of the Accepted Contract Amount in excess of <u>any amount</u> shall require approval of the Employer.
<b>Performance Security</b>	4.2	The performance security will be in the form of a Bank Guarantee or Demand Draft in the amount(s) of 5 (Five) percent of the Accepted Contract Amount and in the same currency(ies) of the Accepted Contract Amount.
<b>Normal working hours</b>	6.5	8 hours

Conditions	Sub-Clause	Data
<b>Delay damages for the Works</b>	8.7 & 14.15(b)	<p><u>0.1%</u> of the Contract Price per day.</p> <p>Delay Damages for failure to complete the milestone of the Works shall be as follows in the currencies and proportions in which the Contract Price is payable :</p> <p>Milestone-1: 0.1% of the Contract Price per day  Milestone -2: 0.1% of the Contract Price per day  Milestone-3: 0.1% of the Contract Price per day</p> <p><b>Milestone-1 (Completion period: 6 months from the commencement of the Contract for earth work for embankment construction ) :</b></p> <p>0.40 million Cubic meter.</p> <p><b>Milestone-2: (Completion period: 12 months from the commencement of the Contract for land filling by dredging) :</b></p> <p>2.35 million Cubic meter.</p> <p><b>Milestone-3: ( Completion period: 18 months from the commencement of the Contract for land filling by dredging and earth work including protective work for embankment) :</b></p> <p>3.07 million Cubic meter of land filling by dredging and 0.96 million cubic meter of earth work for embankment including completion of all protective works.</p> <p>The overall scope of the works reflected in the tender document should be completed within the project or contract duration of 540 days (18 months). If the project or contract duration exceeds beyond 540 days (18 months), the Liquidated Damages (LD) shall be imposed at the rate of 0.1% per day of the final contract amount.</p> <p>If project is delayed beyond stipulated period of 18 months, any amount of LD imposed on the individual milestone shall not be refunded to the contractor.</p> <p>If the overall project is completed within the stipulated duration of 18 months, all the LD imposed on individual milestone shall be refunded to the contractor.</p>

Conditions	Sub-Clause	Data
<b>Maximum amount of delay damages</b>	8.7	10% of the final Contract Price.
<b>Provisional Sums</b>	13.5.(b)(ii)	Not Applicable
<b>Adjustment for charges in legislation</b>	13.7 (b)	Not Applicable
<b>Adjustments for Changes in Cost</b>	13.8	Adjustment not applicable.
<b>Total advance payment</b>	14.2	<p>10% (Ten) Percentage of the Accepted Contract Amount payable in the currencies and proportions in which the Accepted Contract Amount is payable.</p> <p><i>The advance payment 10% of the accepted contract amount will be provided immediately after the signing of the contract, up on the submission of bank guarantee with equivalent to the amount of advance requested.</i></p>
<b>Repayment amortization rate of advance payment</b>	14.2(b)	25% of each Payment Certificate; Repayment of Advance Payment starts when 15% of the value of the works have been completed
<b>Percentage of Retention</b>	14.3	5% of the Accepted Contract Amount
<b>Limit of Retention Money</b>	14.3	5% of the Accepted Contract Amount
<b>Plant and Materials</b>	14.5(b)(i)	If Sub-Clause 14.5 applies: Plant and Materials for payment Free on Board Not Applicable
	14.5(c)(i)	Plant and Materials for payment when delivered to the Site Not Applicable
<b>Minimum Amount of Interim Payment Certificates</b>	14.6	10 (Ten) % of the Accepted Contract Amount.
<b>Publishing source of commercial interest rates for financial charges in case of delayed payment</b>	14.8	Libor plus 1% fixed rate

Conditions	Sub-Clause	Data
<b>Maximum total liability of the Contractor to the Employer</b>	17.6	Maximum liabilities of the contractor to the employer will be the product of 1.1 times of the accepted Contract Amount.
<b>Periods for submission of insurance:</b> a. evidence of insurance. b. relevant policies	18.1	28days 28days
<b>Maximum amount of deductibles for insurance of the Employer's risks</b>	18.2(d)	<i>10% of accepted Contract amount</i>
<b>Minimum amount of third party insurance</b>	18.3	<i>Minimum coverage of BDT 10(Ten) million</i>
<b>Date by which the DB shall be appointed</b>	20.2	28 days after the Commencement date
<b>The DB shall be comprised of</b>	20.2	Three Members
<b>List of potential DB sole members</b>	20.2	<i>None</i>
<b>Appointment (if not agreed) to be made by</b>	20.3	<i>Principal Secretary of the GoB.</i>
<b>Rules of arbitration</b>	20.6(a)	The International Chamber of Commerce (ICC)

## Part B - Specific Provisions

### Sub-Clause 14.1 The Contract Price

*(Alternative paragraph)*

- (e) Notwithstanding the provisions of subparagraph (b), Contractor's Equipment, including essential spare parts therefore, imported by the Contractor for the sole purpose of executing the Contract shall be temporarily exempt from the payment of import duties and taxes upon initial importation, provided the Contractor shall post with the customs authorities at the port of entry an approved export bond or bank guarantee, valid until the Time for

Completion plus six months, in an amount equal to the full import duties and taxes which would be payable on the assessed imported value of such Contractor's Equipment and spare parts, and callable in the event the Contractor's Equipment is not exported from the Country on completion of the Contract. A copy of the bond or bank guarantee endorsed by the customs authorities shall be provided by the Contractor to the Employer upon the importation of individual items of Contractor's Equipment and spare parts. Upon export of individual items of Contractor's Equipment or spare parts, or upon the completion of the Contract, the Contractor shall prepare, for approval by the customs authorities, an assessment of the residual value of the Contractor's Equipment and spare part to be exported, based on the depreciation scale(s) and other criteria used by the customs authorities for such purposes under the provisions of the applicable Laws. Import duties and taxes shall be due and payable to the customs authorities by the Contractor on (a) the difference between the initial imported value and the residual value of the Contractor's Equipment and spare parts to exported; and (b) on the initial imported value that Contractor's Equipment and spare parts remaining in the Country after completion of the Contract. Upon payment of such dues within 28 days of being invoiced, the bond or bank guarantee shall be reduced or released accordingly; otherwise the security shall be called in the full amount remaining.

## Section X. Contract Forms

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## Notification of Award

### LETTER OF ACCEPTANCE

*[letterhead paper of the Employer]*

*[date]*

To: *[name and address of the Contractor]*

This is to notify you that your Bid 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 Bidders, is hereby accepted by our Agency.

You are requested to furnish the Performance Security within 28 days in accordance with the Conditions of Contract, using for that purpose one of the Performance Security Forms included in Section X, Contract Forms, of the Bidding Documents

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 Bid 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.

(i) the Letter of Acceptance

(ii) the Letter of Bid

(iii) the addenda Nos \_\_\_\_\_ (if any)

(iv) the Particular Conditions

(v) the General Conditions;

(vi) the Specification

(vii) the Drawings; and

(viii) the completed Schedules and any other documents forming part of the contract,

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

### Option 1: (Demand Guarantee)

\_\_\_\_\_

**Beneficiary:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**PERFORMANCE GUARANTEE No.:** \_\_\_\_\_

**Guarantor:** \_\_\_\_\_

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 \_\_\_\_\_ ( ),<sup>1</sup> 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...<sup>2</sup>, and any demand for payment under it must be received by us at this office indicated above on or before that date.

<sup>1</sup> 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.

<sup>2</sup> 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.

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*[signature(s)]*

***Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.***

## Option 2: Performance Bond

By this Bond \_\_\_\_\_ as Principal (hereinafter called "the Contractor") and \_\_\_\_\_] as Surety (hereinafter called "the Surety"), are held and firmly bound unto \_\_\_\_\_] as Obligee (hereinafter called "the Employer") in the amount of \_\_\_\_\_, for the payment of which sum well and truly to be made in the types and proportions of currencies in which the Contract Price is payable, the Contractor and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS the Contractor has entered into a written Agreement with the Employer dated the \_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_, for \_\_\_\_\_ in accordance with the documents, plans, specifications, and amendments thereto, which to the extent herein provided for, are by reference made part hereof and are hereinafter referred to as the Contract.

NOW, THEREFORE, the Condition of this Obligation is such that, if the Contractor shall promptly and faithfully perform the said Contract (including any amendments thereto), then this obligation shall be null and void; otherwise, it shall remain in full force and effect. Whenever the Contractor shall be, and declared by the Employer to be, in default under the Contract, the Employer having performed the Employer's obligations thereunder, the Surety may promptly remedy the default, or shall promptly:

- (1) complete the Contract in accordance with its terms and conditions; or
- (2) obtain a Bid or bids from qualified Bidders for submission to the Employer for completing the Contract in accordance with its terms and conditions, and upon determination by the Employer and the Surety of the lowest responsive Bidder, arrange for a Contract between such Bidder and Employer and make available as work progresses (even though there should be a default or a succession of defaults under the Contract or Contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the Balance of the Contract Price; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term "Balance of the Contract Price," as used in this paragraph, shall mean the total amount payable by Employer to Contractor under the Contract, less the amount properly paid by Employer to Contractor; or
- (3) pay the Employer the amount required by Employer to complete the Contract in accordance with its terms and conditions up to a total not exceeding the amount of this Bond.

The Surety shall not be liable for a greater sum than the specified penalty of this Bond.

Any suit under this Bond must be instituted before the expiration of one year from the date of the issuing of the Taking-Over Certificate.

No right of action shall accrue on this Bond to or for the use of any person or corporation other than the Employer named herein or the heirs, executors, administrators, successors, and assigns of the Employer.

In testimony whereof, the Contractor has hereunto set his hand and affixed his seal, and the Surety has caused these presents to be sealed with his corporate seal duly attested by the signature of his legal representative, this \_\_\_\_\_ day of \_\_\_\_\_ 20 \_\_\_\_.

SIGNED ON \_\_\_\_\_ on behalf of \_\_\_\_\_

By \_\_\_\_\_ in the capacity of \_\_\_\_\_

In the presence of \_\_\_\_\_

SIGNED ON \_\_\_\_\_ on behalf of \_\_\_\_\_

By \_\_\_\_\_ in the capacity of \_\_\_\_\_

In the presence of \_\_\_\_\_

## Advance Payment Security

### Demand Guarantee

\_\_\_\_\_  
**Beneficiary:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**ADVANCE PAYMENT GUARANTEE No.:** \_\_\_\_\_

**Guarantor:** \_\_\_\_\_

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 \_\_\_\_\_ ( )<sup>1</sup> 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:

(c) has used the advance payment for purposes other than the costs of mobilization in respect of the Works; or

(d) 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

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<sup>1</sup> *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.*

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 \_\_\_\_ day of \_\_\_\_\_, 2\_\_\_\_,<sup>2</sup> 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.***

<sup>2</sup> 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] 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]<sup>1</sup> 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

<sup>1</sup> The Guarantor shall insert an amount representing the amount of the second half of the Retention Money or 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.

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 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...<sup>2</sup>, 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.***

<sup>2</sup> 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."



## **Annexure-1: Environmental Management Plan**

### **1.1 Introduction**

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The Environmental Management Plan (EMP) is the synthesis of all proposed mitigation and monitoring actions, set to a time frame with specific responsibility assigned and follow-up actions defined. EMP is a plan of actions for avoidance, mitigation and management of the negative impacts of the project. Environmental enhancement is also an important component of EMP. A detailed set of mitigation measures have been compiled in view of the likely impacts associated with the proposed Mirsarai EZ-II.

### **1.2 The Environmental Management Plan**

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The EMP consists of a set of mitigation, monitoring and institutional measures to be taken during the design, construction and operation (post-construction) stages of the project. The EMP has been designed keeping in view the regulatory and other requirements to ensure the following:

- Minimum disturbance to the native flora and fauna
- Compliance with the air, water, soil and noise quality norms.
- Conservation of water to the extent possible through rain water harvesting, wastewater recycling

### **1.3 Mitigation Plan**

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The proposed EZ development may have some impacts on the environment and society such as change in land use, removal of vegetation, increased dust emissions etc. Health & Safety Plan along with the EMP has been drafted. Details of which are given below. All offsite facilities shall be constructed by BEZA. EMP implementation shall also be BEZA who will in turn implement it through contractor. EZ will be developed by the developer appointed by BEZA and shall be responsible for implementation of EMP during development

#### **1.1.1 Mitigation Plan for Site Development & Administration Building**

Site development works includes land filling & levelling, peripheral bund/road and widening of access road. Bund will be constructed to protect site from sea. Peripheral bund/road is 14.4 km in length and 10 m in width. 7 km of single lane under construction access road will be widened to 2 lane road. Site will be filled with deep sea sand upto 1.15m to achieve finished level of 4.15 m. Administration building will cover an area of 1500 sq m. Ground coverage of administration building is 1500 sq m. G + 4 level will be developed so that office space and related facilities will be there on ground and first floor and guest rooms at fourth floor.

Impacts associated with site development and construction of administration building along with proposed mitigation measures are given below. No impacts are anticipated during operation phase due to site development and construction of administration building. The Contractor shall take up all mitigation and enhancement measures (including those related to mitigation of air/noise/water pollution; drainage/traffic congestion) as specified in the EMP tabulated below in table 62.

**Table-1: Environmental Impacts and Mitigation Plan for Site Development & Construction of Administration Building**

Activity/Impact	Mitigation Measures	Time Frame	Implementation of Mitigation Measures	Supervision & Monitoring
Removal of Vegetation	<ul style="list-style-type: none"> <li>• Vegetation which has been identified &amp; approved to be removed shall only be removed for site clearance</li> <li>• No tree should be cut without taking prior permission of BEZA &amp; PMC</li> <li>• No Mangrove plants should be cut without permission of Forest Department</li> </ul>	Pre-construction phase	Contractor	BEZA/PMC
Setting up of construction camps/labour camps	<ul style="list-style-type: none"> <li>• The construction camps should be at least 500 m distance from habitations from the nearest settlements to avoid conflicts and stress over the infrastructure facilities with the local community.</li> <li>• Location for stockyards for construction materials will be identified at least 1 km from water sources</li> <li>• Store house for haz material like diesel should be at distance from construction labour camps.</li> <li>• The living accommodation and ancillary facilities for labour</li> </ul>	Pre-construction phase	Contractor	BEZA/PMC

Activity/Impact	Mitigation Measures	Time Frame	Implementation of Mitigation Measures	Supervision & Monitoring
	<p>shall be erected and maintained to standards and scales approved by the resident engineer</p> <ul style="list-style-type: none"> <li>• All sites used for camps will be adequately drained. They will not be subject to periodic flooding, nor located within 300 feet of pools, sink holes or other surface collections of water unless such water surface can be subjected to mosquito control measures</li> <li>• The camps will be located such that the drainage from and through the camps will not endanger any domestic or public water supply</li> <li>• All sites will be graded, ditched and rendered free from depressions such that water may get stagnant and become a nuisance</li> <li>• Construction camps shall be provided with sanitary latrines (1 per 25 pax), bathing facility and urinals.</li> <li>• Construction camps should be electrified and well ventilated</li> </ul>			

Activity/Impact	Mitigation Measures	Time Frame	Implementation of Mitigation Measures	Supervision & Monitoring
	<ul style="list-style-type: none"> <li>• No electrical wire should be left on the floor of camp or site. Proper system should be developed and entry to the site of electricity meter should be restricted and should be allowed for authorized personnel only</li> <li>• Sanitary latrines shall be under cover and so partitioned off as to secure privacy, and shall have a proper door and fastenings</li> <li>• Adequate and suitable facilities for washing clothes and utensils shall be provided and maintained for the use of contract labour employed therein.</li> <li>• Sewerage drains will be provided for the flow of used water outside the camp.</li> <li>• Drains and ditches will be treated with bleaching powder on a regular basis.</li> <li>• The sewage system for the camp will be properly designed, built and operated so that no health hazard occurs and no pollution to the air, ground or</li> </ul>			

Activity/Impact	Mitigation Measures	Time Frame	Implementation of Mitigation Measures	Supervision & Monitoring
	<p>adjacent watercourses takes place.</p> <ul style="list-style-type: none"> <li>• Clean potable drinking water facility should be provided at the site and the water quality should be monitored regularly</li> <li>• Crèche facility should be provided for children if female workers are employed</li> <li>• First aid facilities should be made available at construction camp. First aid box should contain small, medium and large sized sterilized dressings, sterilized burns dressings, 2 % alcoholic solution of iodine, bottle containing salvolatile, snakebite lancet, , bottle of potassium permanganate crystals, scissors, Ointment for burns &amp; surgical antiseptic solution</li> <li>• 1 first aid box should be available per 50 labour</li> <li>• A person trained in first-aid treatment shall be made in charge who shall always be readily available during the working hours at</li> </ul>			

Activity/Impact	Mitigation Measures	Time Frame	Implementation of Mitigation Measures	Supervision & Monitoring
	<p>the work place</p> <ul style="list-style-type: none"> <li>• A suitable motor four wheeler transport shall be kept readily available to carry injured or ill person to the nearest hospital.</li> </ul>			
Identification of dumping sites for debris	<ul style="list-style-type: none"> <li>• The dumping sites shall not be located within designated Forest/protected areas</li> <li>• Residential facility or sensitive facilities like hospitals, schools etc shall not be located in downwind direction of the identified dumping sites</li> <li>• Dumping shall not impact natural drainage courses</li> <li>• Dumping sites should be located at least 1 km from sensitive locations</li> <li>• Permission from concerned local body should be taken before finalizing the location</li> <li>• Agriculture lands should be avoided &amp; waste lands should be preferred</li> <li>• Selected site should not support significant vegetation</li> <li>• The area should be</li> </ul>	During Construction	Contractor	BEZA/PMC

Activity/Impact	Mitigation Measures	Time Frame	Implementation of Mitigation Measures	Supervision & Monitoring
	sprinkled with water to suppress the dust emissions • Plant species suitable to grow in that conditions should be planted at the time of closure			
Soil Erosion and Sedimentation control	• To avoid soil compaction along the transportation routes, only identified haul roads would be used for transportation. • Sedimentation tanks should be provided in line with storm water drains to trap the sediments from run-off. Sand bags can be used to trap sediments more effectively	During Construction	Contractor	BEZA/PMC
Disposal of Debris and any waste generated	• Waste from construction camp should be segregated at site. Food/wet waste should be composted in pit at the site, recyclable should be send to authorized recyclers and rejected waste should be disposed regularly through responsible agency in the area • Dustbins should be provided at the site and construction	During Construction	Contractor	BEZA/PMC

Activity/Impact	Mitigation Measures	Time Frame	Implementation of Mitigation Measures	Supervision & Monitoring
	<p>camps to prevent littering of waste</p> <ul style="list-style-type: none"> <li>• Storage area of minimum 2 days should be provided at construction camp for storage of the waste generated from labour camps</li> <li>• Construction debris should also be segregated at the site. This debris should be used for filling to the extent possible. Recyclable waste should be sold through authorized dealers and reject waste should be sent to the identified debris disposal site</li> <li>• All arrangement for transportation during construction including provision, maintenance, dismantling and clearing debris, where necessary will be considered incidental.</li> <li>• Construction debris should be stored under covered sheds on paved surfaces to prevent leaching</li> <li>• Any hazardous waste generated during construction activity shall be stored at suitable place and then</li> </ul>			

Activity/Impact	Mitigation Measures	Time Frame	Implementation of Mitigation Measures	Supervision & Monitoring
	<p>disposed off in consultation with the guidelines.</p> <ul style="list-style-type: none"> <li>Contaminated runoff from storage areas shall be captured in ditches with an oil trap at the outlet.</li> <li>Utmost care shall be taken to ensure that the Municipal Corporation norms are met for the safe collection, transport and disposal of construction waste and debris.</li> </ul>			
Dust Generation	<ul style="list-style-type: none"> <li>Routes for transportation of material within the site should be covered with brick bed so as to minimize the dust generation</li> <li>Inventory of the material entering and going outside the site should be maintained at site. This will help in knowing the raw material available and prevent piling up of raw material and thus dust generation</li> <li>Raw material stored should be covered. Debris and excavated soil should also be kept covered.</li> <li>Cement and sand should be stored</li> </ul>	During Construction	Contractor	BEZA/PMC

Activity/Impact	Mitigation Measures	Time Frame	Implementation of Mitigation Measures	Supervision & Monitoring
	<p>under covered sheds only</p> <ul style="list-style-type: none"> <li>• Vehicles delivering materials should be covered to reduce spills and dust blowing off the load.</li> <li>• Compaction of prepared site to restrain the fugitive emissions.</li> <li>• Water should be sprayed in the cement and earth mixing sites as well as after compaction.</li> <li>• Clearing and grubbing to be done, just before the start of next activity on that site</li> <li>• In high dust areas, workers should be provided and encouraged to use masks.</li> <li>• Regular maintenance, servicing of the vehicles and periodic emission check for equipment and machinery would be carried out in conformity with the Central Motor Vehicles Rules, 1989.</li> <li>• Water will be sprayed on the haul road.</li> <li>• All the vehicles entering the project site will be checked</li> </ul>			

Activity/Impact	Mitigation Measures	Time Frame	Implementation of Mitigation Measures	Supervision & Monitoring
	<p>for Pollution-Under-Control Certificates.</p> <ul style="list-style-type: none"> <li>• Air quality monitoring to be carried out during construction phase to check the pollutants level in the air</li> </ul>			
Contamination of surface & ground water	<ul style="list-style-type: none"> <li>• Isakhali canal at site should be retained and no waste should be disposed off in the canal</li> <li>• A drain connecting Isakhali canal to Mangrove plantation area in East direction of the site should be retained to ensure flow of water into the Mangrove forest.</li> <li>• Material mixing, material storing, washing of equipment and vehicles and other activities close to water bodies shall be avoided</li> <li>• Car washing / workshops near water bodies will be avoided.</li> <li>• Avoid excavation during monsoon season</li> <li>• Loosened soil will be stabilized by Contractor through landscaping and developing vegetation,</li> </ul>	During Construction	Contractor	BEZA/PMC

Activity/Impact	Mitigation Measures	Time Frame	Implementation of Mitigation Measures	Supervision & Monitoring
	<p>wherever possible, once construction activity is completed at any site.</p> <ul style="list-style-type: none"> <li>• Sanitation facility with septic tank followed by soak pit will be developed. Common toilets will be constructed on site during construction phase and the waste water would be channelized to the septic tanks and soak pits in order to prevent waste water to enter into the water bodies.</li> <li>• Provision of oil &amp; grease traps upstream of storm water drains</li> <li>• Surface run off due to construction activity will not be discharged in open without treatment. It should be collected and re-used for wheel washing and spraying at site for dust suppression</li> <li>• Provision of garland drains around the excavated area to prevent entry of storm water into the excavated area</li> <li>• Temporary storm water drains should be provided for whole site. These</li> </ul>			

Activity/Impact	Mitigation Measures	Time Frame	Implementation of Mitigation Measures	Supervision & Monitoring
	<p>drains should be connected to Isakhali canal. These drains should be provided with stilt trap so as to arrest sediments from run-off before discharging into canal.</p> <ul style="list-style-type: none"> <li>• Stilt should be removed periodically from these stilt traps to avoid choking and overflow.</li> <li>• Septic tank &amp; soak pit should be provided to dispose off the sewage to be generated from temporary toilets constructed for labour usage</li> </ul>			
Noise from Vehicles, Plants and Equipment	<ul style="list-style-type: none"> <li>• Construction activities would be carried out in the daytime only.</li> <li>• The construction equipment would be provided with adequate noise control measures and should comply with the noise standards as prescribed by DoE</li> <li>• Regular maintenance of vehicles and equipment would be carried out and corrective action taken in case of any deviation.</li> <li>• Ear muff/ear plug</li> </ul>	Throughout construction		

Activity/Impact	Mitigation Measures	Time Frame	Implementation of Mitigation Measures	Supervision & Monitoring
	<p>shall be given to the workers working around or operating plant and machinery emitting high noise levels.</p> <ul style="list-style-type: none"> <li>• DG sets if installed should be provided with acoustic enclosures</li> <li>• Labour working in noise prone area should be provided with ear plugs and job rotation should be practiced to prevent the prolonged exposure of any workers to high noise levels</li> <li>• Honking should be prohibited at site</li> <li>• Speed limits for vehicles should be restricted</li> </ul>			
Accidents	<ul style="list-style-type: none"> <li>• Safety officer should be appointed at site to ensure all the safety guidelines are being followed at site</li> <li>• Cautionary guidance should be provided at site to aware people about the associated risk with the area. Entry to the fuel storage room or machinery operation room should be restricted only to authorized trainer personnel</li> <li>• All Accidents shall be reported immediately and</li> </ul>	During Construction	Contractor	BEZA/PMC

Activity/Impact	Mitigation Measures	Time Frame	Implementation of Mitigation Measures	Supervision & Monitoring
	<p>incident analysis, preventive measures shall be implemented.</p> <ul style="list-style-type: none"> <li>• A gate should be provided at site and record for entry &amp; exit of vehicles should be maintained at the site</li> <li>• Fuel should be stores at site away from construction camps</li> <li>• Adequate lightning should be provided at site especially during night time</li> </ul>			
Clearing of Construction Camps & Restoration	<ul style="list-style-type: none"> <li>• Contractors shall prepare site restoration plans. The plans shall be implemented prior to demobilization.</li> <li>• On completion of works, all temporary structures shall be cleared, all rubbish burnt, excreta or other disposal pits or trenches filled in and sealed and the site left clean and tidy.</li> </ul>	Post Construction	Contractor	BEZA/PMC
Occupational Health & Safety Plan	<ul style="list-style-type: none"> <li>• Contingency Plan as given in Annexure XV, EHS Guidelines General and EHS guidelines or ports, harbour and terminals should be followed for preparation of site specific emergency</li> </ul>	During Construction	Contractor	BEZA/PMC

Activity/Impact	Mitigation Measures	Time Frame	Implementation of Mitigation Measures	Supervision & Monitoring
	<p>management plan</p> <ul style="list-style-type: none"> <li>• All construction worker should wear a safety jacket and other protective equipment like helmet, gloves, gum boots, ear plugs, mask while working at the site</li> <li>• Workers should be made aware about the health issues related with open defecation</li> <li>• Training to workers should be provided for handling the construction equipment and machinery</li> <li>• Training to the workers should be provided to handle the emergency situations like fire, floods etc.</li> <li>• First aid facility and sufficient nos. of trained personnel should be available at all the time at construction camp</li> <li>• Cautionary signage and notice should be displayed in local language and English at the required places like fuel storage area so that hazards can be avoided. A security guard should be deputed in these areas and entry should be restricted</li> </ul>			

Activity/Impact	Mitigation Measures	Time Frame	Implementation of Mitigation Measures	Supervision & Monitoring
Disaster Management	<ul style="list-style-type: none"> <li>• All reasonable precaution should be taken to prevent danger of the workers and the public from fire, flood, drowning, etc.</li> <li>• Fire-fighting facility, i.e. sand filled buckets and portable fire extinguishers should be available at site</li> <li>• Workers should be trained how to use fire extinguisher</li> <li>• Workers should be made aware of nearest located cyclone shelter and measures to be taken by them in case of cyclone or flood.</li> <li>• No construction activity should be taken during rainy season</li> </ul>	During Construction	Contractor	BEZA/PMC

### 1.2.2 Mitigation Plan for Deep Sea Dredging for Construction of Bund

Dredging in the deep sea will be carried out by the contractors to be hired by BEZA. Dredged sand will be used for filling the site as mentioned in Chapter 4 of the report. Generic management plan for the dredging is given in Table 63 below. Since the site for dredging is not finalized so it is suggested that contractor should prepare site specific dredging management plan considering IFC EHS guidelines for Ports, Harbors and Terminals & General EHS guidelines and below suggested generic dredging management plan. This site specific dredging management plan should be submitted to BEZA for approval prior start of dredging operations. As per BWDB recommendations, it is suggested to carry out dredging at minimum 600 m distance from the proposed bund site (which is in line with proposed BWDB bund alignment).

**Table-2: Generic Management Plan for Dredging**

Impacted Environmental Component	Mitigation Measures During Construction Phase
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Impacted Environmental Component	Mitigation Measures During Construction Phase
Impact on Soil Quality	<ul style="list-style-type: none"> <li>• Dredged material to be used should be checked for toxicity of the heavy metals prior carrying out dredging and its usage for filling the land and any other construction purpose. Parameters to be tested should include heavy metals like Fe, Cu, Zn, Cd, Cr, Ni, Mn, Al, Pb, Mg, As through authorized agency by DoE. Concentration of the heavy metals should be checked against the limits as specified in Table 41 of EIA report. This report should be submitted to BEZA prior starting land filling and dredging operations. After approval of BEZA only, land filling should be started.</li> <li>• Excess dredged material should not be disposed at any location other than the project location</li> </ul>
Impact on Water Quality	<ul style="list-style-type: none"> <li>• Dredging should be carried out only by licensed dredgers of Inland Water Authority of Bangladesh</li> <li>• Dredging should be carried out in stretches identified by BWDB</li> <li>• Dredged material extracted should be tested for toxicity &amp; contamination</li> <li>• Usage of silt or air bubble screens/curtains should be explored to minimize the sediment release during dredging operations.</li> <li>• Dredger should be selected as per the strata to be dredged</li> <li>• To minimize the sediment dispersal during disposal of dredge sediments, cutter should be placed as close to the bed possible preferable at a level of 1m above the bed to minimise the dispersal of sediments</li> <li>• Regular servicing and maintenance of dredgers should be taken up so as to prevent any leakage of the dredged material. Leakage detection of the sediment transportation pipe should be carried out regularly to prevent any sediment loss and water pollution at leakage location. Corrective actions should be taken immediately after detection of such leaks.</li> </ul>
Aquatic Ecology	<ul style="list-style-type: none"> <li>• Dredging should not be carried out during breeding &amp; spawning season of fishes (September to October)</li> <li>• Measures like provision of bubble curtains or creation of agitation in water should be carried out prior carrying out dredging operations so as to provide avoidance time and let the species move away from dredging point and to prevent any injury/mortality. Dredging operations should be</li> </ul>

Impacted Environmental Component	Mitigation Measures During Construction Phase
	<p>halted in case of sighting of RET species, if any</p> <ul style="list-style-type: none"> <li>• Contractors should submit SOPs and action time chart with risk management plan prior to any dredging work. Dredging sub-contractor should follow the defined safety procedures to avoid accidents and spills, and BEZA should ensure that other vessel users are provided with adequate information and instruction to avoid conflict with the dredgers.</li> </ul>
Socio-economy	<ul style="list-style-type: none"> <li>• Dredging operations should be restricted to day time only, i.e. 6:00 Am-10:00 Pm only to minimize noise impacts on the residents of nearby settlements. Dredgers should be equipped with the noise reduction/masking equipment to reduce the noise generation</li> <li>• Dredgers should be placed in consultation with the fishermen so as to minimize the impact on their equipment/gears and their fishing activities</li> <li>• Log book should be maintained for recording the accidents at site/mortality of the any aquatic mammal should be maintained. Analysis shall be carried out to assess the reason for the accident/mortality and measures should be taken to prevent repetition of the event.</li> <li>• Contractors having experience of dredging and well trained staff should only be allowed to carry out dredging. This will help in prevention of spillage of dredged material or any accidents during the dredging operations</li> <li>• Dredging plan should be prepared by contractor and submitted to BEZA for approval prior to carrying out dredging operations.</li> <li>• Contractors should submit method statement &amp; risk assessment plan prior to carrying out any dredging work. Dredger should follow the defined safety procedures to avoid accidents and spills, and BEZA should ensure that other vessel users are provided with adequate information and instruction to avoid conflict with the dredgers.</li> <li>• Timely intimation to fishermen about dredging operation and location can minimize the disturbance to fishermen. Dredgers should be placed in consultation with the fishermen so as to minimize the impact on their equipment/gears and their fishing activities</li> <li>• Adoption of safety measures for prevention of any accidents during dredging. Safety measures include</li> </ul>

Impacted Environmental Component	Mitigation Measures During Construction Phase
	floats, air jackets, emergency light, extra boats, fire-ighting system etc. EHS Guidelines General and EHS guidelines or ports, harbour and terminals should be followed for preparation of site specific emergency management plan

### 1.2.3 Mitigation Plan for Widening of Access Road

It is proposed to widen the under construction single lane access road on CDSP/BWDB bund to 2 lane road. This road measures 7 km in length. This access road connects the EZ site to the Abu Torab road and then to Dhaka Chittagong Highway. Impacts associated with widening of access road along with proposed mitigation measures are given below. The Contractor shall carry out all mitigation and enhancement measures (including those related to mitigation of air/noise/water pollution; drainage/traffic congestion) as specified in the Environmental Management Plan (EMP) as below in table 64.

**Table-3: Environmental Impacts and Mitigation Plan for Widening of Access Road**

Impact	Mitigation Measures	Location	Time Frame	Implementation of Mitigation Measures	Monitoring & Supervision
<b>Pre-Construction</b>					
Acquisition of Land	•	RoW	Pre-Construction	Contractor	BEZA/PMC
Removal of Vegetation	<ul style="list-style-type: none"> <li>• Removal of as little vegetation as possible during the development and re-vegetation of bare areas after the project.</li> <li>• Tree cutting should be minimized (if any). Twice the nos, of tree cut should be planted</li> </ul>	RoW	Pre-Construction	Contractor	BEZA/PMC

Impact	Mitigation Measures	Location	Time Frame	Implementation of Mitigation Measures	Monitoring & Supervision
Procurement & Setting up of Crushers, Hot-mix plants, other Vehicles, Equipment and Machinery	<ul style="list-style-type: none"> <li>• Specifications of crushers, hot mix plants and batching plants, other Construction Vehicles, Equipment and Machinery to be procured should comply to the relevant Standards/ norms and with the requirements of the relevant current emission control legislations</li> <li>• Hot mix plants, crushers and batching plants shall be located at distance of app. 1 km from nearest habitation, archaeological site, sensitive areas, forests etc.</li> <li>• Residential facility or sensitive facilities like</li> </ul>	Areas in vicinity of construction site	Pre-Construction	Contractor	BEZA/PMC

Impact	Mitigation Measures	Location	Time Frame	Implementation of Mitigation Measures	Monitoring & Supervision
	<p>hospitals, schools etc shall not be located in downwind direction of the identified plant site</p> <ul style="list-style-type: none"> <li>• Adequate stack height and emission control devices such as bag house filters, cyclone separators, water scrubbers etc., should be attached with HMP</li> <li>• Impervious platform for storage of bituminous and other liquid hazardous chemical</li> <li>• Pollution control measures for Diesel Generator (DG) set i.e. stack height, acoustic enclosure etc.</li> <li>• Proper lighting arrangement</li> </ul>				

Impact	Mitigation Measures	Location	Time Frame	Implementation of Mitigation Measures	Monitoring & Supervision
	<p>shall be made around plant site if the plants are operated during dark hours.</p> <ul style="list-style-type: none"> <li>• Provision of readily available first aid kit, fire fighting equipments at the plant site at appropriate location to respond in case of accident.</li> <li>• Periodical monitoring of air quality and noise levels as per conditions stipulated under the statutory clearance from DoE. Whenever the emission exceeds the permissible level the plants should be stopped and necessary repairing works of faults should be done to</li> </ul>				

Impact	Mitigation Measures	Location	Time Frame	Implementation of Mitigation Measures	Monitoring & Supervision
	bring down the emission levels.				
Setting up of construction/ labour camps	<ul style="list-style-type: none"> <li>• The construction camps should be at least 500 m distance from habitations from the nearest settlements to avoid conflicts and stress over the infrastructure facilities with the local community.</li> <li>• Location for stockyards for construction materials will be identified at least 1 km from water sources</li> <li>• Store house for haz material like diesel should be at distance from construction labour camps.</li> <li>• The living accommodat</li> </ul>	Areas in vicinity of construction site	Pre-construction phase.	Contractor	BEZA/PMC

Impact	Mitigation Measures	Location	Time Frame	Implementation of Mitigation Measures	Monitoring & Supervision
	<p>ion and ancillary facilities for labour shall be erected and maintained to standards and scales approved by the resident engineer</p> <ul style="list-style-type: none"> <li>• All sites used for camps will be adequately drained. They will not be subject to periodic flooding, nor located within 300 feet of pools, sink holes or other surface collections of water unless such water surface can be subjected to mosquito control measures</li> <li>• The camps will be located such that the drainage from and through the camps will not</li> </ul>				

Impact	Mitigation Measures	Location	Time Frame	Implementation of Mitigation Measures	Monitoring & Supervision
	<p>endanger any domestic or public water supply</p> <ul style="list-style-type: none"> <li>• All sites will be graded, ditched and rendered free from depressions such that water may get stagnant and become a nuisance</li> <li>• Construction camps shall be provided with sanitary latrines (1 per 25 pax), bathing facility and urinals.</li> <li>• Construction camps should be electrified and well ventilated</li> <li>• No electrical wire should be left on the floor of camp or site. Proper system should be developed and entry to the site of electricity meter</li> </ul>				

Impact	Mitigation Measures	Location	Time Frame	Implementation of Mitigation Measures	Monitoring & Supervision
	<p>should be restricted and should be allowed for authorized personnel only</p> <ul style="list-style-type: none"> <li>• Sanitary latrines shall be under cover and so partitioned off as to secure privacy, and shall have a proper door and fastenings</li> <li>• Adequate and suitable facilities for washing clothes and utensils shall be provided and maintained for the use of contract labour employed therein.</li> <li>• Sewerage drains will be provided for the flow of used water outside the camp.</li> <li>• Drains and ditches will be treated</li> </ul>				

Impact	Mitigation Measures	Location	Time Frame	Implementation of Mitigation Measures	Monitoring & Supervision
	<p>with bleaching powder on a regular basis.</p> <ul style="list-style-type: none"> <li>• The sewage system for the camp will be properly designed, built and operated so that no health hazard occurs and no pollution to the air, ground or adjacent watercourse takes place.</li> <li>• Clean potable drinking water facility should be provided at the site and the water quality should be monitored regularly</li> <li>• Crèche facility should be provided for children if female workers are employed</li> <li>• First aid</li> </ul>				

Impact	Mitigation Measures	Location	Time Frame	Implementation of Mitigation Measures	Monitoring & Supervision
	<p>facilities should be made available at construction camp. First aid box should contain small, medium and large sized sterilized dressings, sterilized burns dressings, 2 % alcoholic solution of iodine, bottle containing salvolatile, snakebite lancet, , bottle of potassium permanganate crystals, scissors, Ointment for burns &amp; surgical antiseptic solution</p> <ul style="list-style-type: none"> <li>• 1 first aid box should be available per 50 labour</li> <li>• A person trained in first-aid treatment shall be</li> </ul>				

Impact	Mitigation Measures	Location	Time Frame	Implementation of Mitigation Measures	Monitoring & Supervision
	<p>made in charge who shall always be readily available during the working hours at the work place</p> <ul style="list-style-type: none"> <li>• A suitable motor four wheeler transport shall be kept readily available to carry injured or ill person to the nearest hospital.</li> </ul>				
Identification of debris dumping sites	<ul style="list-style-type: none"> <li>• The dumping sites shall not be located within designated Forest/protected areas</li> <li>• Residential facility or sensitive facilities like hospitals, schools etc. shall not be located in downwind direction of the identified dumping sites</li> <li>• Dumping</li> </ul>	Waste lands in nearby area	Pre-Construction	Contractor	BEZA/PMC

Impact	Mitigation Measures	Location	Time Frame	Implementation of Mitigation Measures	Monitoring & Supervision
	<p>shall not impact natural drainage courses</p> <ul style="list-style-type: none"> <li>• Dumping sites should be located at least 1 km from sensitive locations</li> <li>• Permission from concerned local body should be taken before finalizing the location</li> <li>• Agriculture lands should be avoided &amp; waste lands should be preferred</li> <li>• Selected site should not support significant vegetation</li> <li>• The area should be sprinkled with water to suppress the dust emissions</li> <li>• Plant species suitable to grow in that conditions should be planted at the time of</li> </ul>				

Impact	Mitigation Measures	Location	Time Frame	Implementation of Mitigation Measures	Monitoring & Supervision
	closure				
<b>CONSTRUCTION STAGE</b>					
<b>Land</b>					
Soil Erosion and Sedimentation control	<ul style="list-style-type: none"> <li>• Contractor should plan the activities so that no naked / loose earth surface is left out before the onset of monsoon.</li> <li>• Top soil from debris disposal sites &amp; along the road side should be stripped and kept under covered shed for plantation</li> <li>• After the construction activity is over, top soil will be utilized for landscaping activity.</li> <li>• To avoid soil compaction along the transportation routes, only identified haul roads would be used for transportation.</li> </ul>	Throughout Project Corridor, Service roads and equipment storage sites, etc.	During Construction	Contractor	BEZA/PMC

Impact	Mitigation Measures	Location	Time Frame	Implementation of Mitigation Measures	Monitoring & Supervision
	<ul style="list-style-type: none"> <li>• Along sections abutting Isakhali canal, no development should be carried out and a retaining wall should be constructed</li> <li>• Retaining wall should be constructed all along the Isakhali canal section running through EZ site</li> <li>• Bund embankments should be provided with turfing &amp; longitudinal drains to minimize erosion</li> <li>• Turfing of low embankments and plantation of grasses and shrubs should be done in slope stabilization.</li> <li>• Soil erosion checking</li> </ul>				

Impact	Mitigation Measures	Location	Time Frame	Implementation of Mitigation Measures	Monitoring & Supervision
	<p>measures as the formation of sediment basins, slope drains, etc, should be carried out.</p> <ul style="list-style-type: none"> <li>• Construction of Side Slope of Filled Land of 1:2 by suitable soils with proper compaction as per design. Slope surface should be covered by top soils/ cladding materials and grass turfs with suitable grass.</li> </ul>				
Contamination of soil	<ul style="list-style-type: none"> <li>• Impervious platform and oil and grease trap for collection of spillage from construction equipment vehicle maintenance platform will be appropriately provided at construction</li> </ul>	At fuel storage areas – usually at construction camps	During Construction.	Contractor	BEZA/PMC

Impact	Mitigation Measures	Location	Time Frame	Implementation of Mitigation Measures	Monitoring & Supervision
	<p>camp, servicing area and liquid fuel and lubes at storage areas.</p> <ul style="list-style-type: none"> <li>• Proper management of waste from labour camps and construction site</li> <li>• Proper disposal of wastewater generated from labour camp and construction site</li> </ul>				
Material sources	<ul style="list-style-type: none"> <li>• Adequate safety precautions shall be ensured during transportation of quarry material from quarries to the construction site.</li> <li>• Vehicles transporting the material shall be covered to prevent spillage.</li> <li>• No excavation</li> </ul>	Nearest Quarry Site	During construction	Contractor	BEZA/PMC

Impact	Mitigation Measures	Location	Time Frame	Implementation of Mitigation Measures	Monitoring & Supervision
	of earth should be carried out prior obtaining permission from DoEB				
Disposal of Debris	<ul style="list-style-type: none"> <li>Waste from construction camp should be segregated at site. Food/wet waste should be composted in pit at the site, recyclable should be send to authorized recyclers and rejected waste should be disposed regularly through responsible agency in the area</li> <li>Dustbins should be provided at the site and construction camps to prevent littering of waste</li> <li>Storage area of minimum 2 days</li> </ul>	Identified debris disposal location during preconstruction phase	During Construction	Contractor	BEZA/PMC

Impact	Mitigation Measures	Location	Time Frame	Implementation of Mitigation Measures	Monitoring & Supervision
	<p>should be provided at construction camp for storage of the waste generated from labour camps</p> <ul style="list-style-type: none"> <li>• Construction debris should also be segregated at the site. This debris should be used for filling to the extent possible. Recyclable waste should be sold through authorized dealers and reject waste should be sent to the identified debris disposal site</li> <li>• All arrangement for transportation during construction including provision, maintenance, dismantling and clearing debris,</li> </ul>				

Impact	Mitigation Measures	Location	Time Frame	Implementation of Mitigation Measures	Monitoring & Supervision
	<p>where necessary will be considered incidental.</p> <ul style="list-style-type: none"> <li>• Construction debris should be stored under covered sheds on paved surfaces to prevent leaching</li> <li>• Any hazardous waste generated during construction activity shall be stored at suitable place and then disposed off in consultation with the guidelines.</li> <li>• Rubbish, debris and bitumen wastes remaining after blacktop works shall be cleaned and disposed off in a safe place.</li> <li>• Contaminate</li> </ul>				

Impact	Mitigation Measures	Location	Time Frame	Implementation of Mitigation Measures	Monitoring & Supervision
	<p>d runoff from storage areas shall be captured in ditches with an oil trap at the outlet.</p> <ul style="list-style-type: none"> <li>• Utmost care shall be taken to ensure that the Municipal Corporation norms are met for the safe collection, transport and disposal of construction waste and debris.</li> </ul>				
<b>Air</b>					
Dust Generation	<ul style="list-style-type: none"> <li>• Routes for transportation of material within the site should be covered with brick bed so as to minimize the dust generation</li> <li>• Inventory of the material entering and going outside the site should be</li> </ul>	Throughout Project Corridor, all access roads, temporarily sites.	During Construction Phase	Contractor	BEZA/PMC

Impact	Mitigation Measures	Location	Time Frame	Implementation of Mitigation Measures	Monitoring & Supervision
	<p>maintained at site. This will help in knowing the raw material available and prevent piling up of raw material and thus dust generation</p> <ul style="list-style-type: none"> <li>• Raw material stored should be covered. Debris and excavated soil should also be kept covered.</li> <li>• Cement and sand should be stored under covered sheds only</li> <li>• Vehicles delivering materials should be covered to reduce spills and dust blowing off the load.</li> <li>• Compaction of prepared site to restrain the fugitive emissions.</li> <li>• Water should be</li> </ul>				

Impact	Mitigation Measures	Location	Time Frame	Implementation of Mitigation Measures	Monitoring & Supervision
	<p>sprayed in the cement and earth mixing sites as well as after compaction.</p> <ul style="list-style-type: none"> <li>• In laying sub-base, water spraying is needed to aid compaction of the material. After the compaction, water spraying should be carried out at regular intervals to limit the dust to below</li> <li>• Every equipments and machinery will be fitted with dust suppression devices such as water sprinklers, dust bags, cyclone etc. as appropriate.</li> <li>• Road surface should be cleaned with air</li> </ul>				

Impact	Mitigation Measures	Location	Time Frame	Implementation of Mitigation Measures	Monitoring & Supervision
	<p>compressor and vacuum cleaners prior to the construction works. Manual labour using brooms should be avoided, if used labour to be provided masks.</p> <ul style="list-style-type: none"> <li>• The Contractor shall take every precaution to reduce the level of dust emission from the hot mix plants and the batching plants.</li> <li>• Contractor will ensure that all vehicles, equipment and machinery used for construction are regularly maintained and confirm that pollution emission levels</li> </ul>				

Impact	Mitigation Measures	Location	Time Frame	Implementation of Mitigation Measures	Monitoring & Supervision
	<p>comply with the relevant requirements of DoEB</p> <ul style="list-style-type: none"> <li>The Contractor will submit PUC certificates for all vehicles/ equipment/ machinery used for the project. Monitoring results will also be submitted to 'PIU' through the 'Engineer'.</li> <li>Air quality monitoring to be carried out during construction phase to check the pollutants level in the air</li> </ul>				
<b>Water</b>					
Loss of water bodies/ surface / ground	<ul style="list-style-type: none"> <li>No waste to be disposed off in Isakhali canal, Feni River and aquaculture ponds along the CDSP bund and BWDB bund</li> <li>No</li> </ul>	Near all water bodies	During construction	Contractor	BEZA/PMC

Impact	Mitigation Measures	Location	Time Frame	Implementation of Mitigation Measures	Monitoring & Supervision
	<p>excavation from the bund of the water bodies.</p> <ul style="list-style-type: none"> <li>• No earth will be excavated for development of any off-site facility</li> <li>• No debris disposal near any water body.</li> <li>• Prior written permission from authorities is required for use of water for construction activity.</li> <li>• Construction labours to be restricted from polluting the source or misusing the source.</li> <li>• Labour camps will be located away from water bodies.</li> <li>• Open defecation should not be allowed. Sanitary toilets should be</li> </ul>				

Impact	Mitigation Measures	Location	Time Frame	Implementation of Mitigation Measures	Monitoring & Supervision
	<p>provided at the site &amp; in labour camps.</p> <ul style="list-style-type: none"> <li>• Bathing &amp; Washing should not be done near waterbody, whereas proper facility should be provided for this purpose</li> <li>• Provision of the septic tank with soak pit to dispose off the water from construction labour camp</li> <li>• Surface run-off due to construction activities should be collected &amp; re-used for wheel washing &amp; sprinkling for dust suppression</li> <li>• All raw material, excavated soil &amp; debris to be kept covered so as they do not mix with rain water</li> </ul>				

Impact	Mitigation Measures	Location	Time Frame	Implementation of Mitigation Measures	Monitoring & Supervision
	<p>during rains and does not contaminate the rainfall run-off which may enter the nearby water bodies</p> <ul style="list-style-type: none"> <li>• No excavation work to be undertaken during monsoon season</li> </ul>				
Drainage and runoff	<ul style="list-style-type: none"> <li>• The Contractor will always clear all the cross drainage structures and natural drainage before onset of monsoon in order to keep all drainage unblocked</li> <li>Earth, stones, wastes and spoils will be properly disposed off, to avoid blockage of any drainage channel.</li> <li>• All necessary precautions will be taken</li> </ul>	Through out the stretch	During Construction	Contractor	BEZA/PMC

Impact	Mitigation Measures	Location	Time Frame	Implementation of Mitigation Measures	Monitoring & Supervision
	to construct temporary or permanent devices to prevent inundation or ponding.				
Silting / sedimentation	<ul style="list-style-type: none"> <li>• Silt fencing shall be provided around aquaculture ponds &amp; Isakhali canal along the access road to be widened to prevent runoff of sediment from construction site</li> <li>• Sedimentation tanks should be provided in line with the storm water drains to prevent soil loss/erosion</li> </ul>	Throughout Project Corridor and at all locations of water bodies	Construction Phase	Contractor	BEZA/PMC
Contamination of water	<ul style="list-style-type: none"> <li>• Construction activities &amp; material storage close to water bodies (Isakhali canal, Bamon Sundar canal &amp; Feni</li> </ul>	Throughout Project Corridor and at all locations of water bodies	Construction Phase	Contractor	BEZA/PMC

Impact	Mitigation Measures	Location	Time Frame	Implementation of Mitigation Measures	Monitoring & Supervision
	<p>River) shall be avoided</p> <ul style="list-style-type: none"> <li>• Car washing / workshops near water bodies will be avoided.</li> <li>• Wastewater generated from labour camp and construction sites should not be discharge in water bodies and should be channelized to septic tanks/soak pits</li> <li>• Construction wastewater can be re-used for sprinkling and curing</li> </ul>				
<b>Noise</b>					
Noise from Vehicles, Plants and Equipment	<ul style="list-style-type: none"> <li>• All vehicles and equipment used in construction will be fitted with exhaust silencers.</li> <li>• Noise standard at processing sites, eg. hot mix plant , machinery will be strictly</li> </ul>	Through out Project Corridor and at all construction sites, hot mix plant etc.	During Construction	Contractor	BEZA/PMC

Impact	Mitigation Measures	Location	Time Frame	Implementation of Mitigation Measures	Monitoring & Supervision
	<p>monitored to prevent exceeding of noise standards.</p> <ul style="list-style-type: none"> <li>• Workers in vicinity of loud noise, shall wear earplugs and working time should be limited as a safety measure. Job rotations should also be carried out to prevent continuous exposure</li> <li>• Construction activities to be taken up during day time only</li> <li>• Servicing of all construction vehicles and machinery should be done for exhaust silences and should be checked and if found defective should be replaced.</li> <li>• No noisy construction activities</li> </ul>				

Impact	Mitigation Measures	Location	Time Frame	Implementation of Mitigation Measures	Monitoring & Supervision
	<p>should be permitted around educational institutions/ health centers (silence zones) up to a distance of 100 m from the sensitive receptors.</p> <ul style="list-style-type: none"> <li>• Monitoring shall be carried out at the construction sites</li> <li>• Environmental Expert will be required to inspect regularly to ensure the compliance of EMP.</li> </ul>				
<b>Flora and Fauna</b>					
Loss or damage to vegetation	<ul style="list-style-type: none"> <li>• No tree cutting should be carried out for widening of access road without permission from BEZA &amp; PMC</li> <li>• Compensatory plantation should be carried out in the ratio of 1:2</li> </ul>	Throughout Project Corridor	During Construction Phase	Contractor	BEZA/PMC

Impact	Mitigation Measures	Location	Time Frame	Implementation of Mitigation Measures	Monitoring & Supervision
	minimum • Plantation should be carried out all along the access road to be widened				
Compaction of vegetation	• Construction vehicles, machinery and equipment will move or be stationed in the designated area only (RoW or CoI, as applicable), to prevent compaction of vegetation outside the RoW. • While operating on temporarily rental land for traffic detours, storage, material handling or any other construction related or incidental activities, it will be ensured that the trampling of soil and	Throughout Project Corridor	During Construction Phase	Contractor	BEZA/PMC

Impact	Mitigation Measures	Location	Time Frame	Implementation of Mitigation Measures	Monitoring & Supervision
	damage to naturally occurring herbs and grasses will be avoided.				
Loss, damage or disruption to fauna	<ul style="list-style-type: none"> <li>Construction workers will be directed not to disrupt or damage the fauna.</li> <li>Construction vehicles will run along specified access to avoid accidents to cattle.</li> </ul>	Throughout Project Corridor	During Construction Phase	Contractor	BEZA/PM C
Socio-Economic Environment					
Accidents	<ul style="list-style-type: none"> <li>Safety officer should be appointed at site to ensure all the safety guidelines are being followed at site</li> <li>Cautionary guidance should be provided at site to aware people about the associated risk with the area. Entry to the fuel storage room or</li> </ul>		During Construction	Contractor	BEZA/PM C

Impact	Mitigation Measures	Location	Time Frame	Implementation of Mitigation Measures	Monitoring & Supervision
	<p>machinery operation room should be restricted only to authorized trainer personnel</p> <ul style="list-style-type: none"> <li>• All Accidents shall be reported immediately and incident analysis, preventive measures shall be implemented.</li> <li>• A gate should be provided at site and record for entry &amp; exit of vehicles should be maintained at the site</li> <li>• Fuel should be stores at site away from construction camps</li> <li>• Adequate lightning should be provided at site especially during night time</li> </ul>				
Occupational Health & Safety					
Constructio	• Contingency	Entire	During	Contractor	BEZA/PM

Impact	Mitigation Measures	Location	Time Frame	Implementation of Mitigation Measures	Monitoring & Supervision
n Safety	<p>Plan as given in Annexure XV, EHS Guidelines General and EHS guidelines or ports, harbour and terminals should be followed for preparation of site specific emergency management plan</p> <ul style="list-style-type: none"> <li>• All construction worker should wear a safety jacket and other protective equipment like helmet, gloves, gum boots, ear plugs, mask while working at the site</li> <li>• All workers employed on mixing asphaltic material, cement, lime mortars, concrete etc., will be provided with</li> </ul>	Project site.	Construction		C

Impact	Mitigation Measures	Location	Time Frame	Implementation of Mitigation Measures	Monitoring & Supervision
	<p>protective footwear and protective goggles.</p> <ul style="list-style-type: none"> <li>Workers, who are engaged in welding works, would be provided with welder's protective eye-shields. Stonebreakers will be provided with protective goggles and clothing and will be seated at sufficiently safe intervals</li> <li>Workers should be made aware about the health issues related with open defecation</li> <li>Training to workers should be provided for handling the construction equipment and machinery</li> </ul>				

Impact	Mitigation Measures	Location	Time Frame	Implementation of Mitigation Measures	Monitoring & Supervision
	<ul style="list-style-type: none"> <li>• Training to the workers should be provided to handle the emergency situations like fire, floods etc.</li> <li>• First aid facility and sufficient nos. of trained personnel should be available at all the time at construction camp</li> <li>• Cautionary signage and notice should be displayed in local language and English at the required places like fuel storage area so that hazards can be avoided. A security guard should be deputed in these areas and entry should be restricted</li> <li>• A register of</li> </ul>				

Impact	Mitigation Measures	Location	Time Frame	Implementation of Mitigation Measures	Monitoring & Supervision
	all toxic chemicals delivered to the site shall be kept and maintained up to date. The register shall include the trade name, physical properties and characteristics, chemical ingredients, health and safety hazard information, safe handling and storage procedures, and emergency and first aid procedures for the product.				
Disaster Management	<ul style="list-style-type: none"> <li>• All reasonable precaution should be taken to prevent danger of the workers and the public from fire, flood, drowning, etc.</li> <li>• Fire-fighting</li> </ul>	Entire Project site	During Construction	Contractor	BEZA/PMC

Impact	Mitigation Measures	Location	Time Frame	Implementation of Mitigation Measures	Monitoring & Supervision
	<p>facility, i.e. sand filled buckets and portable fire extinguishers should be available at site</p> <ul style="list-style-type: none"> <li>• Workers should be trained how to use fire extinguisher</li> <li>• Workers should be made aware of nearest located cyclone shelter and measures to be taken by them in case of cyclone or flood.</li> <li>• No construction activity should be taken during rainy season</li> </ul>				
Clearing of Construction of Camps & Restoration	<ul style="list-style-type: none"> <li>• Contractors shall prepare site restoration plans. The plans shall be implemented prior to demobilization.</li> <li>• On completion of works, all</li> </ul>	All Workers' Camps		Contractor	BEZA/PMC

Impact	Mitigation Measures	Location	Time Frame	Implementation of Mitigation Measures	Monitoring & Supervision
	temporary structures shall be cleared, all rubbish burnt, excreta or other disposal pits or trenches filled in and sealed and the site left clean and tidy.				

#### 1.2.4 Mitigation Plan for EZ

The detailed plan shall be prepared by prospective developers. However following measures shall mandatorily form part of EMP for EZ development and operation:

- Industries should obtain environment clearance individually from DoEB prior to establishment and commencement.

Measures that should be taken by developer and individual industrial owners vehicle development and operation phase is tabulated in table 65 & 66 below

**Table-4: Mitigation Measures Suggested for Developer**

Impact	Mitigation Measures During Construction Phase
Identification of Site for Disposal of construction Debris, construction labour camp and plant site	<ul style="list-style-type: none"> <li>Site identified should be 1.0 km away from settlement, sensitive locations, like school, hospital, religious structures, reserve forest and any other eco-sensitive zone etc.</li> <li>Site identified should be approved by BEZA and PMC</li> <li>Site should be located in downwind direction from settlement area</li> <li>Fertile agricultural land and community land should be avoided for setting of these facilities</li> </ul>
Air Pollution	<ul style="list-style-type: none"> <li>Sprinkling of water during construction phase on all unpaved roads, site and haul roads</li> <li>Avoiding excess piling of raw material and debris at site</li> <li>Storage &amp; transportation of raw material and debris in covered conditions</li> <li>Cutting of only identified trees after obtaining permission of forest department</li> <li>Regular cleaning of site</li> </ul>

Impact	Mitigation Measures During Construction Phase
	<ul style="list-style-type: none"> <li>• Provision of adequate parking space at site so as to prevent idling of vehicles during construction phase</li> <li>• Up keeping and maintenance of all the construction vehicles, machinery and equipment used for construction purpose</li> <li>• All vehicles entering the EZ site should carry PUC</li> <li>• Guiding signage should be provided at the site for vehicles entering the site to minimize the movement of vehicle within the site</li> <li>• Timings of the construction material vehicles should be fixed and should be during non-peak hours to prevent traffic congestion and traffic jams</li> <li>• Speed limits should be restricted within the site for all the construction vehicles</li> <li>• Usage of low energy intensive building material like fly ash mix cement and bricks</li> <li>• Usage of low sulphur diesel for running DG sets, construction vehicles and equipments</li> <li>• Obtaining temporary electricity connection during construction phase and operating DG sets only during power failure</li> <li>• Provision of wheel washing facility at exit point of site</li> <li>• Adequate air pollution control measures like provision of bag filters, stacks of adequate height should be provided with WMM, hot mix plant, batching plant etc.</li> <li>• Open burning of wood or any other material should be prohibited at site and all the workers should be made aware about the same</li> <li>• Zonation of EZ should be carried out such that high polluting industries should be located in downwind direction</li> </ul>
Water Pollution & water Conservation	<ul style="list-style-type: none"> <li>• Minimizing the run-off from the site by construction of sediment basins for collection of storm run-off and re-using that water for curing purpose and wheel washing</li> <li>• Curing of structures to be done by spraying and during early morning and evening hours only to minimize the water requirement</li> <li>• Maintaining the flow of water sprinklers so as to avoid wastage of water</li> <li>• No debris should be thrown or disposed off in any water body like river, pond, canal etc or ground water source like functional or abandoned well</li> <li>• Excavation should not be carried out during</li> </ul>

Impact	Mitigation Measures During Construction Phase
	<p>monsoon</p> <ul style="list-style-type: none"> <li>• Provision of temporary storm water drainage system during construction phase to drain the storm water and should be connected to nearest surface water body</li> <li>• Excavated pits should be provided with garland drains to prevent entrance of water inside the pit</li> <li>• Provision of oil &amp; grease traps with the storm water drains draining the parking and fuel storage area</li> <li>• Provision of septic tanks and soak pits at the site &amp; labour camps for disposal of sewage generated by construction labour</li> <li>• Waste generated by construction camps should be disposed off regularly at the identified site for debris disposal</li> <li>• Provision of cross drainage structures like balancing for maintaining the drainage pattern</li> <li>• Stone &amp; bricks should be purchased only from licence vendors</li> <li>• Keeping provision of land for development of CSTP and CETP in future. CETP should essentially be developed to ensure treatment of 100% of the wastewater as all industries may not be able to provide efficient systems for treatment of their effluent</li> <li>• Rain water harvesting tank should be developed at the site so as that water can be used for meeting daily water demand</li> <li>• Tank alarms should be installed so as to prevent overflow of water</li> <li>• CETP &amp; CSTP should be atleast 30 m away from the water pipeline, water storage tank and rain water storage tank</li> </ul>
Soil Quality	<ul style="list-style-type: none"> <li>• Top soil, if excavated from the project site should be stored in covered condition and should be used later for landscaping purpose</li> <li>• Storage of raw materials, debris and fuel on paved surfaces</li> <li>• Training the workers to handle the material so as to minimize spillage of material on soil</li> <li>• Provision of cross drainage structures to prevent water logging and soil erosion</li> <li>• Stone pitching with grass turfing should be done for the high embankment close to water body</li> <li>• Disposal of construction debris, municipal waste from labour camps and hazardous waste from site should be disposed off at the identified site</li> </ul>

Impact	Mitigation Measures During Construction Phase
	<ul style="list-style-type: none"> <li>• Keeping provision of land for development of solid waste management facility within the EZ site</li> <li>• No open area should be left without the vegetation to protect the soil.</li> <li>• Mulching of soil should be done regularly to prevent direct exposure of soil to wind and water</li> </ul>
Noise Pollution	<ul style="list-style-type: none"> <li>• Construction vehicles, machinery and equipment used for construction purpose should meet the standards prescribed by DoE</li> <li>• Upkeeping and regular maintenance of all the construction vehicles, machinery and equipment used for construction purpose</li> <li>• Speed limits should be restricted for all construction vehicles and equipment</li> <li>• Honking should be prohibited at the site</li> <li>• Provision of acoustic enclosures, noise mufflers, silencers etc with the DG sets and any noise generating machinery</li> <li>• Provision of temporary noise shield/barrier in areas where more noise will be generated</li> </ul>
Ecology	<ul style="list-style-type: none"> <li>• Only identified trees (if any) should be fell down after obtaining permission from forest department</li> <li>• Compensatory plantation should be carried out in ratio of min 1:2 under guidance of forest department</li> <li>• Development of 10 m (minimum) thick green buffer all along the periphery of EZ</li> <li>• Bund constructed around the EZ site will prevent trespassing of the animals</li> <li>• Native plant species requiring should be considered for plantation</li> <li>• Timber should be purchased only from authorized vendors</li> <li>• No waterbody should be filled outside the EZ site</li> </ul>
Socio-economy and aesthetics	<ul style="list-style-type: none"> <li>• Contingency Plan as given in Annexure XV, EHS Guidelines General and EHS guidelines or ports, harbour and terminals should be followed for preparation of site specific emergency management plan</li> <li>• All proposed air, water, noise and soil pollution control measures should be taken</li> <li>• Provision of employment opportunity during construction phase to local people</li> <li>• Provision of personal protective equipment to all the workers</li> <li>• Job rotation should be practiced for workersexposed to high noise levels</li> </ul>

Impact	Mitigation Measures During Construction Phase
	<ul style="list-style-type: none"> <li>• Site should be covered from all the site during construction phase</li> <li>• Drinking water facility, adequate nos. of toilet, septic tank/soak pit, bathing facility, lighting should be provided in labour camps</li> <li>• Storm water drainage system should also be provide in labour camps to prevent water ponding and breeding of mosquitoes</li> <li>• LPG should be provided as fuel in the labour camps</li> <li>• Provision of facility like guest house, community building, commercial area, ATM, Bank, hospital and parking should be made within the EZ site</li> </ul>
Disaster and Risk Management	<ul style="list-style-type: none"> <li>• Provision of first aid kit and first aid room and well trained first aid practioner at the site all the time</li> <li>• Ambulance facility should be provided at the site</li> <li>• Tie-ups with local hospital should be made to handly emergency case, if any</li> <li>• Availability of safety officers and supervisors at all the time on the site</li> <li>• Workers should be given training for handling construction vehicles, equipment and handling emergency situations like fire, floods, earthquake and cyclone</li> <li>• Cautionary signage should be provided in the areas associated with risks like storage of explosives, fuels, heavy construction material etc. Entry for only trained authorized personnel should be allowed in such areas with adequate safety measures</li> <li>• Emergency handling cell &amp; room should be developed at the site and should be headed by project &amp; safety manager</li> <li>• Contact no. of nearest fire-station and hospitals should be displayed within the emergency handling room</li> </ul>

**Table-5: Mitigation Measures Suggested for Individual Plot Owners**

Impact	Mitigation Measures During Construction Phase	Mitigation Measures During Operation Phase
Air Pollution	<ul style="list-style-type: none"> <li>• Sprinkling of water during construction phase on all unpaved roads, site and haul roads</li> <li>• Avoiding excess pilling of raw material and debris at site</li> <li>• Storage &amp; transportation of raw material and debris in covered conditions</li> </ul>	<ul style="list-style-type: none"> <li>• Installation of air pollution control devices like Electro-static precipitator, bag filters, separators, cyclones, multi-level condensers &amp; evaporators, scrubbers, quenchers, stacks of height as per DoE norms</li> <li>• Disposal of the waste material at the designated site for</li> </ul>

Impact	Mitigation Measures During Construction Phase	Mitigation Measures During Operation Phase
	<ul style="list-style-type: none"> <li>• No trees should be fell down without permission of BEZA and forest department</li> <li>• Regular cleaning of site</li> <li>• Provision of adequate parking space at site so as to prevent idling of vehicles during construction phase</li> <li>• Upkeeping and maintenance of all the construction vehicles, machinery and equipment used for construction purpose</li> <li>• All vehicles entering the EZ site should carry PUC</li> <li>• Guiding signage should be provided at the site for vehicles entering the site to minimize the movement of vehicle within the site</li> <li>• Timings of the construction material vehicles should be fixed and should be during non-peak hours to prevent traffic congestion and traffic jams</li> <li>• Construction vehicles should follow the speed limits set up for EZ zone</li> <li>• Usage of low energy intensive building material like fly ash mix cement and bricks</li> <li>• Usage of low sulphur diesel for running DG sets, construction vehicles and equipments</li> <li>• Obtaining temporary electricity connection during construction phase from BEZA and operating DG sets only during power failure</li> <li>• Provision of wheel washing facility at exit point of site</li> <li>• Open burning of wood or any other material should be prohibited at site and all the</li> </ul>	<ul style="list-style-type: none"> <li>waste disposal in covered condition</li> <li>• All the roads within the plot should be paved &amp; water sprinkling should be practiced to minimize dust generation.</li> <li>• Adequate stack height should be provided for dispersion of the emissions</li> <li>• Chemicals having potential to release VOCs should be stored, handled and used in closed system</li> <li>• Quarterly monitoring should be carried out for testing ambient air quality</li> <li>• Development of thick green belt of 10 m all along the industrial plot periphery</li> </ul>

Impact	Mitigation Measures During Construction Phase	Mitigation Measures During Operation Phase
	workers should be made aware about the same	
Water Pollution & water Conservation	<ul style="list-style-type: none"> <li>• Minimizing the run-off from the site by construction of temporary storm water drainage, sediment basins for collection of storm run-off and re-using that water for curing purpose and wheel washing</li> <li>• Curing of structures to be done by spraying and during early morning and evening hours only to minimize the water requirement</li> <li>• Maintaining the flow of water sprinklers so as to avoid wastage of water and ponding of water</li> <li>• No debris should be thrown or disposed off in any water body like river, pond, canal etc or ground water source like functional or abandoned well</li> <li>• Excavation should not be carried out during monsoon</li> <li>• Excavated pits should be provided with garland drains to prevent entrance of water inside the pit</li> <li>• Provision of septic tanks and soak pits at the site for disposal of sewage generated by construction labour</li> <li>• Waste generated during construction should be disposed off regularly at the identified site for debris disposal</li> <li>• Stone &amp; bricks should be purchased only from licensed vendors</li> </ul>	<ul style="list-style-type: none"> <li>• Provision of ETP &amp; STP for treatment of sewage and industrial effluent</li> <li>• Provision of dual plumbing system so as treated water from STP can be re-used for flushing, horticulture and cooling purpose</li> <li>• Separation of the effluent streams depending on the nature of pollutants</li> <li>• Monitoring the quality of sewage, treated water, drinking water quality and ground water quality regularly</li> <li>• Tank alarms should be installed so as to prevent idle running of pumps</li> <li>• Provision of storm water drainage system at site and it should be connected to rain water harvesting system. Storm water drains should also be connected to the nearest surface water body to drain excess flow, if any</li> <li>• Provision of rain water harvesting system so that water can be collected and used to meet daily water demand.</li> <li>• Provision of oil &amp; grease traps with the storm water drains draining the parking and fuel storage area</li> <li>• Leakage detection system should be provided and the water supply system should be regularly inspected to detect leakages</li> <li>• Distance of STP/ETP and RWH pits should be minimum 30 m to prevent</li> </ul>

Impact	Mitigation Measures During Construction Phase	Mitigation Measures During Operation Phase
		<p>contamination of collected storm water</p> <ul style="list-style-type: none"> <li>• Untreated effluent should not be discharged into surface water body or any abandoned ground water source or to ground.</li> <li>• No hazardous waste, municipal waste, industrial waste should be disposed off in the water bodies or in ground</li> <li>• Leachates, if any or untreated sewage should be stored only in lined ponds to prevent contamination of ground water</li> </ul>
Soil Quality	<ul style="list-style-type: none"> <li>• Top soil, if excavated from the project site should be stored in covered condition and should be used later for landscaping purpose</li> <li>• Storage of raw materials, debris and fuel on paved surfaces</li> <li>• Training the workers to handle the material so as to minimize spillage of material on soil</li> <li>• Disposal of construction debris, municipal waste and hazardous waste at designated sites</li> </ul>	<ul style="list-style-type: none"> <li>• All industries should use best technologies for optimal utilization of the raw material and re-use &amp; recycling of waste material in the process to reduce waste generation as well as raw material demand for the project.</li> <li>• All industries should be responsible for management of the solid and hazardous waste generated from their plots. Industries should be liable to pay penalty in case of non compliance of conditions laid down by DoE</li> <li>• It should be mandatory for all industries to provide storages for different category waste, its processing and safe disposal. Options for composting of compostable waste, segregation and selling recyclable waste should be opted</li> <li>• Waste storage area should be paved surfaces and covered</li> <li>• No open area should be left without the vegetation to protect the soil.</li> </ul>

Impact	Mitigation Measures During Construction Phase	Mitigation Measures During Operation Phase
		<ul style="list-style-type: none"> <li>• Haz. Waste should be disposed off through authorized vendors only. However, no TSDF and haz.waste recycling units exists in Bangladesh. But as the EZ development and coming up of industries may take time of app 3-4 years so by then haz waste rules will be formed in Bangladesh (in draft form at present) and some facilities may come up in Bangladesh for managing hazardous waste. Else all industries should incinerate the hazardous waste generated by them taking the required air pollution control measures.</li> </ul>
Noise Pollution	<ul style="list-style-type: none"> <li>• Construction vehicles, machinery and equipment used for construction purpose should meet the standards prescribed by DoE</li> <li>• Upkeeping and regular maintenance of all the construction vehicles, machinery and equipment used for construction purpose</li> <li>• Speed limits should be restricted for all construction vehicles and equipment</li> <li>• Honking should be prohibited at the site</li> <li>• Provision of acoustic enclosures, noise mufflers, silencers etc with the DG sets and any noise generating machinery</li> <li>• Provision of temporary noise shield/barrier in areas where more noise will be generated</li> </ul>	<ul style="list-style-type: none"> <li>• Usage of machineries of modern make and adoption of latest available technology which compiles to noise levels standards laid by DoE</li> <li>• Provision of personal protective equipment to workers exposed to noisy operations. Audiometric tests should be carried out for workers exposed to high noise levels. Job rotation should be practiced to prevent continual exposure.</li> <li>• Noise levels in industries should be monitored regularly using noise meters.</li> <li>• Minimal usage of horns within industrial plot. Specification of speed limits on roads made by BEZA should be followed. Provision of speed breakers at regular intervals to regulate speed of vehicles</li> <li>• Regular maintenance of vehicles &amp; construction machinery involved in</li> </ul>

Impact	Mitigation Measures During Construction Phase	Mitigation Measures During Operation Phase
		<p>industrial operation</p> <ul style="list-style-type: none"> <li>Noisy operation should be taken up in covered conditions so that no disturbance due to noise is caused</li> <li>Thick green belt should be developed within each industrial plot that will act as noise barrier..</li> </ul>
Ecology	<ul style="list-style-type: none"> <li>Only identified trees should be fell down after obtaining permission from forest department</li> <li>Compensatory plantation should be carried out in ratio of min 1:2 under guidance of forest department</li> <li>Native plant species requiring should be considered for plantation</li> <li>Timber should be purchased only from authorized vendors</li> </ul>	<ul style="list-style-type: none"> <li>Green belt of 10 m thickness should be developed all along the periphery of the industrial plot</li> <li>Native plant species requiring should be considered for plantation</li> </ul>
Socio-economy and aesthetics	<ul style="list-style-type: none"> <li>Contingency Plan as given in Annexure XV should be followed for preparation of site specific emergency management plan</li> <li>All proposed air, water, noise and soil pollution control measures should be taken</li> <li>Provision of employment opportunity during construction phase to local people</li> <li>Provision of personal protective equipment to all the workers</li> <li>Job rotation should be practiced for workersexposed to high noise levels</li> <li>Site should be covered from all the site during construction phase</li> <li>Drinking water facility, adequate nos. of toilet, septic</li> </ul>	<ul style="list-style-type: none"> <li>Contingency Plan as given in Annexure XV should be followed for preparation of site specific emergency management plan</li> <li>Social welfare activities shall be carried out by each industrial owners in nearby areas of EZ like development of cattle sheds, arranging trainings for villagers for best agriculture practices, providing skill generation training to locals so as they can be employed in industries</li> <li>Providing employment to local people preferably</li> <li>Adoption of all proposed air, noise, soil and water quality measures</li> <li>All the units should get certifications for IS:9000, IS:14000 and OHSAS:18000</li> </ul>

Impact	Mitigation Measures During Construction Phase	Mitigation Measures During Operation Phase
	<p>tank/soak pit, bathing facility, lighting should be provided for construction labour</p> <ul style="list-style-type: none"> <li>• Storm water drainage system should also be provide at site to prevent water ponding and breeding of mosquitoes</li> </ul>	<ul style="list-style-type: none"> <li>• Sector specific EHS guidelines should be followed by the industries for development and operation of the project</li> </ul>
Disaster and Risk Management	<ul style="list-style-type: none"> <li>• Provision of first aid kit and first aid room and well trained first aid practioner at the site all the time</li> <li>• Ambulance facility should be provided at the site</li> <li>• Tie-ups with local hospital should be made to handling emergency case, if any</li> <li>• Availability of safety officers and supervisors at all the time on the site</li> <li>• Workers should be given training for handling construction vehicles, equipment and handling emergency situations like fire, floods, earthquake and cyclone</li> <li>• Cautionary signage should be provided in the areas associated with risks like storage of explosives, fuels, heavy construction material etc. Entry for only trained authorized personnel should be allowed in such areas with adequate safety measures</li> <li>• Emergency handling cell &amp; room should be developed at the site and should be headed by project &amp; safety manager</li> <li>• Contact no. of nearest fire-station and hospitals should be displayed within the emergency handling room</li> </ul>	<ul style="list-style-type: none"> <li>• Provision of first aid kits at the site</li> <li>• Tie-ups with local hospital should be made to handling emergency case, if any</li> <li>• Regular medical check-ups of the employees</li> <li>• Training should be given to workers for handling the equipment and managing emergency situations</li> <li>• Material safety data sheets of chemicals to be used should be displayed on local languages at work station</li> <li>• Provision of personal protective equipment to the workers as per requirement</li> <li>• Cautionary signage should be provided in the areas associated with risks like storage of chemicals, explosives, fuels etc. Entry for only trained authorized personnel should be allowed in such areas with adequate safety measures</li> </ul>

### 1.3 Environmental Codes of Practises

All the above mentioned development activities will involve setting up of some facilities and carrying out some activities which would have impact during installation and restoration of such facilities. Those activities will involve setting up labour camps and plant site, development of borrow areas, disposal of construction debris and development of the green belt. Following management plans are prepared to manage the impact of these activities

- Construction and labour camp management plan-Annexure X
- Construction debris management plan-Annexure XI
- Borrow area management plan-Annexure XII
- Green belt development plan-Annexure XIII
- Contingency plan-Annexure XIV

#### **1.4 Enhancement Plan**

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The proposed project involves development of EZ and off-site facilities for the upcoming Mirsarai EZ-II. These off-site facilities will be developed by BEZA. Development of these off-site infrastructure facilities will attract the investors and make the proposed site location more accessible for trading and business. Proximity of the proposed project site to the Chittagong Dhaka Highway and an already existing inland water transportation system further adds to the suitability of site for setting up the industries. As enhancement plan, it is proposed that BEZA should develop a thick green belt all around the EZ site, proper storm water drainage to prevent flooding and rain water harvesting system to harvest rain water and use it to meet daily water demand and reduce pressure on ground water resources. Thick green buffer of 30 m will be developed all along the EZ site and along the Isakhali channel. A zone of 1 km between the EZ site and sea will be maintained as Mangrove zone. Cost for development of green buffer is given in Table 68 below in Chapter 10. Also a lake will be developed at site measuring 100 acres. Green buffer and lake site will act as landing site for water birds and habitat for mudcrabs and other species.

It is planned to develop the area facing River Feni as river front which can be used for recreational purpose. A platform/footpath of 2 m width will be developed on the proposed peripheral embankment which can be used for recreational purpose by nearby villagers. This platform will be accessible through staircase from top of the proposed road. Level of this platform will be 8 m which is again higher than the HFL of Feni River and tidal surge level during cyclones occurred in last 56 years.

#### **1.5 Contingency Plan**

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In order to be in a state of readiness to face adverse effects of accidents, a Contingency Plan is required to be prepared which includes on-site and off-site emergency plan by the individual industry and industrial estate. BEZA is committed to develop a Contingency Plan in consultation with district authorities and industry association. A suggestive contingency plan is attached as Annexure XIV.

#### **1.6 Compensation Plan**

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Only 14 Squatters and 5 mosques will be affected for widening of access road. Compensation will be pay based on approved ARP. BEZA prepared a abbreviated Resettlement Plan for those affected HHs and Mosques.

#### **1.7 Grievance Readressal Mechanism**

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BEZA will establish a Grievance Redressal Mechanism (GRM) to answer to queries and address complaints and grievances about any irregularities in using the guidelines adopted in the RSMF and for implementation of this ARP. BEZA will form a Grievance Redressal Committee (GRC) for the EZ consisting of memberships to ensure proper presentation of complaints and grievances, as well as impartial hearings and transparent decisions. As suggested in the RSMF, the GRC will have the following memberships:

- A BEZA Representative (Convener)
- An elected member of the Union Parishad or Upazila Parishad
- A female member of the Union or Upazila Parishad
- A representative of the PAPs in the EZ/subproject
- Headmaster of local higher secondary school
- Resettlement Specialist of the Supervision Consultant (Member Secretary)
- An Area Representative of an NGO working in the area

Based on consensus, the procedure will help to resolve issues/conflicts amicably and quickly, saving the aggrieved persons resorting to expensive, time-consuming legal actions. The RSMF contains certain procedural conditions, which BEZA will observe to safeguard integrity of the GRM. The GRM will however not pre-empt an aggrieved person's right to go to the courts of law.

### 1.8 Monitoring Plan

The objective of environmental monitoring during the construction and operation phases is to compare the monitored data against the baseline condition collected during the study period to assess the effectiveness of the mitigation measures and the protection of the ambient environment based on national standards. A monitoring schedule has been sketched based on the environmental components that may be affected during the construction and operation of the project and is given below in table 67.

**Table -6: Environmental Monitoring Plan**

S. No.	Aspect	Source of Impact	Monitoring Methods and Parameters	Frequency	Executing Agency	Enforcement Agency
1.0	<b>Construction Phase</b>					
1.1	Local Manpower Absorption	Construction Works	Contractor's report No. of people working in the project	Monthly	Civil Contract Awardees	BEZA & PMC
1.2	Soil Erosion	Excavation, disposal, cut & fill and land clearing activities for site levelling	Survey & observation; Extent and degree of erosion; Structures for controlling soil erosion	During Rainy Season	Contractor	BEZA & PMC

S. No.	Aspect	Source of Impact	Monitoring Methods and Parameters	Frequency	Executing Agency	Enforcement Agency
		and internal roads, disposal				
1.3	Greenbelt Development	-	Survival rate of species planted; Density of vegetation	Half Yearly	Contractor/B EZA	BEZA & PMC
1.4	Air Quality	Transportation of construction materials, road construction, construction of utilities	Survey & observations; Levels of PM <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub> , NO <sub>x</sub> , CO	Once in each season for twice a week for two weeks at 3 locations		BEZA & PMC
1.5	Waste Management	Restoration of disposal sites and construction areas	Status of protection measures	Quarterly	Contractors	BEZA & PMC
1.6	Noise Level	Noise levels compliance with respect to industrial standards	Ambient Equivalent continuous Sound Pressure Levels (L <sub>eq</sub> ) at day and Night time at 6 to 8 locations	Daily	Contractors	BEZA & PMC
1.7	Drinking Water	Contamination	All physio-chemical & biological parameters	Once in month	Contractor	BEZA & PMC
1.8	Quality of dredged sediment	Contamination	For PAHs, heavy metals, PVCs and other toxic chemicals/compounds	At the time of dredging	Contractor	BEZA & PMC
2.0	<b>Operation Phase</b>					
2.1	Noise Levels	Noise levels compliance	Ambient Equivalent continuous	Once in every month	Individual Industrial Units	BEZA & PMC

S. No.	Aspect	Source of Impact	Monitoring Methods and Parameters	Frequency	Executing Agency	Enforcement Agency
		with respect to industrial standards	Sound Pressure Levels ( $L_{eq}$ ) at day and Night time at 6 to 8 locations			
			Plant periphery and near noise generation sources	Monthly	Individual Industrial Units	BEZA & PMC
2.2	Biological Environment	Horticulture/ Greenbelt Development	Survival rate of plants and shrubs	Quarterly	BEZA	BEZA & PMC
			Survival rate of plants and shrubs at individual unit	Quarterly	Individual unit	BEZA & PMC
2.3	Water quality Monitoring	Ground Water (if extracted for project)	All physio-chemical & biological parameters	Quarterly	BEZA & Individual unit in their respective locations	BEZA & PMC
		Feni River Water Quality	Heavy Metals and all physio-chemical & biological parameters	Quarterly	BEZA & Individual unit in their respective locations	BEZA & PMC
		Sea Water Quality	Heavy Metals and all physio-chemical & biological parameters	Quarterly	BEZA & Individual unit in their respective locations	BEZA & PMC

### 1.9 Monitoring Indicators

The physical, biological and social components which are of particular significance to the proposed project are listed below:

- Air quality
- Surface (Sea & River) & Ground Water quality
- Noise levels
- Solid & Hazardous Waste Management
- Plantation success / survival rate

- Soil Erosion
- Soil Quality
- Quality of dredged sediments
- Drinking water quality
- Sanitation and hygiene at construction labour camps and construction site

These indicators will be evaluated periodically based on the monitoring results, baseline conditions, predicted impacts and mitigation measures.

### **1.10 Institutional Arrangement**

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BEZA has developed Environmental Management Framework with the help of World Bank. The institutional arrangement is aligned as per this framework. BEZA will have an Environmental and social cell which will coordinate for implementation of environment management plan. BEZA will appoint PMC for monitoring the contractor activities and implementation of EMP. PMC should have the certain responsibilities and are detailed in Annexure XV.

EHS cell of BEZA should be headed by an experienced EHS professional having national and international experience in construction supervision and safety for minimum 25 years. Environmental and safety experts should be deputed under EHS head who will be working in close coordination with the contractors team to ensure implementation of the EMP an occupational health and safety plan and PMC team monitoring the performance of the contractor. These officers should carry out minimum 1 visit at site in a week and should submit monthly report on progress of work and status of implementation of suggestive EMP by contractor and including observations of PMC.

### **1.11 Effective Implementation of EMP During Construction Phase**

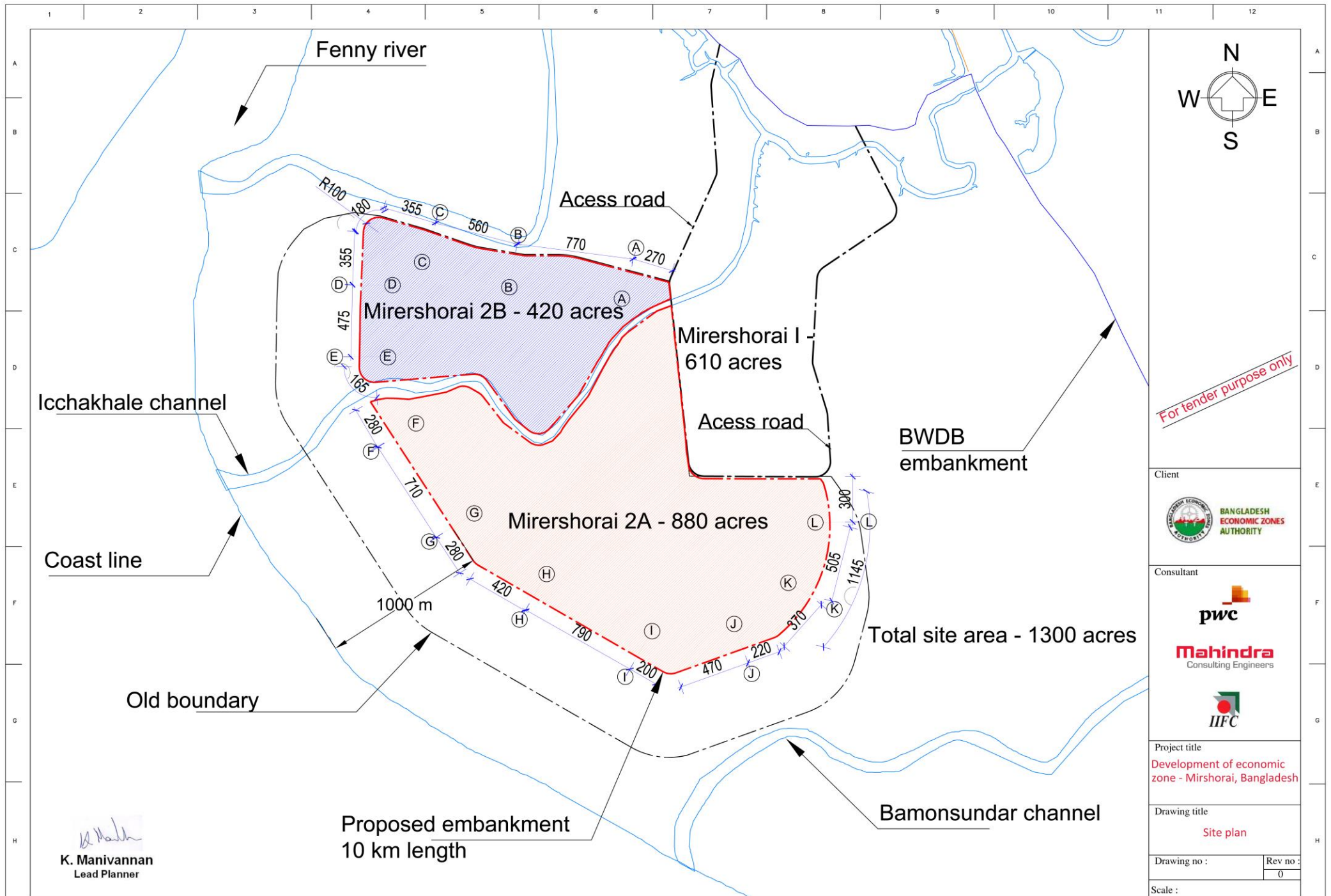
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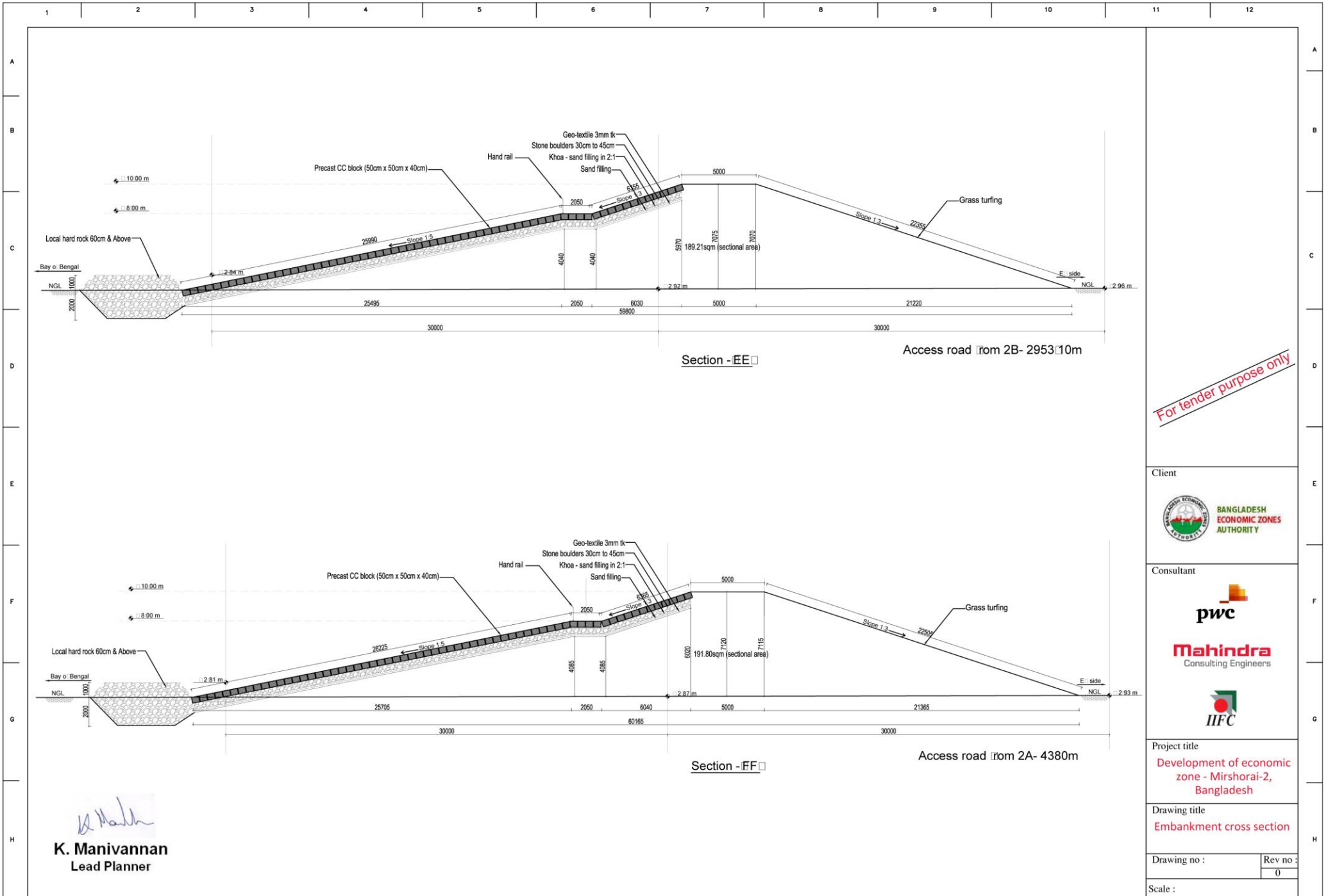
Pre-construction and construction activities are taken by the contractor to whom work will be awarded. For implementation of Environmental Management Plan during pre-construction and construction phase, it is necessary that EMP for construction phase for off-site facilities and EZ development should be shared with the contractor so as he is aware of the environmental provision he has to keep during construction phase and he can do budgeting accordingly. This will ensure effective implementation of the EMP. Thus BEZA should include the EMP as environmental and social safeguard measures in the bid document. EMP implementation by contractor can be achieved by following ways:

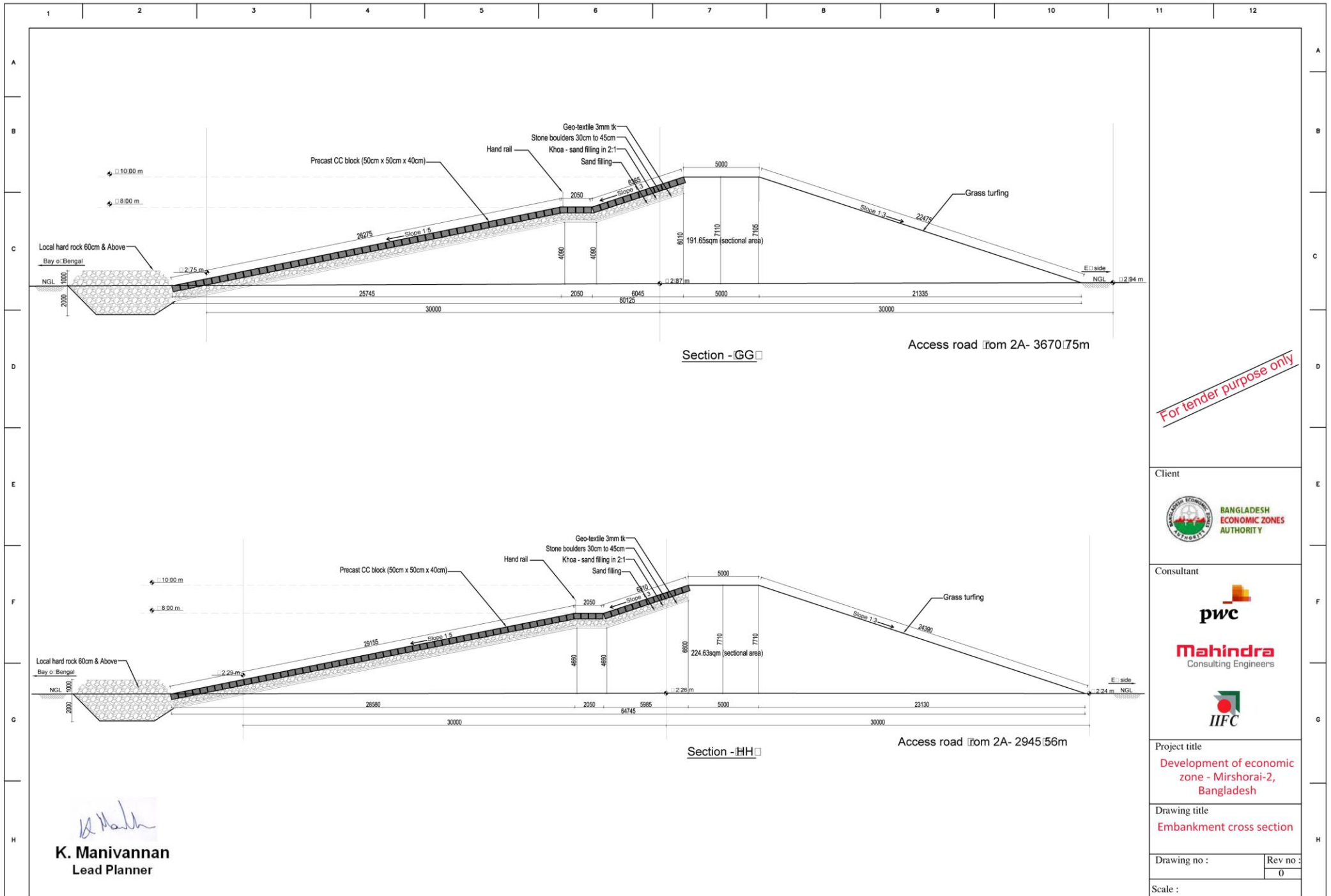
- Incorporation of contractor's EMP in bid document and instructing him to keep environmental provisions in planning while budgeting
- Contractor should have full-fledged environment health and safety management cell (EHS Cell) to ensure the implementation of the EMP and the SHE policy aiming at achieving the goals of safety, health and environmental management. The contractor EHS cell should have all the expertise in the field of Environment Health and Safety. The designated EHS officers should have adequate experience for implementing and monitoring the similar nature of EMPs. The contractor EHS cell should function in close coordination with BEZA and PMC to the project. The contractor EHS cell should submit the EMP compliance on monthly basis to PMC and BEZA.
- Contractor should submit Environment Management Action Plan (EMAP) based on this EIA document including their work methodology, work force involvement, equipment's standard, work scheduling etc.

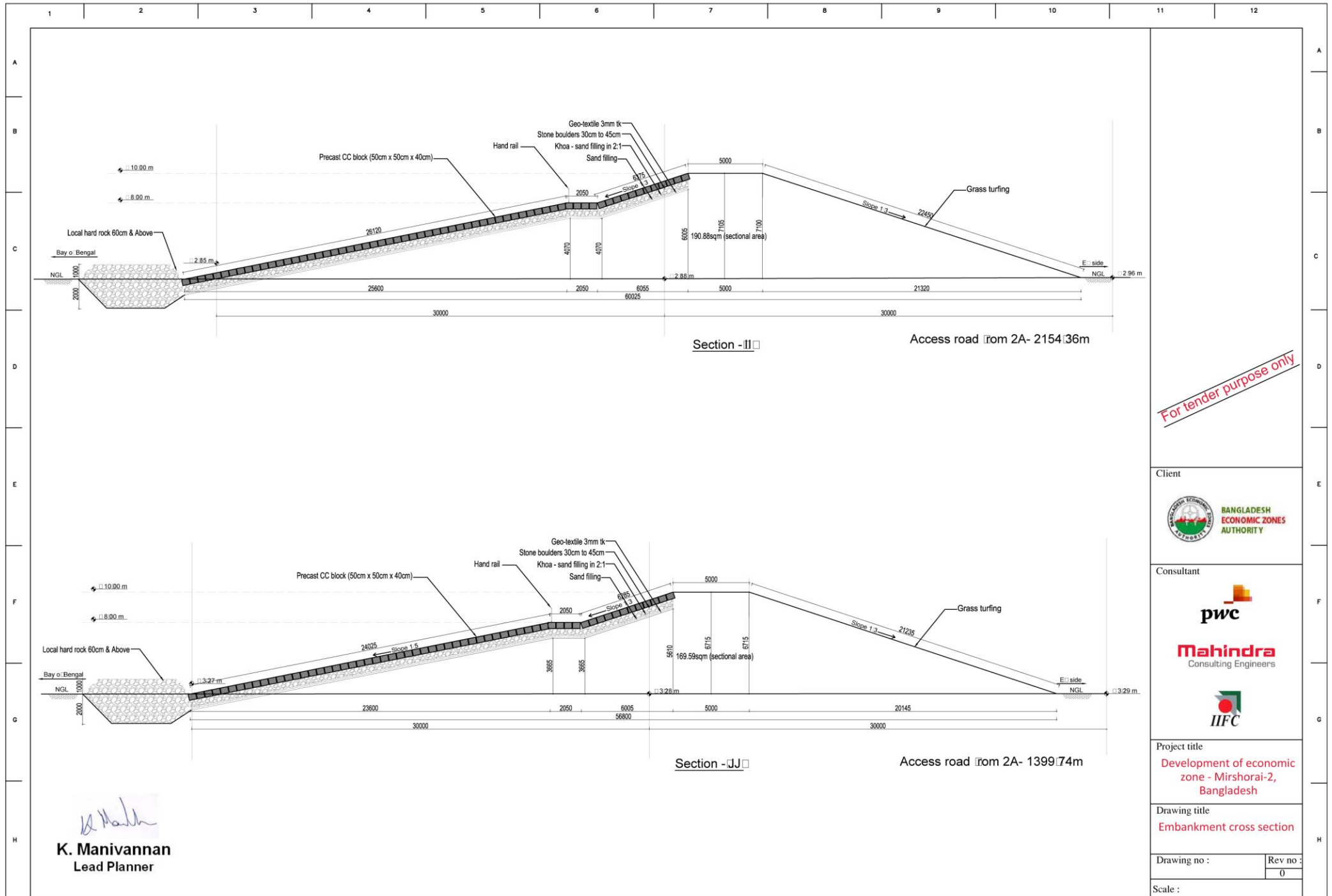
- Contractor should carry out environmental monitoring as per suggestive environmental monitoring plan in the EMP chapter
- Mandatory Deputation of environmental and social expert (by contractor) at site
- Environmental & social experts to be deputed should have broad experience of working in similar field
- Linking payments of the contractor to environmental performance
- Assigning penalties in case the environmental safeguard measures are not taken up adequately
- Appointing PMC to monitor the performance of contractor and compliance of the EMP by contractor. PMC is responsible to communicate the status of compliance/non-compliance of EMP by contractor to project proponent and suggest the measures to be taken to contractor to meet the gaps/non-compliances. PMC can be appointed by BEZA through tendering process again and the company's having experience of managing similar kind of projects should only be appointed for the PMC work only.

## **Annexure-2 : Drawing**









For tender purpose only



**BANGLADESH  
ECONOMIC ZONES  
AUTHORITY**



**Mahindra**  
Consulting Engineers



Development of economic zone - Mirshorai-2, Bangladesh

### Embankment cross section

Rev no :	0
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Scale :

