**GOVERNMENT OF..........**

**PROJECT: DAM REHABILITATION AND IMPROVEMENT PROJECT**

**PHASE –II (DRIP-II)**

REQUEST FOR BIDS NO..........

# NATIONAL OPEN COMPETITIVE PROCUREMENT

**(Two-Envelope Bidding Process with e-Procurement)**

**(*FOR ITEM RATE/ADMEASUREMENT CONTRACTS IN CIVIL WORKS)***

|  |  |  |
| --- | --- | --- |
| NAME OF WORK | : | Rehabilitation, Improvement and Basic Facility of ….. Dams in ….. District under DRIP-II |
| PERIOD OF SALE OF BIDDING DOCUMENT | : | From ……2022 To ……2022 |
| TIME AND DATE OF PRE-BID MEETING[[1]](#footnote-2) | : | Date ———— Time ———— Hours |
| LAST DATE AND TIME FOR RECEIPT OF BIDS | : | Date ———— Time ———— Hours |
| \* TIME AND DATE OF OF BIDS – Technical Part | : | Date ———— Time ———— Hours |
| PLACE OF OPENING OF BIDS | : | (Designation of Officer & Office Address, email) |
| OFFICER INVITING BIDS | : | (Designation of Officer & Office Address, email) |

**\* *Should be the same as the deadline for submission of bids or promptly thereafter****. The firms that qualify technically shall be notified subsequently for opening of the financial part of their bids.*

:

**……… 2022**

# 

# *Important Notes for Preparation of Bid Documents:*

1. *Text in Italics [TEXT] is/are instructions / guidelines for respective clause/ Sub-clause. The same to be deleted from final bid document.(including this note)*
2. *Data highlighted in YELLOW (TEXT) to be filled in by Implementing Agency*
3. ***NO MODIFICATIONS*** *to be made in any clause of Section-I: Instructions to Bidders (ITB). Any modifications desired in existing ITB clause/s to be reflected ONLY IN the respective place/s in Section-II : Bid Data Sheet (BDS)*
4. *Similarly,* ***NO MODIFICATIONS*** *to be made in any clause of the Section-VIII: General Conditions of Contract (GCC). Any modification/s desired in existing GCC clause/s to be reflected ONLY IN the respective place/s in Section-IX: Particular Conditions of the Contract (PCC).*

# REQUEST FOR BIDS

(RFB)

**GOVERNMENT OF ……………..**

**………………….………PROJECT**

REQUEST FOR BIDS (RFB)

E-Procurement Notice

(Two-Envelope Bidding Process with e-Procurement)

NATIONAL OPEN COMPETITIVE PROCUREMENT

**Name of Project: DAM REHABILITATION AND IMPROVEMENT PROJECT**

**PHASE –II (DRIP-II)**

**Contract Title:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Loan No./Credit No./ Grant No.:**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**RFB Reference No.:** *[as per the Procurement Plan]*\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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

1. The Government of India has received/has applied for/intends to apply for financing from the World Bank toward the cost of the ………. Project and intends to apply part of the proceeds toward eligible payments under the contract[[2]](#footnote-3) for construction of works as detailed below.
2. Bidding will be conducted through national open competitive procurement using a Request for Bids (RFB) as specified in the World Bank’s “Procurement Regulations for IPF Borrowers, July 2016,\_Revised August 2018, November 2020” (“Procurement Regulations”), and is open to all Bidders as defined in the Procurement Regulations.
3. Bidders from India should, however, be registered with the Government of …………….... or other State Governments/ Government of India, or State/ Central Government Undertakings. Bidders from India, who are not registered as above, on the date of bidding, can also participate provided they get themselves registered by the time of contract signing, if they become successful bidders[[3]](#footnote-4).
4. The ………………… (*implementing agency)* now invites online Bids from eligible Bidders for the construction of works detailed below in the table. The bidders may submit bids for any or all of the works indicated therein. Interested bidders may obtain further information and inspect the bidding document at the address given below during office hours. Bidders are advised to note the clauses on eligibility (Section I Clause 4) and minimum qualification criteria (Section III – Evaluation and Qualification Criteria), to qualify for the award of the contract. In addition, please refer to paragraphs 3.14 and 3.15 of the “Procurement Regulations” setting forth the World Bank’s policy on conflict of interest.
5. The bidding document is available online on ………….. (*website)* from ….. to …… *(dates)* for a non-refundable fee as indicated in the table below, in the form of Demand Draft (DD)[[4]](#footnote-5) on any Scheduled/Nationalized bank payable at…………in favour of………………… (Payment documents are to be submitted as per the procedure described in paragraph 9 below). Bidders will be required to register on the website.The bidders would be responsible for ensuring that any addenda available on the website is also downloaded and incorporated.
6. For submission of the bid, the bidder is required to have Digital Signature Certificate (DSC) from one of the Certifying Authorities authorised by Government of India for issuing DSC. Aspiring bidders who have not obtained the user ID and password for participating in e-procurement in this Project, may obtain the same from the website: ……………... A non-refundable fee of Rs… 1000/- (inclusive of tax) is required to be paid *[modify if no fee is payable].* The mode of payment shall be in the form of DD[[5]](#footnote-6) drawn in favour of …………………., payable at ………, from any Scheduled/Nationalized Bank. Payment documents are to be submitted along with other documents listed in paragraph 9 below before the bid submission deadline.
7. Bids comprise two Parts, namely the Technical Part and the Financial Part, and both parts must be submitted simultaneously online on ……………. (*website)* on or before …………. hours on …… (*date)* and the ‘Technical Part’ of the bids will be publicly opened online on the same day at ……. hours, in the presence of the bidders designated representatives who wish to attend. The “Financial Part” shall remain unopened in the e-procurement system until the second public Bid opening for the financial part. Any bid or modifications to bid (including discount) received outside e-procurement system will not be considered. If the office happens to be closed on the date of opening of the bids as specified, the bids will be opened on the next working day at the same time and venue. The electronic bidding system would not allow any late submission of bids.
8. All Bids must be accompanied by a Bid Security (or “Bid-Securing Declaration,” as appropriate) of the amount specified for the work in the table below, drawn in favour of …………. Bid security will have to be in any one of the forms as specified in the bidding document and shall have to be valid for 45 days beyond the validity of the bid. Procedure for submission of bid security is described in Para 9.
9. The bidders are required to submit (a) original payment documents towards the cost of bid document; and registration on e-procurement website (if applicable); (b) original bid security or Bid-Securing Declaration in approved form; and (c) original affidavit regarding correctness of information furnished with bid document with *……………………(insert name and complete address)* before the bid submission deadline, either by registered post/speed post/courier or by hand, failing which the bids will be declared non-responsive and will not be opened.
10. A pre-bid meeting will be held on………………….. at ………….hours at the office of ……………………. to clarify the issues and to answer questions on any matter that may be raised at that stage as stated in ITB Clause 7.4 of ‘Instructions to Bidders’ of the bidding document. Bidders are advised to download the bidding document prior to the pre-bid meeting in order for bidders to have a good understanding of the scope of work under this contract for discussion and clarification at the pre-bid meeting.
11. Other details can be seen in the bidding document. The Employer shall not be held liable for any delays due to system failure beyond its control. Even though the system will attempt to notify the bidders of any bid updates, the Employer shall not be liable for any information not received by the bidder. It is the bidders’ responsibility to verify the website for the latest information related to this bid.

1. The address for communication is as under:

*[Insert name of office]*

*[Insert name of officer and designation]*

*[Insert postal address, postal code, and city]*

*[Insert telephone number]*

*[Insert facsimile number]*

*[Insert email address]*

*[Insert web site address]*

TABLE

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Package No | Name of Work[[6]](#footnote-7) | Estimated Cost | Bid Security[[7]](#footnote-8) \*  (Rs.) | Cost of Document  (Rs.) | Period of Completion |
| 1 | 2 | 3 | 4 | 5 | 6 |
|  |  |  |  |  |  |

Seal of office

***Note \* - The values should be rounded off to the nearest ten thousand of rupees.***

***The RFB should be identical to that which appeared in the press/ website.***

*If Employer wants, estimated cost of the package could also be disclosed in above table.*

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# *RIGHT CLICK AND UPDATE PAGE NUMBERS ONLY*

PART 1 – Bidding Procedures

**Section I - Instructions to Bidders**

|  |  |
| --- | --- |
| A. General | |
| 1. Scope of Bid | * 1. In connection with the Specific Procurement Notice - Request for Bids (RFB), **specified in the Bid Data Sheet** (BDS),the Employer, as **specified in the BDS,** issues this bidding document for the provision of Works as specified in Section VII, Works’ Requirements. The name, identification and number of lots (contracts) of thisRFB are **specified in the BDS.** |
|  | * 1. Throughout this bidding document:   (a) the term “in writing” means communicated in written form (e.g. by mail, e-mail, and fax, including if **specified in the BDS**, distributed or received through the electronic-procurement system used by the Employer) with proof of receipt;  (b) if the context so requires, “singular” means “plural” and vice versa;  (c) “Day” means calendar day, unless otherwise specified as “Business Day”. A Business Day is any day that is a working day of the Borrower. It excludes the Borrower’s official public holidays;  (d) the term “**ES**” means environmental and social (including Sexual Exploitation, and Abuse (SEA), and Sexual Harassment (SH));  (e) “**Sexual Exploitation and Abuse” “(SEA**)” means the following:  (i) “**Sexual Exploitation”** is defined as any actual or attempted abuse of position of vulnerability, differential power or trust, for sexual purposes, including, but not limited to, profiting monetarily, socially or politically from the sexual exploitation of another.  (ii) “**Sexual Abuse”** is defined as the actual or threatened physical intrusion of a sexual nature, whether by force or under unequal or coercive conditions;  (f) **“Sexual Harassment” “(SH)”** is defined as unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature by the Contractor’s Personnel with other Contractor’s or Employer’s Personnel;  (g) “Contractor’s Personnel” is as defined in Sub-Clause 1 (ii) of the General Conditions of Contract; and  (h) **“Employer’s personnel”** is as defined in GCC Sub-Clause 1 (nn) of the General Conditions of Contract.  A non-exhaustive list of (i) behaviors which constitute SEA and (ii) behaviors which constitute SH is attached to the Code of Conduct form in Section IV. |
| 1. Source of Funds | * 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 this bidding document is issued. |
|  | * 1. 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 account for the purpose of any payment to persons or entities, or for any import of goods, equipment, plant, or materials, if such payment or import is prohibited by a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations. No party other than the Borrower shall derive any rights from the Loan (or other financing) Agreement or have any claim to the proceeds of the Loan (or other financing). |
| 1. Fraud and Corruption | * 1. The Bank requires compliance with the Bank’s Anti-Corruption Guidelines and its prevailing sanctions policies and procedures as set forth in the WBG’s Sanctions Framework, as set forth in Section VI.   2. In further pursuance of this policy, bidders shall permit and shall cause their agents (whether declared or not), subcontractors, sub-consultants, service providers, suppliers, and personnel, to permit the Bank to inspect all accounts, records and other documents relating to any initial selection process, prequalification process, bid submission, proposal submission, and contract performance (in the case of award), and to have them audited by auditors appointed by the Bank. |
| 1. Eligible Bidders | * 1. A Bidder may be a firm that is a private entity, or a state-owned enterprise or institution subject to ITB 4.6, or any combination of them 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, unless otherwise **specified in the BDS**. In the case of a joint venture, all members shall be jointly and severally liable for the execution of the entire 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. This authorization shall be evidenced by submitting a power of attorney signed by legally authorized signatories of all members. Unless **specified in the BDS**, there is no limit on the number of members in a JV. The joint venture agreement shall be registered in the place **specified in BDS** so as to be legally valid and binding on members. |
|  | * 1. A Bidder shall not have a conflict of interest. All Bidders 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:      1. directly or indirectly controls, is controlled by or is under common control with another Bidder; or      2. receives or has received any direct or indirect subsidy from another Bidder; or      3. has the same legal representative as another Bidder; or      4. 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      5. 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      6. any of its affiliates has been hired (or is proposed to be hired) by the Employer or Borrower as Project Manager (Engineer) for the Contract implementation;      7. 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;      8. 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 document 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 unlessthe conflict stemming from such relationship has been resolved in a manner acceptable to the Bank throughout the procurement process and execution of the contract. |
|  | * 1. A firm that is a Bidder (either individually or as a JV member) shall not participate in more than one Bid, except for permitted alternative Bids. This includes participation as a Subcontractor in other Bids. Such participation shall result in the disqualification of all Bids in which the firm is involved. A firm that is not a Bidder or a JV member may participate as a subcontractor in more than one Bid. |
|  | * 1. A Bidder may have the nationality of any country, subject to the restrictions pursuant to ITB 4.8. 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 subcontractors or sub-consultants for any part of the Contract including related Services. |
|  | * 1. A Bidder that has been sanctioned by the Bank, pursuant to the Bank’s Anti-Corruption Guidelines, in accordance with its prevailing sanctions policies and procedures as set forth in the WBG’s Sanctions Framework as described in Section VI paragraph 2.2 d., shall be ineligible to be prequalified for, initially selected for, bid for, propose for, or be awarded a Bank-financed contract or benefit from a Bank-financed contract, financially or otherwise, during such period of time as the Bank shall have determined. The list of debarred firms and individuals is available at the electronic address **specified in the BDS**. |
|  | * 1. Bidders that are state-owned enterprises or institutions in the Employer’s Country may be eligible to compete and be awarded a Contract(s) only if they can establish, in a manner acceptable to the Bank, that they (i) are legally and financially autonomous (ii) operate under commercial law, and (iii) are not under supervision of the Employer. |
|  | * 1. A Bidder shall not be under suspension from Bidding by the Employer as the result of the operation of a Bid–Securing or Proposal-Securing Declaration. |
|  | * 1. Firms and individuals may be ineligible if so indicated in Section V and (a) as a matter of law or official regulations, the Borrower’s country prohibits commercial relations with that country, provided that the Bank is satisfied that such exclusion does not preclude effective competition for the supply of goods or the contracting of works or services required; or (b) by an act of compliance with a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations, the Borrower’s country prohibits any import of goods or contracting of works or services from that country, or any payments to any country, person, or entity in that country. When the Works are implemented across jurisdictional boundaries (and more than one country is a Borrower, and is involved in the procurement), then exclusion of a firm or individual on the basis of ITB 4.8 (a) above by any country may be applied to that procurement across other countries involved, if the Bank and the Borrowers involved in the procurement agree.   2. A Bidder shall provide such documentary evidence of eligibility satisfactory to the Employer, as the Employer shall reasonably request. |
| 1. Eligible Materials, Equipment and Services | * 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 Document | |
| 1. Sections of Bidding Document | * 1. The bidding document consists of Parts 1, 2*,* and3*,* 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 - Fraud and Corruption   **PART 2 Works’ Requirements**   * Section VII - Works’ Requirements   **PART 3 Conditions of Contract and Contract Forms**   * Section VIII - General Conditions of Contract (GCC) * Section IX - Particular Conditions of Contract (PCC) * Section X - Contract Forms |
|  | * 1. The Specific Procurement Notice - Request for Bids (RFB) issued by the Employer is not part of this bidding document. |
|  | * 1. Unless obtained directly from the Employer or downloaded from the official website specified in the ‘E-Procurement Notice’, the Employer is not responsible for the completeness of the bidding document, responses to requests for clarification, the minutes of the pre-Bid meeting (if any), or Addenda to the bidding document in accordance with ITB 8. In case of any contradiction, documents obtained directly from the Employer or downloaded from the official website specified in the ‘E-Procurement Notice’ shall prevail. |
|  | * 1. The Bidder is expected to examine all instructions, forms, terms, and specifications in the bidding document and to furnish with its Bid all information and documentation as is required by the bidding document. |
| 1. Clarification of Bidding Document, Site Visit, Pre-Bid Meeting | * 1. The electronic bidding system **specified in the BDS** provides for online clarifications. A Bidder requiring any clarification on the bidding document may notify the Employer online or raise its inquiries during the pre-Bid meeting if provided for in accordance with ITB 7.4. Clarifications requested through any other mode shall not be considered by the Employer. The Employer will respond to any request for clarification, provided that such request is received prior to the deadline for submission of Bids within a period **specified in the BDS**. Description of clarification sought and the response of the Employer shall be uploaded for information of all Bidders without identifying the source of request for clarification. Should the clarification result in changes to the essential elements of the bidding document, the Employer shall amend the bidding document following the procedure under ITB 8 and ITB 22.2. It is the bidder’s responsibility to check on the e-procurement system, for any addendum/ amendment/ corrigendum to the bidding document. |
|  | * 1. 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. |
|  | * 1. 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. |
|  | * 1. If so **specified in the BDS**, the Bidder’s designated representative is invited to attend a pre-Bid meeting and/or a Site of Works visit. The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage. |
|  | * 1. The Bidder is requested, to submit any questions only through the e-procurement portal, not later than one week before the meeting. Clarifications requested through any other mode shall not be considered by the Employer. |
|  | * 1. 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 uploaded online on e-procurement system. Any modification to the bidding document 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. It is the bidder’s responsibility to check on the e- procurement system, for any addendum/ amendment/ corrigendum to the bidding document. Nonattendance at the pre-Bid meeting will not be a cause for disqualification of a Bidder. |
| 1. Amendment of Bidding Document | * 1. At any time prior to the deadline for submission of bids, the Employer may amend the bidding document by issuing addenda. |
|  | * 1. Any addendum issued shall be part of the bidding document and shall be deemed to have been communicated to all the bidders. The addenda will appear on the e-procurement system under “Latest Corrigendum”, and Email notification is also automatically sent to those bidders who have started working on the tender, unless otherwise **specified in the BDS**. The Employer shall not be liable for any information not received by the bidder. It is the bidders’ responsibility to verify the website for the latest information related to this bid. |
|  | * 1. To give prospective Bidders reasonable time in which to take an addendum into account in preparing their Bids, the Employer may, at its discretion, extend the deadline for the submission of Bids, pursuant to ITB 22.2. |
| C. Preparation of Bids | |
| 1. Cost of Bidding | * 1. The Bidder shall bear all costs associated with the preparation and submission of its Bid, and the Employer shall in no case be responsible or liable for those costs, regardless of the conduct or outcome of the Bidding process. |
| 1. Language of Bid | * 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 English. 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 English, in which case, for purposes of interpretation of the Bid, such translation shall govern. |
| 1. Documents Comprising the Bid | * 1. The Bid shall comprise two Parts, namely the Technical Part and the Financial Part. These two Parts shall be submitted simultaneously.   2. The Technical Part shall contain the following:  1. **Letter of Bid** **– Technical Part** prepared in accordance with ITB 12 and ITB 14; 2. **Bid Security or Bid-Securing Declaration** in accordance with ITB 19.1; 3. **Alternative Bid – Technical Part**, if permissible, in accordance with ITB 13, the Technical Part of any Alternative Bid; 4. **Authorization:** written confirmation authorizing the signatory of the Bid to commit the Bidder, in accordance with ITB 20.3, and in accordance with ITB 20.4 in case of a JV; 5. **Bidder’s Eligibility:** documentary evidence in accordance with ITB 17 establishing the Bidder’s eligibility to Bid; 6. **Qualifications**: documentary evidence in accordance with ITB 17 establishing the Bidder’s qualifications to perform the contract if its Bid is accepted; 7. **Conformity**: a technical proposal in accordance with ITB 16; 8. **Construction methodology** as detailed in Para 1.1 of Section III Evaluation Criteria; 9. Contractor Registration certificate (as per RFB); and 10. any other document **required in the BDS**.     1. The **Financial Part** shall contain the following:        1. **Letter of Bid – Financial Part:** prepared in accordance with ITB 12 and ITB 14;        2. **Completed Schedules** including priced Bill of Quantities in accordance with ITB 12 and ITB 14, as **specified in BDS;**        3. **Alternative Bid - Financial Part:** if permissible in accordance with ITB 13; and        4. any other documentrequired **in the BDS.**     2. The Technical Part shall not include any information related to the Bid price. Where material financial information related to the Bid price is contained in the Technical Part the Bid shall be declared non-responsive.     3. In addition to the requirements under ITB 11.2, Bids submitted by a JV (where permitted) 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.     4. The Bidder shall furnish in the Letter of Bid – Financial Part information on commissions and gratuities, if any, paid or to be paid to agents or any other party relating to this Bid. |
| 1. Process of Bid Submission | * 1. The Letter of Bid – Technical Part, Letter of Bid – Financial Part, Schedules including Bill of Quantities, and all documents listed under Clause 11, 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 20.3. All blank spaces shall be filled in with the information requested.   2. Entire Bid including the Letters of Bid, Schedules and filled-up Bill of Quantities shall be submitted online on e-procurement system specified in ITB 7.1. Details and process of online submission of the tender and relevant documents are given in the website mentioned above. Scanned copies of documents listed in ITB Clauses 11 and 12.3 should also be uploaded on this website.   12.3 **Submission of Original Documents**: The bidders are required to separately submit (i) original payment documents towards the cost of bid document; and registration on e-procurement website (if applicable); (ii) original bid security or Bid-Securing Declaration in approved form; and (iii) original affidavit regarding correctness of information furnished with bid document, with the office **specified in the BDS**, before the Bid submission deadline, either by registered/speed post/courier or by hand, failing which the bids will be declared non-responsive and will not be opened. Hard copy of rest of the bid or any other document are not to be submitted. |
| 1. Alternative Bids | * 1. Unless otherwise specified **in the BDS**, alternative Bids shall not be considered. |
|  | * 1. When alternative times for completion are explicitly invited, a statement to that effect will be included **in the BDS** and the method of evaluating different alternative times for completion will be described in Section III, Evaluation and Qualification Criteria. |
|  | * 1. Except as provided under ITB 13.4 below, Bidders wishing to offer technical alternatives to the requirements of the bidding document must first price the Employer’s design as described in the bidding document 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 Bidder with the Most Advantageous Bid conforming to the basic technical requirements shall be considered by the Employer. |
|  | * 1. When specified **in the BDS**, Bidders are permitted to submit alternative technical solutions for specified parts of the Works. Such parts will be identified **in the BDS** and described in Section VII,Works’ Requirements. The method for their evaluation will be stipulated in Section III,Evaluation and Qualification Criteria. |
| 1. Bid Prices and Discounts | * 1. The prices and discounts quoted by the Bidder in the Letter of Bid –Financial Part and in the Schedules including Bill of Quantities shall conform to the requirements specified below. |
|  | * 1. The Bidder shall submit a Bid for the whole of the Works described in ITB 1.1 by filling in prices for all items of the Works, as identified in Section IV - Bidding Forms along with the total bid price (both in figures and words). 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 will not be paid for by the Employer when executed and shall be deemed covered by the rates for other items and prices in the Bill of Quantities. Corrections if any, in the bid can be carried out by editing the information before electronic submission on e-procurement portal. |
|  | * 1. The price to be quoted in the Letter of Bid – Financial Part, in accordance with ITB 12.1, shall be the total price of the Bid, excluding any discounts offered. |
|  | * 1. The Bidder shall quote any discounts and indicate the methodology for their application in the Letter of Bid – Financial Part in accordance with ITB 12.1. |
|  | * 1. Unless otherwise **specified in the BDS** and the Conditions of Contract, the prices quoted by the Bidder shall be fixed.   2. If so specified in ITB 1.1, Bids are 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. |
|  | * 1. All duties, taxes, and other levies payable by the Contractor under the Contract, or for any other cause, as of the deadline for submission of Bids, shall be included in the rates and prices and the total Bid price submitted by the Bidder.   2. Bidders may like to ascertain availability of tax/duty exemption benefits available in India. They are solely responsible for obtaining such benefits which they have considered in their bid and in case of failure to receive such benefits for reasons whatsoever, the Employer will not compensate the bidder (Contractor). The bidder shall furnish along with his bid a declaration to this effect in the Declaration Format provided in Section IV of the bidding document.   Where the bidder has quoted taking into account such benefits, it must give all information required for issue of certificates in terms of the Government of India’s relevant Notifications as per the declaration format. In case the bidder has not provided the required information or has indicated to be furnished later on in the Declaration Format, the same shall be construed that the goods/construction equipment for which certificate is required is Nil.  To the extent the Employer determines the quantities indicated therein are reasonable keeping in view the quantities in bill of quantities, construction program and methodology, the certificates will be issued within 60 days of signing of the contract and no subsequent changes will be permitted. In case of materials pertaining to Variation items and quantities, the certificate shall be issued only on request from the Contractor when in need and duly certified by the Project Manager.  No certificate will be issued for items where no quantity/capacity of equipment is indicated in the statement.  If the bidder has considered the tax/duty exemption for materials/construction equipment to be bought for the work, the bidder shall confirm and certify that the Employer will not be required to undertake any responsibilities of the Government of India Scheme or the said exemptions being available during the contract execution, except issuing the required certificate. The bids which do not conform to the above provisions or any condition by the bidder which makes the bid subject to availability of tax/duty exemption for materials/construction equipment or compensation on withdrawal of any variations to the said exemptions will be treated as non-responsive and rejected.  Any delay in procurement of the construction equipment/ machinery/goods as a result of the above shall not be a cause for granting any extension of time. |
| 1. Currencies of Bid and Payment | * 1. The unit rates and prices shall be quoted by the Bidder and shall be paid for, entirely in Indian Rupees. |
|  |  |
| 1. Documents Comprising the Technical Proposal | * 1. The Bidder shall furnish a technical proposal in the Technical Part of the Bid, 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 Bidders’ proposal to meet the work’s requirements and the completion time. |
| 1. Documents Establishing the Eligibility and Qualifications of the Bidder | * 1. To establish Bidder’s eligibility in accordance with ITB 4, Bidders shall complete the Letter of Bid – Technical Part, included in Section IV, Bidding Forms.   2. In accordance with Section III, Evaluation and Qualification Criteria, to establish its qualifications to perform the Contract, the Bidder shall provide the information requested in the corresponding information sheets included in Section IV, Bidding Forms. |
|  |  |
| 1. Period of Validity of Bids | * 1. Bids shall remain valid for 90 days or for the Bid Validity period **specified in the BDS**. The Bid Validity period starts from the date fixed for the Bid submission deadline (as prescribed by the Employer in accordance with ITB 22.1). A Bid valid for a shorter period shall be rejected by the Employer as nonresponsive. |
|  | * 1. 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 forty five (45) 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. |
|  | * 1. If the award is delayed by a period exceeding fifty-six (56) days beyond the expiry of the initial Bid validity period, the Contract price shall be determined as follows: |
|  | * + 1. in the case of **fixed price** contracts, the Contract price shall be the Bid price adjusted by the factor **specified in the** **BDS;**     2. in the case of **adjustable** price contracts, no adjustment shall be made; or     3. in any case, Bid evaluation shall be based on the Bid price without taking into consideration the applicable correction from those indicated above. |
| 1. Bid Security | * 1. The Bidder shall furnish as part of the Technical 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, for the amount specified in the BDS. |
|  | * 1. A Bid Securing Declaration shall use the form included in Section IV, Bidding Forms. |
|  | * 1. 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:      1. an unconditional bank guarantee issued by a Nationalized or Scheduled bank located in India;      2. an irrevocable letter of credit issued by a Nationalized or Scheduled bank located in India;      3. a cashier’s or certified check or demand draft issued by a Nationalized or Scheduled bank located in India;      4. another security **specified in the BDS**,   In the case of a bank guarantee, the Bid Security shall be submitted using the Bid Security Form included in Section IV, Bidding Forms. The form must include the complete name of the Bidder. The Bid Security shall be valid for forty-five (45) days beyond the original validity period of the Bid, or beyond any period of extension if requested under ITB 18.2. |
|  | * 1. 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. |
|  | * 1. 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 and if required in the BDS, the Environmental and Social (ES) Performance Security pursuant to ITB 50. |
|  | * 1. 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 and if required in the BDS, the Environmental and Social (ES) Performance Security. |
|  | * 1. The Bid Security may be forfeited or the Bid-Securing Declaration executed:  1. if a Bidder withdraws/modifies/substitutes its Bid during the period of Bid validity specified by the Bidder on the Letter of Bid - Technical Part and repeated in Letter of Bid - Financial Part, or any extension thereto provided by the Bidder; or 2. if the Bidder does not accept the correction of its Bid Price pursuant to ITB 36; or 3. if the successful Bidder fails to:  sign the Contract in accordance with ITB 49; orfurnish a Performance Security and if required in the BDS, the Environmental and Social (ES) Performance Security in accordance with ITB 50. |
|  | * 1. The Bid Security or the Bid-Securing Declaration of a JVshall be in the name of the JVthat submits the Bid. If the JVhas not been 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 mentioned in ITB 4.1 and ITB 11.2. |
|  | * 1. If a Bid Security is not required in the BDS, pursuant to ITB 19.1, and:  1. if a Bidder withdraws its Bid during the period of Bid validity specified by the Bidder in the Letters of Bid or any extended date provided by the Bidder; or 2. if the successful Bidder fails to: sign the Contract in accordance with ITB 49; or furnish a Performance Security and if required in the BDS, the Environmental and Social (ES) Performance Security in accordance with ITB 50;   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**. |
| 1. Format and Signing of Bid | * 1. The Bidder shall prepare the Bid as per details given in ITB 21. |
|  | * 1. Bidders shall mark as “CONFIDENTIAL” information in their Bids which is confidential to their business. |
|  | * 1. The Bid 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 uploaded along with the Bid. The name and position held by each person signing the authorization must be typed or printed below the signature. |
|  | * 1. 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. Documents establishing authority to sign the bid on behalf of the JV shall be uploaded along with the bid.   2. Any interlineations, erasures, or overwriting shall be valid only if they are signed or initialled by the person signing the Bid. |
| D. Online Submission and Opening of Bids | |
| 1. Preparation of Bids | * 1. Bids, both Technical and Financial Parts, shall be submitted online on the e-procurement system specified in BDS 7.1. Detailed guidelines for viewing bids and submission of online bids are given on the website. The Request for Bids under this Project is published on this website. Any citizen or prospective bidder can logon to this website and view the Request for Bids and can view the details of works for which bids are invited. A prospective bidder can submit its bid online; however, the bidder is required to have enrolment/registration in the website, and should have valid Digital Signature Certificate (DSC) in the form of smart card/e-token obtained from any certifying agency authorised by the Government of India (for class of DSC **specified in BDS**). The bidder should register in the website using the relevant option available. Then the Digital Signature registration has to be done with the e-token, after logging into the website. The bidder can then login the website through the secured login by entering the password of the e-token & the user id/ password chosen during registration. After getting the bid schedules, the Bidder should go through them carefully and submit the specified documents, along with the bid, otherwise the bid will be rejected. |
|  | * 1. The completed bid comprising of documents indicated in ITB 12, should be uploaded on the e-procurement portal along with scanned copies of requisite certificates as are mentioned in different sections in the bidding document and scanned copy of the bid security. |
|  | * 1. All the documents are required to be signed digitally by the bidder. After electronic online bid submission, the system generates a unique bid identification number which is time stamped as per server time. This shall be treated as acknowledgement of bid submission. |
|  | * 1. Physical, e-mail, Telex, Cable or Facsimile bids will be rejected as non-responsive. |
| 1. Deadline for Submission of Bids | * 1. Bids, both Technical and Financial Parts, must be uploaded online no later than the date and time **specified in the BDS**. |
|  | * 1. The Employer may, at its discretion, extend the deadline for the submission of Bids by amending the bidding document 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. |
| 1. Late Bids | * 1. The electronic bidding system would not allow any late submission of bids after due date & time as per server time. |
| 1. Withdrawal, Substitution, and Modification of Bids | 24.1 Bidders may modify their bids by using the appropriate option for bid modification on e-procurement portal, before the deadline for submission of bids. For this the bidder need not make any additional payment towards the cost of bid document. For bid modification and consequential re-submission, the bidder is not required to withdraw his bid submitted earlier. The last modified bid submitted by the bidder within the bid submission time shall be considered as the bid. For this purpose, modification/withdrawal by other means will not be accepted. In online system of bid submission, the modification and consequential re-submission of bids is allowed any number of times. A bidder may withdraw his bid by using the appropriate option for bid withdrawal, before the deadline for submission of bids, however, if the bid is withdrawn, re-submission of the bid is not allowed (or allowed **if specified in BDS).** |
|  | 24.2 Bids requested to be withdrawn in accordance with ITB 24.1 shall not be opened. |
|  | 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. This will result in the forfeiture of the Bid Security pursuant to ITB 19.7. |
| **E. Public Opening of Technical Parts of Bids** | |
| 1. Public Opening of Technical Parts of Bids | * 1. The Employer shall publicly open Technical Parts of 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 chooses to attend, and this could also be viewed by the bidders online. The Financial Parts of the bids shall remain unopened in the e-procurement system, until the subsequent public opening, following the evaluation of the Technical Parts of the Bids. In all cases, original documents submitted as specified in ITB 12.3 shall be first scrutinized, and Bids that do not comply with the provisions of ITB 12.3 will be declared non-responsive and will not be opened. Thereafter, bidders’ names, the presence or absence of a Bid Security or Bid Securing Declaration, if one was required, alternative bids – technical parts, if any, and such other details as the Employer may consider appropriate will be notified, online by the Employer at the time of bid opening.   In the event of the specified date of bid opening being declared a holiday for the Employer, the bids will be opened at the appointed time and location on the next working day.  25.2 The electronic summary of the bid opening will be generated and uploaded online. The Employer will also prepare minutes of the Bid opening, including the information disclosed and upload the same for viewing online. Only Technical Parts of Bids, and technical parts of Alternative Bids if any, that are opened at technical Bid opening shall be considered further for evaluation. |
| F. Evaluation of Bids – General Provisions | |
| 1. Confidentiality | * 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 Intention to Award the Contract is transmitted to all Bidders in accordance with ITB 45. In cases where ITB 45 is not applicable, such information shall not be disclosed until Notification of Award is transmitted in accordance with ITB 47. |
|  | * 1. Any effort 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. |
|  | * 1. 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. |
| 1. Clarification of Bids | * 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 giving 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 36. |
|  | * 1. 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. |
| 1. Deviations, Reservations, and Omissions | * 1. During the evaluation of Bids, the following definitions apply:   (a) “Deviation” is a departure from the requirements specified in the bidding document;  (b) “Reservation” is the setting of limiting conditions or withholding from complete acceptance of the requirements specified in the bidding document; and  (c) “Omission” is the failure to submit part or all of the information or documentation required in the bidding document. |
| 1. Nonmaterial Nonconformities | * 1. Provided that a Bid is substantially responsive, the Employer may waive any nonconformities in the Bid which do not constitute a material deviation, reservation or omission. |
|  | * 1. 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 or substance of the Bid. Failure of the Bidder to comply with the request may result in the rejection of its Bid. |
|  | * 1. 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 nonconforming item or component in the manner **specified in the BDS**. |
| **G. Evaluation of Technical Parts of Bids** | |
| 1. Evaluation of Technical Parts | * 1. In evaluating the Technical Parts of each Bid, the Employer shall use the criteria and methodologies listed in this ITB and Section III, Evaluation and Qualification Criteria. No other evaluation criteria or methodologies shall be permitted. |
| 1. Determination of Responsiveness | * 1. The Employer’s determination of a Bid’s responsiveness is to be based on the contents of the Bid itself, as defined in ITB 11.   2. A substantially responsive Bid is one that meets the requirements of the bidding document without material deviation, reservation, or omission. A material deviation, reservation, or omission is one that:   (a) if accepted, would: (i) affect in any substantial way the scope, quality, or performance of the Works specified in the Contract; or(ii) limit in any substantial way, inconsistent with the bidding document, 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. |
|  | * 1. The Employer shall examine the technical aspects of the Bid submitted in accordance with ITB 16, in particular, to confirm that all requirements of Section VII, Works’ Requirements have been met without any material deviation, reservation or omission. |
|  | * 1. If a Bid is not substantially responsive to the requirements of the bidding document, it shall be rejected by the Employer and may not subsequently be made responsive by correction of the material deviation, reservation, or omission. |
| 1. Qualification of the Bidder | * 1. The Employer shall determine to its satisfaction whether the eligible Bidders that have submitted substantially responsive Bid - Technical Parts meet the qualifying criteria specified in Section III, Evaluation and Qualification Criteria. |
|  | * 1. 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. The determination shall not take into consideration the qualifications of other firms such as the Bidder’s subsidiaries, parent entities, affiliates, subcontractors (other than Specialized Subcontractors if permitted in the bidding document), or any other firm different from the Bidder. |
|  | * 1. If a Bidder does not meet the qualifying criteria specified in Section III, Evaluation and Qualification Criteria, its Bid shall be rejected by the Employer and may not subsequently be made responsive by correction of the material deviation, reservation, or omission. |
|  | * 1. Only Bids that are both substantially responsive to the bidding document, and meet all Qualification Criteria shall have the Financial Parts of their Bids opened at the second public opening. |
| 1. Subcontractors | * 1. Unless otherwise stated **in the BDS**, the Employer does not intend to execute any specific elements of the Works by subcontractors selected in advance by the Employer.   2. The subcontractor’s qualifications shall not be used by the Bidder to qualify for the Works unless their specialized parts of the Works were previously designated by the Employer **in the BDS** as can be met by subcontractors referred to hereafter as ‘Specialized Subcontractors’, in which case, the qualifications of the Specialized Subcontractors proposed by the Bidder may be added to the qualifications.   3. Bidders may propose subcontracting up to the percentage of total value of contracts or the volume of works as **specified in the BDS.** Subcontractors proposed by the Bidder shall be fully qualified for their parts of the Works. |
| **H. Public Opening of Financial Parts of Bids** | |
| 1. Public Opening of Financial Parts | * 1. Following the completion of the evaluation of the Technical Parts of the Bids, and the Bank has issued its no objection (if applicable), the Employer shall notify in writing those Bidders whose Bids were considered non-responsive to the bidding document or failed to meet the Qualification Criteria, advising them of the following information: |
|  | * + 1. the grounds on which their Technical Part of Bid failed to meet the requirements of the bidding document;     2. their Financial Part of Bid shall not be opened; and     3. notify them of the date, time, and location for public opening of Financial Parts of the Bids. |
|  | * 1. The Employer shall, simultaneously, notify in writing those Bidders whose Technical Part have been evaluated as substantially responsive to the bidding document and met all Qualifying Criteria, advising them of the following information:      1. their Bid has been evaluated as substantially responsive to the bidding document and met the Qualification Criteria;      2. their Financial Part of Bid will be opened at the public opening of the Financial Parts; and      3. notify them of the date, time and location for public opening of the Financial Parts of the Bids, **as specified in the BDS.** |
|  | * 1. The opening date should allow Bidders sufficient time to make arrangements for attending the opening. The Financial Part of the Bids shall be opened publicly in the presence of Bidders’ designated representatives and anyone who chooses to attend, and this could also be viewed by the bidders online. The bidder’s names, the Bid prices, per lot (contract) if applicable, including any discounts and Alternative Bid - Financial Part if any, and such other details as the Employer may consider appropriate, will be notified online by the Employer at the time of bid opening.   In the event of the specified date of bid opening being declared a holiday for the Employer, the bids will be opened at the appointed time and location on the next working day. |
|  | * 1. The electronic summary of the bid opening will be generated and uploaded online. The Employer will also prepare minutes of the Bid opening, including the information disclosed and upload the same for viewing online. Only Financial Parts of Bids, Financial Parts of Alternative Bids, and discounts that are opened at Bid opening shall be considered further for evaluation. |
| **I. Evaluation of Financial Parts of Bids** | |
| 1. Evaluation of Financial Parts | * 1. To evaluate the Financial Part, the Employer shall consider the following: | |
|  | 1. the Bid price, excluding Provisional Sums and the provision, if any, for contingencies in the Summary Bill of Quantities for admeasurement contracts, but including Daywork[[8]](#footnote-9) items, where priced competitively; | |
|  | 1. price adjustment for correction of arithmetic errors in accordance with ITB 36.1; | |
|  | 1. price adjustment due to discounts offered in accordance with ITB 14.4; | |
|  | 1. Not used; 2. price adjustment due to quantifiable nonmaterial nonconformities in accordance with ITB 29.3; and | |
|  | 1. the additional evaluation factors are specified in Section III, Evaluation and Qualification Criteria. | |
|  | 35.2 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. | |
|  | 35.3 If this bidding document allows Bidders to quote separate prices for different lots (contracts), the methodology to determine the lowest evaluated cost of the contract combinations, including any discounts offered in the Letter of Bid – Financial Part, is specified in Section III, Evaluation and Qualification Criteria | |
| 1. Correction of Arithmetical Errors | * 1. In evaluating the Financial Part of each Bid, the Employer shall correct arithmetical errors on the following basis:   (a) only for admeasurement contracts, 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;  (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. |
|  | * 1. Bidders shall be requested to accept correction of arithmetical errors. Failure to accept the correction in accordance with ITB 36.1, shall result in the rejection of the Bid and the Bid Security may be forfeited in accordance with ITB Sub-Clause 19.7. |
| 1. Conversion to Single Currency | * 1. Not used. |
| 1. Margin of Preference | * 1. Not applicable. |
| 1. Comparison of Financial Parts | * 1. The Employer shall compare the evaluated costs of all responsive and qualified Bids to determine the Bid that has the lowest evaluated cost. |
| 1. Abnormally Low Bids | 1. An Abnormally Low Bid is one where the Bid price, in combination with other constituent elements of the Bid, appears unreasonably low to the extent that the Bid price raises material concerns as to the capability of the Bidder to perform the Contract for the offered Bid price. 2. In the event of identification of a potentially Abnormally Low Bid, the Employer, unless otherwise **specified in the BDS**, shall seek written clarifications from the Bidder, including detailed price analyses of its Bid price in relation to the subject matter of the contract, scope, proposed methodology, schedule, allocation of risks and responsibilities and any other requirements of the bidding document. 3. After evaluation of the price analyses, in the event that the Employer determines that the Bidder has failed to demonstrate its capability to perform the Contract for the offered Bid Price, the Employer shall reject the Bid. |
| 1. Unbalanced or Front-Loaded Bids | * 1. If the Bid for an admeasurement contract, which results in the lowest evaluated cost is, in the Employer’s opinion, seriously unbalanced or, front-loaded, the Employer may require the Bidder to provide written clarifications. Clarifications may include detailed price analyses (with breakdown of unit rates) to demonstrate the consistency of the Bid prices with the scope of works, proposed methodology, schedule and any other requirements of the bidding document.   2. After the evaluation of the information and detailed price analysis presented by the Bidder, the Employer may as appropriate:      1. accept the Bid without any additional Performance Security; or      2. require that the amount of the Performance Security be increased at the expense of the Bidder to a level not exceeding twenty percent (20%) of the Contract Price to protect the Employer against financial loss in the event of default of the successful Bidder under the Contract; or      3. reject the Bid if the risk cannot be mitigated through additional performance security. |
| 1. Most Advantageous Bid | * 1. Having compared the evaluated costs of Bids, the Employer shall determine the Most Advantageous Bid. The Most Advantageous Bid is the Bid of the Bidder that meets the Qualification Criteria and whose Bid has been determined to be:      1. substantially responsive to the bidding document; and      2. the lowest evaluated cost. |
| 1. Employer’s Right to Accept Any Bid, and to Reject Any or All Bids | * 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 documents submitted and specifically, Bid securities, shall be promptly returned to the Bidders. |
| 1. Standstill Period | * 1. Standstill Period shall not apply.   *[Note 1:* w*here it is proposed to permit Standstill Period, incorporate all changes as indicated in Attachment 1 at the end of this document.*  *Note 2: Standstill period shall not apply where only one bid is submitted or where the bidding process is in response to an emergency situation recognized by the Bank]*. |
| 1. Notice of Intention to Award | * 1. Not used. |
| J. Award of Contract | |
| 1. Award Criteria | * 1. Subject to ITB 43, the Employer shall award the Contract to the successful Bidder. This is the Bidder whose Bid has been determined to be the Most Advantageous Bid as specified in ITB 42. |
| 1. Notification of Award | * 1. Prior to the expiration of the Bid Validity Period, the Employer shall transmit the Letter of Acceptance to the successful Bidder. The Letter of Acceptance shall specify the sum that the Employer will pay the Contractor in consideration of the execution of the contract (hereinafter and in the Conditions of Contract and Contract Forms called “the Contract Price”).   2. Within ten (10) Business Days after the date of transmission of the Letter of Acceptance, the Employer shall publish the Contract Award Notice which shall contain, at a minimum, the following information:  1. name and address of the Employer; 2. name and reference number of the contract being awarded, and the selection method used; 3. names of all Bidders that submitted Bids, and their Bid prices as read out at Bid opening, and as evaluated; 4. names of all Bidders whose Bids were rejected either as nonresponsive or as not meeting qualification criteria, or were not evaluated, with the reasons therefor; and 5. the name of the successful Bidder, the final total contract price, the contract duration and a summary of its scope. |
|  | * 1. The Contract Award Notice shall be published on a National website (GoI website http://tenders.gov.in or GoI Central Public Procurement Portal <https://eprocure.gov.in/cppp/>) or on the Employer’s website, and on the e-procurement system. |
|  | * 1. Until a formal contract is prepared and executed, the notification of award shall constitute a binding Contract. |
| 1. Debriefing by the Employer | * 1. Not used. |
| 1. Signing of Contract | * 1. Promptly upon Notification of Award, the Employer shall prepare the Contract Agreement, and keep it ready in the office of the Employer for the signature of the Employer and the successful Bidder, within 21 days following the date of Letter of Acceptance. The Contract Agreement shall incorporate all agreements between the Employer and the successful Bidder. |
|  | * 1. Within twenty-one (21) days of receipt of the Letter of Acceptance, the successful Bidder shall (a) furnish the performance security and if required in the BDS, the Environmental and Social (ES) Performance Security in accordance with ITB Clause 50 and revised construction methodology; (b) if the successful bidder is a JV, it shall also furnish the JV agreement duly signed by all the members, if it had submitted only a letter of intent to execute the JV agreement along with the bid; and (c) shall sign, date and return the Agreement to the Employer along with the documents stated at (a) and (b) above. |
| 1. Performance Security | * 1. Within twenty-one (21) days of the receipt of the Letter of Acceptance from the Employer, the successful Bidder shall furnish the Performance Security and if required in the BDS, the Environmental and Social (ES) Performance Security in accordance with the General Conditions of Contract, subject to ITB 41.2 (b), using for that purpose the Performance Security and ES Performance Security Forms included in Section X, Contract Forms. The performance security and if required in the BDS, the Environmental and Social (ES) Performance Security of a Joint Venture shall be in the name of the Joint Venture specifying the names of all members. |
|  | * 1. Failure of the successful Bidder to submit the above-mentioned Performance Security and if required in the BDS, the Environmental and Social (ES) Performance Security or to sign the Contract Agreement 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 Bidder offering the next Most Advantageous Bid.   2. Upon the successful Bidder’s signing the Agreement and furnishing of the Performance Security and if required in the BDS, the Environmental and Social (ES) Performance Security pursuant to ITB Clause 50.1, the Employer shall promptly notify the name of the winning bidder to each unsuccessful bidder and shall discharge the Bid Securities of the bidders pursuant to ITB Clause 19.5 and 19.6. |
| 1. Adjudicator | * 1. The Employer proposes the person **named in the BDS** to be appointed as Adjudicator under the Contract, at the daily fee **specified in the BDS**, plus reimbursable expenses (actual boarding, lodging, travel and other incidental expenses). If the Bidder disagrees with this proposal, the Bidder should so state in his Bid. If, in the Letter of Acceptance, the Employer does not agree on the appointment of the Adjudicator, the Employer will request the Appointing Authority designated in the Particular Conditions of Contract (PCC) pursuant to Clause 23.1 of the General Conditions of Contract (GCC), to appoint the Adjudicator. |

Section II - Bid Data Sheet (BDS)

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

*[**E-procurement clauses currently included in this BDS are model clauses only, and these should be fine-tuned/ modified for the specific e-procurement system being used by the Borrower. Instructions for completing the Bid Data Sheet are provided, as needed, in the notes in italics mentioned for the relevant ITB.]*

|  |  |
| --- | --- |
| **ITB Reference** | **A. General** |
| **ITB 1.1** | The number of the Request for Bids is: ***[insert number of the Request for Bids]***  The Employer is: ***[insert complete name]***  The reference number of the Request for Bids (RFB) is: ***[insert reference number of the Request for Bids]***  The name of the RFB is: Rehabilitation, Improvement and Basic Facility of \_\_\_\_\_\_ Dam in \_\_\_\_\_ District of \_\_\_\_\_\_\_\_\_\_\_\_\_ under DRIP-II  The number and identification of lots (contracts)comprising this RFB is: **[*insert number and identification of lots (contracts)*]** |
| **ITB 1.2** | The Employer shall use the e-procurement system specified in BDS 7.1. |
| **ITB 2.1** | The Borrower is: Government of India. The sub-Borrower is ……………..  ***[insert name of the Sub-Borrower and statement of relationship with the Employer, if different from the Borrower. This insertion should correspond to the information provided in the RFB]***  Loan or Financing Agreement amount: ***[insert US$ equivalent]***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  The name of the Project is: ***Dam Rehabilitation and Improvement Project Phase-II (DRIP-II)*** |
| **ITB 4.1** | (*State here whether Joint Ventures are acceptable or not*) Bids from Joint ventures are/are not acceptable.  *[Where joint ventures are not permitted delete the following entries]*  Whether Joint Ventures are permitted: Yes/ No  (a) Maximum number of members in the Joint Venture (JV) shall be: ***[insert a number]****\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*  (b) Place where the agreement to form JV to be registered is……………  *[Fill in the name of the city where the contract agreement is to be signed]*  (c) A statement to the effect that all members of the joint venture shall be jointly and severally liable for the execution of the entire Contract in accordance with the Contract terms, shall be included in the authorization nominating a Representative or member in charge, as well as in the Bid and in the Agreement [*in case of a successful bid*].  (d) The joint venture agreement should define precisely the division of assignments to each member of JV. All members of JV should have active participation in the execution during the currency of the contract. This should not be varied/ modified subsequently without prior approval of the Employer. |
| **ITB 4.5** | A list of debarred firms and individuals is available on the Bank’s external website: <http://www.worldbank.org/debarr.> |
| **ITB 4.7** | Deleted (unless the Employer has previously used bid securing declaration as bid security). |
| **B. Contents of Bidding Document** | |
| **ITB 7.1** | **Electronic – Procurement System**  The Employer shall use the following electronic-procurement system to manage this Bidding process:……….  ***[insert name of the e-system and url address or link]***  Requests for clarification should be received by the Employer no later than: 14 days prior to the deadline for submission of bids ***[modify the no. of days as necessary].*** |
| **ITB 7.4** | A Pre-Bid meeting ***[insert “shall” or “shall not”]\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*** take place.  If a Pre-Bid meeting will take place, it will be at the following date, time and place: ***[insert date, time & place below, if applicable]***  A site visit conducted by the Employer ***[insert “shall be” or “shall not be”] \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***\_organized.  *[****The pre-bid meeting should be held no later than 2 weeks before the deadline for submission].*** |
| **ITB 8.2** | *[Modify the second sentence as required based on features of e-procurement system being used. If no change is required, delete this BDS entry]* |
| **C. Preparation of Bids** | |
| **ITB 11.2 (j)** | The Bidder shall submit the following additional documents in its Bid: ***[list any additional documents not already listed in ITB 11.2 that must be submitted with the Bid – Technical Part. The list of additional documents should include the following:]***  (i) Contractor Registration certificate on e-procurement system as per RFB, if applicable  (ii) **Code of Conduct for Contractor’s Personnel (ES)**  The Bidder shall submit its Code of Conduct that will apply to Contractor’s Personnel (as defined in Sub-Clause 1 (ii) of the General Conditions of Contract), to ensure compliance with the Contractor’s Environmental and Social (ES) obligations under the Contract. The Bidder shall use for this purpose the Code of Conduct form provided in Section IV. No substantial modifications shall be made to this form, except that the Bidder may introduce additional requirements, including as necessary to take into account specific Contract issues/risks.  **Management Strategies and Implementation Plans (MSIP) to manage the (ES) risks**  The Bidder shall submit Management Strategies and Implementation Plans (MSIPs) to manage the following key Environmental and Social (ES) risks:  ***[Note:*** *insert name of any specific plan and risk/s informed by the relevant environmental and social assessment];*   * [*e.g. Traffic Management Plan to ensure safety of local communities from construction traffic*]; * [*e.g. Water Resource Protection Plan to prevent contamination of drinking water*]; * [*e.g. Boundary Marking and Protection Strategy for mobilization and construction to prevent offsite adverse impacts*]; * [*e.g. Strategy for obtaining Consents/Permits prior to the start of relevant works such as opening a quarry or borrow pit];* * *[e.g. Sexual Exploitation, and Abuse (SEA) prevention and response action plan].* |
| **ITB 11.3 (b)** | The following schedules shall be submitted with the bid: ***[insert schedules that must be submitted with the Bid, including the priced Bill of Quantities]*** |
| **ITB 11.3 (d)** | The Bidder shall submit the following additional documents in its Bid: ***[list any additional document not already listed in ITB 11.3 that must be submitted with the Bid – Financial Part, else NIL]*** |
| **ITB 12** | **Note for Bidders:** Bidders have to submit the bids on the e-procurement portal along with the relevant required documents. For this purpose, the bidders shall fill up online, the forms that are available for online filling on the e-portal. The rest of the forms shall be download by the bidders and filled up. The filled up pages shall then be scanned and uploaded on the e-procurement portal along with the scanned copies of the supporting documents. |
| **ITB 12.3** | For submission of original documents, the Employer’s address is:  Attention: ………*[****insert full name of person, if applicable]***  Street Address: …………[***insert street address and number****]*  Floor/ Room number: …….[***insert floor and room number, if applicable***  City: ………[***insert name of city or town***]  PIN/Postal Code: ………[***insert postal (PIN) code, if applicable***]  Country: INDIA |
| **ITB 13.1** | Alternative Bids ***shall not be*** permitted. |
| **ITB 13.2** | Alternative times for completion ***shall not be***permitted. |
| **ITB 13.3** | Not Applicable |
| **ITB 13.4** | Alternative technical solutions shall be permitted for the following parts of the Works: Not Applicable |
| **ITB 14.5** | The prices quoted by the Bidder ***Shall be / Shall not be***subject to adjustment during the performance of the Contract.  The adjustment of contract price, if provided, will be done in accordance with GCC Clause 49 and corresponding provisions under PCC and Appendix 2 to PCC. |
| **ITB 18.1** | The Bid validity period shall be 120 days.  ***[insert a bid validity period of other than 90 days, if considered necessary]*** |
| **ITB 18.3 (a)** | The Bid price shall be adjusted by the following factor: 3% per annum. |
| **ITB 19.1** | ***[If a Bid Security shall be required, a Bid-Securing Declaration shall not be required, and vice versa.]***  A Bid Security \_\_\_\_\_\_\_\_\_ ***[insert “shall be” or “shall not be”*]** required.  A Bid-Securing Declaration \_\_\_\_\_\_\_\_\_\_ **[*insert “shall be” or “shall not be*”]** required  If a Bid Security shall be required, the Bidder shall furnish a Bid Security in the amount of …………..  ***[insert amount in Indian Rupees.*** *It should not exceed 2% of the estimated value of works****]******[In case of lots, please insert amount of the Bid Security for each lot]***  *Note: Bid Security is required for each lot as per amounts indicated against each lot. Bidders have the option of submitting one Bid Security for all lots (for the combined total amount of all lots) for which Bids have been submitted, However if the amount of Bid Security is less than the total required amount, the Employer will determine (based on lowest cost combination of bids) for which lot or lots the Bid Security amount shall be applied.* |
| **ITB 19.3 (d)** | Other types of acceptable securities are:  Fixed Deposit/Time Deposit certificate issued by a Nationalized or Scheduled Bank located in India for equivalent or higher values are acceptable provided it is pledged in favour of ……………….. (Implementing agency) and such pledging has been noted and suitably endorsed by the bank issuing the certificate.  Online cash transfer (if applicable, provide full details)  ***[Insert names of other acceptable securities as above. Insert “None” if no other forms of Bid securities besides those listed in ITB 19.3 (a) through (c) are acceptable*.]** |
| **ITB 19.9** | Deleted (*unless the Employer proposes use of bid securing declaration as bid security).* |
| **ITB 20.3** | The written confirmation of authorization to sign on behalf of the Bidder shall consist of**:**  *[insert “(a) Legally valid Power of Attorney is required to demonstrate the authority of the signatory to sign the Bid; and*  *(b) In the case of Bids submitted by an existing or intended JV, if permitted as per ITB 4.1, the authorization shall be evidenced by a Power of Attorney signed by legally authorized signatories of all the members.”]* |
| **D. Online Submission and Opening of Bids** | |
| **ITB 21.1** | Class of DSC required is: 3 |
| **ITB 22.1** | The deadline for uploading the Bids is:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Date: ***[insert day, month, and year, e.g. 15 June, 2016]***  Time: [***insert time, and identify if a.m. or p.m., e.g. 10:30 a.m.****]*  ***[The date and time should be the same as those provided in the Specific Procurement Notice - Request for Bids, unless subsequently amended pursuant to ITB 22.2]***  ***[The time allowed for the preparation and submission of Bids shall be determined with due consideration to the particular circumstances of the project and the magnitude and complexity of the procurement.]*** |
| **ITB 24.1** | Re-submission of the bid is ***­­Not Allowed***, if withdrawn. |
| **E. Public Opening of Technical Parts of Bids** | |
| **ITB 25.1** | The online Bid opening of Technical Parts of Bids shall take place at: ***[insert all required and applicable information]***  Street Address: *[****insert street address and numbe****r]*  Floor/Room number: *[****insert floor and room number, if applicable****]*  City: *[****insert name of city or town****]*  Country: INDIA    Date: ***[insert day, month, and year, e.g. 15 June, 2016]***  Time: *[****insert time, and identify if a.m. or p.m. e.g. 10:30 a.m.****]*  *[****Note: this date should be the same as the deadline for submission of bids; and the time should also be the same as the deadline for submission of bids or promptly thereafter****]* |
| **F. Evaluation of Bids – General Provisions** | |
| **ITB 29.3** | The adjustment shall be based on the highestprice of the item or component as quoted in other substantially responsive Bids, subject to a maximum of the estimated price of the item. If the price of the item or component cannot be derived from the price of other substantially responsive Bids, the Employer shall use its best estimate. |
| **G. Evaluation of Bids - Technical Parts** | |
| **ITB 33.1** | At this time the Employer *\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_* ***[Insert “intends” or “does not intend”]*** to execute certain specific parts of the Works by subcontractors selected in advance.  [***If the above states “intends” list the specific parts of the works and the respective sub-contractors.***] |
| **ITB 33.2** | ***[Indicate N/A if not applicable]***  The parts of the Works for which the Employer permits Bidders to propose Specialized Subcontractors are designated as follows:   1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   For the above-designated parts of the Works that may require Specialized Subcontractors, the relevant qualifications of the proposed Specialized Subcontractors will be added to the qualifications of the Bidder for the purpose of evaluation. |
| **ITB 33.3** | * 1. Contractor’s proposed subcontracting: Maximum percentage of subcontracting permitted is: *\_25% of the total contract amount or \_\_\_\_\_\_\_% of the volume of work.*   2. Bidders planning to subcontract more than 10% of total volume of work shall specify, in the Letter of Bid, the activity (ies) or parts of the Works to be subcontracted along with complete details of the subcontractors and their qualification and experience. The qualification and experience of the sub-contractors must meet the minimum criteria for the relevant work to be sub-contracted failing which such sub-contractors will not be permitted to participate.   Sub -contractor experience in HM Works:  Proposed subcontractor (for gates and hoists) by the bidder should have experience and successfully executed at least one contract for repair and general maintenance of hydraulic Radial / Vertical gates and electrically operated Hoist (rope drum /chain operated hoist ) in dams during last seven years.  *(Note : This is sample for experience of Sub-Contractor, if applicable. Description of works to be Sub-Contracted and required experience to be specified by Implementing Agency)*   * 1. Subcontractors’ qualification and experience will not be considered for evaluation of the Bidder. The Bidder on its own (without taking into account the qualification and experience of the sub-contractor) should meet the qualification criteria.   *[Note-Work should not be split into small parts and sub-contracted].* |
| **H. Public Opening of Financial Parts** | |
| **ITB 34.2 (c)** | Following the completion of the evaluation of the Technical Parts of the Bids, the Employer will notify all Bidders of the date, time, and location of the public opening of Financial Parts.  The online bid opening of Financial Parts of Bids shall take place at: ***[insert all required and applicable information]***  Street Address: *[****insert street address and numbe****r]*  Floor/Room number: *[****insert floor and room number, if applicable****]*  City: *[****insert name of city or town****]*  Country: INDIA    Date: ***[insert day, month, and year]***  Time: *[****insert time, and identify if a.m. or p.m.****]*  *[****Note: The Financial Parts of the bids shall not be opened earlier than seven (7) days from the communication of technical evaluation results to the bidders****]*  In addition to the above the Employer shall publish a notice of the public opening of the Financial Parts of the Bid on its website…………... *[insert address of the website]* |
| **I. Evaluation of Bids - Financial Parts** | |
| **ITB 40.2** | Provisions related to Abnormally Low Bids ***do not apply*** |
| **J.** **Award of Contract** | |
| **ITB 50.1 and 50.2** | **[Delete the following if not applicable]**  The successful Bidder shall also be required to submit an Environmental and Social (ES) Performance Security.  *[***Note: *The ES Performance Security shall normally be required where ES risks are significant.****]*  Throughout this bidding document the term ’performance security’, unless the context clearly indicates otherwise, means and includes both ‘the performance security and the ES performance security’ to be submitted by the successful bidder in the amounts specified in GCC/ PCC 54. |
| **ITB 51** | The Adjudicator proposed by the Employer is***: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_[insert name and address of proposed Adjudicator]***. The daily fee for this proposed Adjudicator shall be: \_\_\_\_\_\_\_\_\_\_***[insert amount in Rupees – not less than Rs. 10,000 per day].*** The biographical data of the proposed Adjudicator is as follows:  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ***[provide relevant information, such as education, experience, age, nationality, and present position; attach additional pages as necessary]***  Educational Qualification : \_\_\_\_\_\_\_  Age: \_\_\_\_\_ Years  Professional Experience : \_\_\_\_\_ Years  Nationality : …..  Last Position Held : \_\_\_\_\_\_\_\_\_\_\_  **Note:**  *Institutions such as Indian Council of Arbitration (ICA) also maintain panel of experienced and trained adjudicators and if needed, such institutions could be approached for providing a list of potential adjudicators. If this option is to be used, above clause may be modified as:*  “The Adjudicator proposed by the Employer is: ………… and has been identified from the list provided by …………. *[insert name of the Institution]*. The daily fee payable to Adjudicator is Rs……... as per the rules of the Institution.” |

Section III - Evaluation and Qualification Criteria

*This section contains all the criteria that the Employer shall use to evaluate Bids and qualify Bidders through post-qualification. No other factors, methods or criteria shall be used other than specified in this bidding document. The Bidder shall provide all the information requested in the forms included in Section IV, Bidding Forms.*

*[The Employer shall select the criteria deemed appropriate for the procurement process, insert the appropriate wording using the samples below or other acceptable wording, and delete the text in italics]*

## 

1. Technical Part

**1.1 Adequacy of Technical Proposal**

Evaluation of the Bidder's Technical Proposal will include

(i) an assessment of the Bidder's technical capacity to mobilize key equipment and personnel for the contract consistent with its proposal regarding work methods, scheduling, material sourcing, and quality control/ assurance in sufficient detail and fully in accordance with the requirements stipulated in Section VII, Works’ Requirements.

For this purpose the Bidder should also submit:

A detailed note outlining its proposed methodology and program of construction including Contractor’s Environmental and Social, Health Management Strategies and Implementation Plans (ES-MSIP), backed with equipment, materials and manpower planning and deployment, duly supported with broad calculations and quality control system/assurance procedures proposed to be adopted, justifying their capability of execution and completion of the work as per technical specifications within the stipulated period of completion as per milestones.

(ii) an assessment of the details of subcontracting elements of works amounting to more than 10% of the bid price; for each element proposed to be sub-contracted furnish details whether the identified Sub-contractor possesses the required qualifications and experiences to execute that element satisfactorily. [Work should not be split into small parts and sub-contracted].

(iii) Bidders shall submit an undertaking from each proposed subcontractor to confirm that they have read, understand and will comply with the ES obligations and code of conduct for Contractor’s Personnel.

**1.2** **Alternative Technical Solutions for specified parts of Works** (ITB 13.4) **– Not Applicable**

**1.3 Specialized Subcontractors – *Applicable / Not Applicable***

*[Note: provide details if the clause is relevant. Insert ‘Not Applicable’ or delete the clause, if not relevant]*

If permitted under ITB 33, only the specific experience of Subcontractors for specialized works permitted by the Employer will be considered. The general experience and financial resources of the Specialized Subcontractors 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:

……………………………………………………………………………………………………………………………………………………………………………………

**2.1 Qualification Criteria**

Pursuant to ITB 32.1, the Employer shall assess each Bid against the following Qualification Criteria. Requirements not included in the text below shall not be used in the evaluation of the Bidder’s qualifications.

| **Eligibility and Qualification Criteria** | | | **Compliance Requirements** | | | | **Documentation** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **No.** | **Subject** | **Requirement** | **Single Entity** | **Joint Venture (existing or intended) where permitted** | | | **Submission Requirements** |
| **All members Combined** | **Each Member** | **At least one Member** |
| 1. Eligibility | | | | | | | |
| 1.1 | **Nationality** | Nationality in accordance with ITB 4.4 | Must meet requirement | Must meet requirement | Must meet requirement | N/A | Forms ELI – 1.1 and 1.2, with attachments |
| 1.2 | **Conflict of Interest** | No conflicts of interest in accordance with 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 4.5. | Must meet requirement | Must meet requirement | Must meet requirement | N/A | Letter of Bid |
| 1.4 | **State-owned enterprise or institution of the Borrower country** | Meets conditions of ITB 4.6 | Must meet requirement | Must meet requirement | Must meet requirement | N/A | Forms ELI – 1.1 and 1.2, with attachments |
| 1.5 | **United Nations resolution or Borrower’s country law** | Not having been excluded as a result of prohibition in the Borrower’s country laws or official regulations against commercial relations with the Bidder’s country, or by an act of compliance with UN Security Council resolution, both in accordance with ITB 4.8 and Section V. | Must meet requirement | Must meet requirement | Must meet requirement | N/A | Forms ELI – 1.1 and 1.2, with attachments |
| 2. Historical Contract Non-Performance | | | | | | | |
| 2.1 | **History of Non-Performing Contracts** | Non-performance of a contract[[9]](#footnote-10) did not occur as a result of contractor default since 1st January 2014. | Must meet requirement 9&10 | Must meet requirements | Must meet requirement[[10]](#footnote-11) | N/A | Form CON-2 |
| 2.2 | **Suspension Based on Execution of Bid/ Proposal Securing Declaration by the Employer or withdrawal of the Bid within Bid validity period** | Not under suspension based on execution of a Bid/ Proposal Securing Declaration pursuant to ITB 4.7 or withdrawal of the Bid pursuant ITB 19.9 | Must meet requirement | Must meet requirement | Must meet requirement | N/A | Letter of Bid |
| 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 the Bidder | Must meet requirement | N/A | Must meet requirement | N/A | Form CON – 2 |
| 2.4 | **Litigation History** | No consistent history of court/arbitral award decisions against the Bidder[[11]](#footnote-12) since 1st January 2014. | Must meet requirement | Must meet requirement | Must meet requirement | N/A | Form CON – 2 |
| 2.5 | **Declaration: Environmental and Social (ES) past performance** | Declare any civil work contracts that have been suspended or terminated and/or performance security called by an employer for reasons of breach of environmental, or social (including Sexual Exploitation, and Abuse) contractual obligations in the past Seven years[[12]](#footnote-13). | Must make the declaration. Where there are Specialized Sub-contractor/s, the Specialized Sub-contractor/s must also make the declaration. | N/A | Each must make the declaration. Where there are Specialized Sub-contractor/s, the Specialized Sub-contractor/s must also make the declaration. | N/A | Form CON-3 ES Performance Declaration |
| 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[[13]](#footnote-14), and other financial means (independent of any contractual advance payment) sufficient to meet the construction cash flow requirements estimated as Rs. *\_\_\_\_\_\_\_\_\_ \_(about 3 months cash flow at peak construction period)* for the subject contract(s) net of the Bidder’s other commitments | Must meet requirement | Must meet Requirement | Must meet at least 25% of the requirement as a minimum | Must meet at least 50% of the requirement as a minimum | Form FIN – 3.1, with attachments |
|  |  | (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 works currently in progress and for future contract commitments. | Must meet requirement | Must meet requirement | N/A | N/A |  |
|  |  | (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 seven 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 |  |
| **Note**: *The construction cash flow requirement should be for a number of months determined as the total time needed to pay contractor invoice by the employer. The cash flow should not normally exceed 3 months peak contract requirements and availability should be certified by Bank (Nationalized or Scheduled Bank In India) in form Fin 3.3* | | | | | | | |
| 3.2 | **Average Annual Construction Turnover** | Minimum average annual construction turnover of Rs….. [insert amount in figures and words], calculated as total certified payments received for contracts in progress and/or completed within the last seven financial years, divided by seven years. | Must meet requirement | Must meet requirement | Must meet 25%, (twenty five percent)of the requirement | Must meet 50%, (fifty percent)of the requirement | Form FIN – 3.2 |
| **Note:** *The amount stated should normally not be less than twice the estimated annual turnover or cash flow in the proposed Works contract (based on a straight-line projection of the Employer's estimated cost, over the contract duration).* | | | | | | | |
| 4. Experience | | | | | | | |
| 4.1 (a) | **General Construction Experience** | Experience under construction contracts *(indicate details of acceptable similar works)* in the role of prime contractor, JV member, subcontractor, for at least the last sevenyears, starting 1st January 2014. | Must meet requirement | N/A | Must meet requirement | N/A | Form EXP – 4.1 |
| 4.2 (a) | **Specific Construction & Contract Management Experience** | (i) Minimum number of similar contracts specified below that have been satisfactorily and substantially[[14]](#footnote-15) completed as a prime contractor, joint venture member[[15]](#footnote-16), or sub-contractor[[16]](#footnote-17) between 1st January 2014 and bid submission deadline:   1. ONE contract, each of minimum value *(80% of the Estimated Value);*Or 2. TWO contracts, each of minimum value *(60% of the Estimated Value);* Or 3. THREE contracts, each of minimum value *(40% of the Estimated Value).*   [*In case the Works are to be bid as individual contracts under a slice and package (multiple contract) procedure, the minimum number of contracts required for purposes of evaluating qualification shall be selected from the options mentioned in ITB 35.3]*  The similarity of the contracts shall be based on the following: [*Based on Section VII, Scope of Works, specify the minimum key requirements in terms of physical size, complexity, construction method, technology and/or other characteristics including part of the requirements that may be met by specialized subcontractors, if permitted in accordance with ITB 33.2]* | Must meet requirement | Must meet requirement[[17]](#footnote-18) | Must meet the requirement for one contract of 25% value | Must meet the requirement for one contract of 50% value | Form EXP 4.2(a) |
|  |  |  |  |  |
| 4.2 (b) |  | For the above and any other contracts [substantially completed and under implementation] as prime contractor, joint venture member, or sub-contractor between 1st January *2013* and Application submission deadline, a minimum construction experience in the following key activities successfully completed[[18]](#footnote-19): *[list key activities indicating volume, number or rate of production as applicable.*  *Under 4.2(a), specified requirements define similarity of contracts, whereas the key activities or production rates to be specified under 4.2 (b) define the required capability of the Applicant to execute the Works. There shall not be any inconsistency or repetition of requirement between 4.2(a) and 4.2(b).For the rate of production, specify that the rate of production shall be on the basis of either the average during the entire specified period OR the rate of annual production in any 12-month period in the specified period****,****][[19]](#footnote-20)* | Must meet requirements  *[Specify activities that may be met through a specialized subcontractor, if permitted in accordance with ITB 33.2]* | Must meet requirements *[Specify activities that may be met through a Specialized Subcontractor, if permitted in accordance with ITB 33.2*] | N/A | Must meet the following requirements for all the key activities listed below *[****if applicable, out of the key activities in the first column of this 4.2 b),*** *list key activities (volume, number or rate of production as applicable) and the corresponding minimum requirements that have to be met by one member,* ***otherwise this cell should state: “N/A”.]*** | Form EXP – 4.2 (b) |
| ***NOTE:*** *List the monthly or annual production rate for the key construction activity (or activities) in the proposed contract or works, e.g., “one million M3 of rock placed in rock fill dams in one year; X tons of asphalt concrete per month placed in road paving; Y M3 of concrete placed in . .. etc.” The rates should be a percentage (say about 80 percent) of the estimated production rate of the key activity (or activities) in the contract or Works as needed to meet the expected construction schedule with due allowance for adverse climatic conditions.*  *Borrower should fill this after careful review of the requirements for the work. Where the elements of work are specialized, and it is proposed to accept employment of specialist sub-contractors, this could be so specified for that activity and bidders may be requested to name the sub-contractors and furnish their qualification and experience.* | | | | | | | |
| 4.2 (c) | **Bid Capacity:**  Bidders who meet the minimum qualification criteria will be qualified only if their available bid capacity for construction work is equal to or more than the total bid value of the work. The available bid capacity will be calculated as under:  Assessed Available bid capacity = (A\*N\*1.15-B)  Where,  A = Maximum value of civil engineering works executed in any one year during the last seven years (updated to the price level of the financial year 2021-2022 at the rate of 5% per year), taking into account the completed as well as works in progress).  N = Number of years prescribed for completion of the works for which bids are invited (period up to 6 months to be taken as half-year and more than 6 months as one year).  B = Value, at the current price level, of existing commitments on on-going works to be completed during the period of completion of the works for which bids are invited.  Note: the statements in Section IV showing the value of existing commitments of on-going works as well as the stipulated period of completion remaining for each of the works listed should be countersigned by the Engineer in charge, not below the rank of an Executive Engineer or equivalent. | | | | | | |

***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)]***

Note: In case bids are being invited simultaneously for multiple packages (under separate IFB and Bid Documents), the Employer reserves the right to assess cumulative qualification of the bidders participating in multiple packages.

3. Key Personnel

[***Note: Insert in the following table the minimum key specialists required to execute the contract, taking into account the nature, scope, complexity and risks of the contract****.]*

The Bidder must demonstrate that it will have suitably qualified (and in adequate numbers) minimum Key Personnel, as described in the Table below, that are required to perform the Contract.

The Bidder shall provide details of the Key Personnel and such other Key Personnel that the Bidder considers appropriate, together with their academic qualifications and work experience. The Bidder shall complete the relevant Forms in Section IV, Bidding Forms.

The Contractor shall require the Employer’s consent to substitute or replace the Key Personnel (reference the Particular Conditions of Contract 9.1).

*[Specify requirements for each lot as applicable]*

**Key Personnel**

|  |  |  |  |
| --- | --- | --- | --- |
| **Item**  **No.** | **Position/specialization** | **Relevant academic**  **qualification** | **Minimum years of relevant work experience** |
|  | Contractor’s Representative / Construction Manager-1(One) | BE (Civil) | 10 |
|  | Grouting Specialist | BE(Civil) | 10 |
|  | Site Engineer -2 (two) | BE (Civil) | 10 |
|  | Site Engineer -1 (One)  **PLEASE SPECIFY REQUIRED KEY PERSONNEL AND QUALIFICATION, EXPERIENCE REQUIREMENTS** | BE (Electrical) | 10 |
|  | Site Engineer -1 (one) | BE/Diploma (Electrical) | 5 |
|  | Quality Control Engineer-1(One) | BE (Civil) | 5 |
|  | Surveyor-2 | Diploma (Civil) | 3 |
| **Suitable experts in the following specializations** | | | |
| 8 | Safety, Environment & Social Expert (Need Based) | BECivil/Graduate in Environment/ health | 1 |

The Bidder must not have in his employment:

[i] the near relations (defined as first blood relations, and their spouses, of the bidder or the bidder’s spouse) of persons of the following Government Departments.

1. *Water Resources Department State….*
2. *Water Resources Planning Department..*

[ii] without Government permission, any person who retired as gazetted officer within the last two years.

[Note:

*The managerial and technical competence of a contractor is largely related to the key personnel on site. The extent to which the Bidder should demonstrate having staff with extensive experience should be limited to those requiring critical operational or technical skills. The criteria should therefore refer to a limited number of such key personnel, for instance, the project or contract manager and others working under the project manager who will be responsible for major components (e.g. specialized in dredging, piling, earthworks, ES obligations, as required for each particular project). Criteria of acceptability should be based on:*

*(a) a minimum number of years of experience in a similar position; and*

*(b) a minimum number of years of experience and/or number of comparable projects carried out in a specified number of preceding years.*]

4. Equipment

The Bidder must demonstrate that it will have access to the key Contractor’s equipment listed hereafter:

*[Specify requirements for each lot as applicable]*

| **No.** | **Equipment Type and Characteristics** | **Minimum Number required** |
| --- | --- | --- |
|  | Concrete Mixer of (Minimum 12 to 15 Cum per hour production capacity) | 1 |
|  | Truck mounted Concrete Transit Mixer m3 | 2 |
|  | Pneumatic/needle Vibrators | 4 |
|  | Dumper/Tipper | 3 |
|  | Hydraulic Excavator ± 0.4 Cum  **SAMPLE LIST OF EQUIPMENT.**  **TO BE MODIFIED AS PER WORKS REQUIREMENTS** | 2 |
|  | Hydraulic Excavator ± 1.0 Cum | 2 |
|  | Earth Compactor (10 to 15 ton capacity) | 2 |
|  | Water Tanker for Curing and Watering | 4 |
|  | Dewatering Pumps | 2 |
|  | Total Station Equipment | 1 |
|  | Quality Control Lab | 1 |
|  | Full Set of drilling and reaming equipment | 2 Sets |
|  | Full set of shotcrete equipment | 2 sets |

*[NOTE:*

#### *Based on the studies, carried out by the Project Manager the minimum suggested major equipment to attain the completion of works in accordance with the prescribed construction schedule is shown in the above list. The bidders should, however, undertake their own studies and furnish with their bid, a detailed construction planning and methodology supported with layout and necessary drawings and calculations (detailed) as stated in Section IV to allow the employee to review their proposals. The numbers, types and capacities of each plant/equipment shall be shown in the proposals along with the cycle time for each operation for the given production capacity to match the requirements.]*

The Bidder shall provide further details of proposed items of equipment using the relevant Form in Section IV.

Note for Bidders: “Form for Equipment" must be prepared for each equipment. Affidavit in place of Agreement regarding availability of equipment i.e. rented/ leased/ specially manufactured is acceptable.

**5.** **Multiple Contracts *[insert ‘Not Applicable’ or delete the clause, if not relevant]***

This Section describes criteria for qualification for each lot (contract) for multiple lots (contracts). The criteria for qualification is aggregate minimum requirement for respective lots as specified under items 3.1, 3.2, 4.2(a) and 4.2(b). However, with respect to the specific experience under item 4.2 (a) of Section III, the Employer will select any one or more of the options as identified below:

N is the minimum number of contracts

V is the minimum value of a single contract

**(a) For one Contract**:

**Option 1:**

(i) N contracts, each of minimum value V;

Or

**Option 2:**

(i) N contracts, each of minimum value V; or

(ii) Less than or equal to N contracts, each of minimum value V, but with total value of all contracts equal or more than N x V.

**(b) For multiple Contracts**

**Option 1:**

(i) Minimum requirements for combined contract(s) shall be the aggregate requirements for each contract for which the Bidder has submitted Bids as follows, and N1, N2, N3, etc. shall be different contracts:

Lot 1: N1 contracts, each of minimum value V1;

Lot 2: N2 contracts, each of minimum value V2;

Lot 3: N3 contracts, each of minimum value V3;

----etc.

or

**Option 2:**

(i) Minimum requirements for combined contract(s) shall be the aggregate requirements for each contract for which the Bidder has submitted Bids as follows, and N1, N2, N3, etc. shall be different contracts:

Lot 1: N1 contracts, each of minimum value V1;

Lot 2: N2 contracts, each of minimum value V2;

Lot 3: N3 contracts, each of minimum value V3;

----etc., **or**

(ii) Lot 1: N1 contracts, each of minimum value V1; or number of contracts less than or equal to N1, each of minimum value V1, but with total value of all contracts equal or more than N1 x V1.

Lot 2: N2 contracts, each of minimum value V2; or number of contracts less than or equal to N2, each of minimum value V2, but with total value of all contracts equal or more than N2 x V2.

Lot 3: N3 contracts, each of minimum value V3; or number of contracts less than or equal to N3, each of minimum value V3, but with total value of all contracts equal or more than N3 x V3.

----etc.

Or

**Option 3:**

(i) Minimum requirements for combined contract(s) shall be the aggregate requirements for each contract for which the Bidder has bid for as follows, and N1, N2, N3, etc. shall be different contracts:

Lot 1: N1 contracts, each of minimum value V1;

Lot 2: N2 contracts, each of minimum value V2;

Lot 3: N3 contracts, each of minimum value V3;

----etc., **or**

(ii) Lot 1: N1 contracts, each of minimum value V1; or number of contracts less than or equal to N1, each of minimum value V1, but with total value of all contracts equal or more than N1 x V1.

Lot 2: N2 contracts, each of minimum value V2; or number of contracts less than or equal to N2, each of minimum value V2, but with total value of all contracts equal or more than N2 x V2.

Lot 3: N3 contracts, each of minimum value V3; or number of contracts less than or equal to N3, each of minimum value V3, but with total value of all contracts equal or more than N3 x V3.

----etc., or

(iii) Subject to compliance as per (ii) above with respect to minimum value of single contract for each lot, total number of contracts is equal or less than N1 + N2 + N3 +--but the total value of all such contracts is equal or more than N1 x V1 + N2 x V2 + N3 x V3 +---.

**2. Financial Part**

**2.1** **Margin of Preference - Not Applicable**

**2.2 Multiple Contracts [insert ‘Not Applicable’ or delete the clause, if not relevant]**

# Pursuant to ITB 35.3 of the Instructions to Bidders, if Works are grouped in multiple contracts, evaluation will be as follows:

**Award Criteria for Multiple Contracts [ITB 35.3]:**

**Lots**

Bidders have the option to Bid for any one or more lots. Bids will be evaluated lot-wise, taking into account discounts offered, if any, after considering all possible combination of lots. The contract(s) will be awarded to the Bidder or Bidders offering the lowest evaluated cost to the Employer for combined lots, subject to the selected Bidder(s) meeting the required qualification criteria for lot or combination of lots as the case may be.

**Packages**

Bidders have the option to Bid for any one or more packages and for any one or more lots within a package. Bids will be evaluated package-wise, taking into account discounts offered, if any, for combined packages and/or lots within a package. The contract(s) will be awarded to the Bidder or Bidders offering the lowest evaluated cost to the Employer for combined packages, subject to the selected Bidder(s) meeting the required qualification criteria for combination of packages and or lots as the case may be.

**2.3 Sustainable procurement (Section VII - Specifications) – Not Applicable**

**2.4 Alternative Completion Times (ITB 13.2) - Not Applicable**

**2.5 Alternative Technical Solutions for specified parts of the Works (ITB 13.4) - Not Applicable**

**2.6** **Other criteria** **(if permitted under ITB 35.1(f)):**

**…………………………………………………………………………………………………………………………………………………**

Section IV - Bidding Forms

Letter of Bid – Technical Part

|  |
| --- |
| *INSTRUCTIONS TO BIDDERS: DELETE THIS BOX ONCE YOU HAVE COMPLETED THE DOCUMENT*  *The Bidder must prepare this Letter of Bid on stationery with its letterhead clearly showing the Bidder’s complete name and business address.*  *Note: All italicized text is to help Bidders in preparing this form.* |

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

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

**Alternative No[[20]](#footnote-21).**:[*insert identification No. if this is a Bid for an alternative*]

To: **[*insert complete name of Employer*]**

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

1. the Technical Part, and
2. the Financial Part

In submitting our Bid, we make the following declarations:

1. **No reservations:** We have examined and have no reservations to the bidding document, including Addenda issued in accordance with ITB 8;
2. **Eligibility**: We meet the eligibility requirements and have no conflict of interest in accordance with ITB 4;
3. **Bid-Securing Declaration:** We have not been suspended nor declared ineligible by the Employer based on execution of a Bid-Securing Declaration or Proposal-Securing Declaration in the Employer’s Country in accordance with ITB 4.7
4. **Conformity:** We offer to execute in conformity with the bidding document the following Works: **[***insert a brief description of the Works]\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*
5. **Bid Validity Period:** Our Bid shall be valid for a period specified in BDS ITB 18.1 (or as amended if applicable) from the date fixed for the Bid submission deadline specified in BDS 22.1 (or as amended if applicable), and it shall remain binding upon us and may be accepted at any time before the expiration of that period;
6. **Performance Security:** If our Bid is accepted, we commit to obtain a performance security [*and an Environmental and Social (ES) Performance Security,* ***Delete if not applicable***] in accordance with the bidding document;
7. **One Bid Per Bidder:** We are not submitting any other Bid(s) as an individual Bidder or as a subcontractor, and weare not participating in any other Bid(s) as a Joint Venture member, and meet the requirements of ITB 4.3, other than alternative Bids submitted in accordance with ITB 13;
8. **Suspension and Debarment**: We, along with any of our subcontractors, suppliers, consultants, manufacturers, or service providers for any part of the contract, are not subject to, and not controlled by any entity or individual that is subject to, a temporary suspension or a debarment imposed by the World Bank Group or a debarment imposed by the World Bank Group in accordance with the Agreement for Mutual Enforcement of Debarment Decisions between the World Bank and other development banks. Further, we are not ineligible under the Employer’s Country laws or official regulations or pursuant to a decision of the United Nations Security Council;
9. **State-owned enterprise or institution:** We are not a state-owned enterprise or institution/ We are a state-owned enterprise or institution but meet the requirements of ITB 4.6[[21]](#footnote-22);
10. **Binding Contract**: We understand that this Bid, together with your written acceptance thereof included in your Letter of Acceptance, shall constitute a binding contract between us, until a formal contract is prepared and executed;
11. **Not Bound to Accept:** We understand that you are not bound to accept the lowest evaluated cost Bid, the Most Advantageous Bid or any other Bid that you may receive; and
12. **Fraud and Corruption:** We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf engages in any type of Fraud and Corruption; and
13. **Adjudicator**: We accept the appointment of *[insert name proposed in Bid Data Sheet]* as the Adjudicator.

[or]

We do not accept the appointment of *[insert name proposed in Bid Data Sheet]* as the Adjudicator, and propose instead that *[insert name]* be appointed[[22]](#footnote-23) as Adjudicator, whose daily fees and biographical data are attached.

**Name of the Bidder**: \*[*insert complete name of person signing the Bid*]

**Name of the person duly authorized to sign the Bid on behalf of the Bidder**:\*\*[*insert complete name of person duly authorized to sign the Bid*]

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

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

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

**\***: In the case of the 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

Technical Proposal

Technical Proposal Forms

* **Key Personnel Schedule**
* **Equipment**
* **Site Organization**
* **Method Statement**
* **Mobilization Schedule**
* **Construction Schedule**
* **ES Management Strategies and Implementation Plans**
* **Code of Conduct for Contractor’s Personnel (ES)**
* **Sub-contracting elements or works which in aggregate adds to more than 10% of Bid price (*for each the qualifications and experiences on the identified subcontractor in the relevant field should be given)***

***Note:*** *Work should not be split into small parts and sub-contracted; but sub-contracting specialized elements of works is acceptable*.

* **Others**
* **Bidder’s Qualification**
* **Form of Bid Security - Bank Guarantee**
* **Form of Bid-Securing Declaration**

Appendix to Technical Part: Personnel

Forms for Personnel

**Form PER – 1: Key Personnel Schedule**

Bidders should provide the names and details of the suitably qualified Key Personnel to perform the Contract. The data on their experience should be supplied using the Form PER-2 below for each candidate.

**Key Personnel**

|  |  |  |
| --- | --- | --- |
| **1.** | **Title of position:** | |
|  | **Name of candidate:** | |
|  | **Duration of appointment:** | [*insert the whole period (start and end dates) for which this position will be engaged*] |
|  | **Time commitment: for this position:** | [*insert the number of days/week/months/ that has been scheduled for this position*] |
|  | **Expected time schedule for this position:** | [*insert the expected time schedule for this position (e.g. attach high level Gantt chart*] |
| **2.** | **Title of position:** *[Environmental Specialist]* | |
|  | **Name of candidate:** | |
|  | **Duration of appointment:** | [*insert the whole period (start and end dates) for which this position will be engaged*] |
|  | **Time commitment: for this position:** | [*insert the number of days/week/months/ that has been scheduled for this position*] |
|  | **Expected time schedule for this position:** | [*insert the expected time schedule for this position (e.g. attach high level Gantt chart*] |
| **3.** | **Title of position:** *[Health and Safety Specialist]* | |
|  | **Name of candidate:** | |
|  | **Duration of appointment:** | [*insert the whole period (start and end dates) for which this position will be engaged*] |
|  | **Time commitment: for this position:** | [*insert the number of days/week/months/ that has been scheduled for this position*] |
|  | **Expected time schedule for this position:** | [*insert the expected time schedule for this position (e.g. attach high level Gantt chart*] |
| **4.** | **Title of position:** *[Social Specialist]* | |
|  | **Name of candidate:** | |
|  | **Duration of appointment:** | [*insert the whole period (start and end dates) for which this position will be engaged*] |
|  | **Time commitment: for this position:** | [*insert the number of days/week/months/ that has been scheduled for this position*] |
|  | **Expected time schedule for this position:** | [*insert the expected time schedule for this position (e.g. attach high level Gantt chart*] |
| **5.** | **Title of position: Sexual Exploitation, Abuse and Harassment Expert**  *[**Where a Project SEA risks are assessed to be substantial or high, Key Personnel shall include an expert with relevant experience in addressing sexual exploitation, sexual abuse and sexual harassment cases]* | |
|  | **Name of candidate:** | |
|  | **Duration of appointment:** | [*insert the whole period (start and end dates) for which this position will be engaged*] |
|  | **Time commitment: for this position:** | [*insert the number of days/week/months/ that has been scheduled for this position*] |
|  | **Expected time schedule for this position:** | [*insert the expected time schedule for this position (e.g. attach high level Gantt chart*] |
| **6.** | **Title of position:** | |
|  | **Name of candidate** | |
|  | **Duration of appointment:** | [*insert the whole period (start and end dates) for which this position will be engaged*] |
|  | **Time commitment: for this position:** | [*insert the number of days/week/months/ that has been scheduled for this position*] |
|  | **Expected time schedule for this position:** | [*insert the expected time schedule for this position (e.g. attach high level Gantt chart*] |

Appendix to Technical Part

Form PER-2:

Resume and Declaration

Key Personnel

|  |
| --- |
| **Name of Bidder** |

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

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

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

**Declaration**

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

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

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

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

1. be taken into consideration during Bid evaluation;
2. result in my disqualification from participating in the Bid;
3. result in my dismissal from the contract.

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

Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: (day month year): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Countersignature of authorized representative of the Bidder:**

Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: (day month year): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Appendix to Technical Part: Equipment

Forms for 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. The Bidder shall provide all the information requested below, to the extent possible. Fields with asterisk (\*) shall be used for evaluation.

|  |  |  |
| --- | --- | --- |
| **Type 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**  **o Owned o Rented o Leased o Specially manufactured** | |

The following information shall be provided only for equipment not 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** | |
|  |  | |
|  |  | |

Appendix to Technical Part

Site Organization

*[insert Site Organization information]*

Appendix to Technical Part

Method Statement

[*insert method Statement –* *A detailed note should be submitted outlining bidders proposed methodology and program of construction including Contractor’s Environmental* *and Social, Health Management Strategies and Implementation Plans (ES-MSIP), backed with equipment, materials and manpower planning and deployment, duly supported with broad calculations and quality control system/assurance procedures proposed to be adopted, justifying their capability of execution and completion of the work as per technical specifications within the stipulated period of completion as per milestone*s]

Appendix to Technical Part

Mobilization Schedule

*[insert Mobilization Schedule]*

In accordance with the Particular Conditions, Sub-Clause 16.2, the Contractor shall not carry out mobilization to Site unless the Project manager gives consent that appropriate measures are in place to address environmental and social risks and impacts, which as a minimum shall include applying the Management Strategies and Implementation Plans (MSIPs) and Code of Conduct for Contractor’s Personnel, submitted as part of the Bid and agreed as part of the Contract.

Appendix to Technical Part

Construction Schedule

*[insert Construction Schedule]*

*The construction schedule shall include the following key milestone - No-objection to the Code of Conduct for Contractor’s Personnel and Contractor’s MSIPs, which collectively form the C-ESMP, in accordance with the Particular Conditions of Contract Sub-Clause 16.2.*

Appendix to Technical Part

Environmental and Social, Health Management Strategies and Implementation Plans

(ES-MSIP)

#### The Bidder shall submit comprehensive and concise Environmental and Social Management Strategies and Implementation Plans (ES-MSIP) as required by ITB 11.2 (j) of the Bid Data Sheet. These strategies and plans shall describe in detail the actions, materials, equipment, management processes etc. that will be implemented by the Contractor, and its subcontractors.

#### In developing these strategies and plans, the Bidder shall have regard to the ES provisions of the contract including those as may be more fully described in the Works Requirements in Section VII.

Appendix to Technical Part

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

**Note to the Bidder**:

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

The Bidder shall initial and submit the Code of Conduct form as part of its bid.

***Note to the Employer****:*

***The following minimum requirements shall not be modified****. The Employer may add additional requirements to address identified issues, informed by relevant environmental and social assessment.*

*The types of issues identified could include risks associated with: labour influx, spread of communicable diseases,* *and* Sexual Exploitation and Abuse (SEA)*,* *Sexual Harassment (SH) etc.*

***Delete this Box prior to issuance of the bidding document.***

**CODE OF CONDUCT FOR CONTRACTOR’S PERSONNEL**

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

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

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

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

**REQUIRED CONDUCT**

Contractor’s Personnel shall:

1. carry out his/her duties competently and diligently;
2. comply with this Code of Conduct and all applicable laws, regulations and other requirements, including requirements to protect the health, safety and well-being of other Contractor’s Personnel and any other person;
3. maintain a safe working environment including by:
   1. ensuring that workplaces, machinery, equipment and processes under each person’s control are safe and without risk to health;
   2. wearing required personal protective equipment;
   3. using appropriate measures relating to chemical, physical and biological substances and agents; and
   4. following applicable emergency operating procedures.
4. report work situations that he/she believes are not safe or healthy and remove himself/herself from a work situation which he/she reasonably believes presents an imminent and serious danger to his/her life or health;
5. treat other people with respect, and not discriminate against specific groups such as women, people with disabilities, migrant workers or children;
6. not engage in Sexual Harassment, which means unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature with other Contractor’s or Employer’s Personnel;
7. not engage in Sexual Exploitation, which means any actual or attempted abuse of position of vulnerability, differential power or trust, for sexual purposes, including, but not limited to, profiting monetarily, socially or politically from the sexual exploitation of another;
8. not engage in Sexual Abuse, which means the actual or threatened physical intrusion of a sexual nature, whether by force or under unequal or coercive conditions;
9. not engage in any form of sexual activity with individuals under the age of 18, except in case of pre-existing marriage;
10. complete relevant training courses that will be provided related to the environmental and social aspects of the Contract, including on health and safety matters, and Sexual Exploitation, and Abuse (SEA) and Sexual Harassment (SH);
11. report violations of this Code of Conduct; and
12. not retaliate against any person who reports violations of this Code of Conduct, whether to us or the Employer, or who makes use of the grievance mechanism for Contractor’s Personnel or the project’s Grievance Redress Mechanism.

**RAISING CONCERNS**

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

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

The person’s identity will be kept confidential, unless reporting of allegations is mandated by the country law. Anonymous complaints or allegations may also be submitted and will be given all due and appropriate consideration. We take seriously all reports of possible misconduct and will investigate and take appropriate action. We will provide warm referrals to service providers that may help support the person who experienced the alleged incident, as appropriate.

There will be no retaliation against any person who raises a concern in good faith about any behavior prohibited by this Code of Conduct. Such retaliation would be a violation of this Code of Conduct.

**CONSEQUENCES OF VIOLATING THE CODE OF CONDUCT**

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

FOR CONTRACTOR’S PERSONNEL:

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

Name of Contractor’s Personnel: [insert name]

Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: (day month year): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Countersignature of authorized representative of the Contractor:

Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: (day month year): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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

**ATTACHMENT 1 TO THE CODE OF CONDUCT FORM**

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

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

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

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

1. **Examples of sexual harassment** **in a work context**

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

**Others**

Appendix to Technical Part

Sub-Contracting

SCHEDULE OF SUBCONTRACTORS

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item | Element of work | % of bid price | Name and address of sub-contractor | Qualification and experience of sub-contractor on similar works of the elements executed |
|  |  |  |  |  |

The Bidder shall enter in this schedule a list of the major sections and appropriate value of the work for which he proposed to use subcontractors [*for those costing more than 10% of the bid price for each element], together with the names, addresses and experiences of the proposed subcontractors.*

The capability of the sub-contractor will also be assessed (on the same lines as for the main Contractor) before according approval to him.

*(Work should not be split into small parts and sub-contracted; but sub-contracting specialized elements of works is acceptable).*

Appendix to Technical Part

Others

Appendix to Technical Part

Bidder’s Qualification

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

Appendix to Technical Part

Form ELI -1.1: Bidder Information Form

Date: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*  
RFB No. and title: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*  
Page *\_\_\_\_\_\_\_\_\_\_*of *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*pages

|  |
| --- |
| Bidder's legal name |
| In case of Joint Venture (JV), legal name of each member: |
| Bidder's actual or intended country of registration:  *[indicate country of Constitution]* |
| 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  🞎 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 4.4.  🞎 Authorization to represent the firm or JV named in above, in accordance with ITB 20.  🞎 In case of JV, letter of intent to form JV or JV agreement, in accordance with ITB 4.1.  🞎 In case of state-owned enterprise or institution, in accordance with ITB 4.6 documents establishing:   * Legal and financial autonomy * Operation under commercial law * Establishing that the Bidder is not under the supervision of the Employer   2. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership. |

Appendix to Technical Part

Form ELI -1.2: Information Form for JV Bidders

(Where permitted as per BDS ITB 4.1)

(to be completed for each member of Joint Venture)

Date: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*RFB No. and title: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*Page *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_* of *\_\_\_\_\_\_\_\_\_\_\_\_* pages

|  |
| --- |
| **JV Information** |
| Bidder’s Joint Venture legal name: |
| JV member’s legal 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  🞎 Articles of Incorporation (or equivalent documents of constitution or association), and/or registration documents of the legal entity named above, in accordance with ITB 4.4.  🞎 Authorization to represent the firm or JV named in above, in accordance with ITB 20.  🞎 In case of a state-owned enterprise or institution, documents establishing legal and financial autonomy, operation in accordance with commercial law, and is not under the supervision of the Employer, in accordance with ITB 4.6.  2. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership. |

Appendix to Technical Part

Form ELI -1.2 A

Specialized Subcontractor’s Information Form  
(to be completed for each Specialized Subcontractor)

Date: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*RFB No. and title: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*Page *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_* of *\_\_\_\_\_\_\_\_\_\_\_\_* pages

Bidder’s legal name:

|  |
| --- |
| Specialized Subcontractor’s legal name: |
| Specialized Subcontractor’s country of registration: |
| Specialized Subcontractor’s year of constitution: |
| Specialized Subcontractor’s legal address in country of constitution: |
| Specialized Subcontractor’s authorized representative information  Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Address: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Telephone/Fax numbers: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  E-mail address: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Attached are copies of original documents of  🞎 Articles of Incorporation (or equivalent documents of constitution or association), and/or registration documents of the legal entity named above, in accordance with ITB 4.4.  🞎 Authorization to represent the Specialized Subcontractor. |

**Appendix to Technical Part**

**DETAILS OF PARTICIPATION IN THE JOINT VENTURE**

(Where permitted as per BDS ITB 4.1)

|  |  |  |  |
| --- | --- | --- | --- |
| **PARTICIPATION DETAILS** | **FIRM ‘A’**  **(Lead Member)** | **FIRM ‘B’** | **FIRM ‘C’** |
| Financial |  |  |  |
| Name of the Banker(s) |  |  |  |
| Planning |  |  |  |
| Construction Equipment |  |  |  |
| Key Personnel |  |  |  |
| Execution of Work (Give details on proposed contribution of each) |  |  |  |

The Joint Venture should indicate the details of participation as above.

Appendix to Technical Part

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

*[to be completed for the Bidder and for each member of a Joint Venture]*

Bidder’s Name: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*Date: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*Joint Venture Member’s Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_RFB No. and title: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*Page *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*of *\_\_\_\_\_\_\_\_\_\_\_\_\_\_*pages

|  |  |  |  |
| --- | --- | --- | --- |
| Non-Performed Contracts in accordance with Section III, Evaluation and Qualification Criteria | | | |
| 🞎 Contract non-performance did not occur since 1st January *[insert year]* specified in Section III, Evaluation and Qualification Criteria, Sub-Factor 2.1.  🞎 Contract(s) not performed since 1st January *[insert year]* specified in Section III, Evaluation and Qualification Criteria, requirement 2.1 | | | |
| **Year** | **Non- performed portion of contract** | **Contract Identification** | **Total Contract Amount (Rs.)** |
| *[insert year]* | *[insert amount and percentage]* | Contract Identification: *[indicate complete contract name/ number, and any other identification]*  Name of Employer: *[insert full name]*  Address of Employer: *[insert street/city/country]*  Reason(s) for non-performance: *[indicate main reason(s)]* | *[insert amount]* |
| Pending Litigation, in accordance with Section III, Evaluation and Qualification Criteria | | | |
| 🞎 No pending litigation in accordance with Section III, Evaluation and Qualification Criteria, Sub-Factor 2.3. | | | |
| 🞎 Pending litigation in accordance with Section III, Evaluation and Qualification Criteria, Sub-Factor 2.3 as indicated below. | | | |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Year of dispute** | | **Amount in dispute (Rs.)** | | **Contract Identification** | **Total Contract Amount (Rs.)** |
| *[insert year]* | | *[insert amount]* | | Contract Identification: [indicate complete contract name, number, and any other identification]  Name of Employer: *[insert full name]*  Address of Employer: *[insert street/city/country]*  Matter in dispute: *[indicate main issues in dispute]*  Party who initiated the dispute: *[indicate “Employer” or “Contractor”]*  Status of dispute: *[Indicate if it is being treated by the Adjudicator, under Arbitration or being dealt with by the Judiciary]* | *[insert amount]* |
| *[insert year]* | | *[insert amount]* | | Contract Identification: [indicate complete contract name, number, and any other identification]  Name of Employer: *[insert full name]*  Address of Employer: *[insert street/city/country]*  Matter in dispute: *[indicate main issues in dispute]*  Party who initiated the dispute: *[indicate “Employer” or “Contractor”]*  Status of dispute: *[Indicate if it is being treated by the Adjudicator, under Arbitration or being dealt with by the Judiciary]* | *[insert amount]* |
| Litigation History in accordance with Section III, Evaluation and Qualification Criteria | | | | | |
| 🞎 No Litigation History in accordance with Section III, Evaluation and Qualification Criteria, Sub-Factor 2.4.  🞎 Litigation History in accordance with Section III, Evaluation and Qualification Criteria, Sub-Factor 2.4 as indicated below. | | | | | |
| **Year of award** | **Outcome as percentage of Net Worth** | | **Contract Identification** | | **Total Contract Amount (Rs.)** |
| *[insert year]* | *[insert percentage]* | | Contract Identification: [indicate complete contract name, number, and any other identification]  Name of Employer: *[insert full name]*  Address of Employer: *[insert street/city/country]*  Matter in dispute: *[indicate main issues in dispute]*  Party who initiated the dispute: *[indicate “Employer” or “Contractor”]*  Reason(s) for Litigation and award decision *[indicate main reason(s)]* | | *[insert amount]* |

**Appendix to Technical Part**

Form CON – 3: Environmental and Social (ES) Performance Declaration

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

Bidder’s Name: \_\_\_\_\_\_\_\_\_\_\_*[insert full name]*Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_*[insert day, month, year]*Joint Venture Member’s or Specialized Subcontractor’s Name: \_\_\_\_\_\_\_\_*[insert* *full name]*RFB No. and title: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*[insert RFB number and title]*Page \_\_\_\_\_\_\_\_*[insert page number]* of \_\_\_\_\_\_\_\_*[insert page number]* pages

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

Appendix to Technical Part

Form CCC: Current Contract Commitments / Works in Progress

Bidders and each member of 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.

(A) Existing commitments and on-going works:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Description of Work | Place & State | Contract No. & Date | Name and Address of Employer | Value of Contract (Rs. equivalent in million) | Stipulated period of completion | Value of works[[23]](#footnote-24) remaining to be completed (Rs. equivalent in million) | Anticipated date of completion | Average Monthly Invoicing Over Last Six Months  (Rs./month) Equivalent in millions) |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |

(B) Works for which bids already submitted and likely to be awarded – expected additional commitment.

\_\_\_

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Description of Work | Place & State | Name and Address of Employer | Estimated value of Works (Rs. equivalent in million) | Stipulated period of completion | Date when decision is expected | Remarks, if any |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

Appendix to Technical Part

Form FIN – 3.1: Financial Situation and Performance

*[To be completed by the Bidder and by each member of a Joint Venture]*

Bidder’s Legal Name: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*Date: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*Joint Venture Member’s Legal Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_RFB No. and title: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*Page *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*of *\_\_\_\_\_\_\_\_\_\_\_\_\_\_*pages

**1. Financial data**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Type of Financial information in**  **(Rs.)** | **Historic information for previous** *\_\_\_\_\_\_\_\_\_years,*  *\_\_\_\_\_\_\_\_\_\_\_\_\_\_*  **(amount in Rs.)** | | | | |
|  | Year 1 | Year 2 | … | … | Year 7 |
| 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 |  |  |  |  |  |
| This information should be extracted from the Annual Financial Statements/ Balance sheets, which should be enclosed. Year 1 will be the latest year for which audited financial statements are available. Year 2 shall be the year immediately preceding year 1 and year 3 shall be the year immediately preceding Year 2. | | | | | |

**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 (Rs.)** |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |
|  |  |  |

**3. 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. In case of Indian bidders, the financial statements shall be audited by a certified chartered accountant.

(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[[24]](#footnote-25) (balance sheets, including all related notes, and income statements) for the *\_\_\_\_\_\_\_\_\_\_\_\_*years required above; and complying with the requirements

Appendix to Technical Part

Form FIN - 3.2: Average Annual Construction Turnover

*[To be completed by the Bidder and by each member of a Joint Venture]*

Bidder’s Legal Name: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*Date: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*Joint Venture Member’s Legal Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_RFB No. and title: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*Page *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*of *\_\_\_\_\_\_\_\_\_\_\_\_\_\_*pages

|  |  |
| --- | --- |
| **Annual turnover data (construction only)** | |
| **Year** | **Amount in Rs.** |
| *[indicate year]* | *[insert amount]* |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
| Average Annual Construction Turnover \* |  |

\* See Section III, Evaluation and Qualification Criteria, Sub-Factor 3.2. Annual construction turnover calculated as total certified payments received for work in progress or completed, for 7 years. This should be certified by a Chartered Accountant.

**Appendix to Technical Part**

**JOINT VENTURE**

(Where permitted as per BDS ITB 4.1)

|  |
| --- |
| **Names of all members of a joint venture** |
| **1. Member in charge** |
| **2. Member** |
| **3. Member** |

**Total value of annual construction turnover, in terms of work billed to clients, in Rupees**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Annual Turnover Data (construction only; in Rs. \*)** | | | | | | | |
| **Member** | **Form 3.2 page no.** | **Year 1** | **Year 2** | **…** | **…** | **Year 7** | **Average** |
| **1. Member in charge** |  |  |  |  |  |  |  |
| **2. Member** |  |  |  |  |  |  |  |
| **3. Member** |  |  |  |  |  |  |  |
| **TOTALS** |  |  |  |  |  |  |  |

**\* To be certified by a chartered accountant**

#### **Name and address of Bankers to the Joint Venture**

Provide details regarding financial responsibility and participation (percentage share in the total) of each firm in the Joint Venture. Attach a Memorandum of Understanding for the Proposed Agreement of joint Venture which should lay down responsibility regarding work and financial arrangements in respect of each of the firm in the Joint Venture (Refer also ITB Clause 4.1).

Appendix to Technical Part

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.

|  |  |
| --- | --- |
| **Source of financing** | **Amount (Rs.)** |
| 1. |  |
| 2. |  |
| 3. |  |
| 4. |  |

**FORMAT FOR EVIDENCE OF ACCESS TO OR AVAILABILITY OF CASH FLOW**

*[To be given from a Nationalized or Scheduled Bank in India]*

**Clause 3.1(ii) of Section III – Qualification Criteria**

**(1) AVAILABILITY OF CASH FLOW (WORKING CAPITAL)**

This is to certify that M/s. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a reputed company with a good financial standing.

If the contract for the works, namely \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ [funded by the World Bank] is awarded to the above firm, we shall be able to provide overdraft/credit facilities to the extent of Rs. equivalent \_\_\_\_\_\_\_ to meet their capital requirements for executing the above contract.

-- Sd. --

Name of Bank Manager

Senior Bank Manager

Address of the Bank

|  |
| --- |
| **\* Change the text as follows for Joint venture:** (Where permitted as per BDS ITB 4.1)  *This is to certify that M/s. ………………………………. who has formed a JV with M/s. ………………………….. and M/s. …………………………….. for participating in this bid, is a reputed company with a good financial standing.*  *If the contract for the work, namely …………………………………………………………. [funded by the World Bank] is awarded to the above Joint Venture, we shall be able to provide overdraft/credit facilities to the extent of Rs. …………… to meet the working capital requirements for executing the above contract.*  *[This should be given by the JV members in proportion to their financial participation.]* |

Appendix to Technical Part

Form EXP - 4.1: General Construction Experience

*[The following table shall be filled in for the Bidder and for each member of a Joint Venture]*

Bidder’s Legal Name: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*Date: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*Joint Venture Member’s Legal Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_RFB No. and title: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*Page *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*of *\_\_\_\_\_\_\_\_\_\_\_\_\_\_*pages

*[Identify contracts that demonstrate continuous construction work over the past [7] years pursuant to Section III, Qualification Criteria and Requirements, Sub-Factor 4.1. List contracts chronologically, according to their commencement (starting) dates.]*

|  |  |  |  |
| --- | --- | --- | --- |
| Starting  Month/ Year | Ending  Month/ Year | Contract Identification | Role of  Bidder  *[“Contractor” or “JV Member” or “Subcontractor” or “Contract Manager”]* |
|  |  | 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: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_* |  |

Appendix to Technical Part

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

*[The following table shall be filled in for contracts performed by the Bidder, each member of a Joint Venture, and specialist sub-contractors]*

Bidder’s Legal Name: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*Date: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*Joint Venture Member’s Legal Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_RFB No. and title: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*Page *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*of *\_\_\_\_\_\_\_\_\_\_\_\_\_\_*pages

Work performed as prime Contractor or JV Member or Sub-Contractor or Management Contractor (in the same name and style) on construction works of a similar nature and volume over the last seven years[[25]](#footnote-26). [*Attach certificate from the Engineer-in-charge.*]

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Similar Contract No.** | **Information** | | | | |
| Contract Identification |  | | | | |
| Award date |  | | | | |
| Completion date |  | | | | |
| Role in Contract | Prime Contractor 🞎 | | Member in JV  🞎 | Management Contractor  🞎 | Sub-contractor 🞎 |
| Total Contract Amount | *Rs.* \* | | | | |
| If member in a JV or subcontractor, specify participation in total Contract amount |  |  | | *\** | |
| Employer's Name: |  | | | | |
| Address:  Telephone/fax number  E-mail: |  | | | | |

**Appendix to Technical Part**

**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 |  |

Appendix to Technical Part

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

Bidder’s Legal Name: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*Date: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*Joint Venture Member’s Legal Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Subcontractor's Legal Name[[26]](#footnote-27) (as per ITB 33.2 and 33.3): *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*

RFB No. and title: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*Page *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*of *\_\_\_\_\_\_\_\_\_\_\_\_\_\_*pages

Subcontractor's Name (as per ITB 33.2 and 33.3): *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*

All subcontractors for key activities must complete the information in this form as per ITB 33.2 and 33.3 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  🞎 | Member in  JV  🞎 | | Management Contractor  🞎 | Sub-contractor  🞎 |
| Total Contract Amount | Rs. | | | | |
| Quantity (Volume, number or rate of production, as applicable) performed under the contract per year or part of the year in the last 7 years | Total quantity in the contract  (i) | | Percentage  participation  (ii) | | Actual Quantity Performed  (i) x (ii) |
| Year 1 |  | |  | |  |
| Year 2 |  | |  | |  |
| Year 3 |  | |  | |  |
| Year 4 |  | |  | |  |
| Year 5 |  | |  | |  |
| Year 6 |  | |  | |  |
| Year 7 |  | |  | |  |

|  |  |
| --- | --- |
|  | **Information** |
| Employer’s Name[[27]](#footnote-28): |  |
| Address:  Telephone/fax number  E-mail: |  |

2. Activity No. Two

3. …………………

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

**Appendix to Technical Part**

Form…..

*(Name of the Project)*

**(*Declaration regarding tax/duty exemption for materials/construction equipment bought for the work)***

(*Bidder’s Name and Address*)

To: …………………..

(*Name of the Employer& address*)

Dear Sir:

Re: [*Name of Work*]…………………….

Certificate for Import/Procurement of Goods/Construction Equipment

Government Order/Circular Number under which tax/duty Exemption is being sought: …

1. We confirm that we are solely responsible for obtaining tax/duty waivers which we have considered in our bid and in case of failure to receive such waivers for reasons whatsoever, the employer will not compensate us.

2. We are furnishing below the information required by the Employer for issue of the necessary certificates in terms of the Government of India’s relevant Notifications.

3. The goods/construction equipment for which certificates are required are as under:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Items  *(modify the list suitably for each specific work)\** | Make/Brand Name | Capacity [*where applicable*] | Quantity | Value | State whether it will be procured locally or imported [*if so from which country*] | Remarks regarding justification for the quantity and their usage in works. |
| **Goods** | | | | | | |
| [a] Bitumen |  |  |  |  |  |  |
| [b] Cement |  |  |  |  |  |  |
| [c] Steel |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| **Construction Equipment** | | | | | | |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

4. We agree that no modification to the above list is permitted after bids are opened.

5. We agree that the certificate will be issued only to the extent considered reasonable by the Employer for the work, based on the Bill of Quantities and the construction program and methodology as furnished by us along with the bid.

6. We confirm that the above goods and construction equipment will be exclusively used for the construction of the above work and the construction equipment will not be sold or otherwise disposed of in any manner for a period of seven years from the date of acquisition.

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (*Signature*)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Place:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (*Printed Name*)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(*Designation*)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(*Common Seal*) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

[***This certificate will be issued within 60 days of signing of contract and no subsequent changes will be permitted.*]**

**\* *Modify the above to suit the requirements given in*** ***Government of India’s Notifications as current of date of bidding.***

**Appendix to Technical Part: Bid Security**

**Form of Bid Security - Bank Guarantee**

*[Guarantor letterhead or SWIFT identifier code]*

Bank Guarantee No…………………….[insert guarantee reference number]

Date………………………….[insert date of issue of the guarantee]

WHEREAS, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ [name of Bidder][[28]](#footnote-29) (hereinafter called "the Applicant") has submitted his Bid dated \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ [date] or will submit his Bid for the construction of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ [name of Contract] (hereinafter called "the Bid") under Request for Bids No……………………….[insert number] (hereinafter called “the RFB”)

KNOW ALL PEOPLE by these presents that We \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ [name of bank] of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ [name of country] having our registered office at \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (hereinafter called "the Bank") are bound unto \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_[name of Employer] (hereinafter called "the Employer") in the sum of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ [[29]](#footnote-30)for which payment well and truly to be made to the said Employer the Bank binds itself, his successors and assigns by these presents.

SEALED with the Common Seal of the said Bank this \_\_\_\_\_\_\_\_\_ day of \_\_\_\_\_\_\_\_\_\_ 20\_\_\_\_.

THE CONDITIONS of this obligation are:

(1) If after Bid opening the Applicant (a) withdraws his bid during the period of Bid validity specified in the Letter of Bid, or any extended date provided by the Applicant (“the Bid Validity Period”); or (b) does not accept the correction of the Bid Price pursuant to ITB 36;

Or

(2) If the Applicant having been notified of the acceptance of his bid by the Employer during the period of Bid validity:

(a) fails or refuses to execute the Contract Agreement in accordance with the Instructions to Bidders, if required; or

(b) fails or refuses to furnish the Performance Security and if required, the Environmental and Social (ES) Performance Security, in accordance with the Instruction to Bidders.

we undertake to pay to the Employer up to the above amount upon receipt of his first written demand, without the Employer having to substantiate his demand, provided that in his demand the Employer will note that the amount claimed by him is due to him owing to the occurrence of one or any of the four conditions, specifying the occurred condition or conditions.

This Guarantee will remain in force up to and including the date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ [[30]](#footnote-31)days after the deadline for submission of Bids as such deadline is stated in the Instructions to Bidders or as it may be extended by the Employer, notice of which extension(s) to the Bank is hereby waived. Any demand in respect of this guarantee should reach the Bank not later than the above date.

DATE \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ SIGNATURE OF THE BANK \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

WITNESS \_\_\_\_\_\_\_\_\_\_\_\_ SEAL \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

[signature, name, and address]

*Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.*

Appendix to Technical Part

Form of Bid-Securing Declaration

(Where permitted under ITB 19.1)

Date: *[insert date (as day, month and year)]*

RFB No.: *[insert number of Bidding process]*

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

To: *[insert complete name of Employer]*

We, the undersigned, declare that:

We understand that, according to your conditions, bids must be supported by a Bid-Securing Declaration.

We accept that we will automatically be suspended from being eligible for bidding or submitting proposals in any contract with the Employer for the period of time of *[insert number of months or years]* starting on *[insert date]*, if we are in breach of our obligation(s) under the bid conditions, because we:

(a) have not accepted the correction of the Bid Price pursuant to ITB 36; or

(b) have withdrawn our Bid during the period of Bid validity specified in the Letter of Bid or any extended date provided by us; or

(c) having been notified of the acceptance of our Bid by the Employer during the period of bid validity, (i) fail or refuse to execute the Contract, if required, or (ii) fail or refuse to furnish the Performance Security and, if required, the Environmental and Social (ES) Performance Security, in accordance with the ITB.

We understand this Bid-Securing Declaration shall expire if we are not the successful Bidder, upon the earlier of (i) our receipt of your notification to us of the name of the successful Bidder; or (ii) forty-five days after the expiration of our Bid.

Name of the Bidder**\*** *[insert complete name of person signing the Bid]*

Name of the person duly authorized to sign the Bid on behalf of the Bidder**\*\*** *[insert complete name of person duly authorized to sign the Bid]*

Title of the person signing the Bid *[insert complete title of the person signing the Bid]*

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

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

**\***: In the case of the 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 *[Note: In case of a Joint Venture, the Bid-Securing Declaration must be in the name of all members to the Joint Venture that submits the Bid.]*

Appendix to Technical Part

Affidavit regarding correctness of information provided

(To be produced on Rs 100/- Stamp paper and duly Notarized)

(to be Produced for each member of Joint Venture separately)

To: …………………..

(*Name of the Employer& address*)

Dear Sir:

Re: [*Name of Work*]……………………………………………………………….

The documents attached/information provided by us for the aforesaid work in technical part are as follows :-

|  |  |
| --- | --- |
| S.No. | Information/Documents attached |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

1. We confirm that we are solely responsible for trueness and correctness of the all certificates/documents and information provided by us for above mentioned work.

|  |
| --- |
| Authorized Signatory……………………………  Name ……………………………………………..  For M/S …………………………………………..  Address …………………………………………..  Date :- ……………………………………………  [ Notary ]  We hereby do solemnly affirm with oath that the all information and certificates/documents provided by us in the above mentioned work are absolutely true and correct to the best of our knowledge and we are wholly responsible for all information and certificates/documents provided.  Authorized Signatory……………………………  Name ……………………………………………..  For M/S …………………………………………..  Address …………………………………………..  [ Notary] Date :- …………………………………………… |

|  |
| --- |
| Letter of Bid - Financial Part |

|  |
| --- |
| *INSTRUCTIONS TO BIDDERS: DELETE THIS BOX ONCE YOU HAVE COMPLETED THE DOCUMENT*  *The Bidder must prepare this Letter of Bid on stationery with its letterhead clearly showing the Bidder’s complete name and business address.*  *Note: All italicized text is to help Bidders in preparing this form.* |

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

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

**Alternative No.[[31]](#footnote-32)**:[*insert identification No if this is a Bid for an alternative*]

To: **[*insert complete name of Employer*]**

We, the undersigned, hereby submit the second part of our Bid, the Bid Price and Bill of Quantities. This accompanies the Letter of Bid - Technical Part.

In submitting our Bid, we make the following additional declarations:

1. **Bid Validity Period**: Our Bid shall be valid for a period specified in BDS 18.1 (or as amended if applicable) from the date fixed for the Bid submission deadline specified in BDS 22.1 (or as amended if applicable), and it shall remain binding upon us and may be accepted at any time before the expiration of that period;
2. **Bid Price**: The total price of our Bid, excluding any discounts offered in item (c) below is: [*Insert one of the options below as appropriate*]

*[Option 1, in case of one lot:]* Total price is: [*insert the total price of the Bid in Rs. in words and figures*];

Or

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

1. **Discounts:** The discounts offered and the methodology for their application are:

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

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

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

|  |  |  |  |
| --- | --- | --- | --- |
| Name of Recipient | Address | Reason | Amount |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

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

**Name of the Bidder**:\*[*insert complete name of person signing the Bid*]

**Name of the person duly authorized to sign the Bid on behalf of the Bidder**: \*\* [*insert complete name of person duly authorized to sign the Bid*]

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

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

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

**\***: In the case of the Bid submitted by a 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. The power of attorney shall be attached with the Bid Schedules

**Appendix to Financial Part: Schedules**

**Sub-contracting**

SCHEDULE OF SUBCONTRACTORS

*[Note: Entries in this Schedule shall be the same as included in the same Schedule in the technical part of the bid, except for the column on ‘Approximate value of subcontract’ added in the table below]*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item | Element of work | Approximate value of subcontract | % of bid price | Name and address of sub-contractor | Qualification and experience of sub-contractor on similar works of the elements executed |
|  |  |  |  |  |  |

The Bidder shall enter in this schedule a list of the major sections and appropriate value of the work for which he proposed to use subcontractors *[for those costing more than 10% of the bid price for each element], together with the names, addresses and experiences of the proposed subcontractors.*

The capability of the subcontractor will also be assessed (on the same lines as for the main Contractor) before according approval to him.

*(Work should not be split into small parts and subcontracted; but subcontracting specialized elements of works is acceptable).*

Appendix to Financial Part: Schedules

**Bill of Quantities**

***Objectives***

*The objectives of the Bill of Quantities are:*

*(a) to provide sufficient information on the quantities of Works to be performed to enable bids to be prepared efficiently and accurately; and*

*(b) when a Contract has been entered into, to provide a priced Bill of Quantities for use in the periodic* *measurement and valuation of Works executed.*

*In order to attain these objectives, Works should be itemized in the Bill of Quantities in sufficient detail to distinguish between the different classes of Works, or between Works of the same nature carried out in different locations or in other circumstances which may give rise to different considerations of cost. Consistent with these requirements, the layout and contents of the Bill of Quantities should be as simple and brief as possible.*

***Daywork Schedule***

*A Daywork Schedule should be included only if the probability of unforeseen work, outside the items included in the Bill of Quantities, is high. To facilitate checking by the Employer of the realism of rates quoted by the bidders, the Daywork Schedule should normally comprise the following:*

*(a) A list of the various classes of labor, materials, and Constructional Plant for which basic daywork rates or prices are to be inserted by the Bidder, together with a statement of the conditions under which the Contractor shall be paid for work executed on a daywork basis.*

*(b) Nominal quantities for each item of daywork, to be priced by each Bidder at daywork rates as Bid. The rate to be entered by the Bidder against each basic daywork item should include the Contractor’s profit, overheads, supervision, and other charges.*

***Provisional Sums***

*A general provision for physical contingencies (quantity overruns) may be made by including a provisional sum in the Summary Bill of Quantities. Similarly, a contingency allowance for possible price increases should be provided as a provisional sum in the Summary priced Bill of Quantities. Additional provisional sums for environmental or social (including Sexual Exploitation,* *sexual abuse and sexual harassment)* *requirements may also be added, if required. The inclusion of such provisional sums often facilitates budgetary approval by avoiding the need to request periodic supplementary approvals as the future need arises. Where such provisional sums or contingency allowances are used, the Particular Conditions of Contract should state the manner in which they shall be used, and under whose authority (usually the Project Manager’s).*

*The estimated cost of specialized work to be carried out, or of special goods to be supplied, by other contractors should be indicated in the relevant part of the Bill of Quantities as a particular provisional sum with an appropriate brief description. A separate procurement procedure is normally carried out by the Employer to select such specialized contractors. To provide an element of competition among the bidders in respect of any facilities, amenities, attendance, etc., to be provided by the successful Bidder as prime Contractor for the use and convenience of the specialist contractors, each related provisional sum should be followed by an item in the Bill of Quantities inviting the Bidder to quote a sum for such amenities, facilities, attendance, etc.*

*These Notes for Preparing a Bill of Quantities are intended only as information for the Employer or the person drafting the bidding document. They should not be included in the final bidding document.*

1. Sample Bill of Quantities[[32]](#footnote-33)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| *Item no.* | *Description of item (with brief specification and reference to Book of specifications)* | *Unit* | *Quantity* | *Rate (Rs.)* | | *Amount[[33]](#footnote-34) (Rs.)* |
| In figures | In words[[34]](#footnote-35) |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
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|  | [*To be entered by the Employer; Delete if not applicable:]* Provisional sums for additional ES outcomes |  |  |  |  |  |
|  |  |  |  |  |  |  |
| Total (Rs. in figures) | | | | | | |
| Total (Rs. in words) | | | | | | |

**Note:**

1. *Item for which no rate or price has been entered in will not be paid for by the Employer when executed and shall be deemed covered by the other rates and prices in the Bill of Quantities (refer: ITB Clause 14.2 and GCC Clause 45.4).*
2. *Unit rates and prices shall be quoted by the bidder in Indian Rupees (refer: ITB Clause 14.1 and ITB Clause 15.1).*
3. *Where there is a discrepancy between the unit rate and the line item total resulting from multiplying the unit rate by quantity, the unit rate quoted shall govern (refer: ITB Clause 36). [Note: delete this point if the e-procurement system automatically calculates the total from the unit rate and quantity]*
4. *Where there is a discrepancy between the rate in figures and words, the rates in words will govern (refer: ITB Clause 36). [Note: delete this point if the e-procurement system automatically populates the amount in words from the amount in figures]*

**SAMPLE BILL OF QUANTITIES**

**TO BE MODIFIED AS PER WORKS’ REQUIREMENTS**

| **S.No.** | **Item Description** | | **Quantities (To Be Filled)** | **Unit** | **Rate** | **Amount** |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |
| **A** | **CIVIL WORKS** | |  |  |  |  |
| **(i)** | **Protection work of damaged portion of apron.** | |  |  |  |  |
| 1 | Cutting & clearance of jungle, bushes, shrubs Ankra/lpomoea, Julieflora tpna etc. on canals and bunds in dry/moist/slushy conditions including disposal as per instructions of the Project Manager. Cost of wood has been deducted from rates and thus will be property of contractor after cutting. Thick | |  | sqm |  |  |
| 2 | Excavation including loading, unloading, disposal and dressing of excavated earth within initial lead of 50m and lift up to 1.5m in dry or moist including dressing of excavated area, dewatering wherever required complete in all respect Hard / dense soil | |  | cum |  |  |
| 3 | Cement concrete (1: 3 :6) M-10 well mixed and laid in position complete including all leads of all construction materials including curing and finishing having well graded crusher broken stone aggregate of maximum size up to 40 mm(PCC) | |  | cum |  |  |
| 4 | Random rubble stone masonry (using R.R. stones where 75 % stones to be not less 15 cm in size in any direction and weighing not less than 23 kg) for foundation including curing all leads of construction materials & all taxes and with initial lift/delift of 5 m from ground level etc. complete.in CM (1:5) | |  | cum |  |  |
| 6 | Providing and laying cement concrete coping in (1:2:4) with maximum size of crusher broken agg up to 20 mm including shuttering etc. with all leads of material complete in all respect in thickness of 75 mm | |  | sqm |  |  |
| 7 | Flush or ruled pointing on stone masonry including racking of joints and curing etc. complete including all leads of all construction materials in mortar ratio.In Cement sand mortar 1:3 | |  | sqm |  |  |
| 8 | Cement concrete (1: 2 :4) M-15 well mixed and laid in position complete including all leads of all construction materials including curing and finishing having well graded crusher broken stone aggregate of maximum size upto 40 mm | |  | cum |  |  |
| 9 | Cement concrete (1 : 0.75 : 1.5) M-30 well mixed and laid in position complete including all leads of all construction materials including curing and finishing having well graded crusher broken stone aggregate of maximum size upto 20 mm | |  | cum |  |  |
| 10 | Supplying of M.S. reinforcement including labour charges for bending binding and placing in position all reinforcement as per drawing including cost of binding wire and all leads and lifts using T or ribbed bar. | |  | Kg |  |  |
| 11 | Side shuttering including propping etc. complete (to achieve finish F 2 for: Block joints of foundation stilling basins buckets, aprons etc. ( non -suspended horizontally laid mass concrete) | |  | Sqm |  |  |
| 12 | Drilling holes of 35 mm diameter for anchor rods. Upto 1.50 m. depth | |  | Mtr |  |  |
| 13 | Supply of Tor steel anchor bars of required diameter, length and shape at site of work complete. | |  | Kg |  |  |
| 14 | Labour charges for Fixing of anchor bars in neat cement grout including cost of cement and curing etc. complete | |  | Each |  |  |
| 15 | Add extra over item No. 2 for excavation under water for all type of strata including dewatering charges. (Quantity under water during actual work is only to be considered) Quantity of excavation below water level in foundation area during continuous pump running should only be considered. | |  | cum |  |  |
| 16 | Supplying and laying quarry spalls properly graded but not more than 10cm in size with spreading in required profile including all leads & lifts(Quarry spalls for Embankment & Side slope ) | |  | cum |  |  |
| **(ii)** | **Strengthening and maintenance of \_\_\_\_\_\_ Main Dam and its surrounding area.** | |  |  |  |  |
| 1 | Cutting & clearance of jungle, bushes, shrubs Ankra/lpomoea, Julieflora tpna etc. on canals and bunds in dry/moist/slushy conditions including disposal as per instructions of the Project Manager. Cost of wood has been deducted from rates and thus will be property of contractor after cutting. Thick | |  | sqm |  |  |
| 2 | Excavation including loading, unloading, disposal and dressing of excavated earth within initial lead of 50m and lift up to 1.5m in dry or moist including dressing of excavated area, dewatering wherever required complete in all respectHard / dense soil | |  | cum |  |  |
| 3 | Cement concrete (1: 3 :6) M-10 well mixed and laid in position complete including all leads of all construction materials including curing and finishing having well graded crusher broken stone aggregate of maximum size upto 40 mm(PCC) | |  | cum |  |  |
| 4 | Cement concrete (1: 3 :6) M-10 well mixed and laid in position complete including all leads of all construction materials including curing and finishing having well graded crusher broken stone aggregate of maximum size upto 20 mm(PCC) | |  | cum |  |  |
| 5 | Cement concrete (1 : 1½ : 3) M-20 well mixed and laid in position complete including all leads of all construction materials including curing and finishing having well graded crusher broken stone aggregate of maximum size upto 20 mm | |  | cum |  |  |
| 6 | Drilling holes of 35 mm diameter for anchor rods. (a) upto 1.50 m. depth | |  | Mtr |  |  |
| 7 | (c)Supply of Tor steel anchor bars of required diameter, length and shape at site of work complete. | |  | Kg |  |  |
| 8 | Labour charges for Fixing of anchor bars in neat cement grout including cost of cement and curing etc. complete | |  | Each |  |  |
| 9 | Supplying of M.S. reinforcement including labour charges for bending binding and placing in position all reinforcement as per drawing including cost of binding wire and all leads and lifts using-Tor or ribbed bars (IS :1786-1985) | |  | cum |  |  |
| 10 | Side shuttering including propping etc. complete (to achieve finish F 2 for: Block joints of foundation stilling basins buckets, aprons etc. ( non -suspended horizontally laid mass concrete) | |  | sqm |  |  |
| 11 | Random rubble stone masonry (using R.R. stones where 75 % stones to be not less 15 cm in size in any direction and weighing not less than 23 kg) for foundation including curing all leads of construction materials & all taxes and with initial lift/delift of 5 m from ground level etc. complete.in CM (1:5) | |  | cum |  |  |
| 12 | Add Extra for Masonry work in superstructure for Dam and other works. | |  | cum |  |  |
| 13 | Providing and laying cement concrete coping in (1:2:4) with maximum size of crusher broken aggregate up to 20 mm including shuttering etc. with all leads of material complete in all respect in thickness of 75 mm. | |  | sqm |  |  |
| 14 | Flush or ruled pointing on stone masonry including racking of joints and curing etc. complete including all leads of all construction materials in mortar ratio.In Cement sand mortar 1:3 | |  | sqm |  |  |
| 15 | Supplying and laying sand of grade as per design requirement in required profile including all lead & lifts. | |  | cum |  |  |
| 16 | Providing and fixing of Precast concrete interlocking blocks ofmanufactured from fully computerized automatic stationery hydraulic vibro pressed machine & full computerized automatic batching plant of class A-1 as per BS: 6717-2001. The C.C. interlocking paving blocks be laid on average 25 mm thick bed of coarse sand and the joint is to be filled with fine sand. Laying procedure on compacted subbase as defined. Complete job is to be executed as per the instructions of Project Manager. The rates to be inclusive of all lead, lift, lifts & taxes general specifications of blocks.1. Shape: As specified by Project Manager.2. Tensile splitting strength and breaking load as per BS: 6717-20013. Colour: Grey cement natural colour 4. Variation in Dimension: Less than 1.6mm.5. Variation in thickness: Less than 3.2mm b) 80mm thick | |  | sqm |  |  |
| 17 | Preparation of surface of existing concrete surface/ masonry in lime mortar/ cement mortar including removal of organic deposit by washing with etching compound and use of wet sand blasting and final washing the surface with air and water jet including cost of all material and equipment required for the work complete. | |  | sqm |  |  |
| 18 | 50 mm thick shotcrete is to be applied after removal of defective concrete / masonry, cleaning of surface thoroughly, with compressor having base layer of 25 mm, and second layer of 25 mm thickness in cement concrete (1:2:1) after proper fixing of 9 gauge welded mesh of good quality rust free of size 50 mm x 50 mm in two layers with anchors / clamps after cleaning the surface by wet sand blasting in stone masonry / concrete complete in all respect. Cement concrete comprising of cement, sand, coarse aggregate, water and quick setting compound in the proportion 1:2:1, sand and coarse aggregate conforming to IS 383 and table no. 1 of IS;9012 respectively. | |  | sqm |  |  |
| 19 | Add extra over item No. 16&17 for each subsequent height 3.00 m or part there-of above initial lift of 5 m from ground level ( upward or downward) | |  | sqm |  |  |
| 20 | Structural steel work welded in built up sections, trusses and framed work including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete above plinth level up to 4.5 Mtr. height in R.S. Joists flats, tees, angles and channels. | |  | Kg |  |  |
| 21 | P&F early steamer emission type lightening arrester on GI mast with air terminal configured as spheroid which is comprised of separate electrically isolated 4 panels surrounding an earthed centralfinial,the terminal shall be tested by CPRI for impulse current of 45 KA (8/20 Sec)with 5 positive and 5 negative impulse, the arrester having following protection radius at level 1 : 60-79 m | |  | nos |  |  |
| 22 | S& laying of down conductor of 70 Sqmm single core insulated flexible copper cable with accessories as required. | |  | mtr |  |  |
| 23 | Providing and fixing steel gate grating and grills made of angles, tees, square bars or other flats black pipe with holdfast and fittings complete as per design and drawing including cutting welding and fabrication with priming coat of red oxide. | |  | kg |  |  |
| 24 | Structural steel work welded in built up sections, trusses and framed work including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete above plinth level up to 4.5 Mtr. height in R.S. Joists flats, tees, angles and channels. | |  | kg |  |  |
| 25 | Wall painting with plastic emulsion paint of approved brand and manufacture to give an even shade: Two or more coats on new work including preparation of base with primer, putty, lippy complete in all respect. | |  | sqm |  |  |
| 26 | Finishing wall with water proofing cement paint of approved brand and manufacture and or required shade to give an even shade including all scaffolding: New work (Three or more coats). | |  | sqm |  |  |
| **(iii)** | **Reaming/Cleaning of drain holes, Lightening arrangement, and dewatering arrangement of foundation gallery.** | |  |  |  |  |
| 1 | Providing, Laying, Jointing, Commissioning and Testing of ISI marked HDPE pipes of PE-100 grade for potable water as per IS 4984 (amended upto date) in assorted length with specials, valves etc. this including the pipes, jointing material, valve, specials etc. and other material himself own cost carting to site. Dismantling of road surface, excavation & earth work of trenches & as per detailed specification & drawing, then jointing with Jointing material/ Rubber Rings (HDPE Pipes, Jointing material/ Rubber Rings and other material shall be arranged by the contractor him self own cost). This includes, uPVC/ PVC/ HDPE Special like tees, bends, reducer, enlarger, end plug cutting of pipes and making of joints etc. and testing of system, cleaning of site complete job for: (Rates are Exclusive of Earth Work and WBM/ Chap/ Cement Concrete/ Bituminious Road cutting/ CI Specials/ CI Valves etc. for interconnection with other pipes, if required but including uPVC/ PVC/ HDPE specials like tees, bends, reducer, enlarger, end plug etc.)- Pipes Nominal Dia. (mm) 110 mm Dia. | |  | Rmtr |  |  |
| 2 | Providing, Fabrication of Mild Steel Plane Ended/ Flanged Specials like Tees, Bends, Reducers, Enlargers, Plugs, Tail Pieces and Blank Flange made from MS pipes, MS sheet strip and MS Sheet of required sizes by welding, cutting and treading as per site conditions and as directed by the Project Manager complete in all respect. | |  | kg |  |  |
| 3 | SITC of radial / mixed flow submersible motor pump sets ISI marked (IS:8034-1989) of approved make with required accessories including making connection suitable for T.W./ D.C.B./ Open well. The job includes lowering of riser pipe, G.I./ H.D.P.E. pipe with rope, cables, installation of complete fitting and accessories, jointing of electrical cables up to switch board. All labour for testing of submersible pumps set and supply of water to water mains, complete in all respect.150 mm diameter Submersible pump shall have following HP Rating, phase, Head, minimum Discharge respectively. | |  |  |  |  |
| a) | 15.0 HP, 3-Ø, (90-125) Mtr, (400-167)LPM | |  | Each |  |  |
| b) | 10.0 HP, 3-Ø, (64-104)Mtr, (400-167)LPM | |  | Each |  |  |
| c) | 5.0 HP, 3-Ø, (32-52)Mtr, (400-167)LPM | |  | Each |  |  |
| 4 | Supply and fixing of Oil / Air break Starter panel made out of sheet steel powder coated enclosure comprising of over load protection relay, short circuit & single phasing protection, ON / OFF push buttons, ammeter, voltmeter, indicating lamps etc. complete in all respect suitable for following rating motors:For Three phase Submersible / Mono block pump:) | |  |  |  |  |
| a) | 12.5 HP to 17.5.0 HP (Star / Delta | |  | Each |  |  |
| b) | 3.0 HP to 10HP (Star/Delta ) | |  | Each |  |  |
| 5 | Wiring of light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq. mm nominal size FR PVC insulated unsheathed flexible copper conductor 1.1 kV grade and 1.5 sq. mm nominal size FR PVC insulated unsheathed flexible copper earth conductor 1.1 kV grade (IS:694) of approved make in surface / recessed ISI marked medium duty PVC conduit & it's accessories, round tiles,Hot Dipped Galvanized Modular Box with earth terminal, 6 A Modular switch,Modular plate with grid plate, screws, making connections, testing etc. as required. Long point (up to 10 mtr..) (AC Line for pump set ) | |  | Nos |  |  |
| 6 | P/Laying P.V.C. / XLPE insulated & P.V.C. sheathed cable of 1.1 KV grade with Copper conductor of IS:1554 P-I / IS :7098 P - I of Group 1 of approved make in ground as per IS:1255 including excavation of 30cmx75cm size trench, 25 cm thick under layer of sand,IInd class bricks covering, refilling earth,compaction of earth, making necessary connection, testing etc. as required of size. | |  |  |  |  |
| a) | 6.0 sqmm 3 core | |  | Rmtr |  |  |
| b) | 4.0 sqmm 3 core | |  | Rmtr |  |  |
| 7 | Drilling more than 48 mm but upto 76 mm dia, holes in all types of rock or artificial hard material like concrete or masonry in stages by percussion drilling including cost of drilling equipment, compressed air, water etc. complete and re-drilling in the hole through set grout if required. | |  |  |  |  |
| a) | Up to 5 m. depth | |  | mtr |  |  |
| b) | From 5 to 10 m depth | |  | mtr |  |  |
| c) | From 10 to 15 m depth | |  | mtr |  |  |
| 8 | Normal pressure washing of drilled hole in stages in approved pattern for cleaning of clay, soil and other filler materials from the seams and joints in the foundation rock by establishing connections under pressure with air & water including cost of equipment, accessories compressed air, water, labour, admixtures if any required etc. complete as per specification. | |  |  |  |  |
| a) | Up to 5 m. depth (I stage) | |  | Holes/ stage |  |  |
| b) | From 5 to 10 m depth ( II stage) | |  | Holes/ stage |  |  |
| c) | From 10 to 15 m depth ( III stage) | |  | Holes/ stage |  |  |
| 9 | P/ Laying P.V.C. / XLPE insulated & P/V.C. sheathed cable of 1.1 KV grade with aluminum conductor of IS:1554 P-I/ IS:7098 P-I of group 1 of approved make in ground as per IS:1255 including excavation of 30cmx75cm size trench, 25cm thick under layer of sand, IInd class bricks covering, refilling earth, compaction of earth, making necessary connection, testing wtc. as required of size 25 Sq.mm, 3 core (G-1) | |  | Mtr. |  |  |
| 10 | Plate earth as per IS:3043 with copper Earth plate of size 600mm x 600mm x 3.0mm by embodying 3 to 4 mtr. Below the ground level with 25mm dia G.I. 'B' class watering pipe including all accessories like nut, bolts, reducer, nipple, wire meshed funnel, and C.C. finished chamber covered with hinged type with locking arrangement C.I. cover, C.I. Frame of size 300mm x 300mm complete with alternate layers of salt and cock/charcoal, testing of earth resistance as required. | |  | Each |  |  |
| 11 | S& laying following size earth wire/strip in horizontal or vertical run ground / surface / recess including reveting, souldering, making connection etc. as required 6 SWG Copper wire | |  | Mtr. |  |  |
| 12 | Supply & fixing of GI pipes with flanges duly screwed & welded including rubber washer, nuts & bolts of 8mm dia complete in all respect ISI makegroup B 40 mm dia | |  | Mtr. |  |  |
| 13 | S&F off load change over switch four pole/2 pole, 230/ 415 V, conforming to IS:13947 P-III in sheet steel enclosure complete with connections with lugs, testing etc. as required in the following rating: 400 A four pole | |  | Each |  |  |
| 14 | P&F 240/415 V AC MCB with positive isolation of breaking capacity not less than 10KA (B/C/D trippingcharacteristic) ISI marked IS: 8828 (1996) / conforming to IEC:60898 in existing board / sheets including making connections, testing etc. as required. Double pole MCB 6 A to 32 A rating | |  | Each |  |  |
| 15 | SF of (0-500) V range voltmeter on existing panel, making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.Digital type | |  | Each |  |  |
| 16 | SF of CT operated direct reading type Ampere meter on existing panel, making connection by PVC insulated copper conductor with PVC sleeves/channel etc. as required.Digital type, below 500A | |  | Each |  |  |
| 17 | SF of 110/220 V, LED (22.5 mm dia) indicating lamp with integral circuit, terminal block, including connection etc. as required. Red/yellow/green | |  | Each |  |  |
| 18 | S&F following sizes (dia.) of ISI marked medium duty PVC conduit along with accessories in surface / recessed using saddles, clamps, fastener as required including cutting the wall, covering conduit and making good the same as required.25 mm 1-grade | |  | R mtr |  |  |
| 19 | Supplying and drawing FR PVC insulated & unsheathed flexible copper conductor ISI marked (IS:694) of 1.1 kV grade and approved make in existing surface or recessed conduit/casing capping including making connections etc. as required. | |  |  |  |  |
| a) | 3x 2.5 sq.mm (G-1) | |  | Mtr. |  |  |
| b) | 3 x 4 sq. mm. (G-1) | |  | Mtr. |  |  |
| 20 | Supplying and fixing of power plug point accessories on 18 SWG metal box of size 175 x 100 x 60 mm. on surface or in recessed with suitable size phenolic laminated sheet cover including cost of 6 pin 16 amp. Switch and socket outlet , making connection , testing , etc. as required.`(G-1) | |  | Each |  |  |
| 21 | P & F two pin energy efficient compact fluorescent lamp in existing holder/fixture as required. 13/18 watt (G-1) | |  | Each |  |  |
| 22 | P & F ISI marked 6 amp bakelite batten/angle holder including making connection testing etc. as required. | |  | Each |  |  |
| 23 | Supply and making end termination with heavy aluminum lugs (Pin / Ring type) duly crimped with crimping tool, PVC type etc of size. | |  |  |  |  |
| a) | 25.0 Sq.mm | |  | Each |  |  |
| b) | 6.0 Sq.mm | |  | Each |  |  |
| 24 | Wiring of light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq. mm nominal size FR PVC insulated unsheathed flexible copper conductor 1.1 kV grade and 1.5 sq. mm nominal size FR PVC insulated unsheathed flexible copper earth conductor 1.1 kV grade (IS:694) of approved make in surface / recessed ISI marked medium duty PVC conduit & it's accessories, round tiles,Hot Dipped Galvanized Modular Box with earth terminal, 6 A Modular switch, Modular plate with grid plate, screws, making connections, testing etc. as required. Short point (up to 10 mtr.)(Group 1) | |  | Each |  |  |
| 25 | Supply and erection of Decorative Cast Iron pole as perapproved design of following length with base plate onthe cement concrete foundation of M-15 grade (1:1.5:3)with the help of anchor bolts of grade 6.8 (IS 1367 P III).The pole shall be made of Cast Iron as per IS 210:1993,precision machining and filling job to achieve good finishand a fine coat of primer on each element beforeassembling. After assembling of each element one coatof primer and two coats of P.U. paint are applied.Approved coloured UV resist coating of mat/ glossy/metallic finish followed after air drying of pole. The poleshall have a weatherproof flush door and lockingarrangements, two/ one arm bracket of length of430/380mm complete in all respect.- 4mtr. group-2} | |  | Each |  |  |
| 26 | P & F of IP 65/ 67 protected LED flood light system withaluminum housing, 3 X 1W, 220V, 50Hz LED lampswith dynamic color changing capability available in quickconnecting cable coupled with various mountingaccessories. Ability to create 16.7 million uniform,smooth and brilliant colors without revealing any lampimage. Available in 5 colors – amber, green, blue, redand white. group-2} | |  | Each |  |  |
| 27 | Dismantling cement concrete including disposal of material within 50 m lead, inclusive of de-watering wherever required. | |  | cum |  |  |
| 28 | Cement concrete (1:2:4) M-15 well mixed and laid in position complete including all leads of all construction materials including curing and finishing having well graded crusher broken stone aggregate of maximum size upto 20 mm | |  | cum |  |  |
| 29 | Chequerred precast cement concrete tiles 22 mm thick in footpath & courtyard jointed with neat cement slurry mixed with pigment to match the shade of tiles including rubbing and cleaning etc. complete on 20 mm thick bed of cement mortar 1:4 (1 cement: 4 coarse sand) Dark shade using ordinary cement. | |  | sqm |  |  |
| 30 | Supply & fixing of stainless steel pipe railing for ramp railing height, 90 cm. with 40 mm dia stainless steel pipe with 18 gauge with drop (vertical post) at 90 cm. C/C and intermediate horizontal pipe with suitable height of same size and gauge with coupling, grinding and polishing & fix of master pieces as per required point as per approved design of Project Manager. | |  | Mtr |  |  |
| **(iv)** | **Strengthening of North Saddle dam and south saddle dam.** | |  |  |  |  |
| 1 | Cutting & clearance of jungle, bushes, shrubs Ankra/lpomoea, Julieflora tpna etc. on canals and bunds in dry/moist/slushy conditions including disposal as per instructions of the Project Manager. Cost of wood has been deducted from rates and thus will be property of contractor after cutting. Thick | |  | sqm |  |  |
| 2 | Excavation including loading, unloading, disposal and dressing of excavated earth within initial lead of 50m and lift up to 1.5m in dry or moist including dressing of excavated area, dewatering wherever required complete in all respect.Hard / dense soil | |  | cum |  |  |
| 3 | Re-handing of excavated material including loading unloading and dressing within initial lead of 50 m and lift of 1.5m with cost of de-watering wherever required and all applicable taxes and levies etc. complete in all respect Earth / Soil | |  | cum |  |  |
| 4 | Add extra for each subsequent lead of 500m or part, there of beyond ½ Km. & upto 5 Km | |  | cum |  |  |
| 5 | Add extra over item No. 3 for disposal of excavated material above initial lift of 1.5m and for every additional lift of 1.5m or part there of including loading and un- loading wherever required | |  | cum |  |  |
| 6 | Cement concrete (1: 3 :6) M-10 well mixed and laid in position complete including all leads of all construction materials including curing and finishing having well graded crusher broken stone aggregate of maximum size upto 20 mm(PCC) | |  | cum |  |  |
| 7 | Cement concrete (1 : 1½ : 3) M-20 well mixed and laid in position complete including all leads of all construction materials including curing and finishing having well graded crusher broken stone aggregate of maximum size upto 20 mm | |  | cum |  |  |
| 8 | Supplying of M.S. reinforcement including labour charges for bending binding and placing in position all reinforcement as per drawing including cost of binding wire and all leads and lifts using.-Tor or ribbed bars (IS :1786-1985) | |  | cum |  |  |
| 9 | Random rubble stone masonry (using R.R. stones where 75 % stones to be not less 15 cm in size in any direction and weighing not less than 23 kg) for foundation including curing all leads of construction materials & all taxes and with initial lift/delift of 5 m from ground level etc. complete.in CM (1:5) | |  | cum |  |  |
| 8 | Add Extra for Masonry work in superstructure for Dam and other works. | |  | cum |  |  |
| 9 | Providing and laying cement concrete coping in (1:2:4) with maximum size of crusher broken aggregate up to 20 mm including shuttering etc. with all leads of material complete in all respect in thickness of 75 mm | |  | sqm |  |  |
| 10 | Flush or ruled pointing on stone masonry including racking of joints and curing etc. complete including all leads of all construction materials in mortar ratio.In Cement sand mortar 1:3 | |  | sqm |  |  |
| 11 | Supplying and laying quarry spalls properly graded but not more than 10cm in size with spreading in required profile including all leads & lifts(Quarry spalls for Embankment & Side slope ) | |  | cum |  |  |
| 12 | Supply & fixing of stainless steel pipe railing for ramp railing height, 90 cm. with 40 mm dia stainless steel pipe with 18 gauge with drop (vertical post) at 90 cm. C/C and intermediate horizontal pipe with suitable height of same size and gauge with coupling, grinding and polishing & fix of master pieces as per required point as per approved design of Project Manager. | |  | m |  |  |
| 13 | Providing and fixing steel gate grating and grills made of angles, tees, square bars or other flats black pipe with holdfast and fittings complete as per design and drawing including cutting welding and fabrication with priming coat of red oxide. | |  | kg |  |  |
| 14 | Add extra if square, rectangular hollow tubular sections are used. | |  | kg |  |  |
| **(v)** | **Strengthening of Flank 'A' protection work of \_\_\_\_\_\_ Main Dam** | |  |  |  |  |
| 1 | Cutting & clearance of jungle, bushes, shrubs Ankra/lpomoea, Julieflora tpna etc. on canals and bunds in dry/moist/slushy conditions including disposal as per instructions of the Project Manager. Cost of wood has been deducted from rates and thus will be property of contractor after cutting. Thick | |  | sqm |  |  |
| 2 | Excavation including loading, unloading, disposal and dressing of excavated earth within initial lead of 50m and lift up to 1.5m in dry or moist including dressing of excavated area, dewatering wherever required complete in all respect Hard / dense soil | |  | cum |  |  |
| 3 | Cement concrete (1: 3 :6) M-10 well mixed and laid in position complete including all leads of all construction materials including curing and finishing having well graded crusher broken stone aggregate of maximum size upto 20 mm(PCC) | |  | cum |  |  |
| 4 | Cement concrete (1: 3 :6) M-10 well mixed and laid in position complete including all leads of all construction materials including curing and finishing having well graded crusher broken stone aggregate of maximum size upto 40 mm(PCC) | |  | cum |  |  |
| 5 | Random rubble stone masonry (using R.R. stones where 75 % stones to be not less 15 cm in size in any direction and weighing not less than 23 kg) for foundation including curing all leads of construction materials & all taxes and with initial lift/delift of 5 m from ground level etc. complete.in CM (1:5) | |  | cum |  |  |
| 6 | Add Extra for Masonry work in superstructure for Dam and other works. | |  | cum |  |  |
| 7 | Providing and laying cement concrete coping in (1:2:4) with maximum size of crusher broken aggregate up to 20 mm including shuttering etc. with all leads of material complete in all respect in thickness of 75 mm | |  | sqm |  |  |
| 8 | Flush or ruled pointing on stone masonry including racking of joints and curing etc. complete including all leads of all construction materials in mortar ratio.In Cement sand mortar 1:3 | |  | sqm |  |  |
| 9 | Earth work in rough (borrow area) excavation for embankment in hard soil, Morrum or highly weathered strata dry or moist, including laying in 20 cm layers (before compaction) and breaking of clods, sorting of grass, pebbles etc. and dressing when compacted manually or by plain roller with initial lead of 250 m and lift up to 1.5m (excluding charges for compaction and watering), including loading and un-loading wherever required complete in all respect. (Lead upto 2 km) | |  | cum |  |  |
| 10 | Add extra for each subsequent lead of 500m or part, there of beyond ½ Km and up to 5 km | |  | cum |  |  |
| 11 | Compaction of earth or highly weathered strata By manually or plain roller. (density 95% of Proctor) | |  | cum |  |  |
| 12 | Watering of earth including cost of carriage of water when source of water is up to 1 Km | |  | cum |  |  |
| 13 | Supplying and laying sand of grade as per design requirement in required profile including all lead & lifts. | |  | cum |  |  |
| 14 | Crusher broken stone aggregate of various sizes in accordance with IS:383 – 1970 for concrete work for dams, canals, and other important structures, well graded with size of aggregate including all lead and lift. 40 to 20 mm size | |  | cum |  |  |
| 15 | Supplying and laying quarry spalls properly graded but not more than 10cm in size with spreading in required profile including all leads & lifts(Quarry spalls for Embankment & Side slope ) | |  | cum |  |  |
| 16 | Dismantling of masonry with care inclusive of dewatering wherever required (a) Dry masonry | |  | cum |  |  |
| 17 | Dry boulder filling in required profile with filling of voids etc. complete including all lead & lifts, and well finished surface | |  | cum |  |  |
| 18 | Rip rap stone laying in required profile properly hand packed using stone of specified size including all lead & lifts (b) 30 cm thickness (± 5 % thickness tolerance) | |  | cum |  |  |
| **(vi)** | **Strengthening of Flank 'B' protection work of \_\_\_\_\_\_ Main Dam** | |  |  |  |  |
| 1 | Cutting & clearance of jungle, bushes, shrubs Ankra/lpomoea, Julieflora tpna etc. on canals and bunds in dry/moist/slushy conditions including disposal as per instructions of the Project Manager. Cost of wood has been deducted from rates and thus will be property of contractor after cutting. Thick | |  | sqm |  |  |
| 2 | Excavation including loading, unloading, disposal and dressing of excavated earth within initial lead of 50m and lift up to 1.5m in dry or moist including dressing of excavated area, dewatering wherever required complete in all respect Hard / dense soil | |  | cum |  |  |
| 3 | Cement concrete (1: 3 :6) M-10 well mixed and laid in position complete including all leads of all construction materials including curing and finishing having well graded crusher broken stone aggregate of maximum size upto 20 mm(PCC) | |  | cum |  |  |
| 4 | Cement concrete (1: 3 :6) M-10 well mixed and laid in position complete including all leads of all construction materials including curing and finishing having well graded crusher broken stone aggregate of maximum size upto 40 mm(PCC) | |  | cum |  |  |
| 5 | Random rubble stone masonry (using R.R. stones where 75 % stones to be not less 15 cm in size in any direction and weighing not less than 23 kg) for foundation including curing all leads of construction materials & all taxes and with initial lift/delift of 5 m from ground level etc. complete.in CM (1:5) | |  | cum |  |  |
| 6 | Add Extra for Masonry work in superstructure for Dam and other works. | |  | cum |  |  |
| 7 | Providing and laying cement concrete coping in (1:2:4) with maximum size of crusher broken agg up to 20 mm including shuttering etc. with all leads of material complete in all respect in thickness of 75 mm | |  | sqm |  |  |
| 8 | Flush or ruled pointing on stone masonry including racking of joints and curing etc. complete including all leads of all construction materials in mortar ratio.In Cement sand mortar 1:3 | |  | sqm |  |  |
| 9 | Earth work in rough (borrow area) excavation for embankment in hard soil, Morrum or highly weathered strata dry or moist, including laying in 20 cm layers (before compaction) and breaking of clods, sorting of grass, pebbles etc. and dressing when compacted manually or by plain roller with initial lead of 250 m and lift up to 1.5m (excluding charges for compaction and watering), including loading and un-loading wherever required complete in all respect. | |  | cum |  |  |
| 10 | Add extra for each subsequent lead of 500m or part, there of beyond ½ Km and up to 5 km | |  | cum |  |  |
| 11 | Compaction of earth or highly weathered strata By manually or plain roller. (density 95% of Proctor) | |  | cum |  |  |
| 12 | Watering of earth including cost of carriage of water when source of water is up to 1 Km | |  | cum |  |  |
| 13 | Supplying and laying sand of grade as per design requirement in required profile including all lead & lifts. | |  | cum |  |  |
| 14 | Crusher broken stone aggregate of various sizes in accordance with IS:383 – 1970 for concrete work for dams, canals, and other important structures, well graded with size of aggregate including all lead and lift. 40 to 20 mm size | |  | cum |  |  |
| 15 | Supplying and laying quarry spalls properly graded but not more than 10cm in size with spreading in required profile including all leads & lifts(Quarry spalls for Embankment & Side slope ) | |  | cum |  |  |
| 16 | Dry boulder filling in required profile with filling of voids etc. complete including all lead & lifts, and well finished surface | |  | cum |  |  |
| 17 | Rip rap stone laying in required profile properly hand packed using stone of specified size including all lead & lifts (b) 30 cm thickness (± 5 % thickness tolerance) | |  | cum |  |  |
| **(vii)** | **Repair & Renovation of irrigation Officer & staff colony & Office** | |  |  |  |  |
| 1 | Cutting & clearance of jungle, bushes, shrubs Ankra/lpomoea, Julieflora tpna etc. on canals and bunds in dry/moist/slushy conditions including disposal as per instructions of the Project Manager. Cost of wood has been deducted from rates and thus will be property of contractor after cutting. Thick | |  | sqm |  |  |
| 2 | Demolishing cement concrete including disposal of material within 50 meter lead : 1:3:6 or richer mix | |  | cum |  |  |
| 3 | Providing and laying in position cement concrete including curing compaction etc. of specified grade excluding the cost of centering and shuttering =All up to plinth level IS 456-2000: 1:3:6 (1Cement :3 Course Sand :6 Graded stone aggregate 20 mm nominal size | |  | cum |  |  |
| 4 | P & F 1st qualityVitrified Porcelain Polished tiles on floor, skirting and steps etc.in different sizes (thickness to be specified by manufacturer) with water absorption less than 0.08% and conforming to IS 15622 of approved make in all colour and shade, laid with 20 mm thick CM 1 : 4 including grouting the joints with white cement and matching pigment etc complete. | |  | sqm |  |  |
| 5 | Providing and fixing Ist quality standard White Ivory straight edge Glazed Tiles ISI marked [IS:13753] (Kajariya, Jhonson, Somani make etc. ) of size 450mm x 300mm in walls, floors, steps, pillars etc. laid on a bed of neat cement slurry finished with flush pointing in white cement mixed with pigment to match the shade of tile complete (excluding the cost of cement plaster). | |  | sqm |  |  |
| 6 | dismantling old plaster or skirting, racking out joints and cleaning the surface for plaster including disposal of rubbish to dumping ground within 50 m lead including dewatering if required. | |  | sqm |  |  |
| 7 | plaster in cement sand mortar 1:3 including racking of joints, smooth finishing. And curing etc complete including all leads of all construction material of thickness 20 mm. | |  | sqm |  |  |
| 8 | Providing and applying white cement based putty over plastered surface to prepare the surface even and smooth complete | |  | sqm |  |  |
| 9 | Distempering with oil bound washable distemper of approved brand and manufacture to give an even shade including all scaffolding:New work (two or more coats) over and including scrapping and priming coat with cement primer. | |  | sqm |  |  |
| 10 | Painting with ready mix paint of approved brand and manufacture in all shades to give an even shade:Old wood work (One or more coats). | |  | sqm |  |  |
| 11 | Providing & fixing anodizing aluminum work (Anodizing to be got done from approved Anodizer) for doors, windows, ventilators and partition with extruded built up standard tubular and other sections of approved make confirming to IS : 733 and IS : 1285 anodised transparent 81 dyed to required shade according to IS : 1868 (Minimum anodic coating of grade AC 15), fixed with rawl plugs and screws or with fixing clips or with expansion hold fasteners including necessary filling up of gas at junctions, at top, bottom and sides with required PVC/neoprene felt etc. Aluminum section shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle Aluminum snap beading for glazing/paneling, C.P. Brass/ Stainless Steel screws, Al. Tower bolt & Al. handle & Al. Aldrop etc. all complete as per architectural drawings and the directions of Project Manager. (Glazing and paneling to be paid for separately). For shutters of doors, windows & ventilators incl. providing and fixing hinges/ rollers etc. and making provision for fixing of fittings wherever reqd. (lockes shall be paid for | |  | kg |  |  |
| 12 | Providing and fixing 20 mm thick terrazo tile over roofing fixed in cement mortar 1:4 over bed of 25 thick. | |  | sqm |  |  |
| 13 | Excavation including loading, unloading, disposal and dressing of excavated earth within initial lead of 50m and lift up to 1.5m in dry or moist including dressing of excavated area, dewatering wherever required complete in all respect Hard / dense soil | |  | cum |  |  |
| 14 | Cement concrete (1: 3 :6) M-10 well mixed and laid in position complete including all leads of all construction materials including curing and finishing having well graded crusher broken stone aggregate of maximum size upto 40 mm(PCC) | |  | cum |  |  |
| 15 | Cement concrete (1: 3 :6) M-10 well mixed and laid in position complete including all leads of all construction materials including curing and finishing having well graded crusher broken stone aggregate of maximum size upto 20 mm(PCC) | |  | cum |  |  |
| 16 | Random rubble stone masonry (using R.R. stones where 75 % stones to be not less 15 cm in size in any direction and weighing not less than 23 kg) for foundation including curing all leads of construction materials & all taxes and with initial lift/delift of 5 m from ground level etc. complete.in CM (1:5) | |  | cum |  |  |
| 17 | Add Extra for Masonry work in superstructure for Dam and other works. | |  | sqm |  |  |
| 18 | Providing and laying cement concrete coping in (1:2:4) with maximum size of crusher broken aggregate up to 20 mm including shuttering etc. with all leads of material complete in all respect in thickness of 75 mm. | |  | sqm |  |  |
| 19 | Flush or ruled pointing on stone masonry including racking of joints and curing etc. complete including all leads of all construction materials in mortar ratio.In Cement sand mortar 1:3 | |  | sqm |  |  |
| 20 | Cement concrete (1 : 1½ : 3) M-20 well mixed and laid in position complete including all leads of all construction materials including curing and finishing having well graded crusher broken stone aggregate of maximum size upto, 20 mm | |  | cum |  |  |
| 21 | Supplying of M.S. reinforcement including labour charges for bending binding and placing in position all reinforcement as per drawing including cost of binding wire and all leads and lifts using.Tor or ribbed bars (IS :1786-1985) | |  | kg |  |  |
| 22 | Side shuttering including propping etc. complete (to achieve finish F 2 for:Block joints of foundation stilling basins buckets, aprons etc. ( non -suspended horizontally laid mass concrete) | |  | sqm |  |  |
| 23 | Supplying and laying sand of grade as per design requirement in required profile including all lead & lifts. | |  | cum |  |  |
| 24 | Providing and fixing of Precast concrete interlocking blocks of manufactured from fully computerized automatic stationery hydraulic vibro pressed machine & full computerized automatic batching plant of class A-1 as per BS : 6717-2001. The C.C. interlocking paving blocks be laid on average 25 mm thick bed of coarse sand and the joint is to be filled with fine sand. Laying procedure on compacted subbase as defined. Complete job is to be executed as per the instructions of Project Manager. The rates to be inclusive of all lead, lift, lifts & taxes general specifications of blocks.1. Shape : As specified by Project Manager.2. Tensile splitting strength and breaking load as per BS: 6717-20013. Colour : Grey cement natural colour 4. Variation in Dimension: Less than 1.6mm.5. Variation in thickness: Less than 3.2mm b) 80mm thick | |  | sqm |  |  |
| 25 | Providing and fixing steel gate grating and grills made of angles, tees, square bars or other flats black pipe with holdfast and fittings complete as per design and drawing including cutting welding and fabrication with priming coat of red oxide. | |  | Kg |  |  |
| 26 | S&F following sizes of ISI marked (IS:14927 P - II ) PVC casing capping along with accessories like coupler, inner, outer, elbow, square box, tee etc. on surface with screws, expansion fasteners as required.32 mm x 12 mm (Group 1) | |  | mtr |  |  |
| 27 | Wiring of light point/fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FR PVC insulated unsheathed flexible copper conductor 1.1 kV grad e and 1.5 sq.mm FR PVC insulated unsheathed flexible copper earth conductor 1.1kVgrade (IS 694) of approved make in surface/ recessed ISI marked medium duty PVC conduit & its accessories, round tiles, 18SWGM.S. box with earthing terminal 6A, switch, 3.0 mm thick phenolic laminated sheet, zinc plated/brass screws, cup washers, making connections testing etc. as required. Group -I E020101 Short Point | |  | Each |  |  |
| 28 | Wiring of light point/fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FR PVC insulated unsheathed flexible copper conductor 1.1 kV grad e and 1.5 sq.mm FR PVC insulated unsheathed flexible copper earth conductor 1.1kVgrade (IS 694) of approved make in surface/ recessed ISI marked medium duty PVC conduit & its accessories, round tiles, 18SWGM.S. box with earthing terminal 6A, switch, 3.0 mm thick phenolic laminated sheet, zinc plated/brass screws, cup washers, making connections testing etc. as required. Group -I E020102 Medium Point | |  | Each |  |  |
| 29 | Wiring of light point/fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FR PVC insulated unsheathed flexible copper conductor 1.1 kV grad e and 1.5 sq.mm FR PVC insulated unsheathed flexible copper earth conductor 1.1kVgrade (IS 694) of approved make in surface/ recessed ISI marked medium duty PVC conduit & its accessories, round tiles, 18SWGM.S. box with earthing terminal 6A, switch, 3.0 mm thick phenolic laminated sheet, zinc plated/brass screws, cup washers, making connections testing etc. as required. Group -I E020103 Long Point | |  | Each |  |  |
| 30 | P & F ISI marked (IS :3854) 16 amp. flush type switch including cutting hole in tile and making connection testing etc. as required. (E070400) Gr-I | |  | Each |  |  |
| 31 | P & F ISI marked (IS :3854) 3/6 pin 16 amp. flush type socket including cutting hole in tile and making connection testing etc. as required. (E071300) Gr-I | |  | Each |  |  |
| 32 | Supplying and fixing of power plug point accessories on 18 SWG metal box of size 175 x 100 x 60 mm. on surface or in recessed with suitable size phenolic laminated sheet cover including cost of 6 pin 16 amp. Switch and socket outlet , making connection , testing , etc. as required.(E040500) Group -I | |  | Each |  |  |
| 33 | P/F ISI marked flush / surface type Buzzer including making connection testing etc. as required.Group - I ; E-072500 | |  | Each |  |  |
| 34 | P & F IP-54 protected Wall mounted Bulk head light fixture suitable for 15/18 watt CFL lamp with integral control gear, housing made from cast aluminum with UV stabilized diffuser comprising of copper ballast, copper conductor including making connection testing etc. as required (without lamp)(E-200700)Gr-I | |  | Each |  |  |
| 35 | P&F of IP 20 LED tube light 20 watt with external batten made from CRCA sheet steel suitable to replace T-8 /T-12 tube light integral driver , 2000 luman +5% tolerance system human efficiency of 100 Lm/watt minimum expected life time of 25000 burning hours, CCT 5700 K, ANSI , CRI 80, driver efficiency >85% life expectancy of driver min 30000hrs PF 0.95 at full load / 230 volt AC | |  | Each |  |  |
| 36 | P/F Two pin energy efficient 9watt IP20 LED bulb existing holder / fixture as required min.9\*00 lumen output -do- 230 volt AC E-301000- | |  | Each |  |  |
| 37 | P&F of Heavy duty capacitor start, Double ball bearing 900/1400 RPM single phase ISI marked Exhaust fan,IS:2312 marked in existing opening including making connections testing etc. as required. 300 mm Sweep (900/1400 RPM) Gr-2 | |  | Each |  |  |
| 38 | Wiring of 3 pin 5amp light plug point with .5Sqmm FR PVC insulated unsheathed flexible copper conductor 1.1kV grade and 1.5Sq.mm FR PVC insulated unsheathed flexible copper earth conductor 1.1kV grade (IS 694) of approved make in surface/recessed ISI marked medium duty PVC conduit & it's accessories, 18SWG M.S. Box with earthing terminal 6A Switch, 6A socket, 3.0mm thick phenolic laminated sheet, zinc plated/brass screws, cup washers making connections, testing etc. as required. Group - I. E020701 On Board | |  | Each |  |  |
| 39 | Plate Earthing as per IS:3043 with G.I. earth plate of size 600 mm x 600 mm x 6mm by embodying 3 to 4 mtr. Below the ground level earth 20 mm dia. G.I.'B' class watering pipe including all accessories like nut, bolts reducer, nipple, wire meshed funnel and Ferro cement cover with C.I. frame of size 300 mm x 300 mm complete with alternate layer of salt & coke / charcoal, testing or Earth resistance as required E-150200 | |  | Each |  |  |
| 40 | P & F 240/415V MCB of breaking capacity not less than 10KA (B/C/D tripping characteristic) ISI marked is 8828 (1996)conforming to IEC 60898 in existing board/sheets including making connections with lugs, testing etc as required. Group- I E-060112 6 A to 32A rating | |  | Each |  |  |
| 41 | P &F 240/415V isolator conforming to IS13947-III/IEC 60947-3 on existing board/ sheet including making connections with lugs testing etc as required. Group- I E-60212 Double Pole Isolator 63A rating | |  | Each |  |  |
| 42 | P&F Recessed /surface mounting heavy duty horizontal type sheet steel Distribution board phophatised/powder painted complete with copper bus bar, shorting link, neutral link, earth link and din bar conforming to IS 13032 & IS 8623 including making terminal DB terminations with copper lugs testing etc as required. Group- I E-060513 - 8 way | |  | Each |  |  |
| 43 | Supply of GI pipes with flanges duly screwed & welded including rubber washer, nuts & bolts of 8mm dia comp. in all respect ISI make. B class 40mm dia (E-261101) | |  | R.Mtr |  |  |
| 44 | Wiring of twin control light point with 1.5 sq.mm PVC insulated unsheathed solid / stranded aluminum conductor 1.1 kV grade and 2.5 sq. mm nominal size PVC insulated unsheathed solid / stranded aluminum earth conductor 1.1 kV grade (IS:694) of approved make in surface / recessed ISI marked medium duty PVC conduit & it's accessories, round tiles,18 SWG M.S. box with earth terminal, screwless cage connectors for neutral looping in switch board & falce ceiling point, 6 A two way switch, 3.0 mm thick phenolic laminated sheet, zinc plated / brass screws, cup washers, making connections, testing etc. as required.(E-020601) Gr-I Short point (up to 3 mtr.) | |  | Each |  |  |
| 45 | P & F 9/11/13/ Watt CFL mirror light with CRCA powder coated housing,diffuser,end covers,copper ballast,holder prewired upto terminal block including making connection testing etc. as required (without tube) (E-191700)Gr-I | |  | Each |  |  |
| 46 | P/F decorative Round / Square shape surface mounting ceiling fitting complete with holder, aluminum anodized back plate glass globe of approved design, prewired terminal block making connection. Testing etc. as required as approved by the Project Manager .Group -I ;E-192003-250mm | |  | Each |  |  |
| 47 | Wiring for sub mains ISI marked (IS:694) 1100 Volts grade PVC insulated flat twin core sheathed solid aluminum conductor with 10 SWG G.I. Support wire duly clipped etc. as required 6.0 sq.mm (E-040402) Group-I | |  | R.Mtr |  |  |
| 48 | P & F 18 SWG Sheet steel boxes duly finished with two coats of red oxide and with earthing terminal of following sizes (nominal size) on surface or in recessed as required.175mm x 100mm x 60mm (E-050104) | |  | Each |  |  |
| 49 | P & F paper phenolic resin bonded laminates confirming to IS : 2036 - 1995 for boxes/ frames including making holes for switches etc, with brass screws, washers/ zinc plated nut and bolts as required. 4.8 mm thick (E050502) Group - 1 | |  | P.Sqm. |  |  |
| 50 | Supply and drawing FR PVC insulated & unsheathed flexible copper conductor ISI marked (IS 694) of 1.1 kV grade and approved make I existing surface or recessed conduit/ casing capping including making connections etc. as required.(E-040109) 3 x 2.5 Sqm. | |  | R.Mtr |  |  |
| 51 | Supply and drawing FR PVC insulated & unsheathed flexible copper conductor ISI marked (IS 694) of 1.1 kV grade and approved make I existing surface or recessed conduit/ casing capping including making connections etc. as required (E-040114) 3 x 4.0 Sq. mm | |  | R.Mtr |  |  |
| 52 | P/F 18 SWG M.S recessed fan box hexagonal / round of size 130 mm dia. Depth 75 mm with 12 mm dia. Rod for fan hook with 100 mm length extended on each side. Group - I (E-170600) | |  | Each |  |  |
| 53 | S/L following size Earth wire / strips in horizontal or vertical run in ground / surface / recess including riveting, soldering, saddles making connection etc. as required 10 SWG Copper Wire. (E-150703 ) | |  | R.Mtr |  |  |
| 54 | P/F IS:371 marked 6 amp surface type ceiling rose including making connection, testing etc. as required Group- I; E-071400 | |  | Each |  |  |
| 55 | P/F ISI marked 6 amp bakelite batten / angle holder including making connection, testing etc. as required . Group -I ; E-071500 | |  | Each |  |  |
| 56 | S&F following sizes (dia) of ISI marked medium duty PVC conduit along with accessories in surface/ recessed using saddles, clamps, fastener as required including cutting the wall and making good the same as required. Gr-I E-020401 20mm | |  | R.Mtr |  |  |
| 57 | S&F following sizes (dia) of ISI marked medium duty PVC conduit along with accessories in surface/ recessed using saddles, clamps, fastener as required including cutting the wall and making good the same as required. Gr-I E-020402 25 mm | |  | R.Mtr |  |  |
| 58 | P & F Star rated double ball bearing capacitor start, aluminium body & blade ceiling fan with down rod up to 30 cm with 3 x 1.5 sq.mm pvc insulated flexible copper conductor making connection testing etc. as required. 1200 mm Sweep 5 Star rated G-1(E170501) @ 1896/- | |  | Each |  |  |
| 59 | P & F surface/recessed type 10 mm thick teak wood board dule antitermite treated, varnished and fixed by using gutties/ PVC fastners of following size as required. 300mmX375mm (E050906 ) Gr-I | |  | Each |  |  |
| 60 | Providing and fixing factory made solid core single leaf Door shutter made out of composite ECO friendly wood laminated with 0.8 mm thick polymer termite and water resistant five retendent technology, gluing by vacuum lamination technology various premoulded design on both face as per IS-2202 (Part-I) 1991 (Door fitting shall be supplied by the department):30mm thick (2100mmx900mm size) | |  | Each |  |  |
| **(viii)** | **Repair and renovation of sanderao colony.** | |  |  |  |  |
| 1 | Dismantling cement concrete including disposal of material within 50 m lead, inclusive of de-watering wherever required. | |  | cum |  |  |
| 2 | Cement concrete(1:3:6) M-10 well mixed and laid in position complete including all leads of all construction materials including curing and finishing having well graded broken stone aggregate of maximum size up to: 20 mm complete as per technical specification | |  | cum |  |  |
| 3 | Cement concrete (1 : 1½ : 3) M-20 well mixed and laid in position complete including all leads of all construction materials including curing and finishing having well graded crusher broken stone aggregate of maximum size upto, 20 mm | |  | cum |  |  |
| 4 | Providing and fixing 20 mm thick terrazo tile over roofing fixed in cement mortar 1:4 over bed of 25 thick. | |  | sqm |  |  |
| 5 | Repair to cement plaster in cement mortar 1:6 (1-Cement:6-fine sand) including removal of old plaster in regular shape and white or colour washing. | |  | sqm |  |  |
| 6 | Distempering with oil bound washable distemper of approved brand and manufacture to give an even shade including all scaffolding:Old work (one or more coats) including scrapping surface and necessary repairs;Colour change | |  | sqm |  |  |
| 7 | Random rubble stone masonary (using R.R. stones where 75 % stones to be not less 15 cm in size in any direction and weighing not less than 23 kg) for foundation including curing all leads of construction materials & all taxes and with intial lift/delift of 5 m from ground level etc. complete.in CM (1:5) | |  | cum |  |  |
| 8 | Add Extra for Masonry work in superstructure for Dam and other works. | |  | cum |  |  |
| 9 | Flush or ruled pointing on stone masonary including racking of joints and curing etc.complete including all leads of all construction materials in mortar ratio:In Cement Sand Mortor 1:3 | |  | sqm |  |  |
| 10 | Providing and laying cement concrete coping in (1:2:4) with maximum size of crusher broken agg up to 20 mm including shuttering etc. with all leads of material complete in all respect in thickness of :75 mm | |  | sqm |  |  |
| 11 | S&F following sizes of ISI marked ( IS:14927 P - II ) PVC casing capping along with accessories like coupler, inner, outer, elbow, square box, tee etc. on surface with screws, expansion fasteners as required. 32 mm x 12 mm (Group 1) | |  | mtr |  |  |
| 12 | Wiring of light point/fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FR PVC insulated unsheathed flexible copper conductor 1.1 kV grad e and 1.5 sq.mm FR PVC insulated unsheathed flexible copper earth conductor 1.1kVgrade (IS 694) of approved make in surface/ recessed ISI marked medium duty PVC conduit & its accessories, round tiles, 18SWGM.S. box with earthing terminal 6A, switch, 3.0 mm thick phenolic laminated sheet, zinc plated/brass screws, cup washers, making connections testing etc. as required. Group -I E020101 Short Point | |  | Each |  |  |
| 13 | Wiring of light point/fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FR PVC insulated unsheathed flexible copper conductor 1.1 kV grad e and 1.5 sq.mm FR PVC insulated unsheathed flexible copper earth conductor 1.1kVgrade (IS 694) of approved make in surface/ recessed ISI marked medium duty PVC conduit & its accessories, round tiles, 18SWGM.S. box with earthing terminal 6A, switch, 3.0 mm thick phenolic laminated sheet, zinc plated/brass screws, cup washers, making connections testing etc. as required. Group -I E020102 Medium Point | |  | Each |  |  |
| 14 | Wiring of light point/fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FR PVC insulated unsheathed flexible copper conductor 1.1 kV grad e and 1.5 sq.mm FR PVC insulated unsheathed flexible copper earth conductor 1.1kVgrade (IS 694) of approved make in surface/ recessed ISI marked medium duty PVC conduit & its accessories, round tiles, 18SWGM.S. box with earthing terminal 6A, switch, 3.0 mm thick phenolic laminated sheet, zinc plated/brass screws, cup washers, making connections testing etc. as required. Group -I E020103 Long Point | |  | Each |  |  |
| 15 | P & F ISI marked (IS :3854) 16 amp. flush type switch including cutting hole in tile and making connection testing etc. as required. (E070400) Gr-I | |  | Each |  |  |
| 16 | P & F ISI marked (IS :3854) 3/6 pin 16 amp. flush type socket including cutting hole in tile and making connection testing etc. as required. (E071300) Gr-I | |  | Each |  |  |
| 17 | Supplying and fixing of power plug point accessories on 18 SWG metal box of size 175 x 100 x 60 mm. on surface or in recessed with suitable size phenolic laminated sheet cover including cost of 6 pin 16 amp. Switch and socket outlet , making connection , testing , etc. as required.(E040500) Group -I | |  | Each |  |  |
| 18 | P/F ISI marked flush / surface type Buzzer including making connection testing etc. as required .Group - I ; E-072500 | |  | Each |  |  |
| 19 | P & F IP-54 protected Wall mounted Bulk head light fixture suitable for 15/18 watt CFL lamp with integral control gear, housing made from cast alluminium with UV stabilized diffuser comprising of copper ballast, copper conductor including making connection testing etc. as required (without lamp)(E-200700)Gr-I | |  | Each |  |  |
| 20 | P&F of IP 20 LED tube light 20 watt with external batten made from CRCA sheet steel suitable to replace T-8 /T-12 tube light integral driver , 2000 luman +5% tolerance system human efficiency of 100 Lm/watt minimum expected life time of 25000 burning hours, CCT 5700 K, ANSI , CRI 80, driver efficiency >85% life expectency of driver min 30000hrs PF 0.95 at full load / 230 volt AC | |  | Each |  |  |
| 21 | P/F Two pin energy efficient 9watt IP20 LED bulb existing holder / fixture as required min.9\*00 lumen output -do- 230 volt AC E-301000- | |  | Each |  |  |
| 22 | P&F of Heavy duty capacitor start, Double ball bearing 900/1400 RPM single phase ISI marked Exhaust fan,IS:2312 marked in existing opening including making connections testing etc. as required. 300 mm Sweep (900/1400 RPM) Gr-2 | |  | Each |  |  |
| 23 | Wiring of 3 pin 5amp light plug point with .5Sqmm FR PVC insulated unsheathed flexible copper conductor 1.1kV grade and 1.5Sq.mm FR PVC insulated unsheathed flexible copper earth conductor 1.1kV grade (IS 694) of approved make in surface/recessed ISI marked medium duty PVC conduit & it's accessories, 18SWG M.S. Box with earthing terminal 6A Switch, 6A socket, 3.0mm thick phenolic laminated sheet, zinc plated/brass screws, cup washers making connections, testing etc. as required. Group - I. E020701 On Board | |  | Each |  |  |
| 24 | Plate Earthing as per IS:3043 with G.I. earth plate of size 600 mm x 600 mm x 6mm by embodying 3 to 4 mtr. Below the ground level earth 20 mm dia. G.I.'B' class watering pipe including all accessories like nut, bolts reducer, nipple, wire meshed funnel and Ferro cement cover with C.I. frame of size 300 mm x 300 mm complete with alternate layer of salt & coke / charcoal, testing or Earth resistance as required E-150200 | |  | Each |  |  |
| 25 | P & F 240/415V MCB of breaking capacity not less than 10KA (B/C/D tripping characteristic) ISI marked is 8828 (1996)conforming to IEC 60898 in existing board/sheets including making connections with lugs, testing etc as required. Group- I E-060112 6 A to 32A rating | |  | Each |  |  |
| 26 | P &F 240/415V isolator conforming to IS13947-III/IEC 60947-3 on existing board/ sheet including making connections with lugs testing etc as required. Group- I E-60212 Double Pole Isolator 63A rating | |  | Each |  |  |
| 27 | P&F Recessed /surface mounting heavy duty horizontal type sheet steel Distribution board phophatised/powder painted complete with copper bus bar, shorting link, neutral link, earth link and din bar conforming to IS 13032 & IS 8623 including making terminal DB terminations with copper lugs testing etc as required. Group- I E-060513 - 8 way | |  | Each |  |  |
| 28 | Supply of GI pipes with flanges duly screwed & welded including rubber washer, nuts & bolts of 8mm dia comp. in all respect ISI make. B class 40mm dia (E-261101) | |  | R.Mtr |  |  |
| 29 | Wiring of twin control light point with 1.5 sq.mm PVC insulated unsheathed solid / stranded aluminium conductor 1.1 kV grade and 2.5 sq. mm nominal size PVC insulated unsheathed solid / stranded aluminium earth conductor 1.1 kV grade (IS:694) of approved make in surface / recessed ISI marked medium duty PVC conduit & it's accessories, round tiles,18 SWG M.S. box with earth terminal, screwless cage connectors for neutral looping in switch board & falce ceiling point, 6 A two way switch, 3.0 mm thick phenolic laminated sheet, zinc plated / brass screws, cup washers, making connections, testing etc. as required.(E-020601) Gr-I Short point (up to 3 mtr.) | |  | Each |  |  |
| 30 | P & F 9/11/13/ Watt CFL mirror light with CRCA powder coated housing,diffuser,end covers,copper ballast,holder prewired upto terminal block including making connection testing etc. as required (without tube) (E-191700)Gr-I | |  | Each |  |  |
| 31 | P/F decorative Round / Square shape surface mounting ceiling fitting complete with holder, aluminium anodized back plate glass globe of approved design, prewired terminal block making connection. Testing etc. as required as approved by the Project Manager .Group -I ;E-192003-250mm | |  | Each |  |  |
| 32 | Wiring for sub mains ISI marked (IS:694) 1100 Volts grade PVC insulated flat twin core sheathed solid aluminium conductor with 10 SWG G.I. Support wire duly clipped etc. as required 6.0 sq.mm (E-040402) Group-I | |  | R.Mtr |  |  |
| 33 | P & F 18 SWG Sheet steel boxes duly finished with two coats of red oxide and with earthing terminal of following sizes (nominal size) on surface or in recessed as required.175mm x 100mm x 60mm (E-050104) | |  | Each |  |  |
| 34 | P & F paper phenolic resin bonded laminates confirming to IS : 2036 - 1995 for boxes/ frames including making holes for switches etc, with brass screws, washers/ zinc plated nut and bolts as required. 4.8 mm thick (E050502) Group - 1 | |  | P.Sqm. |  |  |
| 35 | Supply and drawing FR PVC insulated & unsheathed flexible copper conductor ISI marked (IS 694) of 1.1 kV grade and approved make I existing surface or recessed conduit/ casing capping including making connections etc. as required.(E-040109) 3 x 2.5 Sqm. | |  | R.Mtr |  |  |
| 36 | Supply and drawing FR PVC insulated & unsheathed flexible copper conductor ISI marked (IS 694) of 1.1 kV grade and approved make I existing surface or recessed conduit/ casing capping including making connections etc. as required (E-040114) 3 x 4.0 Sq. mm | |  | R.Mtr |  |  |
| 37 | P/F 18 SWG M.S recessed fan box hexagonal / round of size 130 mm dia. Depth 75 mm with 12 mm dia. Rod for fan hook with 100 mm length extended on each side. Group - I (E-170600) | |  | Each |  |  |
| 38 | S/L following size Earth wire / strips in horizontal or vertical run in ground / surface / recess including riveting, soldering, saddles making connection etc. as required 10 SWG Copper Wire. (E-150703 ) | |  | R.Mtr |  |  |
| 39 | P/F IS:371 marked 6 amp surface type ceiling rose including making connection, testing etc. as required Group- I; E-071400 | |  | Each |  |  |
| 40 | P/F ISI marked 6 amp bakelite batten / angle holder including making connection, testing etc. as required . Group -I ; E-071500 | |  | Each |  |  |
| 41 | S&F following sizes (dia) of ISI marked medium duty PVC conduit along with accessories in surface/ recessed using saddles, clamps, fastener as required including cutting the wall and making good the same as required. Gr-I E-020401 20mm | |  | R.Mtr |  |  |
| 42 | S&F following sizes (dia) of ISI marked medium duty PVC conduit along with accessories in surface/ recessed using saddles, clamps, fastener as required including cutting the wall and making good the same as required. Gr-I E-020402 25 mm | |  | R.Mtr |  |  |
| 43 | P & F Star rated double ball bearing capacitor start, aluminium body & blade ceiling fan with down rod up to 30 cm with 3 x 1.5 sq.mm pvc insulated flexible copper conductor making connection testing etc. as required. 1200 mm Sweep 5 Star rated G-1(E170501) @ 1896/- | |  | Each |  |  |
| 44 | P & F surface/recessed type 10 mm thick teak wood board dule antitermite treated, varnished and fixed by using gutties/ PVC fastners of following size as required. 300mmX375mm (E050906 ) Gr-I | |  | Each |  |  |
| 45 | Providing & fixing anodizing alumium work (Anodizing to be got done from approved Anodizer) for doors, windows, ventilators and partition with extruded built up standard tubular and other sections of approved make confirming to IS : 733 and IS : 1285 anodised transparent 81 dyed to required shade according to IS : 1868 (Minimum anodic coating of grade AC 15), fixed with rawl plugs and screws or with fixing clips or with expansion hold fasteners including necessary filling up of gas at junctions, at top, bottom and sides with required PVC/neoprene felt etc. Aluminium section shall be smooth, rust free, straight, mitred and jointed mechanically wherever required inlcuding cleat angle Aluminum snap beading for glazing/paneling, C.P. Brass/ Stainless Steel screws, Al. Tower bolt & Al. handle & Al. Aldrop etc. all complete as per architectural drawings and the directions of Project Manager. (Glazing and peneling to be paid for separately). For shutters of doors, windows & ventilators incl. providing and fixing hinges/ rollers etc. and making provision for fixing of fittings wherever reqd. (lockes shall be paid for | |  | kg |  |  |
| 46 | Providing and fixing factory made solid core single leaf Door shutter made out of composite ECO friendly wood laminated with 0.8 mm thick polymer termite and water resistant five retendent technology, gluing by vacuum lamination technology various premoulded design on both face as per IS-2202 (Part-I) 1991 (Door fitting shall be supplied by the department):30mm thick (2100mmx900mm size) | |  | each |  |  |
| **(ix)** | **Repair and renovation of takhatgarh dak banglow** | |  |  |  |  |
| 1 | Excavation including loading, unloading, disposal and dressing of excavated earth within initial lead of 50m and lift up to 1.5m in dry or moist including dressing of excavated area, dewatering wherever required complete in all respect Hard / dense soil | |  | cum |  |  |
| 2 | Cement concrete (1: 3 :6) M-10 well mixed and laid in position complete including all leads of all construction materials including curing and finishing having well graded crusher broken stone aggregate of maximum size upto 40 mm | |  | cum |  |  |
| 3 | Random rubble stone masonary (using R.R. stones where 75 % stones to be not less 15 cm in size in any direction and weighing not less than 23 kg) for foundation including curing all leads of construction materials & all taxes and with intial lift/delift of 5 m from ground level etc. complete.in CM (1:5) | |  | cum |  |  |
| 4 | Add Extra for Masonry work in superstructure for Dam and other works. | |  | cum |  |  |
| 5 | Flush or ruled pointing on stone masonary including racking of joints and curing etc.complete including all leads of all construction materials in mortar ratio In Cement Sand Mortor 1:3 | |  | sqm |  |  |
| 6 | Providing and laying cement concrete coping in (1:2:4) with maximum size of crusher broken agg up to 20 mm including shuttering etc. with all leads of material complete in all respect in thickness of 75 mm | |  | sqm |  |  |
| 7 | Dismantling cement concrete including disposal of material within 50 m lead, inclusive of de-watering wherever required. | |  | cum |  |  |
| 8 | Cement concrete(1:3:6) M-10 well mixed and laid in position complete including all leads of all construction materials including curing and finishing having well graded broken stone aggregate of maximum size up to: 20 mm complete as per technical specification | |  | cum |  |  |
| 9 | Providing and fixing 20 mm thick terrazo tile over roofing fixed in cement mortar 1:4 over bed of 25 thick. | |  | sqm |  |  |
| 10 | Repair to cement plaster in cement mortar 1:6 (1-Cement:6-fine sand) including removal of old plaster in regular shape and white or colour washing. | |  | sqm |  |  |
| 11 | Distempering with oil bound washable distemper of approved brand and manufacture to give an even shade including all scaffolding: Old work (one or more coats) including scrapping surface and necessary repairs. | |  | sqm |  |  |
| 12 | S&F following sizes of ISI marked ( IS:14927 P - II ) PVC casing capping along with accessories like coupler, inner, outer, elbow, square box, tee etc. on surface with screws, expansion fasteners as required. 32 mm x 12 mm (Group 1) | |  | mtr |  |  |
| 13 | Wiring of light point/fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FR PVC insulated unsheathed flexible copper conductor 1.1 kV grad e and 1.5 sq.mm FR PVC insulated unsheathed flexible copper earth conductor 1.1kVgrade (IS 694) of approved make in surface/ recessed ISI marked medium duty PVC conduit & its accessories, round tiles, 18SWGM.S. box with earthing terminal 6A, switch, 3.0 mm thick phenolic laminated sheet, zinc plated/brass screws, cup washers, making connections testing etc. as required. Group -I E020101 Short Point | |  | Each |  |  |
| 14 | Wiring of light point/fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FR PVC insulated unsheathed flexible copper conductor 1.1 kV grad e and 1.5 sq.mm FR PVC insulated unsheathed flexible copper earth conductor 1.1kVgrade (IS 694) of approved make in surface/ recessed ISI marked medium duty PVC conduit & its accessories, round tiles, 18SWGM.S. box with earthing terminal 6A, switch, 3.0 mm thick phenolic laminated sheet, zinc plated/brass screws, cup washers, making connections testing etc. as required. Group -I E020102 Medium Point | |  | Each |  |  |
| 15 | Wiring of light point/fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FR PVC insulated unsheathed flexible copper conductor 1.1 kV grad e and 1.5 sq.mm FR PVC insulated unsheathed flexible copper earth conductor 1.1kVgrade (IS 694) of approved make in surface/ recessed ISI marked medium duty PVC conduit & its accessories, round tiles, 18SWGM.S. box with earthing terminal 6A, switch, 3.0 mm thick phenolic laminated sheet, zinc plated/brass screws, cup washers, making connections testing etc. as required. Group -I E020103 Long Point | |  | Each |  |  |
| 16 | P & F ISI marked (IS :3854) 16 amp. flush type switch including cutting hole in tile and making connection testing etc. as required. (E070400) Gr-I | |  | Each |  |  |
| 17 | P & F ISI marked (IS :3854) 3/6 pin 16 amp. flush type socket including cutting hole in tile and making connection testing etc. as required. (E071300) Gr-I | |  | Each |  |  |
| 18 | Supplying and fixing of power plug point accessories on 18 SWG metal box of size 175 x 100 x 60 mm. on surface or in recessed with suitable size phenolic laminated sheet cover including cost of 6 pin 16 amp. Switch and socket outlet , making connection , testing , etc. as required.(E040500) Group -I | |  | Each |  |  |
| 19 | P/F ISI marked flush / surface type Buzzer including making connection testing etc. as required .Group - I ; E-072500 | |  | Each |  |  |
| 20 | P & F IP-54 protected Wall mounted Bulk head light fixture suitable for 15/18 watt CFL lamp with integral control gear, housing made from cast alluminium with UV stabilized diffuser comprising of copper ballast, copper conductor including making connection testing etc. as required (without lamp)(E-200700)Gr-I | |  | Each |  |  |
| 21 | P&F of IP 20 LED tube light 20 watt with external batten made from CRCA sheet steel suitable to replace T-8 /T-12 tube light integral driver , 2000 luman +5% tolerance system human efficiency of 100 Lm/watt minimum expected life time of 25000 burning hours, CCT 5700 K, ANSI , CRI 80, driver efficiency >85% life expectency of driver min 30000hrs PF 0.95 at full load / 230 volt AC | |  | Each |  |  |
| 22 | P/F Two pin energy efficient 9watt IP20 LED bulb existing holder / fixture as required min.9\*00 lumen output -do- 230 volt AC E-301000- | |  | Each |  |  |
| 23 | P&F of Heavy duty capacitor start, Double ball bearing 900/1400 RPM single phase ISI marked Exhaust fan,IS:2312 marked in existing opening including making connections testing etc. as required. 300 mm Sweep (900/1400 RPM) Gr-2 | |  | Each |  |  |
| 24 | Wiring of 3 pin 5amp light plug point with .5Sqmm FR PVC insulated unsheathed flexible copper conductor 1.1kV grade and 1.5Sq.mm FR PVC insulated unsheathed flexible copper earth conductor 1.1kV grade (IS 694) of approved make in surface/recessed ISI marked medium duty PVC conduit & it's accessories, 18SWG M.S. Box with earthing terminal 6A Switch, 6A socket, 3.0mm thick phenolic laminated sheet, zinc plated/brass screws, cup washers making connections, testing etc. as required. Group - I. E020701 On Board | |  | Each |  |  |
| 25 | Plate Earthing as per IS:3043 with G.I. earth plate of size 600 mm x 600 mm x 6mm by embodying 3 to 4 mtr. Below the ground level earth 20 mm dia. G.I.'B' class watering pipe including all accessories like nut, bolts reducer, nipple, wire meshed funnel and Ferro cement cover with C.I. frame of size 300 mm x 300 mm complete with alternate layer of salt & coke / charcoal, testing or Earth resistance as required E-150200 | |  | Each |  |  |
| 26 | P & F 240/415V MCB of breaking capacity not less than 10KA (B/C/D tripping characteristic) ISI marked is 8828 (1996)conforming to IEC 60898 in existing board/sheets including making connections with lugs, testing etc as required. Group- I E-060112 6 A to 32A rating | |  | Each |  |  |
| 27 | P &F 240/415V isolator conforming to IS13947-III/IEC 60947-3 on existing board/ sheet including making connections with lugs testing etc as required. Group- I E-60212 Double Pole Isolator 63A rating | |  | Each |  |  |
| 28 | P&F Recessed /surface mounting heavy duty horizontal type sheet steel Distribution board phophatised/powder painted complete with copper bus bar, shorting link, neutral link, earth link and din bar conforming to IS 13032 & IS 8623 including making terminal DB terminations with copper lugs testing etc as required. Group- I E-060513 - 8 way | |  | Each |  |  |
| 29 | Supply of GI pipes with flanges duly screwed & welded including rubber washer, nuts & bolts of 8mm dia comp. in all respect ISI make. B class 40mm dia (E-261101) | |  | R.Mtr |  |  |
| 30 | Wiring of twin control light point with 1.5 sq.mm PVC insulated unsheathed solid / stranded aluminium conductor 1.1 kV grade and 2.5 sq. mm nominal size PVC insulated unsheathed solid / stranded aluminium earth conductor 1.1 kV grade (IS:694) of approved make in surface / recessed ISI marked medium duty PVC conduit & it's accessories, round tiles,18 SWG M.S. box with earth terminal, screwless cage connectors for neutral looping in switch board & falce ceiling point, 6 A two way switch, 3.0 mm thick phenolic laminated sheet, zinc plated / brass screws, cup washers, making connections, testing etc. as required.(E-020601) Gr-I Short point (up to 3 mtr.) | |  | Each |  |  |
| 31 | P & F 9/11/13/ Watt CFL mirror light with CRCA powder coated housing,diffuser,end covers,copper ballast,holder prewired upto terminal block including making connection testing etc. as required (without tube) (E-191700)Gr-I | |  | Each |  |  |
| 32 | P/F decorative Round / Square shape surface mounting ceiling fitting complete with holder, aluminium anodized back plate glass globe of approved design, prewired terminal block making connection. Testing etc. as required as approved by the Project Manager .Group -I ;E-192003-250mm | |  | Each |  |  |
| 33 | Wiring for sub mains ISI marked (IS:694) 1100 Volts grade PVC insulated flat twin core sheathed solid aluminium conductor with 10 SWG G.I. Support wire duly clipped etc. as required 6.0 sq.mm (E-040402) Group-I | |  | R.Mtr |  |  |
| 34 | P & F 18 SWG Sheet steel boxes duly finished with two coats of red oxide and with earthing terminal of following sizes (nominal size) on surface or in recessed as required.175mm x 100mm x 60mm (E-050104) | |  | Each |  |  |
| 35 | P & F paper phenolic resin bonded laminates confirming to IS : 2036 - 1995 for boxes/ frames including making holes for switches etc, with brass screws, washers/ zinc plated nut and bolts as required. 4.8 mm thick (E050502) Group - 1 | |  | P.Sqm. |  |  |
| 36 | Supply and drawing FR PVC insulated & unsheathed flexible copper conductor ISI marked (IS 694) of 1.1 kV grade and approved make I existing surface or recessed conduit/ casing capping including making connections etc. as required.(E-040109) 3 x 2.5 Sqm. | |  | R.Mtr |  |  |
| 37 | Supply and drawing FR PVC insulated & unsheathed flexible copper conductor ISI marked (IS 694) of 1.1 kV grade and approved make I existing surface or recessed conduit/ casing capping including making connections etc. as required (E-040114) 3 x 4.0 Sq. mm | |  | R.Mtr |  |  |
| 38 | P/F 18 SWG M.S recessed fan box hexagonal / round of size 130 mm dia. Depth 75 mm with 12 mm dia. Rod for fan hook with 100 mm length extended on each side. Group - I (E-170600) | |  | Each |  |  |
| 39 | S/L following size Earth wire / strips in horizontal or vertical run in ground / surface / recess including riveting, soldering, saddles making connection etc. as required 10 SWG Copper Wire. (E-150703 ) | |  | R.Mtr |  |  |
| 40 | P/F IS:371 marked 6 amp surface type ceiling rose including making connection, testing etc. as required Group- I; E-071400 | |  | Each |  |  |
| 41 | P/F ISI marked 6 amp bakelite batten / angle holder including making connection, testing etc. as required . Group -I ; E-071500 | |  | Each |  |  |
| 42 | S&F following sizes (dia) of ISI marked medium duty PVC conduit along with accessories in surface/ recessed using saddles, clamps, fastener as required including cutting the wall and making good the same as required. Gr-I E-020401 20mm | |  | R.Mtr |  |  |
| 43 | S&F following sizes (dia) of ISI marked medium duty PVC conduit along with accessories in surface/ recessed using saddles, clamps, fastener as required including cutting the wall and making good the same as required. Gr-I E-020402 25 mm | |  | R.Mtr |  |  |
| 44 | P & F Star rated double ball bearing capacitor start, aluminium body & blade ceiling fan with down rod up to 30 cm with 3 x 1.5 sq.mm pvc insulated flexible copper conductor making connection testing etc. as required. 1200 mm Sweep 5 Star rated G-1(E170501) @ 1896/- | |  | Each |  |  |
| 45 | P & F surface/recessed type 10 mm thick teak wood board dule antitermite treated, varnished and fixed by using gutties/ PVC fastners of following size as required. 300mmX375mm (E050906 ) Gr-I | |  | Each |  |  |
| 46 | Providing & fixing anodizing alumium work (Anodizing to be got done from approved Anodizer) for doors, windows, ventilators and partition with extruded built up standard tubular and other sections of approved make confirming to IS : 733 and IS : 1285 anodised transparent 81 dyed to required shade according to IS : 1868 (Minimum anodic coating of grade AC 15), fixed with rawl plugs and screws or with fixing clips or with expansion hold fasteners including necessary filling up of gas at junctions, at top, bottom and sides with required PVC/neoprene felt etc. Aluminium section shall be smooth, rust free, straight, mitred and jointed mechanically wherever required inlcuding cleat angle Aluminum snap beading for glazing/paneling, C.P. Brass/ Stainless Steel screws, Al. Tower bolt & Al. handle & Al. Aldrop etc. all complete as per architectural drawings and the directions of Project Manager. (Glazing and peneling to be paid for separately). For shutters of doors, windows & ventilators incl. providing and fixing hinges/ rollers etc. and making provision for fixing of fittings wherever reqd. (lockes shall be paid for | |  | kg |  |  |
| 47 | Providing and fixing factory made solid core single leaf Door shutter made out of composite ECO friendly wood laminated with 0.8 mm thick polymer termite and water resistant five retendent technology, gluing by vacuum lamination technology various premoulded design on both face as per IS-2202 (Part-I) 1991 (Door fitting shall be supplied by the department):30mm thick (2100mmx900mm size) | |  | each |  |  |
| **(x)** | **Construction of cantilever slab for turning of vehicles at \_\_\_\_\_\_ main dam** | |  |  |  |  |
| 1 | Demolishing stone rubble masonry including stacking of useable material and disposal of unuseable material within 50 meters lead inclusive of de-watering wherever required. In cement mortar | |  | cum |  |  |
| 2 | Random rubble stone masonry (using R. R. stones where 75 % stones to be not less than 15 cm in size in any direction and weighing not less than 23 kg.) for Foundation including curing all leads of all construction materials including curing etc. complete. in 1:5 cement mortar | |  | cum |  |  |
| 3 | Add Extra for Masonry work in superstructure for Dam and other works. | |  | cum |  |  |
| 4 | Providing and laying cement concrete coping in (1:2:4) with maximum size of crusher broken aggregate upto 20 mm including shuttering etc. with all leads of material complete in all respect in thickness of: 50 mm thick | |  | sqm |  |  |
| 5 | Cement concrete (1 : 1½ : 3) M-20 well mixed and laid in position complete including all leads of all construction materials including curing and finishing having well graded crusher broken stone aggregate of maximum size upto 20 mm | |  | cum |  |  |
| 6 | Supplying of M.S. reinforcement including labour charges for bending binding and placing in position all reinforcement as per drawing including cost of binding wire and all leads and lifts using. T or or ribbed bars (IS :1786-1985) | |  | Kg |  |  |
| 7 | Extra labour charges for obstruction in laying and placing the reinforced cement concrete due to reinforcement.Columns, slabs, cantilevers projections staircases, lintels, beams, chajjas, Retaining walls, piers, abutments, galleries, arch covers, bed plates, sluice capstan bases etc. | |  | cum |  |  |
| 8 | Plaster in cement sand mortar 1:3 including racking of joints, smooth finishing & curing etc. complete including all leads of all construction materials of thickness: 20 mm | |  | sqm |  |  |
| 9 | Structural steel work welded in built up sections, trusses and framed work including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete above plinth level up to 4.5 Mtr. height in R.S. Joists flats, tees, angles and channels. | |  | kg |  |  |
| 10 | Side shuttering including propping etc. complete (to achieve finish F 2 for : Block joints of foundation stilling basins buckets, aprons etc. ( non -suspended horizontally laid mass concrete) | |  | sqm |  |  |
| 11 | Drilling holes of 35 mm diameter for anchor rods. Upto 1.50 m. depth | |  | mtr |  |  |
| 12 | Supply of Tor steel anchor bars of required diameter, length and shape at site of work complete. | |  | kg |  |  |
| 13 | Labour charges for Fixing of anchor bars in neat cement grout including cost of cement and curing etc. complete | |  | Each |  |  |
| **(xi)** | **Repair and renovation of \_\_\_\_\_\_ dam Inspection banglow and motimahal.** | |  |  |  |  |
| 1 | Demolishing cement concrete including disposal of material within 50 meter lead : 1:3:6 or richer mix | |  | cum |  |  |
| 2 | Dismantling old plaster or skirting, raking out joints and cleaning the surface for plaster incl. Disposal of rubbish to the dumping ground within 50 mtr lead | |  | sqm |  |  |
| 3 | Dismantling doors, windows and clearstory windows steel or wood shutter including chowkhats and holdfasts etc. complete and stacking within 50 meters lead : Of area 3 square meter and below. | |  | nos |  |  |
| 4 | Providing and laying in position cement concrete including curing compaction etc. of specified grade excluding the cost of centering and shuttering =All up to plinth level IS 456-2000: 1:3:6 (1Cement :3 Course Sand :6 Graded stone aggregate 20 mm nominal size | |  | cum |  |  |
| 5 | Plaster on new surface on walls in cement sand mortar 1:4 including raking of joints etc. complete fine finish: 20 mm thick. | |  | sqm |  |  |
| 6 | Painting with weather coat paint (Asin paint/ I.C.I./Berger or eq. ISI make paint) two or more coat to give an even shade on new work. | |  | sqm |  |  |
| 7 | P & F 1st qualityVitrified Porcelain Polished tiles on floor, skirting and steps etc.in different sizes (thickness to be specified by manufactuer) with water absortion less than 0.08% and conforming to IS 15622 of approved make in all colour and shade, laid with 20 mm thick CM 1 : 4 including grounting the joints with white cement and matching pigment etc complete.Size 600 mm X 600 mm | |  | sqm |  |  |
| 8 | Add extra over items No. 7.5 for floor work due to extra cost of cement mortar 1:4 (1-Cement :4- fine sand )20 mm thick | |  | sqm |  |  |
| 10 | Cement concrete(1:3:6) M-10 well mixed and laid in position complete including all leads of all construction materials including curing and finishing having well graded broken stone aggregate of maximum size up to: 20 mm complete as per technical specification | |  | cum |  |  |
| 11 | Providing and fixing 20 mm thick terrazo tile over roofing fixed in cement mortar 1:4 over bed of 25 thick. | |  | sqm |  |  |
| 12 | P & F Bib Cock (IS : 8931 Mark), Superior quality of approved make:Brass 400 gms 15 mm nominal bore. | |  | nos |  |  |
| 13 | P&F rigid PVC Pipe (IS:4985 mark) class II(4 Kg. /Cm.) approved quality /make including joining the pipe with solvent cement rubber ring and lubricant (110) mm | |  | mtr |  |  |
| 14 | P & F WVC Wash basin (Ist quality IS:2556 Mark) of approved make with C.I. brackets duly painted 1 No. 15 mm C.P. Pillar cock (IS:8934 Mark) & 32 mm C.P. brass waste coupling of approved make 25 mm G.I. waste pipe complete including cutting & making good the wall :Size 610 mm x 510 mm. | |  | nos |  |  |
| 15 | P&F towel rail or ring of approved quality /make:C.P. brass towel rail elbow type with concealed screws size 600mm (heavy duty) | |  | nos |  |  |
| 16 | P&F looking mirrors with PVC frame of approved ( atul/equivalent) Size 500x400mm | |  | nos |  |  |
| 17 | P&F soap dish or tray of approved quality /make soap dish 380 mm | |  | nos |  |  |
| 18 | P&F Flush cock /Flush Valve (IS:9758Mark ) or WC of approved quality make : C.P. Brass Half - turn exposed 25 mm nominal bore | |  | nos |  |  |
| 19 | P&F white vitreous china double syphonic european WC (IS : 2556Mark ) with mounted WVC flushing cistern of ( IS : 2556 Mark ) of 10 litre capacity complete with all necessary internal fitting incl. Cutting and making good the wall and floor | |  | nos |  |  |
| 20 | Hand shower with 8 mm dia 1 mt. long PVC tube & wall hook complete | |  | nos |  |  |
| 21 | Providing and fixing of suspended false ceiling in the grid of 600 x 600 mm/600 x 600 to 900 x 900mm using aluminium tees with inter lock system of main tee, cross tee and wall angle (size of tee and angle approx. 25mm x 25mm or equivalent) etc. complete Using 200 x 20 x 1 mm section. | |  | sqm |  |  |
| 22 | Providing & fixing anodizing alumium work (Anodizing to be got done from approved Anodizer) for doors, windows, ventilators and partition with extruded built up standard tubular and other sections of approved make confirming to IS : 733 and IS : 1285 anodised transparent 81 dyed to required shade according to IS : 1868 (Minimum anodic coating of grade AC 15), fixed with rawl plugs and screws or with fixing clips or with expansion hold fasteners including necessary filling up of gas at junctions, at top, bottom and sides with required PVC/neoprene felt etc. Aluminium section shall be smooth, rust free, straight, mitred and jointed mechanically wherever required inlcuding cleat angle Aluminum snap beading for glazing/paneling, C.P. Brass/ Stainless Steel screws, Al. Tower bolt & Al. handle & Al. Aldrop etc. all complete as per architectural drawings and the directions of Project Manager. (Glazing and peneling to be paid for separately). For shutters of doors, windows & ventilators incl. providing and fixing hinges/ rollers etc. and making provision for fixing of fittings wherever reqd. (lockes shall be paid for | |  | kg |  |  |
| 23 | P&F expanded grill made of anodised aluminium as per desing and drawing having members section of size 7.5mm x 6.0mm and opening of size 102mm x 99mm to aluminium window/ vent with reqd. screws, Y and H aluminium sec (as per drawing) at the ends and middle joints respectively complete in all respect as per direction of Project Manager. | |  | sqm |  |  |
| 24 | P&F Horizontal blinds made out of 25mm wide aluminium powder coated strips with powder coated channel etc. compelte (Aerolux, vista, Mac or equivalent) as per direction or Project Manager. | |  | sqm |  |  |
| 25 | P & F PVC Storage Tank (IS:12701 marked indicating the BIS license No.) of approved make with cover, 25 mm dia 1 M long G.I. over-flow pipe & 25 Cm. long wash out pipe with plug & socket, including making connection etc. complete of approved design.1000 litres capacity. | |  |  |  |  |
| 26 |  |
|  | 25 mm nominal outer dia pipes | |  | rm |  |  |
|  | 20 mm | |  | rm |  |  |
| 27 | P & F Mixing Range (15 mm) C.P. Wall mixer telephonic type crutch & telephonic shower. | |  | nos |  |  |
| 28 | P&F Bath shower of approved quality/ make .C.P. brassof Heavy & superior quality, revolving with adjustable key 150mm. Inner dia 90cm & 10 to 12 mtr deep | |  | nos |  |  |
| 29 | S&F following sizes of ISI marked ( IS:14927 P - II ) PVC casing capping along with accessories like coupler, inner, outer, elbow, square box, tee etc. on surface with screws, expansion fasteners as required. 32 mm x 12 mm (Group 1) | |  | mtr |  |  |
| 30 | Wiring of light point/fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FR PVC insulated unsheathed flexible copper conductor 1.1 kV grad e and 1.5 sq.mm FR PVC insulated unsheathed flexible copper earth conductor 1.1kVgrade (IS 694) of approved make in surface/ recessed ISI marked medium duty PVC conduit & its accessories, round tiles, 18SWGM.S. box with earthing terminal 6A, switch, 3.0 mm thick phenolic laminated sheet, zinc plated/brass screws, cup washers, making connections testing etc. as required. Group -I E020101 Short Point | |  | Each |  |  |
| 31 | Wiring of light point/fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FR PVC insulated unsheathed flexible copper conductor 1.1 kV grad e and 1.5 sq.mm FR PVC insulated unsheathed flexible copper earth conductor 1.1kVgrade (IS 694) of approved make in surface/ recessed ISI marked medium duty PVC conduit & its accessories, round tiles, 18SWGM.S. box with earthing terminal 6A, switch, 3.0 mm thick phenolic laminated sheet, zinc plated/brass screws, cup washers, making connections testing etc. as required. Group -I E020102 Medium Point | |  | Each |  |  |
| 32 | Wiring of light point/fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FR PVC insulated unsheathed flexible copper conductor 1.1 kV grad e and 1.5 sq.mm FR PVC insulated unsheathed flexible copper earth conductor 1.1kVgrade (IS 694) of approved make in surface/ recessed ISI marked medium duty PVC conduit & its accessories, round tiles, 18SWGM.S. box with earthing terminal 6A, switch, 3.0 mm thick phenolic laminated sheet, zinc plated/brass screws, cup washers, making connections testing etc. as required. Group -I E020103 Long Point | |  | Each |  |  |
| 33 | P & F ISI marked (IS :3854) 16 amp. flush type switch including cutting hole in tile and making connection testing etc. as required. (E070400) Gr-I | |  | Each |  |  |
| 34 | P & F ISI marked (IS :3854) 3/6 pin 16 amp. flush type socket including cutting hole in tile and making connection testing etc. as required. (E071300) Gr-I | |  | Each |  |  |
| 35 | Supplying and fixing of power plug point accessories on 18 SWG metal box of size 175 x 100 x 60 mm. on surface or in recessed with suitable size phenolic laminated sheet cover including cost of 6 pin 16 amp. Switch and socket outlet , making connection , testing , etc. as required.(E040500) Group -I | |  | Each |  |  |
| 36 | P/F ISI marked flush / surface type Buzzer including making connection testing etc. as required .Group - I ; E-072500 | |  | Each |  |  |
| 37 | P & F IP-54 protected Wall mounted Bulk head light fixture suitable for 15/18 watt CFL lamp with integral control gear, housing made from cast alluminium with UV stabilized diffuser comprising of copper ballast, copper conductor including making connection testing etc. as required (without lamp)(E-200700)Gr-I | |  | Each |  |  |
| 38 | P&F of IP 20 LED tube light 20 watt with external batten made from CRCA sheet steel suitable to replace T-8 /T-12 tube light integral driver , 2000 luman +5% tolerance system human efficiency of 100 Lm/watt minimum expected life time of 25000 burning hours, CCT 5700 K, ANSI , CRI 80, driver efficiency >85% life expectency of driver min 30000hrs PF 0.95 at full load / 230 volt AC | |  | Each |  |  |
| 39 | P/F Two pin energy efficient 9watt IP20 LED bulb existing holder / fixture as required min.9\*00 lumen output -do- 230 volt AC E-301000- | |  | Each |  |  |
| 40 | P&F of Heavy duty capacitor start, Double ball bearing 900/1400 RPM single phase ISI marked Exhaust fan,IS:2312 marked in existing opening including making connections testing etc. as required. 300 mm Sweep (900/1400 RPM) Gr-2 | |  | Each |  |  |
| 41 | Wiring of 3 pin 5amp light plug point with .5Sqmm FR PVC insulated unsheathed flexible copper conductor 1.1kV grade and 1.5Sq.mm FR PVC insulated unsheathed flexible copper earth conductor 1.1kV grade (IS 694) of approved make in surface/recessed ISI marked medium duty PVC conduit & it's accessories, 18SWG M.S. Box with earthing terminal 6A Switch, 6A socket, 3.0mm thick phenolic laminated sheet, zinc plated/brass screws, cup washers making connections, testing etc. as required. Group - I. E020701 On Board | |  | Each |  |  |
| 42 | Plate Earthing as per IS:3043 with G.I. earth plate of size 600 mm x 600 mm x 6mm by embodying 3 to 4 mtr. Below the ground level earth 20 mm dia. G.I.'B' class watering pipe including all accessories like nut, bolts reducer, nipple, wire meshed funnel and Ferro cement cover with C.I. frame of size 300 mm x 300 mm complete with alternate layer of salt & coke / charcoal, testing or Earth resistance as required E-150200 | |  | Each |  |  |
| 43 | P & F 240/415V MCB of breaking capacity not less than 10KA (B/C/D tripping characteristic) ISI marked is 8828 (1996)conforming to IEC 60898 in existing board/sheets including making connections with lugs, testing etc as required. Group- I E-060112 6 A to 32A rating | |  | Each |  |  |
| 44 | P &F 240/415V isolator conforming to IS13947-III/IEC 60947-3 on existing board/ sheet including making connections with lugs testing etc as required. Group- I E-60212 Double Pole Isolator 63A rating | |  | Each |  |  |
| 45 | P&F Recessed /surface mounting heavy duty horizontal type sheet steel Distribution board phophatised/powder painted complete with copper bus bar, shorting link, neutral link, earth link and din bar conforming to IS 13032 & IS 8623 including making terminal DB terminations with copper lugs testing etc as required. Group- I E-060513 - 8 way | |  | Each |  |  |
| 46 | Supply of GI pipes with flanges duly screwed & welded including rubber washer, nuts & bolts of 8mm dia comp. in all respect ISI make. B class 40mm dia (E-261101) | |  | R.Mtr |  |  |
| 47 | Wiring of twin control light point with 1.5 sq.mm PVC insulated unsheathed solid / stranded aluminium conductor 1.1 kV grade and 2.5 sq. mm nominal size PVC insulated unsheathed solid / stranded aluminium earth conductor 1.1 kV grade (IS:694) of approved make in surface / recessed ISI marked medium duty PVC conduit & it's accessories, round tiles,18 SWG M.S. box with earth terminal, screwless cage connectors for neutral looping in switch board & falce ceiling point, 6 A two way switch, 3.0 mm thick phenolic laminated sheet, zinc plated / brass screws, cup washers, making connections, testing etc. as required.(E-020601) Gr-I Short point (up to 3 mtr.) | |  | Each |  |  |
| 48 | P & F 9/11/13/ Watt CFL mirror light with CRCA powder coated housing,diffuser,end covers,copper ballast,holder prewired upto terminal block including making connection testing etc. as required (without tube) (E-191700)Gr-I | |  | Each |  |  |
| 49 | P/F decorative Round / Square shape surface mounting ceiling fitting complete with holder, aluminium anodized back plate glass globe of approved design, prewired terminal block making connection. Testing etc. as required as approved by the Project Manager .Group -I ;E-192003-250mm | |  | Each |  |  |
| 50 | Wiring for sub mains ISI marked (IS:694) 1100 Volts grade PVC insulated flat twin core sheathed solid aluminium conductor with 10 SWG G.I. Support wire duly clipped etc. as required 6.0 sq.mm (E-040402) Group-I | |  | R.Mtr |  |  |
| 51 | P & F 18 SWG Sheet steel boxes duly finished with two coats of red oxide and with earthing terminal of following sizes (nominal size) on surface or in recessed as required.175mm x 100mm x 60mm (E-050104) | |  | Each |  |  |
| 52 | P & F paper phenolic resin bonded laminates confirming to IS : 2036 - 1995 for boxes/ frames including making holes for switches etc, with brass screws, washers/ zinc plated nut and bolts as required. 4.8 mm thick (E050502) Group - 1 | |  | P.Sqm. |  |  |
| 53 | Supply and drawing FR PVC insulated & unsheathed flexible copper conductor ISI marked (IS 694) of 1.1 kV grade and approved make I existing surface or recessed conduit/ casing capping including making connections etc. as required.(E-040109) 3 x 2.5 Sqm. | |  | R.Mtr |  |  |
| 54 | Supply and drawing FR PVC insulated & unsheathed flexible copper conductor ISI marked (IS 694) of 1.1 kV grade and approved make I existing surface or recessed conduit/ casing capping including making connections etc. as required (E-040114) 3 x 4.0 Sq. mm | |  | R.Mtr |  |  |
| 55 | P/F 18 SWG M.S recessed fan box hexagonal / round of size 130 mm dia. Depth 75 mm with 12 mm dia. Rod for fan hook with 100 mm length extended on each side. Group - I (E-170600) | |  | Each |  |  |
| 56 | S/L following size Earth wire / strips in horizontal or vertical run in ground / surface / recess including riveting, soldering, saddles making connection etc. as required 10 SWG Copper Wire. (E-150703 ) | |  | R.Mtr |  |  |
| 57 | P/F IS:371 marked 6 amp surface type ceiling rose including making connection, testing etc. as required Group- I; E-071400 | |  | Each |  |  |
| 58 | P/F ISI marked 6 amp bakelite batten / angle holder including making connection, testing etc. as required . Group -I ; E-071500 | |  | Each |  |  |
| 59 | S&F following sizes (dia) of ISI marked medium duty PVC conduit along with accessories in surface/ recessed using saddles, clamps, fastener as required including cutting the wall and making good the same as required. Gr-I E-020401 20mm | |  | R.Mtr |  |  |
| 60 | S&F following sizes (dia) of ISI marked medium duty PVC conduit along with accessories in surface/ recessed using saddles, clamps, fastener as required including cutting the wall and making good the same as required. Gr-I E-020402 25 mm | |  | R.Mtr |  |  |
| 61 | P & F Star rated double ball bearing capacitor start, aluminium body & blade ceiling fan with down rod up to 30 cm with 3 x 1.5 sq.mm pvc insulated flexible copper conductor making connection testing etc. as required. 1200 mm Sweep 5 Star rated G-1(E170501) @ 1896/- | |  | Each |  |  |
| 62 | P & F surface/recessed type 10 mm thick teak wood board dule antitermite treated, varnished and fixed by using gutties/ PVC fastners of following size as required. 300mmX375mm (E050906 ) Gr-I | |  | Each |  |  |
| 63 |  |
| a) | 6A two way switch | |  | N0s |  |  |
| b) | 6 A 3 pin shuttered socket | |  | N0s |  |  |
| c) | 16 A 6 pin shuttered socket | |  | N0s |  |  |
| d) | 5 step fan regulator 2 Module | |  | N0s |  |  |
| 64 | P&F on load change over switch, front handle operated, four pole 415 V conforming to IS:13947 P-III including connections , testing etc. as required in the following rating: open execution type (125 A) | |  | Nos |  |  |
| 65 | P & F of 4 star rated vertical storage water heater with outer casing made of M.S.sheet finished with anti-corrosive powder coating,inner tank made of pure electrolytic copper/stainless steel / SPHP, Tubular copper sheathed and Nickel plated heating elem 15 Ltr. | |  | Each |  |  |
| 66 | P & F box type fluorescent tube fitting fabricated from CRCA sheet and finished with powder coating / stove enamelled paint complete with accessories (Low Loss Copper Choke, starter, starter seat) / Electronic Choke with terminal block duly prewired with 2x 36 watts with OCCB | |  | Each |  |  |
| 67 | P & F IP-65 protected street light luminaire on existing bracket suitable for HPSV/ MH LAMP, made from powder coated single piece pressure die cast aluminium housing, electrochemically brightened and anodized POT optics aluminium reflector, heat resistant Street light suitable for HPSV Lamp (1x70 Wt) | |  | Each |  |  |
| 68 | P&F Recessed/ Surface mounting heavy duty horizontal type sheet steel Distribution board phophatised/ powder painted complete with suitable rating insulated copper bus bar, shorting link , neutral link, earth link and din bar,masking sheet, conforming to Single door (three phase 4 way) | |  | Each |  |  |
| 69 | Supply and fixing of Modular work Station with Partition 32mm thick Aluminum top 25 mm thick MDF board with Membrane three drawer pedestal unit one KBT or one CPU trolley.Size 3600 x 2400 x 1200mm single seat in combination | |  | Each |  |  |
| 70 | SITC of Air Cooled Cassette type Air conditioners complete with Indoor unit(IDU), Out door unit (ODU), surface / concealed copper Refrigerant piping with insulation (EP foam pipe section) upto 10 Mtr (IDU to ODU), copper power cable upto 10 Mtr (IDU to ODU), R-22 Refrigerant, wireless Remote, drain pump,suitable for 400/230V +10% of 50 Hz ,1 /3 phase AC supply capable of performing cooling, dehumidification, Air circulation, filteration & ventilation of following capacity with Scroll / reciprocating / rotary compressor as specified.2 Ton( Group 1) | |  | Each |  |  |
| 71 | Providing and fixing factory made solid core single leaf Door shutter made out of composite ECO friendly wood laminated with 0.8 mm thick polymer termite and water resistant five retendent technology, gluing by vacuum lamination technology various premoulded design on both face as per IS-2202 (Part-I) 1991 (Door fitting shall be supplied by the department):30mm thick (2100mmx900mm size) | |  | Each |  |  |
| **(xii)** |  | | |  |  |  |
| 1 | Cutting & clearance of jungle, bushes, shrubs Ankra/lpomoea, Julieflora tpna etc. on canals and bunds in dry/moist/slushy conditions including disposal as per instructions of the Project Manager. Cost of wood has been deducted from rates and thus will be property of contractor after cutting. Thick | |  | sqm |  |  |
| 2 | Excavation including loading, unloading, disposal and dressing of excavated earth within initial lead of 50m and lift up to 1.5m in dry or moist including dressing of excavated area, dewatering wherever required complete in all respect- (b) Hard / dense soil | |  | cum |  |  |
| 3 | Cement concrete (1: 3 :6) M-10 well mixed and laid in position complete including all leads of all construction materials including curing and finishing having well graded crusher broken stone aggregate of maximum size upto 40 mm | |  | cum |  |  |
| 4 | Random rubble stone masonry (using R. R. stones where 75 % stones to be not less than 15 cm in size in any direction and weighing not less than 23 kg.) for Foundation including curing all leads of all construction materials including curing etc. complete. in 1:5 cement mortar | |  | cum |  |  |
| 5 | Add Extra for Masonry work in superstructure for Dam and other works. | |  | cum |  |  |
| 6 | Providing and laying cement concrete coping in (1:2:4) with maximum size of crusher broken agg up to 20 mm including shuttering etc. with all leads of material complete in all respect in thickness of 75 mm | |  | sqm |  |  |
| 7 | Flush or ruled pointing on stone masonry including racking of joints and curing etc. complete including all leads of all construction materials in mortar ratio 1:4 | |  | cum |  |  |
| 8 | Nominal mix of Plain Cement Concrete well mixed and laid in position using 20% max permissible limit of plums above 160 mm and up to 450mm, including curing and finishing etc including all leads of all construction materials complete in all respect with well graded crusher broken stone aggregate. The plums shall be distributed evenly and shall be not closer than 150 mm from the surface.:-PCC Nominal Mix 1:2:4 with plum:- Max size of Aggregate 20 mm | |  | cum |  |  |
| 9 | Supplying of M.S. reinforcement including labour charges for bending binding and placing in position all reinforcement as per drawing including cost of binding wire and all leads and lifts using.Tor or ribbed bars (IS :1786-1985) | |  | kg |  |  |
| 10 | Cement concrete (1: 2 :4) M-15 well mixed and laid in position complete including all leads of all construction materials including curing and finishing having well graded crusher broken stone aggregate of maximum size up to 20 mm | |  | cum |  |  |
| 11 | Extra labour charges for obstruction in laying and placing the reinforced cement concrete due to reinforcement. .In foundation rafts, beams, columns bases stilling basins, buckets, aprons etc. (non suspended horizontally laid mass concrete) | |  | cum |  |  |
| 12 | Side shuttering including propping etc. complete (to achieve finish F 2 for :Block joints of foundation stilling basins buckets, aprons etc. ( non -suspended horizontally laid mass concrete) | |  | sqm |  |  |
| 13 | Filling crates with stone in position at site including supplying and hinging with G.I. Wire 5 mm dia, hot dipped complete in all respects including cost of stones also.(Including cost of crates) | |  | cum |  |  |
| **(xiii)** | **Catch water drains on d/s and u/s of slope of embankment of dam** | |  |  |  |  |
| 1 | Dismantling cement concrete including disposal of material within 50 m lead, inclusive of de-watering wherever required. | |  | Cum |  |  |
| 2 | Excavation including loading, unloading, disposal and dressing of excavated earth within initial lead of 50m and lift up to 1.5m in dry or moist including dressing of excavated area, dewatering wherever required complete in all respect- (b) Hard / dense soil | |  | Cum |  |  |
| 3 | Cement concrete mix (1:3:6) M-10 well mixed and laid in position complete including all leads of all construction materials including curing and finishing having well graded crusher broken stone aggregate of maximum size upto-(c) 40mm | |  | Cum |  |  |
| 4 | Side shuttering including propping etc. complete (to achieve finish F 2 for :- (c) Retaining wall up stream or down- stream slope facings of dams and open faces of construction joints etc. | |  | Cum |  |  |
| **(xiv)** | **Submergence Survey of \_\_\_\_\_\_ dam** | |  |  |  |  |
| 1 | Double levelling with auto level, for transfer of bench mark, recording levels at 30 meter interval and marking temporary bench mark at suiatble location.Level book, bench mark value and location and plotting of the survey data is to be submitted to the department. | |  | Km |  |  |
| 2 | Survey work of existing dam taking level @ 30 meter longitudinal spacing for L-section and 5 meter transverse spacing for X-section and preparation of L- section showing top of embankment, u/s & d/s toe level, sluice, spilling arrangement of existing dam and X-sections indicating location and extent of pitching, sluice, face wall, filter toe, berms etc. To prepare and provide top plan and X-section section of existing spilling arrangement (overflow/by wash) showing details of protection works/aprons, training wall, guide wall with block level [plan with levels @ 10 meter grid covering 50m u/s and 100m d/s area.Listing of visible distress in dam -section and spill and sluice arrangements is to be provided with this survey. Drawing of plan and sectional elevation of existing sluice, indicating u/s approach well, barrel and d/s toe wall up to joining of main canal indicating gate/operation system arrangement. (b) Height of Dam more than 10 meter from lowest nalla bed (For  existing Dam) / Km 9900  Survey work with tot | |  | Km |  |  |
| 3 | Construction of Pucca bench mark mutton of size 30x30x75 cm in cement concrete (1:3:6) with maximum aggregate size of 40 mm with 75 cm long MS angle , size 25x25x5 mm embedded including curing transportation and fixing at site etc. complete with all leads & lifts. | |  | Each |  |  |
| 4 | Grid survey at interval of 30 x 30 meter to conduct submergence survey with total station instrument and prepare 0.50 m interval contour plan and superimposing over khasra map including all ancillary works as described in specifications and conditions of contract.Note: Khasra map will be provided by Department Marking of existing FRL, MWL, MDDL contours and dam alignment. Prepare area-elevation and storage -elevation curves and tables. | |  | Per Hactare |  |  |
| **(xv)** | **Construction of CC Road at \_\_\_\_\_\_ main dam and its permisis.** | |  |  |  |  |
| 1 | Cutting & clearance of jungle, bushes, shrubs Ankra/lpomoea, Julieflora tpna etc. on canals and bunds in dry/moist/slushy conditions including disposal as per instructions of the Project Manager. Cost of wood has been deducted from rates and thus will be property of contractor after cutting. Thick | |  | sqm |  |  |
| 2 | Excavation including loading, unloading, disposal and dressing of excavated earth within initial lead of 50m and lift up to 1.5m in dry or moist including dressing of excavated area, dewatering wherever required complete in all respect- (b) Hard / dense soil | |  | cum |  |  |
| 3 | Cement concrete mix (1:3:6) M-10 well mixed and laid in position complete including all leads of all construction materials including curing and finishing having well graded crusher broken stone aggregate of maximum size upto-(c) 40mm | |  | cum |  |  |
| 4 | Cement concrete (1 : 1½ : 3) M-20 well mixed and laid in position complete including all leads of all construction materials including curing and finishing having well graded crusher broken stone aggregate of maximum size upto 20 mm | |  | cum |  |  |
| 5 | Earth work in rough (borrow area) excavation for embankments in hard soil, morrum or highly weathered strata dry or moist, including laying in 20 cm layers (before compaction) and breaking of clods, sorting of grass, pebbles etc. and dressing when compacted by sheep foot roller/pneumatic tyred roller to obtain dry density of at least 98% of Standard Proctor's density with initial lift of 1.5m (Excluding charges for compaction and watering) including loading and un-loading wherever required complete in all respect.With initial lead of 250 m | |  | cum |  |  |
| 6 | Supplying and laying quarry spalls properly graded but not more than 10cm in size with spreading in required profile including all leads & lifts(Quarry spalls for Embankment & Side slope ) | |  | cum |  |  |
| 7 | Supply & fixing of Direction and place identification sign board made out of 2 mm thick M.S. sheet framed to angle iron 40x40x5 mm and two vertical posts of angle iron of size 65x65x6 mm 3 meter long with hold fasts, stove enameled paint reflective letter symbol complete of size. :120x75 cm. | |  | Each |  |  |
| 8 | Construction of Pedesatal of size 5.5' x 5.5 ' x 1.25' in stone masonry in CM 1:6 as per design and drawing complete with 25 mm thick plaster in CM 1:4 plaster and weather coat paint. | |  | Each |  |  |
| 9 | Supply & Fixing of one side polished Black granite/ White Marble stone 20 mm thick of size 3' x 2 ' with engraved and gold colour painted letters (up to 200 letters) & border as per direction of Project Managere on existing pedestals including transportation | |  | Each |  |  |
| 10 | Construction of cement concrete kerb with top and bottom width 115 and 165 mm respectively, 250 mm high in M-20 grade PCC on M-10 grade foundation 150 mm thick, foundation having 50 mm projection beyond kerb stone, kerb stone laid with kerb laying machine, foundation concrete laid manually,all complete as per MORTH specification Clause 408. Using Concrete Mixer | |  | Per mtr |  |  |
| **(xvi)** | **Laying of carpet on existing road on Flank A and Flank B** | |  |  |  |  |
| 1 | Providing and applying tack coat with Bitumen grade using mechanical bitumen pressure distributor distributor at the rate of 0.25 to 0.30 kg per sqm on the prepared granular surfaces treated with primer & cleaned with Hydraulic broom as per Technical Specification Clause 503.VG-10. | |  | sqm |  |  |
| 2 | Providing and laying open graded premix carpet 20mm thick (compacted) on prepared surface in a single course as wearing course aggregates as per Table 500-23, heating bituminous binder @ 14.6 Kg/10 Sqm.(VG-30 grade) and aggregates in Hot Mix Plant, transporting the mixed material with tipper and laying with paver finisher to the required level and grade, rolling with power roller, 8-10 tonne but excluding cost of tack and seal coat with all leads. [MORTH Specification : Clause 511,112]. In approved Hot Mix Plant as per clause 6.5 of Manual, including loading of aggregates with F.E loader with bitumen VG-30 | |  | sqm |  |  |
| 3 | Providing and laying seal coat for sealing the voids in a bituminous surface laid to the specified levels, grade and cross fall, including rolling with a smooth wheeled roller 8 - 10 tonne capacity finished to required level and grades, complete as per MORTH specification clause 513. Type B - Premixed in in approved HMP as per clause 6.5 of manual having capacity 50 TPH comprising of aggregate (sand or grit) having size 2.36 mm to 180 micron @ 0.06 Cum per 10 Sqm and bitumen binder (VG-30) @ 6.8 Kg / 10 sqm and laying by hydrostatic paver finisher with sensor control, including mixing, transportation, laying, rolling etc. complete - will all leads | |  | sqm |  |  |
| 4 | Earth work in rough (borrow area) excavation for embankments in hard soil, morrum or highly weathered strata dry or moist, including laying in 20 cm layers (before compaction) and breaking of clods, sorting of grass, pebbles etc. and dressing when compacted by sheep foot roller/pneumatic tyred roller to obtain dry density of at least 98% of Standard Proctor's density with initial lift of 1.5m (Excluding charges for compaction and watering) including loading and un-loading wherever required complete in all respect. With initial lead of 250 m | |  | cum |  |  |
| 5 | Supplying and laying quarry spalls properly graded but not more than 10cm in size with spreading in required profile including all leads & lifts(Quarry spalls for Embankment & Side slope ) | |  | cum |  |  |
| **(xvii)** |  | | |  |  |  |
| 1 | Cutting & clearance of jungle, bushes, shrubs Ankra/lpomoea, Julieflora tpna etc. on canals and bunds in dry/moist/slushy conditions including disposal as per instructions of the Project Manager. Cost of wood has been deducted from rates and thus will be property of contractor after cutting. Thick | |  | sqm |  |  |
| 2 | Excavation including loading, unloading, disposal and dressing of excavated earth within initial lead of 50m and lift up to 1.5m in dry or moist including dressing of excavated area, dewatering wherever required complete in all respectHard / dense soil | |  | cum |  |  |
| 3 | Cement concrete (1: 3 :6) M-10 well mixed and laid in position complete including all leads of all construction materials including curing and finishing having well graded crusher broken stone aggregate of maximum size upto 40 mm(PCC) | |  | cum |  |  |
| 4 | Cement concrete (1: 3 :6) M-10 well mixed and laid in position complete including all leads of all construction materials including curing and finishing having well graded crusher broken stone aggregate of maximum size upto 20 mm(PCC) | |  | cum |  |  |
| 5 | Supplying and laying sand of grade as per design requirement in required profile including all lead & lifts. | |  | cum |  |  |
| 6 | Providing and fixing of Precast concrete interlocking blocks of manufactured from fully computerized automatic stationery hydraulic vibro pressed machine & full computerized automatic batching plant of class A-1 as per BS : 6717-2001. The C.C. interlocking paving blocks be laid on average 25 mm thick bed of coarse sand and the joint is to be filled with fine sand. Laying procedure on compacted sub base as defined. Complete job is to be executed as per the instructions of Project Manager. The rates to be inclusive of all lead, lift, lifts & taxes general specifications of blocks.1. Shape : As specified by Project Manager.2. Tensile splitting strength and breaking load as per BS : 6717-20013. Colour : Grey cement natural colour 4. Variation in Dimension : Less than 1.6mm.5. Variation in thickness : Less than 3.2mm b) 80mm thick | |  | sqm |  |  |
| **B** | **HYDROMECHANICAL WORKS** | |  |  |  |  |
| **(i)** | **Repair and renovation of \_\_\_\_\_\_ dam overflow/spillway gates.** | |  |  |  |  |
| 1 | Labour charges for removal of existing wornout/damaged bottom and side rubber seal ( approximate length – 350.58 m ) of , overflow and Sluice Vertical Gates and of Dam by cutting bolts with gas cutter, providing holes in new rubber seal insertion of sleevs and fixing over gates with nut blots, washer ect including cost of gas (LPG and Oxygen) cylinder etc complete.   1. for Overflow Vertical Gates ( 13 nos.) 2. for Sluice gates ( 6 Nos.) | |  | Set  Set |  |  |
| 2 | Providing of Rubber seals ( bottom and side ) as per IS:11855 for Dam overflow &sluice gates ( total approx., 385,64 m ), required size and type and specifications with testing, including all lead and lifts, packing & forwarding charges for all components etc. complete.   1. for Overflow Vertical Gates ( 13 nos.) 2. for Sluice gates ( 6 Nos.) | |  | Set  Set |  |  |
| 3 | Providing of MS Nut &Bolts ( 500 kg ) with washer of required size and type, as per specifications with testing, including all lead and lifts, packing & forwarding charges for all components etc.  complete.   1. for Overflow Vertical Gates ( 13 nos.) 2. for Sluice gates ( 6 Nos.) | |  | Set  Set |  |  |
| 4 | Providing of High tensile MS Nut & Bolts ( 1000 Kg)with washer of required size and type, as per specifications with testing, including all lead and lifts, packing & forwarding charges for all components etc. complete.   1. for Overflow Vertical Gates ( 13 nos.)   b) for Sluice gates ( 6 Nos.) | |  | Set  Set |  |  |
| 5 | Providing of Stainless steel countersunk nut &bolts (1000 Kg) with washer of required size and type, as per specifications with testing, including all lead and lifts, packing & forwarding charges for all components etc. complete.   1. for Overflow Vertical Gates ( 13 nos.)   b) for Sluice gates ( 6 Nos.) | |  | Set  Set |  |  |
| 6 | Cleaning of gates/ hoists/ embedded parts ( approx.3967.28 sqm ) for re- painting by removing rust, oil, paint, grease etc., by using wire brush, scrubber, rust remover and applying a coat of rust inhibitive compound etc., completeas per specifications/standard   1. for Overflow Vertical Gates ( 13 nos.)   b) for Sluice gates ( 6 Nos.) | |  | Set  Set |  |  |
| 7 | Painting of Spillway/overflow Vertical gates,and sluice exposed embedded parts ( 3967.28 sqm ) and all un machined ferrous surface of hoist structure exposed to water as per IS 14177,for which surface preparation by blast cleaning of class "B" primer coat (one coat) of inorganic zinc silicate (preferably airless spray)or alternatively, two coats of zinc rich primer(containing not less than 85% zinc on dry film) to give dry film thickness of 70 ± 5 micron and finish coat (two coats) of solvent less coal tar epoxy paint using airless spray to provide dry film thickness of 150±5 micron per coats. Thus, total dry film thickness of all the coats, including primer coating, should not be less than 350 microns, this will be include expenses on mobilization and demobilization of equipment. For maintenance painting the surface preparation shall be done by appropriate hand and power tool cleaning, prior to hand power tool cleaning. Any heavy layer of rust should be removed by chipping visible oil, grease, dirt and other foreign material be cleaned using solvents like clean mineral spirits, xylot or white gasoline. After hand and power tool cleaning the surface should be cleaned of loose dust and debris and/or blast cleaned as laid down in para7.0 of IS code 14177. After the surface preparation the primer and finishing coats shall be carried out as provided above for painting etc. complete.   1. for Overflow Vertical Gates ( 13 nos.)   b) for Sluice gates ( 6 Nos ) | |  | Set  Set |  |  |
| 8 | Oiling and greasing of Overflow Vertical Gates and Sluice Gates of Dam including all charges of man and material complete which include applying greasing / Cardium compound to Chain , oiling & greasing hoists & moving parts etc complete as per direction of Project Manager ( 991.82 sqm )   1. for Overflow Vertical Gates ( 13 nos.)   b) for Sluice gates ( 6 Nos | |  | Set  Set |  |  |
| 9 | Design , Supply and Installation of screw hoist ( Min 2 ton capacity ) for 6 nos. sluice gates comprising of Casting, machining and assembling of Head stocks assembly with handle complete for operation with testing ,including cost of all materials as head stock body, GM Nut, Worm wheel, Gear, Bush ,Pin ,operating handle etc. with machinery, labour, cutting, aligning, welding, finishing, cleaning, painting etc., complete as per specifications and approved drawings with all lead and lifts, including packing & forwarding transportation charges for structural steel components and other materials.Head Stock Worm & wheel type coupled set 63/56mm dia. mm dia. threaded Nut ( Model WW- 90) two tone capacity, approx-1932 kg for 6 sets ( 322 kg weight per set ) | |  | Set |  |  |
| 10 | Supply and Installation of roller assembly ( approx., 800 kg for 8 nos.) comprises of dismantling of old wheel assembly , Replacement . Providing Casting/forging , machining and assembling of Cast Steel Rollers assembly for overflow vertical gates complete with testing  ,including cost of all materials as Cast steel Rollers, Stainless steel Eccentric pin/shaft with square cut shape in one end for adjustment, Lock plate, bronze bush, cover plate ,nut bolts, machinery, labour, cutting, aligning, welding, finishing, cleaning, applying one coat of zinc rich epoxy primer and two coats of cold applied coal tar epoxy paint, etc., complete as per specifications and approved drawings with all lead and lifts, tools and tackles, including labour , dismantling of old wheel assemblies , packing & forwarding, transportation charges for structural steel components and other  materials. | |  | Nos. |  |  |
| 11 | Straightening and machining work of structural steel sections (departmental materials) complete job for 1 no. overflow vertical gate ( 75.44 sqm), with all machinery as plainer machine etc., labour, cutting, aligning, finishing, cleaning, etc., complete as per specifications and approved drawings, with all lead and lifts, including packing & forwarding charges for structural steel components and other materials.Machining work of structural steel sections like as Guide T, Track etc. with plainer machine | |  | Job |  |  |
| 12 | Supply and fixing of oil / Air break DOL / Star Delta Starter made out of sheet steel powder coated enclosure with single phasing protection, ON / OFF push buttons, etc. complete in all respect suitable for following rating motors.3.0 HP to 10.0 HP (Group 1)   1. for Overflow Vertical Gates ( 13 nos.)   b) for Sluice gates ( 6 Nos ) | |  | Job  Job |  |  |
|  | **Total** | |  |  |  |  |

Section V - Eligible Countries

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

In reference to ITB 4.8, 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:

Under ITB 4.8 (a) and 5.1 : *None*

Under ITB 4.8 (b) and 5.1 : *None*

[Note: as and when some country/ countries become ineligible insert the list of such countries following approval by the Bank to apply the restriction]

Section VI - Fraud and Corruption

**(Section VI shall not be modified)**

1. **Purpose**
   1. The Bank’s Anti-Corruption Guidelines and this annex apply with respect to procurement under Bank Investment Project Financing operations.
2. **Requirements**
3. The Bank requires that Borrowers (including beneficiaries of Bank financing); bidders, (applicants/proposers), consultants, contractors and suppliers; any sub-contractors, sub-consultants, service providers or suppliers; any agents (whether declared or not); and any of their personnel, observe the highest standard of ethics during the procurement process, selection and contract execution of Bank-financed contracts, and refrain from Fraud and Corruption.
4. To this end, the Bank:
5. Defines, for the purposes of this provision, the terms set forth below as follows:
6. “corrupt practice” is the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;
7. “fraudulent practice” is any act or omission, including misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain financial or other benefit or to avoid an obligation;
8. “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;
9. “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;
10. “obstructive practice” is:
11. 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
12. acts intended to materially impede the exercise of the Bank’s inspection and audit rights provided for under paragraph 2.2 e. below.
13. Rejects a proposal for award if the Bank determines that the firm or individual recommended for award, any of its personnel, or its agents, or its sub-consultants, sub-contractors, service providers, suppliers and/ or their employees, has, directly or indirectly, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices in competing for the contract in question;
14. In addition to the legal remedies set out in the relevant Legal Agreement, may take other appropriate actions, including declaring misprocurement, if the Bank determines at any time that representatives of the Borrower or of a recipient of any part of the proceeds of the loan engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices during the procurement process, selection and/or execution of the contract in question, without the Borrower having taken timely and appropriate action satisfactory to the Bank to address such practices when they occur, including by failing to inform the Bank in a timely manner at the time they knew of the practices;
15. Pursuant to the Bank’s Anti- Corruption Guidelines and in accordance with the Bank’s prevailing sanctions policies and procedures, may sanction a firm or individual, either indefinitely or for a stated period of time, including by publicly declaring such firm or individual ineligible (i) to be awarded or otherwise benefit from a Bank-financed contract, financially or in any other manner;[[35]](#footnote-36) (ii) to be a nominated[[36]](#footnote-37) sub-contractor, consultant, manufacturer or supplier, or service provider of an otherwise eligible firm being awarded a Bank-financed contract; and (iii) to receive the proceeds of any loan made by the Bank or otherwise to participate further in the preparation or implementation of any Bank-financed project;
16. Requires that a clause be included in bidding/request for proposals documents and in contracts financed by a Bank loan, requiring (i) bidders (applicants/proposers), consultants, contractors, and suppliers, and their sub-contractors, sub-consultants, service providers, suppliers, agents personnel, permit the Bank to inspect[[37]](#footnote-38) all accounts, records and other documents relating to the procurement process, selection and/or contract execution, and to have them audited by auditors appointed by the Bank.

PART 2 – Works’ Requirements

Section VII - Works’ Requirements

Section VII-Works’ Requirements

(SAMPLE. TO BE MODIFIED AS PER REQUIREMENTS)

**Description for Scope of Works**

The major items of scope in the Project is as stated below and the details are given below in Table:

|  |  |
| --- | --- |
| **S.No.** | **DESCRIPTION OF WORK** |
| 1 | Protection work of damaged portion of apron. |
| 2 | Strengthening of North Saddle dam |
| 3 | Strengthening of Flank 'A' protection work of \_\_\_\_\_\_ Main Dam |
| 4 | Strengthening of Flank 'B' protection work of \_\_\_\_\_\_ Main Dam |
| 5 | Strengthening and maintenance of \_\_\_\_\_\_ Main Dam and its surrounding area. |
| 6 | Cleaning of drain holes and dewatering arrangement of seepage gallery. |
| 7 | Construction of cantilever slab for turning of vehicles at \_\_\_\_\_\_ main dam |
| 8 | Repair and renovation of \_\_\_\_\_\_ overflow gates comprises of following works:   * Replacement of all Rubber seals , Painting and General maintenance (with oiling /greasing including hoist parts) of overflow gates (13 nos.) and Sluice Gates ( 6 nos.) * Supply and Installation of Screw Hoists ( 6 nos,) for Sluice gates * Replacement of 8 sets of roller assembly for Overflow Gates * Strengthening of 1 no. Overflow Vertical Gate. |
|  |  |
| 9 | Construction of flow measuring structure at bera river (U/S side of \_\_\_\_\_\_ dam) |
| 10 | Submergence survey of \_\_\_\_\_\_ dam |
| 11 | Construction and repair of road at \_\_\_\_\_\_ main dam premises. |
| 12 | Repair and renovation of \_\_\_\_\_\_ dam inspection banglow and motimahal |
| 13 | Repair and renovation of Takhatgarh dak banglow |
| 14 | Repair and renovation of sanderao dak banglow |
| 15 | Repair & Renovation of irrigation Officer, staff colony & Office building. |
| 16 | Catch water drain on embankment dam |

Specifications

*A set of precise and clear Specifications is a prerequisite for Bidders to respond realistically and competitively to the requirements of the Employer without qualifying or conditioning their bids. The Specifications must be drafted to permit the widest possible competition and, at the same time, present a clear statement of the required standards of workmanship, materials, and performance of the goods and services to be procured. Only if this is done shall the objectives of economy, efficiency, and fairness in procurement be realized, responsiveness of Bids be ensured, and the subsequent task of Bid evaluation facilitated. The Specifications should require that all goods and materials to be incorporated in the Works be new, unused, of the most recent or current models, and incorporate all recent improvements in design and materials unless provided otherwise in the Contract.*

*Samples of Specifications from previous similar projects in India are useful to prepare Specifications. The use of metric units is encouraged by the World Bank. Most Specifications are normally written specially by the Employer or Project Manager to suit the Contract Works in hand. There is no standard set of Specifications for universal application in all sectors, but there are established principles and practices, which are reflected in these documents.*

*There are considerable advantages in standardizing General Specifications for repetitive Works in recognized public sectors, such as highways, ports, railways, urban housing, irrigation, and water supply, in the same country or region where similar conditions prevail. The General Specifications should cover all classes of workmanship, materials, and equipment commonly involved in construction, although not necessarily to be used in a particular Works Contract. Deletions or addendums should then adapt the General Specifications to apply them to the particular Works.*

*Care must be taken in drafting Specifications to ensure that they are not restrictive. In the Specifications of standards for goods, materials, and workmanship, recognized Indian standards should be used as much as possible. Where other particular standards are used, the Specifications should state that goods, materials, and workmanship that meet other authoritative standards, and which ensure substantially equal or higher quality than the standards mentioned, shall also be acceptable. To that effect, the following sample clause may be inserted in the Particular Conditions or Specifications.*

***“Equivalency of Standards and Codes***

*Wherever reference is made in the Contract to specific standards and codes to be met by the goods and materials 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. Where such standards and codes do not relate to Indian Standards, other authoritative standards that ensure a substantially equal or higher quality than the standards and codes specified shall be accepted subject to the Project Manager’s prior review and written consent. Differences between the standards specified and the proposed alternative standards shall be fully described in writing by the Contractor and submitted to the Project Manager at least 28 days prior to the date when the Contractor desires the Project Manager’s consent. In the event the Project Manager determines that such proposed deviations do not ensure substantially equal or higher quality, the Contractor shall comply with the standards specified in the documents.”*

*The method of measurement of completed work for payment shall be in accordance with* ***[insert the name of a standard reference guide, or full details of the methods to be used so that the bidder can take note of that while quoting prices].[[38]](#footnote-39)***

*[These Notes for Preparing Specifications are intended only as information for the Employer or the person drafting the bidding document. They should not be included in the final documents]*

###### 

**SAMPLE TECHNICAL SPECIFICATIONS**

**PART A: CIVIL WORKS**

## GENERAL REQUIREMENTS

The Technical Specification shall form a part of the contract and shall be read in conjunction with other bidding documents. If required, the Project Managermay issue special specifications modifying, amending, or supplementing the requirements spelt out in this Technical Specification. In such a case, the provision in the Special Specification shall prevail over those in the Technical Specification.

## Acronyms

|  |  |  |  |
| --- | --- | --- | --- |
| BM, B.M. | Bench Mark | Lit, | Litre |
| BOQ , B.O.Q. | Bill of Quantities | LS, L.S. | Lump sum |
| CE, C.E. | Chief Engineer | M, m, Met, met. | Meter |
| Cm , cm | Centimetre | mm | Millimetre |
| Cum, CuM | Cubic Meter | MT | Metric Tonne |
| Sqcm,CM2, | Squire Centimetre | m3, M3 | Cubic meter |
| ºC | Degree Celsius | MDD | Maximum Dry Density |
| Cc , CC | Cubic Centimetre | N | Newton |
| EIC, E.I.C. | Engineer In Charge | No, no | Number |
| Gm, gm | Gram | OMC | Optimum Moisture Content |
| Hr ,hr | Hour | Qtl, Qntl | Quintal |
| Km, KM | Kilometre | RM, Rm, rm | Running Meter |
| Kg, KG | Kilogram | Sq. M, Sqm, Sq Met | Squire Meter |

## 

## Standards and Specifications

The term, Indian Standard specifications (issued by the Bureau of Indian Standards) here in after referred as BIS used herein means the relevant Bureau of Indian Standard codes with all amendments published up to the date of submission of tenders. A Statement of BIS as applicable to the context of present work is listed below.

The list is not exhaustive.

**LIST OF INDIAN STANDARDS**

| **Sl. No.** | **Short title** | **B. I. S. Number** |
| --- | --- | --- |
| **(I)** | **CEMENT** |  |
|  | 33 Grade ordinary Portland cement | 269-1989 |
|  | Low heat Portland Cement | 12600 |
|  | Portland pozzolana cement (fly ash based) | 1489 (Part I) |
|  | Portland slag cement (Third Revision) | 455 – 1989 |
|  | Method for Physical tests for hydraulic cement (Reaffirmed 1980) | 4031 – 1 996 |
|  | Method of chemical analysis of hydraulic cement (First revision) | 4032 - 1985 |
|  | Rapid hardening Portland cement | 8041 – 1990 |
|  | 43 Grade ordinary Portland cement | 8112 |
|  | 53 Grade ordinary Portland cement | 12269 |
|  | Sulphate resisting Portland cement | 12330 |
|  | Fly Ash | 3812-2003 |
|  | Micro-Silica | 15388-2003 |
|  | Ground Granulated Blast Furnace Slag (GGBS) | 66699 |
| **(II)** | **AGGREGATES** |  |
| (1) | Specification for coarse and fine AGGREGATE |  |
|  | from natural source for concrete | 383 – 1970 |
| (2) | Specification for Sand for Masonry Mortars | 2116 – 1980 |
| (3) | Method of Tests for aggregates for Concrete | 2386 - 1969 (Part – I to Part – VIV) |
| (4) | Standard sand for testing of cement (First revision) with amendment 1 & 2 Reaffirmed 1980 | 650 – 1991 |
| (5) | Method for sampling of aggregates for concrete | 2430 – 1969 |
| (6) | Method of test for determining aggregates impact value of soft coarse aggregates | 5640 – 1970 |
| **III** | **BUILDING STONES** |  |
| 1 | Method of Test for Determination of strength properties of natural building stones | 1221 - 1974 (Part – I to Part – IV) |
|  | Part- - I Compressive Strength |  |
|  | Part – II Transverse Strength |  |
|  | Part – III Tensile Strength |  |
|  | Part – IV Shear Strength |  |
| 2 | Method of Measurement of Buildings and Civil Engineering Works method. (Part – IV, stone masonry) | 1200 – 1976 |
| **IV** | **STEEL** |  |
| 1 | Code of practice for bending and fixing of bars  for concrete reinforcement | 2502 – 1963 |
| 2 | Specification for cold worked steel Deformed bars for concrete reinforcement | 1786 – 1985 |
| 3 | Code of practice for Welding of M. S. Bars used for Reinforced Concrete Construction | 2751 – 1966 |
| 4 | Recommendations for detailing of reinforcement in reinforced concreted works | 5525 – 1969 |
| 5 | Specification of Mild Steel and Medium Tensile Bars for concrete reinforcement | 432 - 1966 |
| 6 | Code for practice for safety and health requirement in Electric and Gas welding and cutting operations | 818 – 1968 |
| 7 | Code for practice for Fire precautions in welding and Cutting operations | 3016 – 1966 |
| 8 | Measurement of Building and Civil Engineering Works, method Part – VIII steel work and Iron work | 1200 - 1974(Part – VIII) |
| 9 | Code of procedure for manual or metal ARC welding of Mild Steel | 823 – 1964 |
| **V** | **MASONRY** |  |
| 1 | Method of Measurement of building and Civil Engineering works Part – XII plastering and pointing | 1200 - 1976(Part – XII) |
| **VI** | **CONCRETE** |  |
| 1 | Method of Measurement of building and Civil Engineering works Part – II cement concrete works | 1200 - 1968(Part – II) |
| 2 | Code of practice for plain and reinforced concrete | 456 – 2000 |
| 3 | Methods of tests for strength of concrete | 516 – 1959 |
| 5 | Specification for Admixtures for concrete | 9013 – 1979 |
| 6 | Methods of Sampling and Analysis of concrete | 1199 – 1959 |
| 7 | General requirements for Concrete Vibrators – immersion type | 2505 – 1992 |
| 8 | General requirement for concrete vibrator screed board type (first revision) | 2506 – 1985 |
| 9 | Code of practice for use of immersion vibrator for consolidating concrete (first revision) | 3558 – 1983 |
| 10 | Method for testing performance of batch type concrete mixer | 4634 – 1990 |
| 11 | Form vibrators for concrete | 4656 – 1991 |
| 12 | Ready mixed concrete (First revision) | 4926 – 1990 |
| 14 | Vibrating plate compactor | 5889 – 1994 |
| 15 | Concrete Pavers | 7245 – 1991 |
| 16 | Concrete slump test apparatus | 7320 – 1992 |
| 17 | Method of making curing and determining compressive Strength of accelerated cured concrete test specimen | 9013 – 1979 |
| 18 | Guidelines for concrete mix design | 10262 – 1982 |
| **VII** | **EARTH WORK** |  |
| 1 | Method of Measurement of building and Civil Engineering Works Part – I Earth Work | 1200 - 1992(Part – I) |
| 2 | Safety code for piling and other deep foundations | 5121 – 1994 |
| 3 | Code of practice Design Installation, observation and maintenance of uplift pressure pipes for Hydraulic structures on permeable foundation | 6532 – 1992 |
| 4 | Safety code for excavation works | 3764 – 1992 |
| 5 | Code of practice for Protection of slope for reservoir embankments | 8237 – 1990 |
| 8 | Method of test for soils Part – II Determination of water content | 2720 – 1973(Part – II) |
| 9 | Method of test for soils Determination of Water content Dry density relation using light compaction | 2720 – 1995(Part – VII) |
| 10 | Method of test for soils Determination of dry density of soils in place by the sand replacement method | 2720 – 1974(Part – XXVIII) |
| 11 | Method of test for soils Determination of dry Density of soils in place by the core cutter method | 2720 - 1975(Part – XXIX) |
| 12 | Classification & identification of soils for general Engineering purpose (first revision) | 1498 – 1970 |
| 13 | Safety code for working with construction machinery | 7293 – 1996, |
| 14 | Filtration media – sand & gravel | 8419 – 1990 (Part – I) |
| 17 | Methods of tests of soils | 2720 - 1997(Part – I to X) |
| 18 | Method of load test on soils (Second revision) | 1888 – 1999 |
| 19 | Method for standard penetration tests for soils (First revision) | 2131 – 1997 |
| 20 | Method of sampling and preparation of stabilized soils for testing | 4332-1995 |
| VIII | **OTHER SUBJECTS** |  |
| 1 | Safety code for scaffolds and Ladders Part – I Scaffolds | 3696 - 1966(Part - I) |
| 2 | Safety code for scaffolds and ladders Part – II Ladders | 3696 - 1966(Part – II) |
| 3 | Recommendations on stacking and storage of Construction materials at site | 4082 - 1977 |
| 4 | Plywood for general purposes(Second revision) Amendment 1 to 3 | 303 – 1975 |
| 5 | Test sieves | 460 – 1985(Part – 1 to 3) |
| 7 | Code for practice for *in– situ* permeability test | 5529(Part – 1 to 2) |
| 8 | Standard Specification and Code of Practice for Road & Bridges | IRC: 21-2000 |
| 9 | New Steel wire rope of 38 mm dia with Fiber core 6x36 construction | IS : 2266/2002 |

In addition to the relevant BIS code, the specifications prescribed and guidelines issued by Central Water Commission Standard Specifications, IRC, MoRTH, ASTM, EU ACI and other international codes may also be referred and seek clarifications of IS specifications.

The BIS Codes which have been referred above, if updated, the updated code of practice shall be followed.

Any materials for which no standard is referred to or has not been fully specified in the Specifications shall be of 1st class quality and the contractor is to carry out the necessary tests based on International Testing Standard as per direction of Project Manager.

## Contrctor's Temporary Facilities

* + 1. Contractor's Offices, Stores, Etc.

The Contractor shall be responsible for the land he deems necessary for his offices, stores, and warehouse and for the housing and welfare of his employees. The Contractor shall also be responsible for the construction, maintenance, operation and subsequent removal of such temporary facilities. These facilities shall be equipped with adequate electricity and potable water supplies.

The temporary quarters and camp accommodation shall be run and maintained in an efficient manner for the duration of the Contract, and shall be open to the inspection of the Government Medical Officer of Health at all times, and any instruction given by him for the cleaning, disinfecting, and general maintenance thereof shall be carried out by the Contractor

The above facilities shall from the time of their erection until the completion of the Works will remain the property of the Employer and the Contractor shall not demolish or remove any facilities or part thereof without the written permission of the Project Manager. On the completion of the Works they shall become the property of the Contractor who shall, if so ordered remove them and the associated services and restore the Site to the approval of the Project Manager.

The Contractor shall submit, for the approval of the Project Manager, within fourteen (14) days from the Commencement Date his detailed plan and/or construction drawings of his offices, stores, and warehouse that he proposes to construct or rent, including his proposals for water and power supply and sewage facilities. All facilities shall conform to the Employer's standards.

* + 1. Contractor's Transport

The Contractor shall make his own arrangements for the transport, where necessary, of his staff and workmen to and from the site of the works at his own expenses. No payment shall be made on this item, and such costs in this item are deemed to be covered in the unit rate.

* + 1. Temporary Access Road

If only deemed necessary for the Rehabilitation Works, the Contractor shall construct and maintain temporary access roads including temporary access bridges necessary for the construction of the Works and transportation of the materials. The access roads to the borrow pits and for constructing the dam and roads shall be constructed by rehabilitating and reinforcing the existing roads, where available. The access roads shall be constructed in such a manner that all of the temporary access roads and bridges ensure the passage of heavy equipment and trucks during the whole construction period. The Contractor shall also pay compensation to the owner(s) if he constructs the temporary access roads on privately owned land. To the possible extent the contractor should avoid agricultural lands and forest lands.

Not less than 14 days before he intends to start construction of any part of the temporary access roads, the Contractor shall submit to the Project Managerhis detailed construction program, and drawings of:

1. the temporary access roads including temporary access bridges; and
2. any other temporary works which he considers necessary for the proper execution of the Works

The Contractor shall not start the construction of any temporary access road until the Project Manager's approval thereto has been obtained. However, such approval shall not relieve the Contractor of any liability or obligation under the Contract.

The Contractor shall construct the temporary access roads and bridges in accordance with the approved drawings and construction program and shall maintain and repair such roads so as to ensure the passage of heavy equipment and trucks throughout the construction period of the works, giving special attention to watering the access road(s), unless otherwise specified or directed by the Project Manager. On completion of the works, such as drain, road, bridge, culvert, etc., he shall remove such access road and bridge from the site as directed by the Project Manager.

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.

The Contractor shall facilitate the use of such roads by the public in a friendly co-operative manner.

All costs, including cost of land compensation, therefore incurred by the Contractor in complying with the requirements of this Sub-Clause shall be deemed to be included in the respective item rates in the Bill of Quantities. No separate payment for these items shall be made.

## Borrow Area & Quarries

**The Contractor has to arrange or procure borrow areas or procure construction materials from certified suppliers at his own cost**.

In the case of borrow area arranged by the Contractor, the Project Managershall have the power to disallow the method of construction and/or the use of any borrow/quarry area if, in his opinion, the stability and safety of the existing dam and appertenunt structures, all Works or any adjacent structure is endangered, or there is undue interference with the natural or artificial drainage, or the method or use of the area will promote undue erosion.

All areas susceptible to erosion shall be protected as soon as possible either by temporary or permanent drainage works. All necessary measures shall be taken to prevent concentration of surface water and to avoid erosion and scouring of slopes and other areas. Any newly formed channels shall be backfilled.

Borrow/quarries shall be located away from the population centers, drinking water intakes and drainage systems. The cutting of trees shall be minimized. Temporary ditches and/or settling basins shall be dug to prevent erosion. The undesirable ponding of water shall be prevented through temporary drains discharging into natural drainage channels.

Borrow pits shall not be more than 1m in depth and 25 m in length. A clear distance of 1m shall be left between the pits. The bed of borrow pits shall be left reasonably smooth and even.

Borrow pits shall be drained to avoid stagnation of water and the bottom level of borrow pits should be fixed with reference to the prevailing ground slope towards the nearest natural drainage course.

Borrow pits should be avoided within the forest areas. Earthwork operations shall be strictly limited to the areas to be occupied by the permanent Works and approved borrow areas and quarries, unless otherwise permitted by the Project Manager. Due provision shall be made for temporary drainage. Erosion and/or instability and/or sediment deposition arising from earthwork operations not in accordance with the Specifications shall be made good immediately.

The Contractor shall obtain the permission of the Project Managerbefore opening up any borrows or quarries. Such borrow pits and quarries may be prohibited or restricted in dimensions and depth by the Project Managerwhere:

(i) they might affect the stability or safety of the existing dam and appurtenant structures, all Works or adjacent property;

(ii) they might interfere with natural or artificial drainage or irrigation;

(iii) they may be environmentally unsuitable.

(iv) the contractor should enter into an equitable agreement with landowner for borrow area redevelopment if any landowner requires and after completion of the borrow area the contractor obtains a “Satisfaction Letter “ or “No – objection Letter” from the land owner on a stamp paper

At least 14 days before he intends to commence opening up any approved borrow pit or quarry, the Contractor shall submit to the Project Managerhis intended method of working and restoration. These shall include but not be limited to:

(i) the location, design and method of construction of any access track;

(ii) the volume and nature of materials to be removed

(iii) the sequence and method of excavation of materials;

(iv) measures for controlling runoff and sediment from the site during operations; and

(v) proposals for site restoration including approximate finished levels, drainage, erosion and sediment control, slope stabilization and re-vegetation, including reinstatement of any access track.

The operation of borrow pits or borrow areas shall not be permitted until the method of working for that particular pit or area has been approved by the Project Managerin writing. Restoration shall be to the satisfaction of the Project Manager.

## Disposal of Construction Debris

Materials in excess of the requirements for permanent works and unsuitable materials shall be disposed of in locations and in the manner as agreed with the Project Manager. The locations of disposal sites shall be such as not to promote instability, destruction of properties and water supply systems. Exposed areas of such disposal sites shall be suitably dressed and be planted with suitable vegetation.

The Contractor shall plan his works in such a way that there is no spillage or seepage of petroleum products to the surface or sub-surface water.

## Construction Program

Withinten (10) days from the Commencement Date the Contractor shall submit to the Project Managerfor approval a complete and practicable construction program showing the orderly performance of the Works. The Construction Program shall show in detail the proposed method of operations, including purchase and delivery of materials and equipment, as well as the construction. The Construction Program shall show in a bar chart each major item of the Works and the Temporary Works on separate horizontal lines, sequence of operation and the period required for the completion of each activity and preferably using Microsoft Project 2007 software. The Construction Program shall, when approved by the Project Manager, become a part of the Contract.

In amplification, the particulars supplied by the Contractor with the program shall include the following details:

(a) a statement giving the numbers and categories of supervisory and technical staff and skilled/unskilled labor to be employed on the Works;

(b) a list and type/details of the 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 India, including program dates for order and delivery;

(c) a list detailing the purchase and delivery of materials and Plant from both inside and outside India;

(d) details of the Contractor's methods of working for all operations including construction by sequence. The program shall also indicate the proposed temporary flow diversions and arrangements for de-watering illustrating the sequence of various critical stages of construction;

(e) a statement and outline layout giving the proposals for location of offices and stores at the Site; and

(f) details of the program for the construction of the works from the Commencement Date, including a complete resource allocation showing the number of units and allotted times for each unit of the Contractor's Equipment, Plant, materials and labor allocated for each part of the works.

(g) The program shall show the start and completion dates of the various activities, in order to complete the entire project by the Intended Completion Date.

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

## Progress Reporting And Review Meetings

## Monthly Report

The Contractor shall furnish to the Project Manager, at the Contractor's own cost, at regular one (1) month intervals and in a form and number of copies determined by the Project Manager, the following:

(i) physical and financial progress for the preceding months and estimated progress for the report month;

(ii) completion schedules (target and actual) based on the approved Construction Program;

(iii) estimated expenditures for the report month;

(iv) a tabulation of construction equipment, listing the major items and pieces of equipment which were utilized for performance of the Works during the preceding month;

(v) a tabulation of employees, showing the supervisory staff and the numbers of several classes of laborers employed by the Contractor in the preceding month;

(vi) purchase and expenditure report covering the Plant and materials furnished by the Contractor for the Works;

(vii) the climatic conditions prevailing during the report month;

(viii) the environmental and social measures carried out by the contractor; and

(xi) any report which may be specifically requested by the Employer and/or the Project Manager

## Final or Completion Report

Within 30 days from the Provisional Acceptance Date, the Contractor shall submit to the Project Managera Completion Report in 30 copies. The Report should include :

* 1. Inventory of executed works;
  2. Financial statement;
  3. Main issues encountered;
  4. List of the equipment and staff mobilized and
  5. Recommendations

The report should also include: as-built drawings of the various structures.

## Site/Works Meetings

The Contractor shall attend all the Site/Work Meetings (periodical or exceptional) called by the Project Manager. A Minutes of Meeting should be prepared and jointly signed by the Contractor (or its representative) and the Project Manager.

## Site Diary Book

The Contractor shall maintain a site diary book in which all the main activities in the site should be daily recorded including inventory of existing staff and equipment, works progress, incidents, executed tests and samples collection, visits and particular or exceptional events. The diary should be jointly signed by the Contractor's representative and the Project Manager.

## Audits By The Employer

The Contractor shall note that the Employer shall be entitled, at its discretion, to conduct audits in respect to:

(a) costs incurred in the event of termination; and

(b) any other costs that the Contractor claims from the Employer which are not specifically covered by the terms of the Contract.

(c) The Contractor shall be obliged to keep accurate up-to-date accounts with records concerning the above items.

## Progress Photographs:

The Contractor shall make all arrangements to provide a minimum of 20 daily geo tagged progress photographs by a digital camera in albums, but not pasted, showing the work progress and shall promptly supply four copies of such photographs, larger than 10 cm x 15 cm in size, of such portions of the works in progress and/or completed as may be directed by the Project Manager. Each print shall contain on its back the date and title of the view taken. The digital files of the photographs shall be the property of the Employer and no prints from those shall be supplied to any persons without the approval of the Project Manager. No payment on the account shall be made to the contractor.

## Quality Control And Field Testing Laboratory

The Contractor shall be responsible for the quality of the work and shall conduct all quality control tests required for the work and arrange for the testing of all materials in accordance with Indian standard.

The Contractor will establish and maintain field laboratory for basic and routine tests (including suitable building, furniture and equipment) at his own cost to conduct different field tests and arrange on site or NABL accredited third-party laboratory for adavanced testing. Equipments and materials as necessary to conduct the tests shall be procured by the Contractor and brought to site or arranged at NABL accredited third-party laboratory by the contractor. A list indicating some of the required tests but not limited to and main equipment/materials are given below for reference of the Contractors. The Contractor shall also procure other equipments or arrange at NABL accredited third-party, if necessary, to conduct tests specified for different items of work to the satisfaction of the Project Manager. All necessary testing arrangement will be subject to verification and approval by the Project Manager and the Contractor should follow instructions to be given by the Project Manager. All tests should be carried out as per relevant Indian Standards and acceptable international practices and standards.

|  |  |
| --- | --- |
| **No** | **Required Tests (but not limited to** |
|  | Complete set of equipment & materials necessary for soil moisture content test |
|  | Complete set of equipment & materials necessary fo Sieve analysis of soils and aggregates |
|  | Complete set of equipment & materials necessary fo Gradation of silts and clays by hydrometer method |
|  | Complete set of equipment & materials necessary fo Soil Atterberg limits (LL, PL, PI) of soils |
|  | Complete set of equipment & materials necessary fo Specific gravity of soils and agrregates |
|  | Complete set of equipment & materials necessary fo Soundness of cement and agreegates |
|  | Complete set of equipment & materials necessary fo Proctor compaction test |
|  | Complete set of equipment & materials necessary fo Field compaction test |
|  | Complete set of equipment & materials necessary fo Concrete slump test |
|  | Complete set of equipment & materials necessary fo Compression strength of concrete and all cementitious materials |
|  | Complete set of equipment & materials necessary fo Checking adequacy of concrete cover |

| **Material/ Works** | **Test** |
| --- | --- |
| **Soil** | Sieve Analysis |
| Atterberg Limits |
| Proctor Compaction |
| Field Compaction |
| **Coarse Aggregate** | General Properties |
| Chemical Properties |
| Sieve Analysis |
| Abrasion |
| **Fine Aggregate** | General Properties |
| Sieve Analysis |
| **Cement** | General Properties |
| Compressive Strength |
| **PICC** | Compressive Strength |
| Tensile Strength |
| Bonding Strength |
| **Concrete** | Compressive Strength |
| NDT (Rebound) |
| **Road works** | Gradation |
| Bitumen Content |
| Density |
| Marshal Test |
| **Bricks** | Compressive Strength |
| **Anchor bar** | Pull-out test |
| **Water loss** | Permeability test |
| **Reinforcement bar** | Physical |
| Chemical |
| Deformation |

The Contractor shall, within fourteen (14) days from the Commencement Date, submit a Quality Assurance Plan. The plan shall include testing schedules, list of material sources, quality control procedures to ensure the provision of adequate materials and the execution of the works according to the technical specifications, the Contractor's internal organization ensuring good quality of constructions works, procedures for supplying of suitable materials, procedures for verification of drawings and other items as required by the Project Manager. The Contractor shall implement the quality control procedures in compliance with the approved Quality Assurance Plan

## Construction Supervision and quality assurance

Three tier system is proposed to be implemented for CS and QA activities. The first level CS&QA is the responsibility of contractor, second level with the dam owner and third level called Third Party CS & QA is entrusted with CPMU, Central Water Commission through Engineering and Management Consultant. Supervision of construction work will be done by the Project Managerand his site staff on a day-to-day basis and periodically by the concerned Superintending Engineer and Chief Project Managerof the Project or any authorized agency/officials by the Project Manager.

Regarding the material sampling and testings, by the second party and third party, it is the sole responsibility of the dam owner and the CPMU, CWC without any financial implications to the contractor. The representatives of the second and third party are authorized to inspect any time the ongoing rehabilitation works even at a short notice, can take the samples of construction materials for appropriate testing. The construction material samplings and testing shall be done at independent material testing laboratories by each agency.

## Materials And Samples

The Contractor shall submit to the Project Managera list of all suppliers of manufactured items from whom he proposes to purchase, and the locations of quarries, material sources from which he proposes to extract material aggregates, stones, fill materials etc. If the contractor is purchasing the aggregates from the vendor he should obtain the material from the licensed quarry where the \_\_\_\_\_\_\_\_\_\_\_\_\_ Pollution Control Board has given Consent for Establishment and Operation for the crusher. In addition the Contractor should enclose a copy of the Consent for establishment and operation as part of the Vendor approval. All materials and articles shall, whether specified or otherwise, be suitable for the use intended and shall be approved by the Project Manager. Samples of all materials or articles to be incorporated in the Works as may be called for by the Project Manageror his Representative shall be submitted as and when required for retention by the Project Manager's Representative. Manufacturer's test certificates shall be supplied in respect of cement, steel, pipes, etc.

The Contractor shall maintain a detailed record of all materials delivered to his stores or working areas, and shall make these records available to the Project Manager's representative. All goods and materials used in the Permanent Works shall be new, unused, of the most recent or current models, and incorporate all recent improvements in design and materials unless provided otherwise in the Contract.

All materials and works rejected by the Project Manager's representative shall be promptly removed from the site.

## Inspection And Tests

All materials and goods furnished and works performed under these specifications shall be subject to the inspection of the Project Manageror his authorized representative to determine that they meet the requirements of these specifications. The Contractor shall notify the Project Manager, not less than 15 days in advance of the date and place that the materials will be available for inspection. Acceptance of materials or the waiving of inspection, thereof, shall not relieve the Contractor of the responsibility for furnishing materials and goods or performing works in accordance with the requirements of the Contract Documents.

The Contractor shall provide all labor, and equipment necessary for the performance of all tests required, or he may employ an approved independent testing laboratory to carry out all or part of the testing. The contractor shall obtain approval of his proposed testing arrangement and shall submit all results without delay.

The Contractor shall be responsible for delivering all samples to the laboratory and for collecting the results. The original test certificates shall be presented to the Project Managerfor his review and approval.

The Project Managershall have easy access to the laboratory/ies at all reasonable times.

## Interference With Existing Works

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 Project Manageror not, except where such interference is specifically described as part of the Works either in the Contract or in the Project Manager's instructions.

The Contractor shall at his own expense provide and erect, to the approval of the Project Manager, 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 Project Managerto protect the structures or works.

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 the execution of the Works and shall carry out all necessary repairs at his own expense and to the satisfaction of the Project Manager.

## Field Records And As-Built Drawings

During the progress of the work, the Contractor shall maintain a continuous up-to-date copy and record in softcopy and hard copy ( in PDF, DOC,DWX OR DWG format) of all drawings, specifications, supplementary data, latest revisions and field deviations from the drawings, if any, approved by the Project Manager.

As soon as any section of the Works has been completed the Contractor shall bring the construction drawings up to “As-Built” status incorporating all modifications, additions, alterations etc., which may have been made during the construction period. All “As-Built” drawings shall be subject to verification and approval by the Project Manager. Within the contractually stated period following the date of the issue of the Certificate of Completion for the Works or parts of the Works, the Contractor shall complete and submit one full set of such approved drawings together with one set of auto-positives to the Project Manager.

## Protection Of Completed Works

The Contractor shall protect completed Works from damage from subsequent operations, from the weather or any other cause, including the naturally aggressive nature of the environment in which the works are to be constructed and make good any damage so arising until the work is fully completed and handed over to the Project Manager.

## Signboards

Notice boards shall be in Hindi and English and shall be displayed in suitable position on the Sites to show the Employers name together with the name of the Project and the names of the co-financer, Consultant and Contractor. The boards shall have a minimum overall size of 1.5m x 1m and shall be in a format to be provided by the Project Manager.

## Safety Measures

The contractor shall be responsible for ensuring throughout the contract period all the safety measures at site of work so as to prevent loss of life, property and damage of partially or completed works.

## Safety Precautions

The Contractor shall comply with any safety instruction given by the Project Manager. In the performance of the Works, the Contractor shall exercise every reasonable precaution to protect persons or property from injury. The Contractor shall erect and maintain all necessary temporary fencing, barricades, barriers, signs and lights and provide fire alarm, fire extinguishing and fire-fighting services at strategic points on the Site. The Contractor shall adopt and enforce such rules and regulations as may be necessary, desirable or proper to safeguard the public and all persons engaged in the work and its supervision.

## Safety measures

The safety measures taken by Contractor shall include but shall not be limited to the following:

(a) Temporary Fencing – The Contractor shall erect, maintain and remove suitable and approved temporary fencing to enclose such areas of the Permanent Works and areas of land occupied by the Contractor within the Site as may be necessary to implement his obligations under the Contract, to the satisfaction of the Project Manager. Where any temporary fence has to be erected alongside a public road, footpath, etc., it shall be of the type required by and shall be erected to the satisfaction of the Government authority concerned.

(b) Lighting –The Contractor shall provide sufficient lighting in all places where work is in progress, such that:

1. Safe working conditions are provided both for the Contractor's personnel, sub-contractor's personnel and for personnel of the Project Manager;
2. The Works can be constructed in complete compliance with the Contract; and
3. A complete inspection of all Works in progress can be made by the Project Manager.

(c) The minimum service luminance on ground or working surfaces to be provided for the various operations or work areas shall be as directed by the Project Manager.

(d) The Contractor shall supply a suitable instrument to the Project Managerfor measuring the intensity of illumination

(e) All mobile equipment or plant used during night operations, as and when approved by the Project Manager, shall be equipped with sufficient lights and reflectors to ensure safe working conditions

(f) Not less than fourteen (14) days before the start of night operations, the Contractor shall submit his proposals for lighting in the areas in which he proposes to work at night to the Project Manager. The Contractor shall modify the proposals if required by the Project Manager, and shall not begin operations at night until the proposals for lighting (in an amended form if required) have been approved

(g) Approval of the Contractor's proposals for lighting shall not relieve the Contractor of any of his liabilities or obligations under the Contract.

(h) Work in the vicinity of electrical equipment – in the interest of safety and security, the Contractor shall complete the erection of any safety fencing around electrical and mechanical apparatus by the time that the said apparatus is connected to any electricity supply.

(i) Explosives – in the use, handling and storage of explosives, the Contractor shall comply with the guidelines given in Section 3.4, under Earthworks of this Specification and with all statutory regulations of law. The Contractor's attention is drawn to the fact that, depending on the nature of work in progress, the Project Managermay require the Contractor to discontinue the handlingoruseofexplosivesduring the approach and progress of severe thunderstorms in which case all persons shall be removed from danger areas to a place of safety during such periods.

(j) Safety Instructions – the Contractor shall at his own cost supply and issue to his employees and those of his subcontractors and the staff of the Project Managerprinted booklets, of pocket- size, on the scale of one per person, in English and in other languages used by his employees at Site, instructions based on good practice. Within sixty (60) days of the Project Manager's written order to commence the Works at Site, proof copies of the booklet shall be submitted for approval before printing and amendments shall be made to the booklet to his entire satisfaction. The Contractor shall issue the booklet immediately after printing as required by this Clause and ensure that all employees are fully conversant with the instructions. Safetyinstructions shall deal with all safety including:

1. Protective clothing, headgear and footwear;
2. Use of lifting equipment;
3. Use of drilling equipment;
4. Contract with and use of electrical equipment;
5. Use and storage of explosives;
6. Compressed air;
7. Welding;
8. Routine for accidents or fires; and
9. Watchmen, warning notices and barriers.

(k) The Contractor shall allow for 20 booklets for the use of the Project Manager. The Contractor shall provide for the Project Managerand Project Manager's supervisory staff the protective clothing, headgear and footwear necessary for the proper discharge of their duties on Site.

(l) Accident Reports – the Contractor shall promptly report to the Project Manager, all accidents involving death or serious injury to staff or workmen, and furnish monthly reports of all accidents to staff or workmen involving loss of time, giving such information as may be prescribed by the Project Manager.

(m) The Contractor shall provide all necessary signs for the works.

1. These shall include, but not be limited to:

• use of sirens before blasting and a all-clear indication

• standard road signs;

• warning signs;

• danger signs;

• control signs;

• safety signs; and

• direction signs

1. Wording on all signs shall be in English and Hindi and other approved languages. The size, color, lettering and location of all signs will be subject to approval and attention shall be paid to international signs.
2. The Contractor shall maintain all signs placed by him as well as those placed by the Employer.
3. If the Project Managerconsiders that the system of signs provided by the Contractor is inadequate to ensure safety, or unsatisfactory in other respects, the Contractor shall add to, amend, or otherwise change the system to the satisfaction of the Project Manager.
4. The Contractor shall at his own cost make suitable replacement as directed by the Project Managerin case of loss or damage to any signs provided by the Contractor under this Sub-Clause.
5. The Contractor shall at his own cost adopt such measures as the Project Managermay consider reasonable and necessary to minimize nuisance from dust, noise or other disturbance created while or in carrying out the Works.
6. The Contractor shall at his own cost adopt such measures as the Project Managermay consider reasonable and necessary to minimize nuisance from dust, noise or other disturbance created while or in carrying out the Works.

**Separate payment will not be made for complying with the provisions of this Clause and all costs shall be deemed to be included in the various rates in the priced Bill of Quantities.**

## Fire Prevention:

The Contractor shall provide and maintain adequate fire-fighting equipment and take adequate fire precaution measures for the safety of all personnel, temporary and permanent works, and shall take action to prevent damage to or destruction by fire of trees, shrubs or grasses.The Contractor shall ensure that fire extinguishers of needed types are duly installed in all sensitive places, such as, stores containing electrical material and those containing inflammable items and, that his personnel are given regular training to operate these devices

**Separate payment will not be made for the provision of fire prevention measures.**

## First Aid & Medical Facilities:

## General

The Contractor shall in all respects be fully responsible for ensuring necessary first-aid services to his employees and employees of his subcontractors, including transport for injured personnel to hospital or other appropriate accommodation as and when required.

## Staff

To enable the fulfillment of his obligations under this Clause, the Contractor shall engage qualified resident first-aid staff, and shall arrange for the treatment of casualties on the Site in first-aid units and for removal.

Separate payment will not be made for first-aid and medical facilities provided by the Contractor for his employees and the employees of his subcontractors. The facility shall be also available for the use of staff of Project Manager.

Contractor with the help of local medical department should conduct AIDS awareness Campaign for every six months to bring awareness to the labor employed by him.

## Protection Of Real Estate

The Contractor shall control the movement of his crews and equipment on any right-of- way, including access routes approved by the Project Managerso as to minimize damage to crops and property and shall Endeavour to avoid marring the lands. Ruts and scars shall be obliterated, damage to land shall be corrected and the land shall be restored as neatly as practicable to its original condition.

The Contractor shall be responsible directly to the Employer for any excessive or unnecessary damage to crops or lands resulting from the Contractor's operations whether on lands adjacent to a right-of-way or on approved access roads, and deductions shall be made from payments due to the Contractor to cover the amount of such excessive or unnecessary damage as determined by the Project Manager.

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

## Environmental Protection Works

The Environment is defined as meaning the surrounding area, including human and natural resources, to be affected by the execution and completion of the Works.

The Contractor shall take all precautions for safeguarding the environment during the course of the construction of the Works. He shall abide by all prevailing laws, rules and regulations governing pollution and environmental protection.

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.

## Hazardous Materials

The Contractor shall not store hazardous materials near water surfaces. The Contractor shall provide protective clothing or appliances when it is necessary to use hazardous substances.

High concentration of airborne dust resulting in deposition and damage to crops and water resources shall be avoided. The Contractor shall take every precaution to control excessive noise resulting in disruption to wildlife and human populations.

## Provision and Maintenance of Stores, and Equipment

Space allocated for storage of materials such as cement, gabion wire, reinforcing wire etc. shall in general be damp-free, rainproof and away from petroleum products storage.

Written information must be given to, and approval be taken from, the Project Managerregarding the proper establishment and maintenance of such stores. Failure to comply with the Project Manager's instruction in respect of overall standards will lead to the reduction or withholding of payment.

## Sanitation

The Contractor is to arrange for a high standard of sanitation to be maintained throughout his offices, stores, and warehouse, and the Works. 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 India to the extent and in such a manner and at such places as may be approved by the Project Manager, and all persons connected with the works shall be obliged to use them

## Reinstatement of Environment

The Contractor shall arrange and execute works as well as related activities in such a way that environmental conditions are reinstated. He may be required to carry out filling, removal and disposal works, along with planting of grass and trees at identified locations to reinstate environment as directed by the Project Manager.

## ENVIRONMENT-General

The role of Contractor is very important to ensure that the environmental and social risks and impacts for implementation of the construction works are minimized, and that all aspects of the Environmental and Social Management Plan (ESMP) are implemented as published on borrower’s website. The activities would be carried out in Consultation with Project Manager under the guidance of Environmental and Social Experts to look after the implementation of ESMP in all the Packages.

**PRE-CONSTRUCTION/EARLY CONSTRUCTION PERIOD ACTIVITIES**

The following environmental related activities are to be implemented during the pre­construction/construction (early part) periods:

1. Contractor, in consultation with Project Manager, shall identify the resource requirement including water and power for work items as per the guidelines provided in Resources Conservation Plan.
2. Contractor shall submit the required documents confirming compliance to Labour Management Procedure.
3. Contractor, in consultation with Project Manager, shall identify the location of labour camp and make adequate arrangement of water and power supply, waste collection and disposal from the camp.
4. Contractor shall make adequate security arrangement at Labour camp to ensure compliance with GBV/SEAH risks mitigation plan.
5. Contractor shall identify the suitable government approved borrow area(s) with valid environment clearance and submit the details to Project Manager.
6. Contractor shall identify the muck/debris disposal area as per the guidelines provided in ESMP and get approval of Project Manager.
7. Contractor, in consultation with Project Manager, shall identify the quantum an type of waste generation from other activities such as electromechanical work, paint work, etc. and categorize them as hazardous and non-hazardous waste and shall identify authorized waste collectors accordingly.
8. Contractor shall train, all the staff and labour, for their code of conduct, environment and safety procedures to be followed and other compliance requirements and submit the record to Project Manager.
9. Contractor shall make aware, all the staff and labour, about the presence of Grievance Redressal Mechanism (GRM) and procedure to be followed and submit the record to Project Manager.
10. Contractor shall ensure that all the vehicles used for the project have valid fitness certificates and valid PUC(Pollution Under Control)certificates.
11. Contract shall create a “sense” of environmental/safety awareness within all construction activities for all personnel to be employed by constant referral to environmental requirements, implications, and responsibilities.
12. Contractor shall ensure compliance with all the requirement as per ESMP and submit its compliance strategy in the form of C-ESMP

## Environmental Safety

As mentioned in the specification in Section under safety

## Monitoring Of Contractor's Facilities, Plant And Equipment

All issues related to negative environmental impacts of the Contractor's Facilities, Plant and equipment are to be controlled through:

• The Contractor's self-imposed Quality Assurance Plan

• Regular/periodicinspection of the Contractors Plant and Equipment and producing Fitness and Pollution Under Control certificates time to time.

## Payment

Separate payment will not be made for complying with the provisions of this Clause and all costs shall be deemed to be included in the various rates in the priced Bill of Quantities, including the cost of implementing work place safe systems of work, the measures necessary for ensuring traffic and road safety,HIV counselling serviceshall also be deemed to be included in the various rates in the priced Bill of Quantities.

## Construction Materials

The standard and specification of different construction Materials are given in detail in respective Sections of this specification. The contractor shall procure construction materials in confirmation to the required specification.

## Setting Out Of Work

1. Before starting any work and during execution (if required), the contractor shall erect reference Bench Marks, reference lines and check profiles at convenient locations as per the direction of the Project Manager. The centre line of the dam and the reference line for all alignments for demarcation purpose shall be laid by dug-belling on the ground. The reference line shall comprise the base line properly dug belled on the ground with the numbered concrete / masonry R. D. pillars suitably spaced.
2. The zones of full cutting section, full filling section, partial cutting and filling sections shall be separated by conspicuous demarcation in the fiel

The curves stipulated in construction drawings shall be carefully laid in the field by adopting approved method of curve layout. The curve shall be marked on the ground by fixing pegs at very close intervals and joining the peg-point by dug-belling to a suitable depth.

The locations of different structures indicated in construction drawing shall also be clearly marked on the ground along the alignment of the dam. The control structure locations of off- taking dams shall also be clearly demarcated, so that unnecessary excavation or filling at these locations can be avoided.

The spoil dumping zones shall clearly be demarcated in the field. These zones should be at least 2 m. beyond the location of catch water drains.

1. To ensure accuracy in execution of cutting, the dam embankment, spoil banks and the structures, their layout shall be given in an appropriate manner with pegs and pillars, suitably placed in relation to outer dimensions of these elements.
2. **All materials and labor for setting out works mentioned in paragraph (A) to paragraph (C), as may be required at the various stages of the construction, shall be supplied by the Contractor at his own cost. The cost of such works shall be deemed to have been included in the cost of the items in BOQ.**

## Clearing and Grubbing

## Clearing and Leveling Site

The portion of the right-of-way where required for constructing the work under these specification shall be cleared of all trees, bushes, rubbish and other objectionable matter. Trees designated by the Project Managershall not be cut and shall be protected from injury. Such cleared material shall be disposed off or removed from the site of work as approved by the Project Manager. The clearing operation shall be in accordance with clauses of I.S. 4701 – 1982 Indian Code of Practice for earth work in dams. Surface boulders either loose or partly embedded in the ground will have to be removed and stacked as directed.

## Grubbing

The area described or shown on the relevant site plan shall be cleared of all obstructions, loose stones, non-required materials and rubbish of all kinds. All brushwood shall be cleared and the roots grubbed up. No trees shall be cut down and removed without the instructions of the Project Manager. Those which are cut down shall be grubbed up. The same remarks apply to jungle clearance. Trees to be preserved will be designated by the Project Manager.

The products of the clearing shall be stacked in such place and manner as may be ordered by Project Managerand the ground shall be left in perfectly clean condition; all products of the clearing shall be the property of Government and shall be disposed of as per the direction of Project Manager.

All holes or hollows, whether originally existing or produced by digging up roads shall be carefully filled up with earth, well rammed to the design density and leveled off, as directed.

## Preparation Of Bed

Ant hills shall be completely dug out before earth work is started. In the absence of any separate contract schedule provision for removal or shrubs, loose stones and digging of ant hills, involved in the preparation of bed, the contract rate for earth work shall be deemed to include all the work to be done in accordance with this clause. In cases where the work of preparation or bed is rather extensive, the Project Managerwill usually provide a separate schedule item for such preparation, but in the absence of such schedule provision, the contractor shall understand that his tender rate is inclusive of all such work without extra charge. The contractor shall therefore examine the site before tendering and provide for all items to be done under his earth work tender rate. Old bunds will be benched or sloped as directed by Project Managerbefore addition of earth, the benches being 500 mm. X 500 mm. unless other sizes are specified. The benches or slope shall be inspected by the Project Manageror engineer designated for the purpose and approved before new earth work is keyed into them.

## Disposal Of Cleared And Grubbed Material

The disposal of cleared and grubbed material shall be in accordance with clause 4.1.1 of I. S. 4701 – 1982 code of Practice for earth work on dams. The material to be disposed off shall be buried

## Payment

Separate payment will not be made for clearing of site and grubbing including disposal of the cleared and grubbed material required under the above paragraphs from (A) to (D). Similarly benching of earthwork on old surface will not be paid as separate items. The contractor shall include the cost thereof in the price bid in the bill of quantities of the contract for the relevant finished item of work for which clearing, grubbing and benching as mentioned in the above paragraphs are required

## Use Of Water For Dust Abatement

The Contractor shall procure and apply water for dust abatement.

The Contractor shall furnish all labour, materials and equipment and shall procure and apply water required for pre-wetting the areas under dam and embankment.

Water applied for dust abatement and pre-wetting of dam prism and adjacent areas will not be eligible for payment. The cost of procuring and applying water including all expenses for all means of conveying water to the point of use, their collection, usage, and all other incidental expenses will not be paid separately including creation of source of water and the cost shall be deemed to have been included in the concerned unit price bid in the bill of quantities of the contract for the relevant finished item of work for which water is required. So also the cost of procuring and applying water required for other items of the work as per BOQ shall be included in the price bid in the bill of quantities for the items of work for which the water is used.

## SITE DRAINAGE AND DESILTING

The Contractor shall handle all flows from natural drainage channel intercepted by the work under these specifications, perform any additional excavation and grading for drainage as directed and provide and maintain any temporary construction required to bypass or otherwise cause the flows to be harmless to the work and property. When the temporary construction is no longer needed and prior to acceptance of the work the contractor shall remove the temporary construction and restore the site to its original condition as approved by the Project Manager.

In addition to cross drains, longitudinal drains may the considered necessary for proper drainage. The drainage system consisting of network of cross and longitudinal drainage system will be led into out fall drains to prevent stagnation of water at the place of construction. The drains shall be constructed to the section designed, and shall be either open or filled up with material to ensure free flow of water without clogging of the filled materials.

**The cost of all works and materials required by this paragraph shall be included by the contractor in the unit prices quoted in the bill of quantities and no separate payment will be made for the same.**

## Monsoon damages

Damages due to rain or flood either in cutting or in bank shall have to be made good by the contractor till the work is handed over to the department. The responsibility for desilting and making good the damages due to rain or flood rests with the contractor. **Noextra cost is payable for such operations** and the contractor shall, therefore, have to take all necessary precautions to protect the work done during the construction period.

## Irrigation season

Water forKharif/Rabi irrigation will be released in dam during construction period. The Contractor should plan such that his work should not interfere with Kharif/Rabi irrigation. Before release of Kharif/Rabi water, the Contractor should remove his materials/machineries from dam bed to safe levels if disposed in dam during work. No separated payment towards above operations will be made to the contractor, who shall include the cost thereof in the respective item rates of BOQ.

## PROCEDURE FOR MEASUREMENT

**Measurement of Works will be recorded as per stipulations provided in \_\_\_\_\_\_\_\_\_\_\_\_\_ Public Works Department and BIS Code No1200.**

Before commencement of work, initial levels to indicate existing ground levels shall be taken at 15m. intervals longitudinally along the alignment of the dam. The level points transversely along the cross sections shall be maximum at 5 m. intervals in flat ground 1.5-2m. in undulating terrain. The cross sections shall be extended beyond the limit of work to a suitable distance and minimum 5 metres beyond the toe lines of slopes on both the sides. The intervals stipulated shall be made closer depending on the topography or any stipulation made by the Project Manager.

All initial levels shall be recorded in ink in authenticated level books issued by the Project Managerand shall be signed by the Junior Engineer / Assistant Engineer when he records the levels. The Assistant Engineers and Executive Engineers shall exercise checks strictly in accordance with the provisions of \_\_\_\_\_\_\_\_\_\_\_\_\_ PWD Code.

The level shall be recorded in the presence of the contractor or his authorized agent. The contractor or his authorized agent shall sign each page of the level book / field book in token of acceptance. These cross sections shall form the basis of all future measurements and payments. Each dimension shall be measured to the nearest 0.01m. Areas shall be computed to nearest 0.01 Sqm., volume shall be computed to nearest 0.01 cubic m. Actual construction work shall not be allowed to start unless the initial levels are recorded, signed and accepted by the Contractor.

## EARTH WORK

## Earth Work – General

Drawing showing the typical section of the dam annexed to these specifications provides such details as would enable the contractor to execute the work in general conformity there-with under these specifications which have been prepared as definitely and in as much detail as possible with regard to design data presently available. These drawings will be supplemented by such additional, general and details drawings or directions as may be considered necessary or desirable as the work progresses. For all changes in approved drawing / design the recommendation of Superintending Engineer and approval of Chief Engineer will be essential. Where details shown on these drawings differ from the requirements of these specifications, the requirement of specifications shall govern. The contractor shall do no work without proper drawings. He shall check all drawings and specifications carefully and advise the Project Managerif any errors and omissions are discovered where upon the Project Managerwill prepare and lodge such revised additional drawings and specifications as may be required to suit the stage of work. All such additional, general and detailed drawings whether original or revised lodged in the office of the Project Managerand signed by him for purpose of identification shall be open for inspection by the contractor under the same terms and conditions as provided in agreement.

All works of the contract shall be executed as per the specific and relevant clause / clauses of relevant I.S. code unless otherwise specified. Materials used should, confirm to the desired standards prescribed in the relevant codes. Wherever a Para of I. S. code is cited in specification, it goes without saying that the latest revision of the specification subsequently, shall apply. For purpose of relevancy or otherwise of any provision of the I. S. code referred to, the decision of Project Managershall be final and binding.

## Use of precision earth moving and surveying equipments:

Looking to the importance of the work, it is desired that dimensions and grade (Longitudinal and cross slope) should be error free. To achieve this goal, precise survey equipment like high precision DGPS and Similar or higher equipments shall be used for establishing BM and intermediate points. The objective of employer is to access all the construction activities in real time by all levels. All the compaction work on slope and small beds shall be done with customized slope compactors. No manual compactors or tractor mounted compactors shall be allowed.

## EXCAVATION FOR STRUCTURES

## General

Excavation for the foundation of structures shall be to the elevation shown on the drawings or as directed by the Project Manager. In so far as practicable the materials removed in excavation for structures shall be used for back fill and embankment.

## Foundations for structures

All trenches in soil other than rock or hard compact soil more than 1.5 M. deep, into which men enter shall be securely shored and strutted and timbered.

All trenches in soil soft or fissured rock or hard soil exceeding 2 M. in depth, into which men enter shall be securely shored and timbered.

Notwithstanding anything said above, it shall be understood that the need for shoring shall receive careful and frequent consideration even in trenches of less than 1.5 or 2 M. in depth (as the case may be). When there is doubt as to the safety of the work without shoring, no further excavation or other work shall be continued until adequate shoring is provided.

Where the sides of trenches are sloped but not to within 1.5 M. of the bottom, the vertical sides shall be shored and the shoring shall extend at least 30 Cm. above the vertical sides. When open spaced sheathing is used, a toe board shall be provided to prevent material rolling down the slope and falling into the part of the trench with vertical walls.

Shoring and timbering shall be carried along with the opening of a trench but when conditions permit protection work, such as sheet piling may be done before the excavation commences.

All loose stones, projecting clumps of earth, pockets of materials which might come down on the workers in the trench or any condition which is a hazard, shall be either removed or the excavated sides adequately braced and the trench suitably guarded. On steep slopes workmen shall not be permitted to work one above the other.

The contractor shall prepare the foundations at structure sites by methods which will provide firm foundation for the structures. The bottom and side slopes of common excavation upon or against which the structure is to be placed shall be finished to the prescribed dimensions and the surfaces, so prepared shall be moistened and tamped with suitable tools to form firm foundation upon or against which the structure is to be placed.

The contractor shall prepare the foundation of the structures as shown on respective drawings. The horizontal foundation material beneath the required excavation shall be moistened if required and compacted in place.

If the Project Managerconsiders it necessary to consolidate the foundation strata by grouting cement slurry, then drilling and grouting or any other foundation treatment shall be done by the contractor as directed by the Project Managerand the payment will be as per the general contract document in respect of extra items. Densities of the compacted foundation materials and the testing thereof shall be in accordance with relevant I.S. specification.

Separate payment will not be made to the contractor for moistening and compacting the foundation of structures. The contractor shall include cost thereof in the price bid per cubic meter of the item of the bill of Quantities for foundation excavation.

When unsuitable material is encountered in the foundation for structure the Project Managermay direct additional excavation to remove the unsuitable materials. The additional excavation shall be refilled as follows. In excavation in soils, the over excavation shall be filled in by clean coarse sand and compacted.

If bad ground or loose soil is met with, the contractor, shall be responsible for reporting the fact to the Project Managerwho shall issue such orders as may be necessary.

## Over excavation

If at any point in common excavation the foundation material is excavated beyond the lines required to receive the structure, or if at any point in common excavation the natural foundation material is disturbed or loosened during the excavation process, it shall be compacted in place or where directed, it shall be removed and replaced as follows. In excavation in soils, the over excavation shall be filled in by clean coarse sand and compacted. Any and all excess excavation or over excavation performed by the contractor for any purpose or reason except for additional excavation as may be prescribed by the Project Managerand whether or not due to the fault of the contractor shall be at the expense of the contractor.**Filling for such excess excavation or over excavation shall be at the expense of the contractor.**

## Disposal of materials

All suitable materials removed in excavation of foundation or excavation of dam or as much thereof as may be needed as directed by the Project Managershall be used in the construction of dam embankments, roadway embankments and for selected bedding material or for backfill around structure, within five km. distance from excavation site. If there is an excess of material in the excavation, it shall be used to strengthen the embankment on either side of the dam, deposited in low areas uphill of the dam to eliminate trapped drainage or otherwise wasted as directed by the Project Manager. The disposal of the excavated material shall be in accordance with clauses 8.1 and 8.2 of BIS 4701-1982.

## Measurement for payment

Foundation for structures will be measured for payment, for box cutting with vertical sides of foundation dimensions. The contractor will have to make his own arrangements for shoring, strutting provision of adequate slopes for the sides to prevent slips etc., and no separate charge will paid for any incidental charges arising either during excavation of foundation or construction of the structure.

The quantity for payment of excavation in soil and rock shall be arrived at by taking pre levels and finished levels at respective strata. Block levels will be taken at one meter or less intervals. The levels shall be plotted on a graph sheet and average levels arrived at for the purpose of determining the quantity of excavation. The contractor's signature in token of his acceptance shall be recorded in the cross section sheets. Final payment shall be based on levels only.

## Payment

Payment for excavation for structures shall be made at the unit price per cubic meter bid. The rate for excavation for structures shall include the cost of all labor and materials for Coffer dam and other temporary construction, cost of all pumping and dewatering, cost of all other work necessary to maintain the excavation in good order during construction, cost of removing such temporary construction where required and shall include the cost of disposal of the excavated material.

## BACK FILL

## Backfill around structures

## General

The item of the schedule for backfill around structures including pipe portions of structures includes all backfill required to be placed under these specifications.

## Materials

The type of material used for backfill, the amount thereof and the manner of depositing the material shall be subject to approval of Project Manager. In so far as practicable back fill material shall be obtained from material removed in required excavations for structures. But when sufficient suitable material is not available from this source or from adjacent dam excavation, additional material shall be obtained from approved borrow areas. The borrow pit excavation shall be in accordance with clauses 9.1 to 9.3 of B.I.S. 4701-1982

Where sand filling is specified, the sand shall be clean, free from admixture of foreign material and approved by the Project Managerbefore filling is commenced. Should there be a necessity to fill in a basement with sea sand, prior written approval of the Project Managershall be obtained. Sand filling should be saturated with water before the construction is allowed to proceed.

Filling around structures shall have optimum moisture content and, well consolidated in layers of 15 Cm. by ramming with iron rammers and cut ends of crowbars or with vibratory earth rammer, depending upon the extent of space available. When filling reaches the finished level, the surface shall be saturated with water for at least 24 hours, allowed to dry and then rammed and consolidated to desired density in order to avoid any settlement at a later stage.

Except as otherwise provided below, backfill material to be compacted shall contain no stones larger than 80 millimeters in diameter. If the excavation for the foundations of the structure is in swelling soils, a layer of cohesive non-swelling soil conforming to B.I.S. 9451-1985 should be interposed between the swelling soil and the structure and compacted to at least 95 % standard proctors density.

## Placing Backfill

Back fill shall be placed to the lines and grades shown on the drawings as prescribed in this paragraph or as directed by the Project Manager.

The surface to receive the filling shall be first prepared free from all roots, vegetation or spoil and wetted.

All backfill shall be placed carefully and spread in uniform layers so that all spaces around rocks and clods will be filled. Backfill shall be brought up as uniformly as practicable on both sides of walls and all sides of structure to prevent unequal loading. Backfill shall be placed to about the same elevation on both sides of the pipe positions of the structures to prevent unequal loading and displacement of the pipe. Backfill required to be compacted shall be compacted in accordance with paragraph 3.2.3.2.

## Structures on fill

Where the original ground surface is below the base of a structure or below the bottom of pipe, all fill required for the structure foundation and all fill up to the bottom of the pipe shall be placed as compacted embankment. The embankment over the natural ground up to pipe bottom and over the pipe shall be laid in accordance with clauses 9.2.4, 9.2.5 and 9.2.6 of B.I.S. 783 code of practice for laying of concrete pipes.

## Measurement and payment

Refill of excavation performed outside the established pay lines for excavation for structures shall be placed in the same manner specified for the adjacent backfill and such refill shall be placed at the expense of the contractor. The cost of backfill shall be included in the applicable price bid in the bill of quantities of contract for excavation of foundation of the structure for which backfill is required.

The unit price bid in the bill of quantities for excavation of foundation of structure shall include cost of backfill around the structure up to ground level. No separate payment will be made for backfill of foundation.

## COMPACTING BACK FILL AROUND STRUCTURES

## General

Unless otherwise shown on the drawings backfill around structures shall be compacted. The compacting equipment shall be so selected as to give maximum safety to the structure. The compaction of backfill under or over the pipes shall be in accordance with clauses 9.2.4, 9.2.5 and 9.2.6 of I.S. 783. In the case of very high embankments, the embankments shall be built to an elevation above the top of the pipe equal to the external diameter of the pipe after which a trench shall be excavated and the pipe laid. When the backfill is placed above the pipe, the vertical surfaces of the trench above the top of the pipe shall not be more than 20 centimeters beyond the outside diameter of the pipe. After the pipe has been laid suitable backfill material shall be placed around the pipe and carefully compacted in layers, not more than 15 centimeters after compaction up to the top of the pipe. Thereafter, a loose fill of depth equal to external diameter, of the pipe shall be placed before further layers are added and compacted.

Compacted backfill should be placed in horizontal layers not exceeding 15 (Fifteen) centimeters after compaction.

Heavy stones shall neither be dropped on top of the pipe nor shall be allowed to roll down the side of the embankment against the pipe.

## Material and compaction

The material used for backfill to be compacted shall be selected material containing no stones larger than 80 millimeters or as approved by the Project Managerand obtained from required excavation or approved borrow pit.

## Measurement and payment

Payment for compacting backfill around structures will not be made as separate item and the unit price per Cubic meter bid therefore, in the bill of quantities for the excavation of foundation for structures is to include for compacting the backfill around the **structure**. The unit price bid in the bill of quantities for excavation of foundation for structure shall include the costs of furnishing water and moistening the material also.

Rate for cost of excavation of dam / excavation of foundation of structures will be paid as per BOQ in different types of classification of soil and rocks. The item rates include all costs for labor, material, T&P, machinery, equipment, consumables for the following operations.

1. Carrying out all necessary operations for setting out works, clearing, preparation of beds, removal of silt etc. described under section-2 of Technical Specifications.
2. Excavation of dam / foundation of structures to design section with all operations described under section-3 and all operations for disposal of excavated materials within 5km range as described under section 3.3 & 3.2.2(D) including cost of dewatering, making drainage arrangement for disposal of water.
3. Cost of back filling and compaction around structures. In case of back filling with sand, the procurement cost of sand including royalties ,watering& compaction of sand are included
4. Construction of approach road, haul road, site illumination, construction of coffer dam till completion of the work and subsequent removal at appropriate time, and all mobilization and demobilization cost to complete the work.
5. Recording of photographs. Quality control works and tests. (excluding items specified in BOQ vide Bill-A).
6. Payment of all taxes, GST, royalties, VAT etc.
7. Any other cost incidental to complete the items of work as per specification and direction of Project Manager.
8. Measurement & Payment will be made as per BOQ regardless of methods and type of equipments used for execution of the work.

## DISPOSAL OF MATERIAL

## General

All suitable material removed in excavation or as much thereof as may be needed as determined by the Project Managershall be used in the construction of embankments, roadway embankments and for selected bedding material or for back fill around structure. If there is an excess of material in the excavation for any reach, it shall be used to strengthen the embankment on either side of the dam, deposited in low areas uphill of the dam to eliminate trapped drainage or otherwise wasted as directed by the Project Manager. The disposal of a excavated material shall be in accordance with clauses 8.1 and 8.2 of I.S. 4701-1982

When directed by the Project Managerexcess material shall also be placed in low areas that may occur adjacent to bridge sites between the O&M Road ramps and the dam bank.

Material removed in excavation and not suitable or required for embankments, backfill or other required earth work, shall be deposited in waste banks on right of way owned by or controlled by the Government as directed by the Project Manager.

The soil obtained from dam cutting which is considered useful by the Project Managershall be fully utilized for the formation of both the banks of the dam to the required profiles as shown in the drawings simultaneously with the excavation of the dam and without involving and rehandling of the earth. The soil not useful for the banks has to be thrown parallel to the bank and away from it as may be directed by the Project Managerduring execution to form the spoil bank. In case of deep cutting the soil shall be so disposed off as not to result in unsightly heaps and shall be leveled and properly dressed. The top of both the finished banks shall slope away from the inner edge with a suitable gradient.

The useful rock obtained from the cutting shall not be mixed with other soils and shall be deposited on the outer slopes of the bank in regular stacks. **If the rock and the soil are mixed up while depositing at the spoil banks suitable deduction from the agreement rate as decided by the Project Managershall be made which is binding on the contractor.**

## Cost

**The cost of disposing the excavated material shall be included in the unit price per cubic meter bid in the bill of quantities**.

## EMBANKMENT

## Preparation of surfaces under embankments

The preparation of surfaces under embankment shall be in accordance with clause 6.1 & 6.5 of I.S. 4701-1982.

Before commencing the work, the toe of the slope on each side of the Banks shall be lock- spitted (dag belled) and marked by pegs firmly driven into the ground at intervals of 15 metre, profiles made by bamboos, earth, or other convenient materials and strings shall be set up for the guidance of the workmen about 15 meters apart over straight reaches and about 7.5 meters apart at curves.

Except in areas of rock, the areas under dam embankments shall be pre-wet by sprinkling water before cleaning, grubbing or excavation operations or embankments construction begin. The moisture content shall be optimum to a depth of one metre below the original ground surface or to impervious material whichever is less as directed by the Project Manager. Whenever possible all water shall be added uniformly in one application. Areas, on the sides of the dam banks upon which the Project Managermay direct spoil banks to be constructed will not require application of water.

The contractor is cautioned to control carefully the application of water and to check on the depth and amount of water penetration during application so as to avoid over watering, accumulation of water in depressions or excessive run off.

If at any location on embankment foundations, before and during embankment construction there is excessive moisture as determined by the Project Manager, steps shall be taken to reduce the moisture by excavating drains, by allowing adequate draining time or by any other approved means.

The contractor shall not be entitled for any additional allowance above the unit prices bid in the schedule on account of the requirement for excavating drains or allowing additional time for drying, delays or increased costs due to poor traffic ability on the embankment foundations or on the haul roads, reduced efficiency of the equipment the contractor elects to use or on account of any other operational difficulties caused by overweight wet embankment foundation or haul roads.

Where the ground surface under any embankment is not suitable as determined by the Project Managerfor a foundation for the embankment, the contractor shall strip the area under the embankment of such unsuitable material to such depths as may be directed. The material so removed shall be disposed off as provided in paragraph 3.3. Separate payment for stripping unsuitable material under embankments shall not be made and the contractor should include this item under unit price rate for cubic meter bid in Bill of Quantities for excavation of dam.

Before beginning the construction of embankments the surface area of ground to be occupied shall be cleared of all roots and vegetable matter of any kind stripped to a suitable depth. The stumps shall be pulled or otherwise removed, and the roots grubbed. The stumps and roots removed shall be suitably disposed if.

The depth to which top soil is to be removed shall be adequate to remove all perishable material and any soil which may become unstable on saturation or may interfere with development of proper bond between foundation and embankment. It is not necessary to remove all the soil containing fine hair like roots but only the rather heavy mat. The underline table may offer as a guide for lines for finding depth of stripping.

Type of vegetable cover in the soil depth of stripping

|  |  |  |
| --- | --- | --- |
| 1 | Soil containing light grass cover | 5.0 to 7.5 centimeters |
| 2 | Agricultural Lands | To bottom of ploughed zone 15.0 to 20.0 centimeters |

The ground surface under all dam embankments excepting rock surface, where it is below the full supply level in the dam shall be scarified making open furrows not less than 20 centimeters deep below natural ground surface at intervals of not more than 1.0 (one) meter. However, where the ground surface is below the bed level of the dam the entire surface of the foundation of embankments.shall be stripped to a depth of not less than 20 (Twenty) centimeters.

## Construction of embankments

## General

Dam embankment shall be constructed to top widths and side slopes as shown on the drawings duly providing for 2% settlement allowance in compacted embankment section. The embankment shall be built to heights as directed above those shown on the drawings. The top of all the dam embankments shall be graded to be suitable for a road way in accordance with subparagraph.

Before commencing the construction work, initial levels of the ground on which banks are to be formed shall be taken. After completing the construction of embankment final cross section levels shall be taken and the volume shall be arrived at and payment shall be made to that quantity only.

From the materials deposited in embankments the cobbles, gravel and stones of size greater than 40 mm should be removed to ensure proper compaction.

In area where required excavation does not furnish suitable or adequate material for constructing embankments, material shall be obtained from areas where material in excess of that required to construct the adjacent embankment is available.

Where the original ground surface is below the grade of the dam and where construction of a fill below the bottom of the dam is prescribed such fill shall be placed as a compacted embankment. Where the original ground surface is below the base of a structure, the fill required to form a suitable foundation for the structure shall be placed as compacted embankment.

## Roads and ramps

In conjunction with construction of dam embankments, the contractor shall construct operation and maintenance roads and earth ramps adjacent to the dam and structures where shown on the drawings. Suitable material from required excavation shall be placed as embankment for the roads and ramps. If sufficient material is not available from required excavation the Project Managermay direct excavation from borrow areas.

## Depositing

Spoil from the pits shall be deposited on bank to each sections as are shown on the relevant plans specified or ordered by the Project Manager. Ramming breaking clods and smooth surface sectioning shall be necessary. A spoil bank with a neat straight toe, even slopes and even top surface shall be formed as the depositing proceeds.

## Embankment to be compacted

Before the materials for the 1st layer of embankment is placed, the foundation of the embankment shall be prepared. and shall be moisture and compacted in the manner hereinafter specified for each layer of compacted embankment to be placed thereon. The embankments shall be compacted to the elevation and to the top widths and side slopes shown on the drawings or prescribed by the Project Manager.

The layers shall be placed in rows approximately parallel to the axis of the bank. The base of embankment at every height is to be made to its full width of each zone as shown in the drawing plus offsets of not less than 0.30metres beyond the finished profile. **No payment will be made for the offsets or for the subsequent removal and unit price quoted for the banking is deemed to include this**, No additions will be allowed to the slope for full design section of the bank after the bank is raised. The embankment shall be compacted to 95% proctors density using pneumatic Tampers, frog rammers or vibratory plate compactor or power roller or vibratory power roller. The loose earth fill on the sides of embankment (viz offset of about 0.30 m of earth fill) shall be properly compacted / consolidated through deployment of rig-mounted plate fixture or rig-mounted vibratory fixture or slope compacting equipment or other suitable device.

## BORROW AREA.

## General

All materials required for the construction of embankment and backfill for cut-off trench and around the structures which are not available from dam excavation, excavation for structure or from excavation of other ancillary works shall be obtained from the borrow areas after stripping as shown on drawing or as designated by the Project Managerin consultation with field laboratory. The depth of cut in all borrow areas shall be designated by the Project Managerand the cuts shall be made up to such designated depths only. Shallow cut will be permitted in the borrow areas. Each designated borrow area shall be fully exploited before switching over to the next designated borrow area. Haphazard exploitation of borrow pits shall not be permitted. The type of equipment used and the operations in the excavation of materials in borrow areas shall be such as to produce the required uniformity of the mixture of materials for the embankment. The contractor has to arrange borrow earth at his own cost and responsibility. No compensation whatsoever for change in limits and locations of the borrow areas and depth of cut for getting suitable earth shall be paid to the contractor. The borrow area shall not be designated within a distance of five times the height of embankment from the outer toe. **The Contractor has to arrange/procure borrow areas/procure materials from certified supliers at his own cost.**

## Preparation of borrow areas

In case the Contractor prepares borrow areas, all areas required for borrowing earth for embankment shall be cleared of all tree stumps, roots, bushes, rubbish and other objectionable materials. Adequate lighting arrangement should be provided by the contractor.

Particular care shall be taken to exclude all organic matter from the materials to be placed in the embankment. All cleared organic materials shall be burnt to ashes or disposed of as directed. The cleared areas shall be maintained free of vegetable growth during the progress of the work. No payment shall be admissible for preparation of the borrow areas indicated above as this is deemed to have been included in unit bid price of earthwork in the bill of quantities.

## Stripping of borrow areas.

In case the Contractor prepares borrow areas, Borrow areas shall be stripped of top soil, sod and any other objectionable materials to the required depth as directed by Project Manager. The work may be done manually or with suitable machine. Stripping operations shall be limited only to designated borrow areas. Materials from stripping shall be disposed of in exhausted borrow areas or in the approved adjacent areas as directed. No extra payment shall be admissible for stripping the borrow areas as this is deemed to have been included in the unit bid price for earthwork in the bill of quantities.

## Borrow area watering / dewatering

In case the Contractor prepares borrow areas,

(a) Borrow area watering shall be done by the contractor at his own cost wherever necessary preferably 48 hours in advance, so that materials may be carried with adequate moisture and in the manner specified by the Project Manager.

(b) The initial moisture content of the material in the borrow areas shall be estimated with the help of field laboratory tests. The optimum moisture content required for the material in any particular borrow area shall be obtained from the field laboratory. The additional moisture requirements as determined by the laboratory test shall be introduced into the borrow areas by watering well in advance of the excavation to ensure uniformity of moisture content. All care shall be taken to reduce excessive moisture in any of the locations of a borrow area before or during excavation to secure the materials with moisture content close to the optimum. To avoid formation of pools in the borrow areas during excavation operation, drainage ditches from borrow areas to suitable outlets shall be excavated, wherever necessary. Upon exhausting of all materials or abandoning the borrow areas, the pits shall be fully drained to ensure no ponding of water.

## HAUL ROADS AND APPROACH ROADS.

Construction and maintenance of approach roads, and haulage roads will be the responsibility of the contractor. The Department will have full right of way to those roads for inspection purposes. Proper road sign as directed have to be provided for safety. For haulage of earth, the contractor shall construct ramps and haul roads of sufficient width along the shortest but most practicable route and shall maintain and illuminate them to a satisfactory manner. Watering of the haul road shall be done by the contractor as often as necessary to prevent raising of dust, formation of cuts and consequent deterioration of the surface. Whenever service roads meant for public road traverse through or run close to the borrow area, the contractor shall direct the excavation and haulage operation in such a manner as to ensure uninterrupted use of the service road and safety to the public. At the haul road and service road crossing, the contractor shall install necessary check gates and road signs.

**No extra payment is admissible as this is deemed to have been included in the unitbid price for earthwork in the bill of quantities being contingent to the main work.**

## Earthfill material.

Dam embankment shall be constructed to the top width and side slopes as shown on the drawings. Suitable excavated material available from the dam cutting, proud cutting, removal of ramps and excavation for structures shall be used for construction of banks. If suitable and adequate material for constructing embankment is not available from excavations the desired material shall be obtained from borrow area designated for the purpose as per the instruction of the Project Manageror procured from certified suppliers.

The planning for execution should be such that all the useful excavated materials are utilized in embankment prior to utilization of borrow earth from outside. The embankment earth shall be borrowed only after getting written instruction of the Project Manager.

Only suitable materials as per specification shall be excavated, loaded and conveyed to the point of placement in the embankment. Unsuitable material if conveyed shall be removed and disposed clear of the work site as directed by the Project Managerat the cost of the contractor.

## Placing Earthfill.

1. The embankment shall be constructed with earth fill of required materials as per drawing and specification. The fill shall be free from lenses, pockets, streaks or layer of materials differing substantially in texture or gradation from the surrounding materials. The useful excavated materials shall be classified as ‘impervious' and ‘semi pervious' by the Project Manager. Care shall be taken to utilize the impervious materials towards the water side of the embankment and semi pervious materials towards outer zone of the embankment as per drawing.
2. Construction of embankment shall begin at the toe of the fill and in no case shall embankment be widened by material dumped from the top. The material shall be placed in the earth fill in the continuous horizontal layers not more than 15 Cm. in thickness after being rolled as herein specified.

The thickness of the layer shall be adjusted by the Project Manager; if the contractor satisfies the Department that the particular type of compactors used by him give the required density by carrying out trial compaction and requisite tests. Initially the earth in the embankment fill shall be laid in a grater width than the designed section. Adequate extra width of about 0.6 M. on either side of the embankment shall be provided so that the earth fill, up to lines of the finished slopes, shall have the required compaction as per the drawing and specification. Such extra width shall be removed and utilized in the upper layers of embankment along with slope dressing, for which no additional payment shall be made as it is deemed to have been included in bid price of earthwork in embankment in the bill of quantities.

No fresh layer shall be laid until the previous layer is properly watered and compacted as per the requirement. If in the opinion of the Project Manager, the surface of i.e. prepared foundation or the rolled surface of any layer of earth fill is too dry or smooth to bound properly with the layer of materials to be placed thereon, it shall be moistened or worked with arrow, scarifier or other suitable equipment in an approved manner to a sufficient depth to provide a satisfactory bonding surface before the next succeeding layer of earth fill materials is placed. If the rolled surface of any earth fill is found to be too wet for proper compaction of the layer of earth fill materials to be placed thereon, it shall be raked up and allowed to dry or be worked with harrow, scarifier or any other suitable equipment to reduce the moisture content to the required amount and then it shall be compacted before the next succeeding layer of earth-fill materials is placed.

1. The materials shall be deposited in rows parallel to the axis and spread in the uniform layers and clods shall be broken maximum up to 5 cm. The work of spreading and compaction shall be so adjusted as not to interfere with each other and in such a way that neither of the operations is held up because of non-completion of rolling and watering. The excavation and placing operation shall be such that the material when compacted shall be blended sufficiently to secure the best practicable degree of compaction, impermeability and stability. The surface of banking shall at all time of constructionbe maintained true to required cross section.
2. During construction a Medium transverse slope from centre towards edges should be given to avoid pools of water forming due to rains.

When compacting the soil against the rock abutment or walls of masonry or concrete structures, the construction surface of the embankment shall be sloped away from the rock or masonry or concrete structures leaving a minimum distance of 0.6 M. and at an inclination of 3:1. If the foundation surface is too irregular to allow the use of large roller directly against the structure or rock out crop, the roller shall be used to compact the soil, as close to the structure or the out crop as possible and the portion of the embankment directly against the rock or the structure shall be compacted with pneumatic hand tampers in thin layers. The moisture content of the earth-fill placed against the rock or the structure shall be slightly above the optimum to allow it to be compacted in to all irregularities of the rock and this shall be determined by the field laboratory. In placing the earth- fill under rock foundation, the foundation shall first be prepared as detailed earlier.

## Weather conditions

Embankment materials shall be placed only when the weather conditions are satisfactory to permit accurate control of the moisture content in the embankment materials. Before closing work on embankment, in any continuous reach prior to setting of monsoon, the top surface shall be graded and rolled with a smooth wheeled roller to facilitate run off. Prior to resuming work, the top surface shall be scarified and moistened or allowed to dry as necessary and approved by the Project Managerfor resumption.

The contractor, shall provide suitable protection works to protect the slope from erosion due to rain water. No payment what-so-ever shall be made for providing suchprotection work and rectifying the monsoon damages.

## Moisture Control.

The water content of the earth fill material prior to and during compaction shall be distributed uniformly throughout each layer of materials and it shall be between - 2% to + 2% of the optimum moisture content. Moisture determination of soil as well as needle moisture determination of soil shall be carried out as per I.S. 2720-1983.

Laboratory investigations may impose some restriction on the lower limits of the practicable moisture contents on the basis of studies on consolidation characteristics of soil in embankment. Here-in-after, the term range of optimum practicable moisture content shall refer to the value as described above. As far as practicable, the material shall be brought to the proper moisture content .in the borrow area before excavation. If additional moisture is required it shall be added preferably at the borrow area, and only in limited cases / extent, if required, on the embankment by sprinkling water before rolling of a layer. If more moisture is present than required, the material shall be spread and allowed to dry before starting rolling. Moisture control shall be strictly adhered to. The moisture content shall be relatively uniform throughout the layer of material. If necessary, ploughing, disc-harrowing or blending with other materials may have to be resorted to obtain uniform moisture distribution, if the moisture content is more or less than the range of optimum practicable moisture content, or if it is not uniformly distributed throughout the layer, rolling and adding of further layer shall be stopped. Further work shall be started again only when the above conditions are satisfied.

In order to have proper control of moisture content in the earth fill, no earth work shall be done during rainy days. No compensation shall be made to the contractor due to held up of work for rain or fog

**Cost for construction of embankment with selected earth from borrow area includes all costs for labor, material, T&P, machinery, equipment and consumables required for the followings :-**

1. Carrying out all necessary operations for setting out works, clearing, preparation of beds, removal of silt etc. described under section-2 of Technical Specifications.
2. Preparation of surface under embankment as specified, benching of old dam embankment and pre-wetting of dam prism.
3. Arrangement of borrow area and stripping of borrow area including watering and dewatering.
4. Operations involved in construction of embankment as per Specification.
5. Construction of approach road, haul road, site illumination, construction of coffer dam till completion of the work and subsequent removal at appropriate time, and all mobilization and demobilization cost to complete the above operations.
6. Settlement allowance provided as per specification.
7. Recording of photographs. Quality control works and tests
8. Payment of all taxes, royalties, VAT etc.
9. Any other incidental cost to complete the items of work as per specification and direction of Project Manager.
10. Measurement & Payment will be made as per BOQ regardless of methods and type of equipments used for execution of the work.

## COMPACTING EARTH MATERIALS

Where compaction of earth materials are required, the materials shall be deposited in horizontal layers and compacted as specified in this paragraph. The excavation, placing moistening and compacting operations shall be such that the materials will be uniformly compacted to the required density throughout the required section, and will be homogeneous, free from lenses, pockets, streaks, voids, laminations or other imperfections.

Having decided on the filling materials to be used standard compaction test will be conducted on the materials proposed for embankment to indicate best type of equipment tobe used and the moisture content at which compaction should be done, thickness of layer and number of passes etc.

Since the dams of sub-projects will be used for carrying water for Khariff Irrigation every year, all embankment shall be compacted any approved mechanical method of compaction. No compaction, until specifically mentioned in the specification or needed at the site shall be allowed to compact manually or by paddling.

## Compacting Clay and Silty Materials

Where compaction of earth materials containing appreciable amount of clay or silt is required the compaction shall be carried out in accordance with clause 6.6. of I.S. 4701-1982. The materials shall be deposited in horizontal layers. The thickness of each horizontal layer before compaction shall not be more than 25 centimeters (loose layer) and the layer shall be to full width of the embankment. The excavating and placing operation shall be such that the materials when compacted will be blended sufficiently to secure the highest practicable density and best impermeability and stability. If the surface of any compacted layer of earth fill is too dry or too smooth to bond properly with the layer of material to be placed thereon, it shall be moistened and/or scarified in an approved manner to provide a satisfactory bonding surface before the next succeeding layer is placed. All the rollers used on any one layer of fill shall be of the same type and same weight.

Prior to and during compaction operations, the embankment materials shall possess optimum moistures content as required in clause 6.6.4 of I.S. 4701 -1982. The embankment materials shall have optimum moisture content required for the purpose of compaction and this moisture content shall be fairly uniform throughout the layer. In so far as practicable the moistening of the material shall be performed at the site of excavation, but such moistening shall be supplemented as required by sprinkling water at the site of compaction, if necessary. If the moisture content is greater than optimum for compaction, the compaction operations shall be delayed until such time as the material has dried to the optimum moisture content or to the level directed by Project Manager. The moisture content of soils shall be determined in accordance with I.S. 2720 {Part - III) 1982.

Where hand or power tampers are used to compact soils in confined areas such as under pipes and at the joints of bank connections with the structures, they shall be equipped with suitably shaped heads to obtain the required density.

The dry bulk density of the soil portion in compacted embankment materials shall be not less than 98 % of the maximum dry bulk density at optimum moisture content obtained in accordance with I.S.2720 (Part - VII} 1980 Indian Code of Practice for determination ofmoisture content, dry density relation using light compaction.

The dry density of soil in field shall be determined in accordance with I.S. 2720 (Part - XXVIII) 1974. Indian Code of Practice for determination of dry density of soil in place by sand replacement or by I.S. 2720 (Part - XXIX) 1975 Indian Code of Practice for determination of dry density of soils in place by the core cutter method.

Moisture content of soil shall be determined in accordance with I.S. 2720 (Part - II) 1 973 Indian Code of Practice for determination of moisture content.

The optimum moisture content is the moisture content that corresponds to the laboratory maximum dry density determined in accordance with I.S. 2720 (Part - VII) 1973.

The above compaction tests will be conducted by contractor in the presence of departmental officers and the contractor shall ensure compaction, till the Project Manageror his authorized representative is satisfied that the maximum dry density at optimum moisture content is obtained, and permits the laying of next layer.

## Compacting Cohesionless Materials

Where compaction of cohesion less, free draining materials, such as sands and gravels is required, the materials shall be deposited in horizontal layers and compacted in accordance with I S 4701-1982. The excavating and placing operation shall be such that the materials when compacted will be blended sufficiently to secure the best practicable degree of compaction and stability. Water shall be added to the materials as may be required to obtain the specified density by method of compaction being used.

The thickness of the embankment layer shall not exceed 25 centimeters (loose layer} before compaction and it should be spread over the full width of the embankment and compaction shall be done by tampers or crawler tractors or vibrating rollers. If the compaction is performed by Treads of crawler type tractor, surface vibrators or similar equipment the thickness of the layer before compaction shall not be more than 30 centimeters. If compaction is performed by Internal vibrators the thickness of the layer shall not be more than the penetrating depth of the vibrator.

All compaction tests shall be conducted in accordance with relevant I.S. Code of Practice. The relative density of the compacted material shall not be less than 70 % when tested in accordance with I.S. 2720 (Part - XIV) 1 983 Indian Code of Practice for determination of density Index (relative density} of cohesion less soils.

## Compaction Cohesionless Materials Containing Clay and Silt

This sub-paragraph applies only to cohesion less materials and not to cohesive materials. Cohesion less materials containing clay and silt may not be free draining. When compaction of cohesion less materials containing clay and silt is required, the materials shall be compacted to a dry density in accordance with either sub-paragraph (i) and (ii) below, using whichever test that results in higher dry density of the compacted material in the placement.

1. Dry density determined using procedure enunciated in I.S. 2720 {Part - VII) 1965 (Indian Code of Practice for determination of moisture content dry density relation using light compaction) :-Prior to and during compaction operation the material shall posses optimum moisture content as determined in accordance with clause 6.6.4 of I.S. 4701-1982 and the moisture content shall be uniform throughout each layer. Provided that the moisture content is ensured as required in clause 6.6.4 of I.S. 4701-1982, the dry density of the soil portion in the compacted material shall not be less than 95 % of the laboratory maximum soil dry density. The field dry density shall be determined in accordance with I.S. 2720 (Part - XXVIII) 1974 or I.S. 2720 (Part - XXIX) 1975.
2. Dry density using the relative density test as described in I.S. 2720 (Part - XIV) 1 983 Indian Code of Practice for determination of density Index (relative density) of cohesionless soils :- The relative density of the compacted material obtained shall be not less than 70 %, determined in accordance with I.S. 4701-1982, the moisture content shall be maintained as per clause 6.6.4 of I.S. 4701-1982.

## Rollers and other compacting equipment

The earth compacting equipment in the section III of this bid may be used for compacting the soils. Also the equipments as detailed in Appendix-C of IS-4701:1982 may be used for compacting the earth.

The compacting equipment shall confirm to relevant Indian specification below:

1. Smooth wheeled roller should conform to I.S.5502-1969.
2. Sheep Foot roller should conform to I.S. 4616-1968.
3. Pneumatic tyred roller should conform to I.S. 5501-1969.
4. Vibratory plate compactor should conform to I.S. 5889-1970.
5. Vibratory roller should conform to I.S. 5500-1977.
6. The methods of compaction shall conform to clauses 7 of I.S. 4701-1995

## Rolling

When each layer of material has been prepared to have the proper moisture content uniformly distributed throughout the material, it shall be compacted by passing the tamping roller. The exact number of passes for each layer to obtain specific density shall be designated by Field Laboratory tests and tests conducted on the borrowed material. The layers shall be compacted in strips overlapping not less than 0.6 m. Rolling shall commence at edges and progress towards centre longitudinally. The rollers of loaded vehicles shall travel in a direction parallel to the axis of the dam. Turns should be made carefully to ensure uniform compaction. Rollers shall always be pulled.

## Tamping

Rollers will not be permitted to operate within one meter of concrete and masonry structures. In the following locations where compaction of the earth fill materials by means of roller is impracticable or undesirable the earth fill shall be specially compacted as specified further below.

1. Portions of the earth fill in embankment adjacent to masonry structures and embankment foundations designated on the drawing as specially compacted earth fill.
2. Earth fill in embankment adjacent to steep abutments
3. Earth fill at specially designated locations.

Earth fill for tamping shall be spread in layers of not more than 10 (ten) cm in thickness when loose and shall be moistened to have the required moisture content, as specified. When each layer of materials has been conditioned to have the required moisture content, it shall be compacted to the specified density by special rollers, pneumatic/hand tampers or by other approved methods. The moisture control and compaction shall be equivalent to that obtained in the earth fill actually placed in the embankment in accordance with the specifications.

## Testing

Density tests shall be carried out after rolling to ascertain the state of compaction which should be measured in terms of dry density. Standard proctor density tests shall be carried out at regular intervals to account for variations in the borrow area material. Not less than three tests shall be conducted to indicate variation in the standard proctor density attained in the laboratory.

Density test shall be conducted from time to time at site to ascertain whether compaction is attained as specified. For every 1500 cum of compacted earth fill, at least one field density test shall be conducted.. In case the tests show that the specified densities are not attained, suitable action shall be taken either by moisture correction or by additional rolling, so as to obtain the specified density which shall be checked again by taking fresh tests at the same locations. The test locations should be so chosen as to represent the whole layer under test. Each layer should be tested for proper compaction before a fresh layer is allowed over it.

The density to be attained after compaction should be at least 95% of Proctor density pre­determined by Laboratory tests.

## Settlement allowance

In the mechanically compacted earth fill, settlement allowance of 2% of height should be provided. Accordingly, extra height should be provided taking the settlement into account. The base width of the embankment shall not be increased to maintain the design slopes indicated in the drawings for additional height as settlement allowance, but the following procedure shall be adopted.

Settlement allowance shall be calculated at various levels and the elevation including settlement allowance shall be derived keeping the embankment width at the designated levels unchanged. The edges of the embankment at the increased elevations {including settlement) when joined with the point where the slope has changed earlier below, shall give the slope to be adopted for construction.

## Slope dressing

The slopes of particular reach of the dam which has been completed in the manner described earlier shall be dressed neatly to the designed line and grade. Extra earth work done at sides are to be dressed and reused in the embankment.

## Measurement and payments

The costs of the compacting earth materials as described in this paragraph shall be paid in the price bid in the bill of quantities for watering and compacting earth work in dam embankment under these specifications. The unit rate of this item shall be for unit volume of earth fill watered and compacted which includes all costs of labor, T&P, equipment, machinery and consumables for the following operations.

1. Compacting earth materials as per Sec.3.5 of specification.
2. Moisture control at borrow area and at placement site.
3. Testing and Quality Control operations.
4. Any other incidental expenditure to complete the item of work in finished shape as per the specification and direction of the Project Manager.
5. Measurement & Payment will be made as per BOQ regardless of methods and type of equipments used for execution of the work.

## SLOPE PROTECTION

## Rough stone dry packing for aprons and revetments

The bed or slopes to receive the packing shall first be prepared as specified and passed by the Project Manager.

1. After bed/ slope preparation, filter materials such as sand/moorum and over this 40mm down wards coarse aggregate of such thickness as per approved drawing shall be provided. The quality of aggregate moorum/sand shall be as mentioned in other section of this specification.
2. The size of the stone to be used for dry stone revetment should be of approved size (usually not less than 225mm to 300mm in any direction) and usually not less than 40kg to 50kg weight per stone.
3. The stone shall be perfectly sound, as regular in shape as possible free from cracks and decay and with their lengths equal to the thickness of the required apron or revetments and each stone shall not be less in size than 0.05 cubic meter unless otherwise specified. The Medium size stones required for filling in interstice and wedging shall only be supplied to the actual requirements for the work as defined in clause (4} below and shall not be used in 2 or 3 layers as a substitute for the full thickness stone specified in clause (3) below. The stone shall be obtained from the quarry specified.
4. The stones shall be laid closely in position on the prepared bed and firmly set with their broadest end downwards. The stones shall be laid breaking joint so far as possible in the direction of the flow of water. The stones are to be placed perpendicular to the finished surface i.e., perpendicular to the slope for revetments.
5. Interstices between adjacent stones shall be filled in with stones of the proper size, well driven in with crowbars to ensure -tight packing and complete filling of all interstices. Such filing shall be carried on simultaneously with the placing in position of large stones and shall in no case be permitted to fall behind. The final wedging shall be done only after obtaining the orders of the Project Manager. The final wedging shall be done with the largest sized chip practicable, each chip being well driven home with a hammer so that no chip is possible of being picked up or removed by hand.
6. Profiles of strings and pegs are to be put up to ensure that the pitching is done true, straight and to the proper slope throughout and revetments are in all cases to be built up from the foot of the bund to be riveted. Care is necessary that a strong toe wall or other protection is always given to the revetment which protective measures shall be shown on the plans.
7. On completion, the surfaces presented by the apron or revetment shall be even throughout, free from irregularities to the required length, breadth and slope as specified or shown on the plans.

## Measurement and payment

Measurement and payment for rough stone dry packing for apron and revetment will be in the units of cubic metres.

The rate provided in BOQ for rough stone dry packing include all costs for labor, material, T &P, machineries equipments and consumables required for completing the following operations as per specification .

1. Clearing and Preparation of Bed and Slope of Dam .
2. Procurement of rough stone/ Laterite Stone , sand/moorum , course aggregate at work site.
3. Laying of filter materials to approved thickness
4. Laying of stone to approved thickness
5. All taxes, royalties , GST .
6. Construction of approach road, haul road, site illumination, construction of coffer dam till completion of the work and subsequent removal at appropriate time, and all mobilization and demobilization cost to complete the above operations.
7. Recording of photographs. Quality control works and tests
8. Any other incidental cost to complete the items of work as per specification and direction of Project Manager.

## Turfing

Slope protection of dam embankment will be done with turfing where stone packing is not provided the sequence of work is described below.

1. The slope to receive turfing shall first be prepared to proper line and passed by Project Manager.
2. Before the turf is laid, the slope shall be saturated with sprinkling of water. Care is to be taken to see that the soil particles on slope are not eroded or disturbed due to excessive application of water.
3. Over saturated slope grass sods is to be laid and compacted with a light wooden compactor in order to make the roots of grass in full contact with soil .
4. After the grass is laid and compacted, watering with water sprinkler is to be done repeating several times a day till survival of sods and development of green turf slope
5. Also the degree of compaction for placement of selected top layer soil for grass planting/turfing on earth dam d/s slope need not be as high as 95% to facilitate grass growing. The sodding soil is normally tamped to provide some degree of compaction and minimize risk of erosion. Typically, degree of compaction is less than 80%.

## Measurement and payment

The measurement of turfing will be recorded in sq met. of turf area after survival of sods and this includes all costs for labor, material, T & P machineries equipments and consumables required for completing

a) Preparation of Slope

b) Procurement of grass sods at work site

c) laying and compacting grass

d) watering till survival of sods

e) Any other incidental expenditure to complete the work as per specification and direction of Project Manager

## CONCRETE WORKS

## Concrete in Structures

## General

The items in the BOQ for concrete in the structures includes all cast-in-place concrete in the structure.

Cast-in-place concrete for the structures shall confirm to the requirement, miscellaneous metal work, mechanical and electrical equipment and other items forming a part of the structures are provided for elsewhere in these specification.

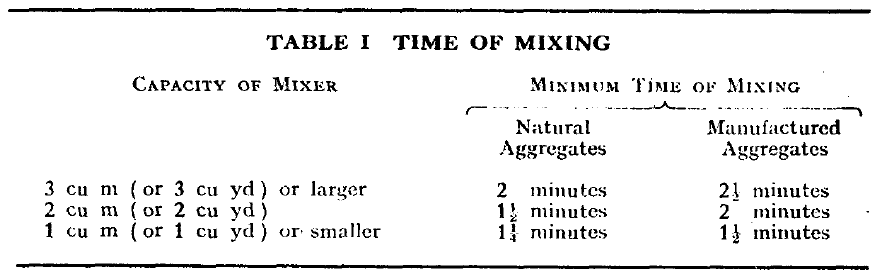
The structures shall be built to the lines, grades and dimensions shown on the drawings. The dimensions of each structure as shown on the drawings will be subject to such modifications as may be found necessary by the Project Managerto adopt the structure to the conditions disclosed by the excavation or to meet other conditions. Where the thickness of any portion of a concrete structure is variable it shall vary uniformly between the dimensions shown. Where necessary, as determined by the Project Manager, the contractor shall be furnished additional detail drawings of the structures to be constructed. The contractor will not be entitled to any additional allowances above the price bid in the bill of quantities by reason of the dimensions fixed by the Project Manageror by reasons of any modifications or extension of a minor character to adopt a structure at site, as determined by the Project Manager.

The cost of furnishing all materials and performing all work for installing timber, metal and other accessories for which specific price are not provided in the BOQ, shall be included in the applicable prices bid in the BOQ for the work to which such items are appurtenant.

## General concrete requirements

## Preparation of concrete

Concrete shall be composed of cement, sand, coarse aggregate, water admixtures (if any) as specified and all well mixed in batching & mixing plant by weight or by concrete mixture by volume / weight and brought to the proper consistency. Batching plant, if deemed required for large volume of concrete work, shall conform to I.S code No. 4925. For works in which water tightness is required the specification in IS 3370 shall be applied. Concrete shall be mixed in a fully automatic batching plants. In the works involving very small quantities of concrete, Project Manager may allow the use of proper mechanical mixer for the production of concrete. No other mixers shall be allowed for concrete mixing. The concrete batching plant shall have the cloud based memory for accessing the production data in real time. The batching plant shall be able to produce concrete as per 3 to 4 types of mix. Output from batching plant shall be as dense as possible, plastic enough to consolidate well and stiff enough to stay in place on the slopes. Mixing shall be continued until there is a uniform mixing of the materials and the concrete is uniform in color and consistency. The time of mixing shall be as shown in Table 1 of IS 457 and reproduced in the table below.



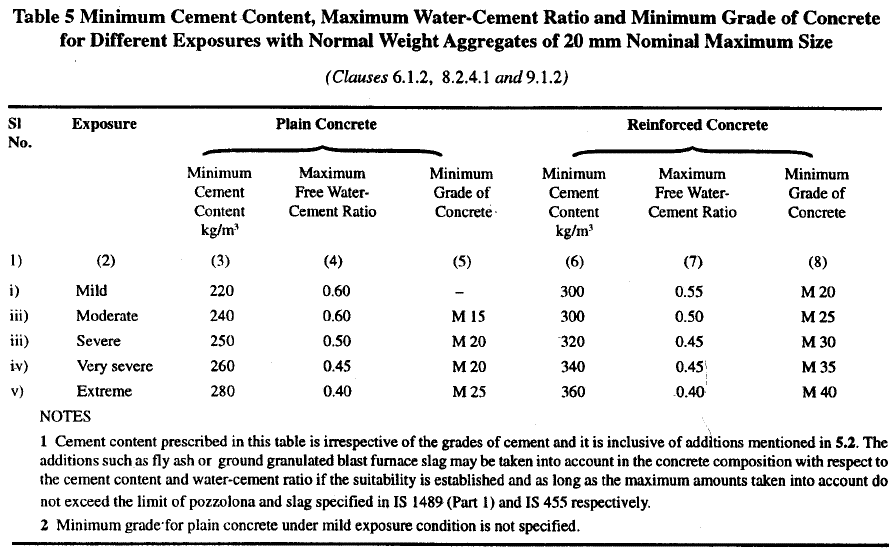
## Nominal maximum size of aggregates

For sizes of aggregates IS 383 shall apply. The coarse aggregate to be used in concrete shall be as large as practicable, consistent with required strength, spacing of reinforcement and embedded items, and placement thickness. The size of the coarse aggregates to be used will be determined by the Project Managerand may vary incrementally according to the conditions encountered in each concrete placement. Nominal maximum size of aggregate for concrete in structures and dam lining shall be as indicated in the relevant drawings appended to the contract documents. Medium coarse aggregate than specified shall be used where in the opinion of the Project Managerthat proper placement of concrete is impracticable with the size of the aggregate specified in the drawings.

## Mix proportions

Grades of concrete to be used shall be as per the specification in the approved drawing. The proportions of various ingredients to be used in the strength based concrete for different items of the work are to be determined from mix design. In volume proportion of concrete; the quantity of both cement and aggregate should be determined by volume. Water shall be either measured by volume in calibrate tanks or weighed. Batching plant shall confirm I.S 4925. {Indian Standard Specification for batching and mixing plant). All measuring equipment shall be maintained in a clean serviceable condition and their accuracy periodically checked. The acceptance or rejection of concrete shall be as per the acceptance criteria laid down in clause 16 of I.S. 456-2000.

The net water cement ratio exclusive of water absorbed by the aggregate shall be sufficiently low to provide adequate durability in concrete. The water-cement ratio shall normally be governed by Table 5 of IS 456:200, reproduced below, and firmed up by the trial mix designs, which shall be intimated to the Contractor by the Project Manager.



The water cement ratio for various grades of concrete shall be as determined and ordered by the Project Engineer.

## Consistencies:

The slump of concrete at the placement shall be governed by IS : 456-2000:

If the specified slump is exceeded at the placement, the concrete is unacceptable. The Project Managerreserves the right to require lesser slump whenever concrete of such lesser slump can be consolidated readily into place by means of vibration specified by the Project Manager. To maintain concrete at proper consistency, the amount of water and sand batched for concrete shall be adjusted to compensate for any variation in the moisture content or grading of the aggregates as they enter themixer. Addition of water to compensate for stiffening of the concrete after mixing but before placing will not be permitted. Uniformity in concrete consistency from batch to batch shall be maintained.

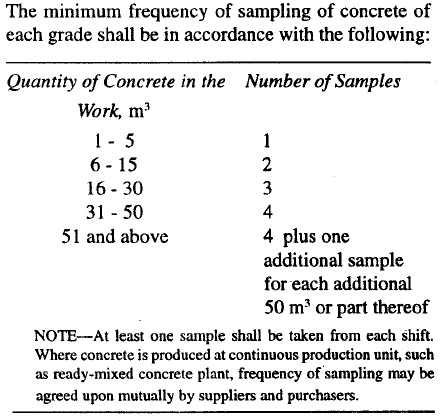
## Concrete Quality Control Measures and Concrete Quality Assurance TestProgram

## Concrete quality control measures

1. The contractor shall be fully responsible for providing quality concrete to ensure compliance of the contract requirements.
2. Making and curing concrete test specimens in the field, transporting to the laboratory and testing concrete specimen shall confirm to relevant clauses of I.S 516.
3. Testing of concrete shall be carried out by the Contractor on representative samples taken at the site of laying the concrete in accordance with relevant clauses of I.S. 1119.

## Sampling procedure and frequency

A random sampling procedure shall be adopted to ensure that each concrete batch has a reasonable chance of being tested, i.e. the sampling should be spread over the entire period of concreting and should cover all mixing units.The minimum frequency of sampling of concrete of each grade shall be in accordance with the IS:456-2000 (section 15.2.2 and reproduced below) & I.S:1199.



## Test specimen

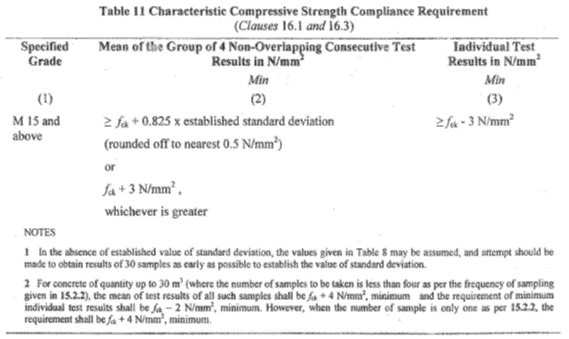
Three test specimens shall be made from each sample for testing at 28 days. Additional cubes may be required for various purposes, such as to determine the strength of concrete at 7 days or at the time of striking formwork, or to determine the duration of curing or to check the testing cubes cured by accelerated methods as described in IS: 9013. The specimen shall be tested as described in 1S:516.

## Test strength of samples

1. The test strength of the sample shall be the average of three specimens. Individual variation shall not be more than 15 percent of the average.
2. Testing shall be carried out at the testing laboratories set up at the site or at any other laboratory that the Project Managermay decide upon and the results given thereby shall be considered as correct and authentic and acceptable to the Contractor.

## Acceptance criteria

Acceptance criteria will be as per clause 16 and clause 17 of IS: 456-2000 and as per Table 11 of IS 456-2000, which is reproduced below.



Note: the above criterion is as per Amend No.3 to IS 456:2000 (Fourth Revision, April 2007)

## Cement

Cement shall conform to relevant clause 5 of IS. 456:2000 and include 33 Grade ordinary Portland cement (IS 269); 43 Grade ordinary Portland cement (IS 8112); 53 Grade ordinary Portland cement (IS 12269); Portland pozzolana cement (fly ash based) conforming to IS 1489 (Part I); Portland slag cement (IS 455); Low heat Portland cement (IS 12600); and Sulphate Resisting cement ( IS 12330). Cement to be used shall be with the prior approval of Project Manager.

The provisions of this paragraph apply to cement for use in cast-in-place concrete required under these specifications.

The contractor shall make his own arrangements for the procurement of cement to specifications required for the works. Transportation from the place of supplying to the batching plant shall be in any weather tight means which will protect the cement completely from exposure to moisture. Cement bags shall not be stacked more than 1.5 m high. Each shipment of bagged cement shall be stored separately so that it may readily be distinguished from other shipment and shall be stored in a dry enclosed area protected from moisture. Storage of materials shall be as described in I.S. 4082 (I.S. recommendation on stacking and storage of construction materials at site). To prevent under aging of bagged cement after delivery, the contractor shall use bags of cement in the chronological order in which they were delivered to the job site. All storage facilities shall be subject to approval of the Project Manager. The manufacturer test certificate of cement must show that the alkali content is less than 0.6 % and should also show the chloride content.

## Admixtures

When only deemed necessary, the contractor shall use Accelerating, retarding, water reducing and Air entraining agents & other admixtures like —Polypropylene Fiber as directed by the Project Manager. Admixtures shall be of uniform consistency and quality and shall be maintained at the job site at uniform strength of solution. An admixture's suitability and effectiveness shall be verified by trial mixes with the other materials used in the works. If two or more admixtures are to be used simultaneously in the same concrete mix, their interaction shall be checked and trial mixes done to ensure their compatibility. There should also be no increase in risk of corrosion of reinforcement or other embedment’s. Admixtures shall be batched separately in liquid form in containers capable of measuring at one time the full quantity of each admixture required for each batch. Chemical admixtures which harm the quality and strength of concrete shall not be used in the concrete.

Admixtures to be used in concrete shall confirm to I.S. 9013-1979 Indian Standard Specifications for admixtures for concrete.

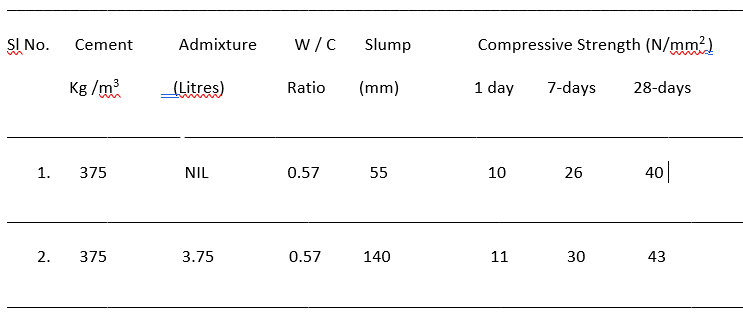
## Chemical Admixtures:

Chemical admixtures are used in concrete mixes of low water-cement ratio to improve their workability to enable easy placement and consolidation of concrete. Chemical admixtures are plasticizers / super plasticizers which are organic compounds and are used to improve the workability of fresh concrete. A super plasticizer allows the production of concrete of higher workability (slump) with the same water-cement ratio. Concrete with low water-cement ratio (0.40, 0.45, 0.50) and concrete with very low water-cement ratio (0.25, 0.28; 0.30; 0.35 etc) becomes harsh and presents problems in placement and compaction/consolidation. M25, M 30, M35, M40 concrete mixes are designed with low water-cement ratio ranging from 0.50 to 0.40. High strength concrete mixes (M60, M70, M80, M90 ) are designed with very low water-cement ratio ranging from 0.33 to as low as 0.28. Chemical admixtures are to be added to increase their slump and workability without addition of any extra water whatsoever. Following types of admixtures are commercially available and can be used with the approval of Project Manager:

* MLS (Modified Lignosulphonates).
* SNF (Sulphonated Napthalene Formaldehyde).
* SMF (Sulphonated Melamine Formaldehyde).
* PCE (Poly Carboxylic Ether)

The first three types (MLS, SNF, SMF) are conventional super plasticizers and the last one, PCE is considered to be the state-of-art new generation super plasticizer. MLS, SNF and SMF types of super plasticizers give water reduction from about 15 % to 20 %, where as, PCE super-plasticizer can give water reduction up to about 30 to 35 %. As such, PCE is known as “high range water reducing admixture”.

Dosage of Chemical Admixture / Super plasticizer: The dosage of the respective super plasticizer is given in the brochure / literature of the manufacturer. Dosage is also best determined through trial mixes. It may range from about 0.70 % to about 2 % by weight of cement or by weight of cementitious material (cement plus mineral admixture, if used). Example for Illustration. M30 Design Mix made with 43 Grade OPC (Ordinary Portland Cement).



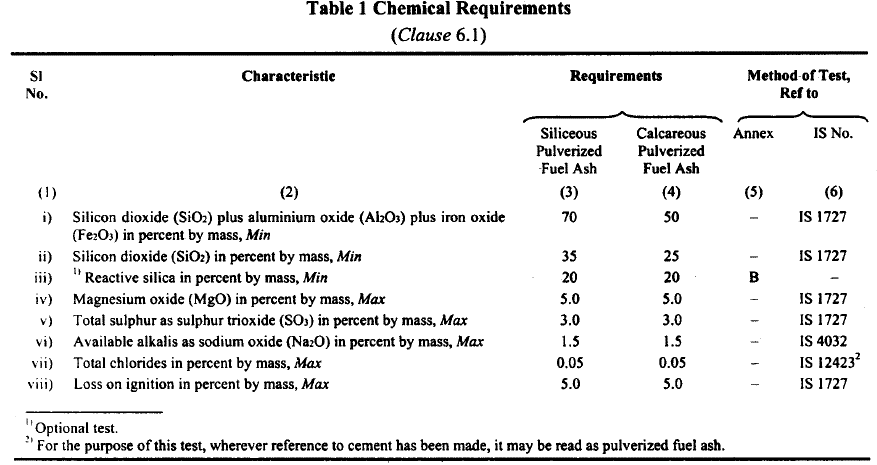
The ab`ove illustrates that with the addition of 3.75 litres of chemical admixture, the slump of M30 concrete mix has increased from 55 mm to 140 mm without addition of any extra water what so ever while maintaining the same specified water-cement ratio (W/C) of 0.57 as is of M30 concrete mix without any admixture. Thus, super plasticized concrete allows concrete of high workability with very low water-cement ratio, excellent homogeneous & cohesive mix and easy placement in congested reinforcement affording very good finish.

## Mineral Admixtures:

Mineral Admixtures are used as part replacement of Ordinary Portland Cement (OPC). These are by-products/ waste products of thermal plants and metallurgical industries. Principal mineral admixtures are:

**(a) Fly ash**. It is the by product from the coal-based thermal power plants. It is used to manufacture Portland Pozzolana Cement (fly ash based) with fly ash content ranging from 20 % to about 25 %. Fly ash improves cohesiveness of concrete mix; reduces thermal cracking; improves resistance to Alkali-Silica Reaction (ASR); and reduces permeability of concrete.

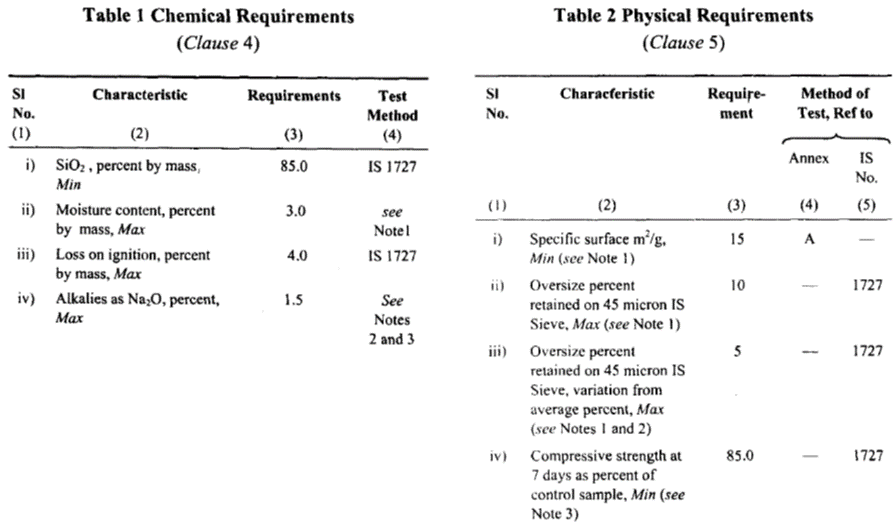
**Standards / Specifications of Fly Ash . IS: 3812-Part-1-2003**



**(b) Silica / Micro silica**. It is the by product in the production of ferro- silicon alloys or silicon from quartz & carbon in an electric arc furnace. It contains 85 % to 90 % Silicon Dioxide (SiO2 ). It is an extremely fine powder and is a highly reactive pozzolana having particles of an average diameter of 0.1 micron. The average specific surface area of silica fume is as much as about 20,000 m2 / kg to 25,000 m2 / kg compared to about 250 – 275 m2 /kg fineness of Ordinary Portland cement. Thus, micro silica particle is about 100 times finer than the cement particle and imparts high strength to the concrete mix.

Use of Micro Silica. Micro Silica is an important constituent in the design of ‘High Strength Concrete Mixes’ ranging from M60 to M 90 and even higher. It is also used in the ‘Steel Fibres Reinforced Shotcrete (SFRS). Dosage of Micro Silica Dosage varies between 8 % to 15 % of the cement content depending upon the strength of the mix to be designed. Its dosage in SFRS is about 7 % of cement content.

Specifications Of Silica Fume / Micro Silica – Indian Standard IS: 15388-2003 and Tables 1 and 2 of the code are reproduced below.



**(C)** Ground Granulated Blast Furnace Slag (ggbs). It is the byproduct of steel plants manufacturing pig iron. It is used in the manufacture of Portland Slag Cement (IS 455) and the slag content varies from 50 % to 70 %. Use of Portland Slag Cement with at least 50 % slag in the cement concrete offers many advantages, such as (a) significantly decreases the permeability of concrete, there by, increasing its durability (b) increases resistance to corrosion of steel reinforcement resulting in longevity of structures (d) Lowers heat of hydration, there by minimizing thermal cracking (e) provides increased resistance to ASR (Alkali Silica Reaction). Slag content in the Portland Slag Cement (IS 455) can be increased to as much as 70 %.

Specifications Of Ground Granulated Blast Furnace Slag. British Standard BS: 6699.

|  |  |
| --- | --- |
| Fineness (Blaine) = 275 m2 /kg | Soundness = 10 mm Max. |
| Glass content = 67 % Min. | Loss on ignition = 3 % Max. |
| Chloride content = 0.1 % Max. | Manganese content = 2 % Max. |
| Compressive Strength (70 % ggbs & 30 % OPC): | |
| 7-day strength = 12 N/mm2 Min. 28-day strength = 32.5 N/mm2 min. | |

## Synthetic fibre additives

When only deemed necessary,synthetic fibres, made of 100% virgin grade polypropylene, should be added to concrete for special application to enhance properties (Clause 5.8 of IS 456 as per amendment 3 August 2007). The fibre should be as per guidelines of ASTM C 1116 ( Type III) or equivalent. Synthetic fibres can be used in cement plaster/ concrete lining / Shotcrete work / guniting work. Synthetic fibres may be used 6mm ( in Plaster / Guniting) / 12mm ( in PCC / RCC / conctere lining / Shotcreteing) @ 125 gm per 50 kg of cement or in the ratio as specified by the manufacturer specification and direction of Project Manager. For effective performance of concrete , the recommended dosage rate of polypropylene fibers is 0.9 kg/m3 , approximately 0.1% by volume or as decided during mix design of concrete.

## Steel fibres

When only deemed necessary, steel Fibres are used in Concrete and Shotcrete. Advantages of Steel Fibres. Specifications of Steel Fibres. Addition of steel fibres in concrete and shotcrete mixes gives the following advantages:

mproves flextural strength of concrete / shotcrete.

* Improves ductility of concrete / shotcrete.
* Improves shear strength of concrete / shotcrete.
* Improves impact resistance of concrete / shotcrete.
* Improves crack resistance of concrete / shotcrete.
* Steel fibres transform concrete / shotcrete from brittle to ductile material.
* Steel Fibres Reinforced Concrete offers better resistance against abrasion & erosion.

The most important aspects that control the performance of steel fibres in concrete and shotcreteare:

* Aspect Ratio (Length / Diameter)
* Tensile strength.
* Geometrical Shape.
* Fibre Network.

The higher the aspect ratio and fibre network of a high strength fibre, the better the performance of “High Strength Steel Fibre Reinforced Concrete” / “Steel Fibre Reinforced Shotcrete (SFRS)”. Aspect Ratio of 60 to 80 is considered to be good. With smaller diameter fibres, , the number of fibres per unit weight increases which densify the fibre network, thereby, making the concrete / shotcrete more efficient. Two types of steel fibres are tabulated below for illustration:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Fibre Type (L/Dia)** | **Length** | **Diameter** | **Aspect Ratio (Length/Diameter)** | **Fibre Network (m/kg)** |
| 35/0.55 | 35 mm | 0.55 mm | 65 | 556 |
| 30/0.60 | 30 mm | 0.6 mm | 50 | 450 |

Usually, steel fibres of 36 mm length and 0.45 mm diameter (Aspect Ratio of 80) are used in the High Strength Fibre Reinforced Concrete Mix.

**Shape of Fibres.** The steel fibres shall have “hooked ends” to provide superior anchorage. Glued steel fibres bundled together with a water soluble glue have now been developed which afford much better mixing and their uniform dispersion throughout the entire concrete matrix / shotcrete matrix instead of using loose fibres which pose mixing problem and do not spread evenly/uniformly in the concrete mix / shotcrete mix. Steel fibres of reputed manufacturer shall be used. DramixR steelfibres are considered to be of high quality. Such steel fibres are depicted in Annex 2 for illustration.

**Tensile Strength of Steel Fibres.**The tensile strength of steel fibres shall be higher than 900 MPa (900 N/mm2 ). It should preferably be 1000 MPa (1000 N/mm2). The fibres shall not be galvanized.

**Dosage of Steel Fibres.** Dosage of steel fibres may vary from about 5 % to 6 % of the cement content used in the Concrete mix / Shotcrete mix.

## Specifications Of Synthetic Fibre Admixture

The fibre should be as per guidelines of ASTM C 1116 ( Type III) or equivalent. The Polyfin( Polypropylene and Polyethylene) fibres should have the following properties:-

Compliance - ASTM C 1116 ( Type III)

Length of Fibre - Minimum 6mm ( in Plaster / Guniting) / 12mm ( in PCC / RCC / conctere lining / Shotcreteing)

Construction - Straight / Fibrillated Mesh Fibre

Melting Point - 165 Degree Celcius

Absorption - Nil

Acid Resistant - Excellent

Alkali Resistant - Excellent

Salt Resistant - High

Thermal conductivity - Low

Tenacity - 6.5 GDP + Elongation @ 19 % maximum

Specific gravity - 0.92 gm /cc

Elastic Modulus - 500-700 Ksi

## Water

The water used in making and curing of concrete, mortar and grout shall be clean and free from objectionable quantities of silt, organic matter, injurious amounts of oils, acids, salts and other impurities. Potable water is generally considered satisfactory for mixing concrete. However, water shall be tested and shall conform to the following acceptable limits. At least 3 tests shall be conducted for all period of concreting and one test every 3 months for grouting work.

**Acceptable Limits**:

#### pH 6.0 -8.5. (ii) Sulphates (as SO3 ) = 400 ppm max. (iii) Organic impurities = 200 ppm max

#### (Chloride 250 ppm max (v) Total dissolved solids = 1000 ppm max. (vi) Total hardness= 500 ppm max.

B.I.S. specification is No. 456-2000.

## Sand (Fine Aggregate)

## General

1. Sand shall be from approved sources of natural deposit and must be free from silt, organic impurities and other deleterious materials as per I.S.383 & I.S.2386.
2. Sand as collected for concrete, shall have a uniform and stable moisture content. Determination of moisture content shall be made as frequently as possible, the frequency for a given job being determined by the Project Manageraccording to weather conditions, (I.S. 456 - 2000).
3. Sand may be rejected if it fails to meet any of the following quality requirements.
4. The Contractor shall carry out tests on sand at periodic intervals for the presence of any inorganic impurities (silt, clay) and the presence of any organic impurities. These tests shall be duly documented in a register and copy of tests shall be furnished to the Project Manager.
5. For every 500 m3 of sand, Soundness Tests on sand shall be conducted by the Contractor. Soundness after 5 cycles by Mg SO4 (Magnesium Sulphate) shall be less than 15 % and Soundness after 5 cycles by Na2 SO4 (Sodium Sulphate) shall be less than 10 % for the acceptance of sand.

## Specific gravity:

The sand to be used shall have minimum specific gravity of 2.6

Sand shall be screened before use. If sand brought to site is not clean it must be washed clean in water, Fine draft sand or sea sand or sand containing saline impurities shall on no account to be used.

## Grading

The sand as batched shall be well graded and when tested by means of standard sieves shall confirm to the limits given in I.S. 383 and shall be described as fine aggregates, grading zones I,II, III and IV. Sand complying with the requirements of any of the four grading zones is suitable for concrete. But, sand confirming to the requirements of grading zone -IV shall not be used for reinforced cement concrete work.

## Coarse Aggregate

## General

For the purposes of these specifications, the term “Coarse Aggregate” designate clean well graded aggregate most of which is retained on 4.75 mm I.S. Sieve and containing only so much finer material as permitted for various types described under relevant clause of I.S. 383. Coarse Aggregate for concrete shall be furnished by the Contractor from the approved quarries.

## Quality

The coarse aggregate shall consist of naturally occurring stones, and shall be hard, strong, durable, clear and free from veins and adherent coating, and free from injurious amounts of disintegrated pieces, alkali, vegetable matter and other deleterious materials. Coarse aggregate will be rejected if it fails to meet any of the following requirements:

1. LOS-ANGLES ABRASION TEST

The abrasion value of Aggregates when tested in accordance with the method specified in I.S 2386 (Part -IV) using Los-Angles machine shall not exceed 30% for Aggregates to be used in concrete for wearing surface and 50% for aggregate to be used in other concrete.

1. AGGREGATE CRUSHING STRENGTH TEST

Aggregate crushing value, when determined in accordance with I.S. 2386 (Part- IV) 1 963 shall not exceed 45 % for aggregate used for concrete other then wearing surface and 30 % for wearing surfaces. As an alternative to the crushing strength test, aggregate impact value shall be found out with the method specified in I.S. 2386 (Part - IV) 1 963. The aggregate impact value shall not exceed 45 % by weight for aggregates used for concrete for other then wearing surfaces, and 30 % by weight for concrete for wearing surfaces.

1. SOUNDNESS TEST

The coarse aggregate to be used for all concrete works shall pass a sodium-or magnesium sulphate accelerated soundness test specified in I.S. 2386 (Part - V) 1 963 and the average loss of weight after 5 cycles shall not exceed the limits specified in clause 3.6 of I.S. 383-­1970.

For every 500 m3 of coarse aggregate, Soundness Tests on coarse aggregate shall be conducted by the Contractor. Soundness after 5 cycles by MgSo4 (Magnesium Sulphate) shall be less than 18 % and Soundness after 5 cycles by Na2 SO4 (Sodium Sulphate) shall be less than 12 % for acceptance of the coarse aggregate.

1. SPECIFIC GRAVITY :

The coarse aggregate shall have specific gravity of 2.60 minimum.

1. DELETERIOUS MATERIAL

The maximum quantity of deleterious materials in coarse aggregates shall not exceed the limits specified in Table I of I.S. 383-1 970 when tested in accordance with I.S. 2386-1 963.

No separate payment will be made for tests of materials. If sand and coarse aggregate are to be obtained from a deposit not previously tested and approved by the Project Manager, the contractor shall submit representative samples for pre-construction test and approval, well in advance before the sand and coarse aggregates are required for use. Each sample shall approximately consist of 100 Kg. of material. In addition to pre-construction tests, the approval of deposits, the Project Managermay test the aggregates for their suitability during their processing. The contractor shall provide such facilities as may be necessary for procuring representative samples free of cost at the aggregate processing plant and at the batch plant. Final compliance of aggregates will be based on the samples taken from the batch plant or mixing platform.

Use and development of any such deposit shall be subject to the approval by the Project Manager. Any royalties (or other charges) required for materials taken from deposits either owned by the State Government or controlled by the Department of Mines and Geology, Government of India or owned by any other person shall be paid by the Contractor.

## Approval of Quarry / Quarries for Obtaining Coarse Aggregate & Fine Aggregate

Some aggregates containing particular varieties of silica may be susceptible to attack by alkalies (Na2 O and K2 O) originating from cement or other sources, producing an expansive reaction which can cause cracking and disruption of concrete. This is known as Alkali-Silica Reaction (ASR) or Alkali – Aggregate Reaction ( AAR). ASR / AAR is a ‘concrete cancer’. It is therefore essential that following tests are got conducted to pre-screen the coarse & fine aggregate sources / quarries in respect of the presence of any reactive aggregates. These being special tests, these are to be got conducted from reputed institutions well versed in conducting such tests, such as, National Council of Cement & Building Materials, Ballabgarh (under Govt. of India) or CSMRS (Central Soil & Materials Research Organization, Delhi under GOI).

1. Petrographic Examination of Aggregates**.** Potentially reactive components of an aggregate can be identified and quantified through petrographic examination. It is a very useful screening procedure that should be done early in the development and testing of the source of aggregate. In case, the petrographic examination shows presence of more than 20 % strained quatz having an undulatory extinction angle (an optical property indicating deformed crystals) greater than 15 degrees, the aggregate is considered potentially reactive and it is required to be tested for deleterious expansion as per Indian Standard IS:383-2016.
2. Mortar Bar Expansion Test**.** It is an important test to determine whether a cement-aggregate combination is potentially alkali-silica reactive or not. This test is explained in ASTM C 227 (American Society of Testing Materials C 227). An average length change (for 3 mortar bars) greater than 0.05 % at 3 months and greater than 0.10 % at 6 months is considered to be excessive and is indicative of potentially deleterious ASR (Alkali-Silica Reaction). Specimens exhibiting expansion greater than 0.05 % at 3 months but less than 0.10 % at 6 months are not considered to be deleterious by ASTM C 33. This test is considered to be an accurate indicator of a highly reactive silicious aggregate‘s potential for deleterious reactivity with alkalies in concrete.
3. Accelerated Mortar-Bar Expansion Test.This test is modification of ASTM C 227 test. As per this test, if after 22 days, the average expansion is less than or equal to 0.10 %, the cement-aggregate combination is considered to be non reactive. If the average expansion is more than 0.10 %, the aggregate is considered to be deleteriously reactive. The accelerated mortar bar test is quick and reliable.

## Preventive Measures

In case, the aggregates are determined to be reactive, alternate sources / quarries shall be explored for obtaining non reactive aggregates. If still not possible, preventive measure / measures for controlling Alkali-Silica Reaction shall be taken. A practical and result-oriented measure is to use “fly ash” in the design of concrete mixes. Inclusion of fly ash substantially reduces the Alkali-Silica Reaction (ASR), there by, protecting the concrete (and the steel reinforcement) from deterioration which results from the expansion. Decrease in ASR comes from the fact that fly ash reacts chemically with and absorbs Alkalies in the cement, there by, making these unavailable for reaction with reactive aggregate.

## Batching Of Concrete

Production of concrete shall be done with fully automatic intelligent concrete batcher. All the production data of batcher should be program in the plan. The computer of plant shall be protected from password, once the mix ratio has been program. Password of plant shall be kept with Project Manager. All the data of production of concrete shall be stored in memory of batcher and also stored in cloud through internet. This will facilitate the employer to access the production data from remote. Contractor shall submit hard copy of batching details along with the running bills. The contractor shall notify the Project Manager24 hours before batching concrete. Unless inspection is waived in each case, batching shall be performed only in the presence of an Engineer authorized by Project Manager.

The contractor shall provide, maintain and operate the equipment as required to accurately determine and control the prescribed amounts of the various materials entering the concrete mixers. The quantities of cement sand and each size of coarse aggregate entering each batch of concrete shall be determined by individual weight. Cement has to be weighed separately from the aggregates. Sand and coarse aggregate may be weighed with separate scales and hoppers.

The grading of aggregates shall be controlled by obtaining the coarse aggregate in different sizes and blending them in the right proportions, the different sizes being stacked in separate stock piles, the materials shall be stock piled a day before use. The grading of coarse and fine aggregates will be checked as frequently as directed by the Project Manager, Water shall be added by weight or measured by volume in calibrated tanks. The amount of added water shall be adjusted to compensate for any observed variations in the moisture contents. Determinations of moisture content in the aggregate shall be in accordance with I.S 2386 (Part -III) 1963 (Indian Standard Method of test for aggregate for concrete Part -111). The amount of surface water carried by aggregates will be determined in accordance with IS 456-1978.

## Mixing

## General

The concrete ingredients shall be thoroughly mixed in fully automatic mixers designed to positively ensure uniform distribution of all the component materials. Mixing shall be done as per clause 9 of I.S 456-2000. The mixer should comply with I.S. 1791-1985 (I.S Specifications for batch type concrete mixers). Where small quantities of concrete are involved and work sites are fairly scattered, Project Manager may allow use of standard mechanical mixers for the production of concrete. The mixers shall be fitted with water measuring (metering) devices. In the absence of the metering device, it shall be ensured by the Contractor that measured quantity of water is added to the concrete mix ingredients with calibrated transparent buckets / transparent plastic mugs duly calibrated in order to strictly maintain the specified water-cement ratio. Also, proper “gauge boxes” shall be used for specified proportioning of cement, sand, fine aggregate and coarse aggregate. Mixing time of the concrete mix ingredients shall be at least 2 minutes to ensure that there is a uniform distribution of materials and the mass is uniform in colour and consistency. If any ‘segregation’ is observed in the concrete mix after unloading from the mixer, the concrete shall be remixed. Workability (slump) shall be checked at frequent intervals.

The concrete as discharge from the mixer, shall be uniform in composition and consistency from batch to batch. Workability shall be checked at frequent intervals as per I.S. 1199-1959. Mixers shall be examined regularly by the Project Manageror his authorized Engineer for changes in condition due to accumulation of hardened concrete or mortar or to wear of blades. The mixing shall be continued until there is a uniform in color and consistency and to the satisfaction of the Project Manager. If there is aggregation after unloading the concrete should be remixed.

## Temperature Of Concrete

Fresh structural concrete and fresh dam lining concrete shall be placed at temperature of between 1 5° C to 30° C. During hot or cold weather, the concreting should be done as per the procedure set in I.S. 7861- (Part -D-1975 or I. S 7861 (Part – II).

The temperature of concrete at the batch plant shall be adjusted to assure that the specified concrete temperature is attained at the placement. The contractor shall not be entitled for any additional compensation due to the foregoing requirements.

## FORM WORK

## General

Form Work should confirm criteria stipulated in IS 456 and IS 14687.

Form shall be used wherever necessary, to confine the concrete and shaping it to the required lines. If a type of form does not consistently perform in an acceptable manner, as determined by the Project Manager, the type of form shall be changed and method of erection shall be modified by the Contractor subject to approval of the Project Manager.

Plumb and string lines shall be installed before, and maintained during concrete placement. Such lines shall be used by the Contractor's personnel and by the Project Managerand shall be in sufficient number and properly installed as determined by the Project Manager. During concrete placement, the contractor shall continuously monitor plumb and string line, form positions and immediately correct deficiencies.

Forms shall have sufficient strength to withstand the pressure resulting from placement and vibration of the concrete and shall be maintained rigidly in position. Where form vibrators are to be used, forms shall be sufficiently rigid to effectively transmit energy from the form vibrators to the concrete, while not damaging or altering the positions of forms. Forms shall be sufficiently tight to prevent of loss of mortar from the concrete. Chamfer strips shall be placed to produce beveled edges on permanently exposed concrete surfaces. Interior angle of intersecting concrete surfaces and edges of construction joints shall not be beveled except where indicated on the drawings.

Suitable struts or stiffeners or ties shall be used for the form work wherever necessary. All supports shall be braced and cross braced into two directions. All splices and braces shall be secured by bolting unless specially intended otherwise. All struts shall be firmly supported against settlement and slipping, by suitable means as directed. All supports shall be cut square at both ends and firmly supported against settlement and slipping. When the form work is supported on soils, sleepers etc,, shall be used to properly disperse the loads. In case, the supports rest on already, completed beam or slab, suitable props shall be provided under the latter.

## The form work shall be of well seasoned timber or steel of appropriate thinness as per specification to avoid any undulations during the use. When timber forms are used, they shall be lined with M.S. Sheet or other suitable smooth faced non-absorbent materials as specified. Supports may be of timber or steel. Suitable wedges in pairs to facilitate adjustment and subsequent releasing of forms shall be provided preferably at the upper end of the supports. The details of the proposed form work and supports shall be submitted to the Project Managerand got approved before erection.

## In case of columns, retaining walls or deep vertical component, the height of the column shall facilitate placement and compaction of concrete and suitable arrangement may be made for securing the forms to the already poured concrete for placing the subsequent lifts. No steel ties or wires used for securing this form work shall be left exposed of the face of the finished work.

## Suitable inserts for blackouts for electrical and other service fixtures where necessary shall be provided in the required locations as specified.

## Cleaning and oiling of Forms:- At the time the concrete is placed in forms, the surfaces of the forms shall be free from encrustations of mortar, grout or other foreign material. Before concrete is placed, the surface of the forms shall be oiled with commercial forms of oil.

## Removal of Forms:

## The stripping of form work shall conform to relevant clause of I.S 456-2000. The Contractor shall be liable for damage and injury caused by removing forms before the concrete has gained sufficient strength. Forms on upper sloping faces of concrete such as forms on the water sides of warped transitions, shall be removed as soon as the concrete has attained sufficient stiffness to prevent sagging. Any needed repairs or treatment required on such slopping surfaces shall be performed atone and be followed immediately by the permitted curing.

To avoid injury appearance of concrete that might result from swelling of forms, wood forms for wall openings shall be loosened as soon as the loosening can be accomplished without damages to the concrete. Forms for the opening shall be constructed as to facilitate such loosening. Forms shall be removed with care so as to avoid injury to concrete and any concrete so damaged shall be repaired.

## Cost

The cost of furnishing all materials and performing all work for constructing forms, including any necessary treatment or coating of forms will be paid at applicable prices bid in the schedule.

## Measurement and payment

The formwork will be measured in Sqm. of surface area of concrete surface to which forms are necessary.

Payment for formwork in BOQ includes 1) all costs for supplying labor, materials, T&P, machineries and consumables required for erecting the forms to line, level and plumb as per approved drawing and all such costs necessary for removing the forms after the concrete has hardened, 2) all other costs necessary for carrying out formwork operation mentioned, 3) All costs for carrying out repair of hardened concrete 4) any other incidental expenditure to complete the finished item of work as per specification and direction of Project Manager.

## TOLERANCES FOR CONCRETE CONSTRUCTIONS

## General

Tolerances are defined as allowable variations from specified lines, grades, and dimensions and as the allowable magnitude of the surface irregularities. Allowable variations from specified lines, grades and dimensions are listed as given under sub paragraph {b) below.

The intent of this paragraph is to established tolerances that are consistent with modern construction practice that is governed by the effect that permissible variations may have upon a structure. The Project Managerreserves the right to diminish the tolerances set-forth herein if such tolerances impair the structural action, operational function or architectural appearance of a structure or position thereof.

Concrete shall be within all stated tolerances even though more than one tolerance may be specified for a particular concrete structure. Provided that the specified variation for one element of the structure shall not apply when it will permit another element of the structure to exceed its alterable variation. Where tolerances are not specified for particular structure, tolerances shall be those specified for a similar work. As an exception to the general provisions, specific tolerances shown herein in connection with any dimension shall govern. The Contractor shall be responsible for finishing the concrete forms within the limits necessary to insure that the completed work will be within the tolerance limits specified. The defective work where the tolerance limit is exceeded shall be remedied in accordance with the provisions mentioned under Concrete surface irregularities” in succeeding paragraphs.

## Variations From Specified Lines, Grades And Dimension

Hardened concrete structure shall be checked by the contractor and will be subject to such inspection and measurement as needed to determine that the structures are within the tolerance specified in the table below.

Variation is defined as the distance between the actual position of the structure or any element of the structure and the specified position in plan for the structure or the particular element. Plus or minus variations shown indicate a permitted actual position up or down and in or out from the specified position in plan. Variations not designated as plus or minus indicate the maximum deviation permitted between designated successive points on the completed element of construction.

Specified position in plan is defined as the lines, grade and dimensions described in those specifications or shown on the drawings or as otherwise prescribed by the Project Manager.

## Tolerances For Dam Structures

1. Deviations from specified dimensions of cross section of columns, beams, piers and slabs[(-6) mm to (+) 12 mm]
2. Deviations from dimensions of footing:
3. Dimensions in plan = (-} 12 mm to (+) 50 mm
4. Eccentricity = (±) 0.02 times width of footing in the direction of deviation but not more than 50 mm.
5. Thickness = (±) 0.05 times the specified thickness.

Note: Tolerances apply to concrete dimensions only, but not for positioning of vertical reinforcing bars or dowels.

## Concrete surface irregularities

## GENERAL

Bulges, depressions and offsets are defined as concrete surface irregularities. Concrete surface irregularities are classified as "abrupt" or "gradual" and are measured relative to the actual concrete surface.

## ABRUPT SURFACE IRREGULARITIES

Abrupt surface Irregularities are defined herein as offsets such as those caused by misplaced or loose forms, loose knots in form, or other similar forming faults. Abrupt surface irregularities are measured using a straight edge held firmly against the concrete surface over the irregularity and the magnitude of the offset is determined by direct measurement

## GRADUAL SURFACE IRREGULARITIES

Gradual surface irregularities are defined herein as bulges and depressions resulting in gradual changes on the concrete surface. Gradual surface irregularities are measured using a suitable template conforming to the design profile of the concrete surface being examined. The magnitude of the gradual surface irregularities is defined herein as measures of the rate of change in slopes of the concrete surface.

The surface irregularities shall not exceed 6 mm for bottom slab and 12 mm for side slopes when tested with a straight edge of 1.5 meter in length.

The magnitude of gradual surface irregularities on concrete shall be checked by the Contractor to ensure that the surfaces are within the specified tolerances. The Project Managerwill also make such checks of hardened concrete surfaces as determined necessary to insure compliance with such specifications.

## Repair Of Hardened Concrete Not Within Specified Tolerances

Hardened concrete which is not within specified tolerances shall be repaired to bring it within those tolerances. Such repair shall be in accordance and shall be accomplished in a manner approved by the Project Manager. Concrete repair to bring concrete within the tolerances shall be done only after consultation with a representative of Project Managerregarding the method of repair. The Project Managershall be notified as to the time when repair will be performed.

Concrete shall be finished in a manner which will result in concrete surface with a uniform appearance. Any rough projections can then be rubbed down and the whole surface brought to an even finish by rubbing with a wooden float using a mortar of one part cement by two parts of coarse sand as an abrasive, the mortar at the same time filling the voids. A neat cement wash shall than be applied to give a smooth surface. If the concrete has set hard, the fins and rough projections, if any, shall be removed by using carborandum brick or a paved grinding machine by chipping, before finishing off with the smoothing wash. If the work of chipping is not done with care or if the surface exposed after removal of the forms cannot be satisfactorily dealt with in this manner due to bad work or for other reasons, a coat of cement plaster of 1:2 of thickness as ordered by the Project Managershall be applied.

**No extra payment will be given for finishing concrete surface as instructed above in this clause.**

## Prevention Of Repeated Failure To Meet Tolerances

When concrete placements result in hardened concrete that does not meet the specified tolerances, the contractor shall submit to the Project Manageran outline of all prevention actions such as modification to form, modified procedure for setting screeds, and different finishing techniques to be implemented by the contractor to avoid repeated failure.

The Project Managerreserves the right to delay concrete placement until the contractor implements such preventive actions which are approved by the Project Manager.

## REINFORCEMENT BARS

## General

Reinforcing bars shall be placed in the concrete as shown in the approved drawings or as directed. For anchoring the concrete to the Hard rock contractor shall place the anchor rods to the spacing and depth shown in the drawings.

## Materials

Unless shown otherwise on the drawings the reinforcement to be used shall be High yield strength deformed bars of grade Fe 415 conforming to I.S 1786-1985 specification for high yield strength deformed steel bars and wire for concrete reinforcement.

## Placing

Reinforcement shall be bent and fixed in accordance with the procedure specified in I.S. 2502-1963 code of practice for bending and fixing of bars for concrete reinforcement. All reinforcement shall be placed and maintained in the position shown in the drawings. Splices shall be located where shown in the drawings, provided that the location of the splice may be altered subject to written approval of the Project Manager.

Subject to the written approval the Project Manager, the contractor may, for his convenience, splice bars at additional locations other than those shown on the drawings. All additional splices allowed shall be at the expense of the contractor.

Unless otherwise prescribed, placement dimensions shall be to the center line of the bars. Reinforcement will be inspected for compliance with requirement as to size, shape, length, splicing, position and amount after it has been placed, but before being embedded in concrete

Before reinforcement is bent and fixed, the surface of the bars shall be cleaned of heavy flaky rust, loose scale, dirt grease or other foreign substances which in the opinion of the Project Managerare objectionable. Heavy flaky rust that can be removed by firm rubbing is considered objectionable.

As specified in clause 12 of I.S 456-2000 unless otherwise specified by the Project Manager, reinforcement shall be placed with the following tolerances.

a. For effective depth 200 mm or less = ± 10mm

b. For effective depth more than 200 mm = ± 15 mm

The cover in no case be reduced

Reinforcement shall be securely held in position so that it will not be displaced during the placing of the concrete and special care shall be exercised to prevent any disturbances of the reinforcement in concrete that has already been placed. Welding of bars shall be done as directed by the Project Managerand in conformity with the requirements of I.S 456-1978. Chairs, hangers, spacers and other supports for reinforcement shall be of concrete, metal or other approved material. Concrete cover shall be as shown on the drawings.

## Reinforcement Drawings

The Project Managershall supply drawings of reinforcement details and bar bending schedules for adoption.

## Measurement and Payment

Measurement for payment of reinforcement bars will be based on the weight of the bars placed in the concrete in accordance with the drawings supplied by the Project Manager. The total weight of bars placed as reinforcement in concrete shall be arrived at by adding the products of lengths of each size and mass per meter (vide Table 1 and Para 6.2.1 of IS 1786-1985) of that size of rod. Payment for furnishing and placing reinforcing bars will be made at the unit price bid in the bill of quantities for furnishing and placing reinforcement bars. Unit price shall include the cost of labor, materials T & P, machineries, equipments and consumables for completing the following items.

1. Cost of Procurement and transportation of reinforcement bars, and cleaning, straightening, cutting , bending, binding, tying, placing the grill, welding wherever required and securing the reinforcement grill in position as per approved drawing.
2. No separate payment will be made for lap length, splices, ties, chairs, spacers and binding wire used in the work.
3. All taxes GST, Royalties, excise duty .
4. Construction of approach road, haul road, site illumination, construction of coffer dam till completion of the work and subsequent removal at appropriate time, and all mobilization and demobilization cost to complete the above operations.
5. All testing and quality control works, recording of photographs.
6. Any other incidental cost to complete the items of work as per specification and direction of Project Manager.

## Dowels

The dowels shall be of same HYSD bars of grade Fe 415/500 conforming to I.S 1786-1985 as used for reinforcement.

Details for dowels shall be as shown on the drawings or as directed by the Project Manager. Dowels shall be placed in the concrete where shown on the drawings or where directed and will be inspected for compliance with requirements as to size, shape, length, position, and amount after they have been placed but before being covered by concrete.

Before the dowels are embedded in concrete, the surfaces of dowels be cleaned of all dirt, grease or other foreign substances which in the opinion of the Project Managerare objectionable.

The dowels shall be accurately placed and secured in position so that they will not be displaced during the placing of the concrete.

Measurement for payment of dowels will be made only on the weight of the dowels placed in the concrete in accordance with the drawings or as directed.

Payment for furnished and placing of dowels will be made at the unit price bid in the bill of quantities for furnishing and placing of reinforcing bars which unit price shall included the cost of furnishing all the materials and for placing the dowels as required.

## PREPARATION FOR PLACING

## General

No concrete shall be placed until all form work installation of items to be embedded and preparation of surface involved in the placement have been approved.

The contractor shall supply concrete placement checkout cards (Placement Register) satisfactory to the Project Managerand shall provide a water tight container for such cards at the convenient location near each individual concrete placement site. The cards shall list all the various work items for example "cleanup" and "embedded items" required prior to placement of concrete. After each work item for an individual placement has been completed that item on the cards shall be signed by contractor or his representative signifying completion of the required work. Engineer authorized by the Project Managerwill inspect the work during and after completion of each phase of the preparation and if the work is satisfactory will sign the check- out card (placement register). Approval of preparation for placement will not be complete until the contractor or his representative and above authorized Engineer have approved by signature all applicable, items for the placement.

All surfaces of forms and embedded materials shall be free from curing compound, dried mortar from previous placements and other foreign substance before the adjacent or surrounding concrete placement is begun.

Prior to beginning concrete placement, the contractor shall make ready a sufficient number of properly operating vibrators and operators and shall have readily available additional vibrators to replace defective one during the progress of the placement. The Engineer's representative at the placement may delay the start of the concrete placement until the number of working vibrators available is acceptable.

## Foundation surfaces

All surfaces upon or against which concrete is to be placed shall be free from frost, ice, water, mud and debris.

1. Rock surface shall be free from oil, objectionable coatings, and loose semi-detached and unsound fragments. Immediately prior to placement of concrete, surfaces of rock shall be-washed with an air water jet and shall be brought to uniform surface dry condition.
2. Earth foundation surfaces shall be wet to a depth of 15 cm, or to impermeable material whichever is less before concrete placement.

## PLACING OF CONCRETE

## General

The contractor shall notify the Project Managerbefore batching begins for placement of concrete. Placing shall be performed only in the presence of Project Manager's representative. Placement shall not begin until after preparations are complete and the concrete placement check out card has been signed by the contractor or his representative and the authorized representative of the Project Managersubstantiating completion of all preparation for that placement.

## Transportation

The transportation of concrete shall conform to clause 13 of I.S 456-2000.

Concrete shall be deposited as near as practical to its final position. The use of Aluminum pipe or Aluminum chutes for delivery of concrete will not be permitted. Concrete buckets shall be capable of promptly discharging concrete of the specified mix design and the dumping mechanism shall be capable of discharging at one location, Medium portions of concrete from a full bucket.

## Placing

The placing of concrete shall be in accordance with relevant clause of I.S 456-2000.

Concrete shall be deposited as nearly as practical in its final position and shall not be allowed to placed in running water and placed concrete shall not be subjected to running water until the concrete has hardened.

Concrete shall be deposited as nearly as practical in its final position and shall not be allowed to flow in such a manner that the lateral movement will cause segregation of the coarse aggregate from the concrete mass. Methods and equipment employed in depositing concrete in forms shall minimize clusters of coarse aggregates, clusters that occur shall be scattered before the concrete is vibrated.

Forms shall be constantly monitored and their position adjusted as necessary during concrete placement in accordance.

All concrete except dam lining shall be placed in approximately horizontal layers. The depth of layers shall not exceed 45 cm. The Project Managerreserves the right to require lesser depths of layers where concrete cannot otherwise be placed and consolidated in accordance with the requirements of these specifications. All contraction joints which intersect exposed concrete surface shall be made level and straight to plumb except as shown otherwise on the drawings.

A cold joint is an unplanned joints resulting when a concrete surface hardens before the next batch is placed against it, cold joints would be allowed only in the event of equipment breakdown or other unavoidable prolonged interruption of continuous placing. If such unavoidable delays in placing occur which make it appear that unconsolidated concrete may harden to the extent that later vibration will not fully consolidate it, the contractor shall immediately consolidate such concrete to a stable and uniform slope. If delay of placement is then short enough to permit penetration of the underlying concrete placement shall resume with particular care being taken to thoroughly penetrate and re vibrate the concrete surface placed before the delay. If concrete cannot be penetrated with vibrator, the cold joint shall be then treated as a construction joint.

Care shall be taken to prevent cold joints when placing concrete in any part of the work. The concrete placing rate shall ensure concrete is placed while the previously placed adjacent concrete is plastic so that the concrete can be made monolithic by normal use of vibrators / tamping.

Concrete shall not be placed in rain sufficiently heavy or prolonged to wash mortar from concrete. A cold joints may necessarily result from prolonged heavy rainfall.

The contractor shall not be entitled to any additional payment, over the unit price bid in the scheduled for concrete by reason of any limitation in the placing of concrete, required under the provisions of this paragraph.

Forms shall be constantly monitored and their position adjusted as necessary during concrete placement in accordance.

All concrete except dam lining shall be placed in approximately horizontal layers. The depth of layers shall not exceed 45 cm. The Project Managerreserves the right to require lesser depths of layers where concrete cannot otherwise be placed and consolidated in accordance with the requirements of these specifications. All contraction joints which intersect exposed concrete surface shall be made level and straight to plumb except as shown otherwise on the drawings.

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Concrete shall not be placed in rain sufficiently heavy or prolonged to wash mortar from concrete. A cold joints may necessarily result from prolonged heavy rainfall.

The contractor shall not be entitled to any additional payment, over the unit price bid in the scheduled for concrete by reason of any limitation in the placing of concrete, required under the provisions of this paragraph.

The Contractor shall introduce strict supervision and ensure that the reinforcement is erected as shown in the drawings and, that, the ‘Nominal Cover’ is within the tolerance levels specified in IS:456-2000 to the effect that actual concrete cover shall not deviate from the required nominal cover by + 10 mm & minus 0 mm. The ’Minimum Nominal Cover’ to meet Durability Requirements shall be as indicated below, as per IS:456-2000:

|  |  |
| --- | --- |
| **Exposure** | **Nominal Cover in mm not Less Than** |
| Mild | 20 mm |
| Moderate | 30 mm |
| Severe | 45 mm |
| Very Severe | 50 mm |
| Extreme | 75 mm |

IMPORTANCE of Maintaining Specified Nominal Cover for Durability Of RCC Structures. It is essential that RCC structures remain durable for a very long period and, that, they do not suffer pre-mature deterioration due to corrosion of steel reinforcement embedded in. It is of paramount importance to strictly maintain the ‘nominal cover of steel reinforcement’ since the ‘cover thickness’ is the path through which the environmental elements (carbon dioxide, moisture, oxygen, chlorides etc) penetrate the body of concrete and travel to reach the reinforcement bars and initiate the corrosion process. In case, due to lack of supervision by the Contractor, the actual cover of reinforcement bars is much less than the designed / specified cover, the deleterious environmental elements will quickly reach the bars and shall initiate the corrosion there-of. Subsequently, in few years time, steel bars shall suffer heavy corrosion. Product of corrosion being almost two times that of the original volume of steel, bursting pressure shall cause cracking & spalling of concrete making the RCC structure suffer severe premature deterioration and damages.

**Monitoring Of Nominal Cover with Logging Cover Meter**. In order to ensure that the Contractor erects the reinforcement strictly adhering to the designed / specified Nominal Cover within the tolerance levels and, that, the reinforcement does not get displaced during concrete placement, Project Manager or his Representative shall check the actual nominal cover after the concrete is placed in the respective lifts through deployment of ‘Logging Cover Meter’. It is a device which measures the depth of concrete cover over the reinforcement bars. A pre set value of Nominal Cover (viz designed cover/specified cover) is entered into the ‘Data logger’ and the head of the Logging Cover Meter is moved over the concrete surface. All values of Nominal Cover less than the pre-set value are recorded automatically. Also, an audible alarm signal is given by the device. This device is battery operated and all data can also be downloaded to any PC-Compatible computer. In case, scanning of the concrete surface of a particular lift indicates the actual cover to be less than the designed/specified cover, Project Manager can direct the contractor to dismantle the particular lift and re-do the job at his expense itself. Thus, monitoring by the Logging Cover Meter shall act as a big deterrent and make the Contractor do the job correctly.

## CONSTRUCTION JOINTS

Joints shall confirm criteria specified in IS 456 and IS 11817.

When the work has to be resumed on a surface which has hardened, such surface shall be roughened. It shall then be swept clean & thoroughly wetted. For vertical joints neat cement slurry shall be applied on the surface before it is dry. For horizontal joints the surface shall be covered with a layer of mortar about 10 to 1 5 mm thick composed of cement and sand in the same ratio as the cement and sand in concrete mix. This layer of cement slurry or mortar shall be freshly mixed and applied immediately before placing of the concrete.

Where the concrete has not fully hardened all imperfections shall be removed by scrubbing the wet surface with wire or bristle brushes, care being taken to avoid dislodgement of particles or aggregate. The surface shall be thoroughly wetted end all free water removed. The surface shall then be coated with neat cement slurry and fresh concrete laid.

## CONTRACTION JOINTS

Contraction joints serve to provide for volumetric shrinkage of monolithic concrete and or movement between monolithic unit at established joints, thus preventing formation of objectionable shrinkage cracks elsewhere in concrete. Prior to application of wax based curing compound to contraction joints, the surfaces of all joints shall be cleaned thoroughly of accretion of concrete or other foreign material by scraping, chipping or other means approved by the Project Manager. Water stops, reinforcing bars and other embedded items shall be free of curing compound when adjoining concrete is placed.

## COMPACTION

The compaction of concrete shall conform to clause 13.3 of I.S 456-2000.

Concrete shall be consolidated by vibrators/ tampers. The vibrations shall be sufficient to remove all undesirable air voids from the concrete, including the air voids trapped against the forms. After consolidation, the concrete shall be free of rock pockets and honey comb areas and shall be closed against all surfaces of forms and embedded materials. All concrete shall be properly consolidated before it hardens.

Except as herein after provided, consolidation of all concrete shall be by immersion-type vibrators, immersion type vibrators shall be operated in nearly vertical position and the vibrating head shall penetrate and re-vibrate the concrete in the upper portion of the underlying layer. Care shall be exercised to avoid contact of the vibrating head with embedded items and with formed surfaces which will later be exposed to view. Concrete shall not be placed upon either plastic concrete until the previously placed concrete has been thoroughly consolidated.

Immersion type vibrators shall be operated at speeds of at least 7000 revolutions per minute when immersed in concrete. Form vibrators shall operate at speeds of at least 8000 revolutions per minute when being used to consolidate concrete. The Contractor shall immediately replace improperly operating vibrators with acceptable vibrators.

Form vibrators shall be used in conjunction with slip form lining machines to consolidate concrete in dam linings. Such vibrators shall be arranged for effective uniform consolidation of the concrete. The Project Manageror his representative may remove samples of the hardened concerns for testing and examination, and the Contractor shall repair, at no cost to the Government, concrete from which such samples are removed.

## FINISHES AND FINISHING

The requirements for finishing of concrete surface shall be as specified in this paragraph, or as otherwise indicated on the drawings. The contractor shall notify the Project Managerbefore finishing concrete. Unless inspection is waived, in each specific case, finishing of concrete shall be performed only when Project Manager's representative is present. Concrete surface will be tested by the Project Managerin accordance ,where necessary to determine whether the concrete surface is within the specified tolerances. Finished concrete which is not within the specified tolerances shall be repaired in accordance.

Interior surface shall be sloped for drainage where shown on the drawings or as directed. Surfaces which will be exposed to the weather and which would normally be level, shall be sloped for drainage.

Floating may be performed by use of hand or power driven equipment. Floating shall be started as soon as the screened surface has stiffened sufficiently and shall be the minimum necessary to produce a surface that is free from screened marks and is uniform in texture. Joints and edges shall be tooled where shown on the drawing or as directed.

After the surface of road way slabs of concrete bridges, have been wood floated, the surfaces shall be given a broom finish. The finish shall be applied when the water sheet has practically disappeared. The broom shall be drawn transversely across the pavement with adjacent strokes slightly overlapping. The brooming shall be completed before the concrete is in such condition that the surface will be torn or unduly roughened by the operation. The finished surfaces shall have a uniform appearance and shall be free of corrugations exceeding 1.5 millimeter in depth. Broom shall be of quality, size and construction be so operated as to produce a surface finish satisfactory to the Project Manager.

## PROTECTION

The contractor shall protect all concrete against damage until final acceptance by the Project Manager.

When precipitation appears imminent, the contractor shall immediately make ready at the placement site all materials which may be required for protection of fresh concrete. The Project Manager may delay placement of concrete until adequate provisions for protection against weather are made.

All fresh concrete surfaces shall be protected from contamination and from foot traffic until the concrete has hardened. Hardened concrete surfaces which have to receive finish shall be protected against damage from foot traffic and the construction activity by covering with protective mats, plywood, or by other effective means. Method of protection shall be subject to approval by the Project Manager.

## CURING

## General

The curing is guided by Clause 13.5 of IS : 456-2000.

The contractor shall furnish all materials and perform all work required for curing concrete. All concrete including bed and sides of dam lining shall be cured by water curing for 28 days.

The uniformed top surfaces of bridges decks shall be cured for 28 days with a damp sand cover or curing mat cover. The sand or curing mats shall not be kept so wet as to allow water to drain from them and stain other concrete. The sand or curing mats shall be removed after the expire of the curing period.

All concrete surfaces shall be treated as specified to prevent loss of moisture from the concrete until the required curing period elapsed or until immediately prior to placement of other concrete or backfill against those surfaces. Only sufficient time to prepare construction joint surfaces and to bring them to a surface dry condition shall be allowed between discontinuance of curing and placement of adjacent concrete.

Forms shall be removed after the concrete has hardened sufficiently conforming to clause 11.3 of I.S 456-2000 to prevent structural collapse or other damage by careful form removal. Where required, repair of all minor surface imperfection shall be made immediately after form removal and prior to curing, minor surface repair shall be completed within 2 hours after form removal and shall be immediately followed by the initiation of curing by the applicable method specified herein. Concrete surfaces shall be kept continuously moist after form removal until initiation of curing.

In case, the Project Manager finds that the curing arrangements mobilized by the Contractor are deficient and, that, he is not doing efficient curing of concrete, the Project Manager shall have the right to direct the Contractor to undertake curing of concrete with ‘Membrane-Forming Curing Compound.

**Specifications Of Curing Compound.** The Curing Compound shall be white pigmented membrane forming compound conforming to ASTM –C-309 – 81 Type 2 Standard. The white pigmented compound is advantageous since it reflects sun light, there by, minimizing the evaporation of water from concrete / shotcrete surfaces. Contractor shall procure the Curing Compound from a reputed supplier. The Curing Compound shall meet the requirement of the ‘water-retention test’ as per ASTM – C- 156-80 which specifies that the loss of water is to be not more than 0.55 kg/m2 of the surface area in 72 hours. The Curing Compound shall also conform to the ASTM – E – 97 test to the effect that the ‘day light reflectance’ of the Curing Compound is not less than 60 % of that of Magnesium Oxide (MgO2 ). The Curing Compound shall be sprayed mechanically with a power nozzle uniformly on the concrete surface as soon as the bleeding water or shine disappears. A *dosage* of one litre of Curing Compound for covering 4 m2 surface area of concrete is O.K. to provide effective curing

## Materials

Concrete cured with water shall be kept wet for at least 28 days from the time the concrete has attained sufficient set to prevent detrimental efforts to the concrete surfaces. The concrete surfaces to be cured shall be kept wet covering them with water-saturated materials by using a system of perforated pipes, mechanical sprinklers or porous hose, or by other methods which will keep all surface continuously (not periodically) wet. All curing methods are subject to approval of Project Manager.

## COST

The cost of furnishing all materials and performing all work for curing concrete shall be included in the price bid in the bill of quantities for the concrete on which the particular curing methods are required.

## REPAIR OF CONCRETE

Concrete shall be repaired in accordance with clause 5.7 of I.S 3873-1978. Imperfections and irregularities on concrete surface shall be corrected in accordance.

## TYPES OF REPAIR

Repairs to concrete surfaces and addition where required shall be made by cutting regular opening into the concrete and placing fresh concrete to the required lines. The chipped openings shall be sharp and shall not be less than 70 mm. in depth. The fresh concrete shall be reinforced and chipped and toweled to the surface of the openings. The concrete shall be placed in layers not more than 20 mm, in thickness after being completed each layer shall be compacted thoroughly. All exposed concrete surfaces shall be cleaned of impurities, lumps of mortar or grout and unsightly stains.

## COST

The cost of furnishing all materials and performing all work required in the repair of concrete shall be borne by the contractor.

## MEASUREMENT OF CONCRETE

Measurement for payment of concrete required to be placed directly upon or against surfaces of excavation will be made to the lines of construction as per approved drawing.

Measurement for payment of concrete will be made to the neat lines of structures constructed as shown on the approved drawings and prescribed in the specification. The unit of measurement will be cubic meter. In measuring concrete for payment, the volume of all opening, fixtures, embedded pipes and metal work, each of which is larger than 0.1 square meter in cross section will be deducted.

## PAYMENT FOR CONCRETE

Concrete works of different grades and specifications are to be executed as per items of BOQ. The measurements for these items will be recorded in cubic meter basing on dimensions of concrete as per execution with reference to approved drawings. The item rates for different concrete items includes all costs for labor, material, T&P, machineries, equipments and consumables required for carrying out the following operations.

1. Carrying out all necessary operations for setting out works, clearing, preparation of beds, removal of silt etc. described under Technical Specifications..
2. Laboratory testing of sample of aggregates, cement , water.
3. Procurement of fine aggregates, coarse aggregates, cement, admixtures and water at site of work. (Procurement cost of Reinforcement bars & placement are excluded )
4. Batching, mixing, laying of concrete, vibrating and curing as per Specifications.
5. Erection of gangways, scaffolding, chutes and dismantling the same after completion of work.
6. Construction of approach road, haul road, site illumination, construction of coffer dam till completion of the work and subsequent removal at appropriate time, and all mobilization and demobilization cost to complete the above operations.
7. Recording of photographs. Quality control works.
8. Payment of all taxes, royalties, GST etc.
9. Provision of contraction joints and provision for embedment of items as per approved drawings.
10. Cost of all safety precautions.
11. Any other incidental cost to complete the items of work as per specification and direction of Project Manager.
12. Measurement & Payment will be made as per BOQ regardless of methods and type of equipments used for execution of the work.

The cost of concrete used in (1) wasted concrete, (2) in replacement of damaged or defective concrete, (3) in extra concrete required as a result of over excavation, (4) in concrete placed by the contractor in excavations intentionally performed to facilitate the contractor's operations, and (5) Extra concrete due to tolerance in concrete finish shall be borne by the contractor. No extra payment shall be made to contractors for such additional quantity.

## SPECIAL REQUIREMENTS FOR CONCRETE STRUCTURES

## P.V.C. STRIPS

The finished P.V.C. strips shall be manufactured with shapes conforming to dimensions shown on the drawings and shall be extruded from virgin, pigmented, plasticized P.V.C. The finished P.V.C. strip shall meet the requirement of Table I and II of I.S 9766-1981.

The P.V.C. water stops conforming to the above requirements shall be placed in the. joints where shown in the drawings. The contractor shall furnish an I.S.I Test certificate for the P.V.C. he proposes to use. The unit price bid in the bill of quantities for this item shall include the cost of all materials and labor involved in the operations.

## PLACEMENT OF KRAFT PAPER

The top surface of the masonry / concrete piers and abutments should be leveled and painted with brush, with asphaltic emulsion of 20/30 grade, such that the bearing surface is perfectly smooth and uniform. Over this surface, Craft paper of approved quality should be placed and the top painted with asphaltic emulsion of 20/30 grade The unit price bid in the bill of quantities for this item shall include the cost of all materials and labor involved in the operations.

## EMBEDMENT IN CONCRETE

In some of the locations of structures as shown on the relevant drawings a few conduits or openings shall have to be provided through RCC / PCC. Construction of the surface for either placement of concrete shall have to be suitably carried out so as to meet with the placement of such conduits or openings. No extra payment for such improvidence in construction shall be made.

## PROVIDING & FIXING NP2/NP3 RCC PIPES WITH SPIGOT & SOCKET ENDS:

## Supply of Pipes

Pipes shall be of specified diameter, non pressure type conforming to IS 458. Maximum length of the pipe shall not be less than 2.5 m, or otherwise directed by the Project Manager. The Contractor shall order the pipes required for the work on the basis of the construction drawings supplied to him by the Project Manager. Pipe marked with the following information (A) Class of pipe, (B) Date of Manufacture, (C) Name of Manufactures or his trade mark or both, (D) IS Specification mark, shall only be accepted for work.

## Handling and Laying Of Pipes

Work shall be done as per IS 783. Reasonable care shall be exercised in loading, transporting and unloading of concrete pipes. Handling shall be such as to avoid impact. All pipes shall be inspected thoroughly before being laid. Broken or defective pipe shall not be used. Trench shall be of sufficient width to provide for free working space in minimum 30 cm. on either side of the pipe. Pipes shall be lowered into the trenches by use of standard appliance. Pipe shall be laid true to line and as specified on the construction drawings. Laying of pipes shall be along proposed grade of the slope. The socket ends of pipe shall face upstream. The connections of the pipes shall be jointed together in such a manner that these shall produce perfect even surface along the inside of the pipe.

## Joining Pipes

Semi flexible type spigot and joint as per IS 783 and as shown on the construction drawing shall be provided. The rubber sealing rings used in the joining shall confirm to IS:382. A rubber ring shall be placed on the spigot which shall be forced into the socket of pipe already laid. This shall compress the rubber ring as it fills in to the annular space formed between the two surfaces of the spigot and socket so as to form a flexible and watertight joint. The recess at the end of pipes shall be filled with cement mortar 1:2. Every joint be kept wet for about fourteen days

## Back Filing In Trenches

1. Trenches shall be kept free form water until the material in the joints has hardened Walking or working on the completed pipe shall not be permitted until the trench has been back filled to a height of at least 45 cm. over the pipe except as may be necessary for back filling and compaction.
2. Trenches shall be backfilled after pipe has been laid subject to the condition that jointing material has hardened. Only selected materials shall be used for backfilling, Filling of the trench shall be carried out simultaneously on both sides of pipe in such a manner that unequal pressure does not occur.

## Measurement & Payment

Measurement for payment shall be on running meter basis on the pipe line laid including joints. The rate per pipe in bill of quantities shall include the cost of pipes including loading unloading, hauling, handling, storing, laying in position, cost of rubber rings, jointing and curing including back filling and other operations to complete the work as per the specification.

## BRICK MASONRY

## BRICK

1. Bricks shall be hand-moulded or machine moulded and shall be made from suitable soils. They shall be free from cracks and flaws and nodules of free lime.
2. The bricks shall have smooth rectangular faces with sharp corners and shall be uniform in color.
3. Compressive Strength The bricks, when tested in accordance with the procedure laid down in IS 3495 (Part I ) : 1992 shall have a minimum average compressive strength
4. The compressive strength of any individual brick tested shall not fall below the minimum compressive strength specified for the corresponding class of brick.
5. The lot shall be then checked for next lower class of brick.
6. Water Absorption The bricks, when tested in accordance with the procedure laid in IS 3495 ( Part 2) : 1992 after immersion in cold water for 24 hours, water absorption shall not be more than 20 percent by weight up to class 12'5 and 15 percent by weight for higher classes.
7. The bricks when tested in accordance with the 9.1.1 The manufacturer may also use the procedure laid down in IS 3495 ( Part 3 ) : 1992the rating of efflorescence shall not be more than 'moderate' up to class 12·5 and 'slight' for higher classes.

## COST

The cost of collecting the bricks for masonry will not be paid separately and their cost including the cost of Kiln, transporting, stacking, royalty charges and labor charges shall be included in the unit price per cubic meter bid there for in the relevant item in the bill of quantities.

## SAND FOR MASONRY

## Quality of Sand

The sand shall consist of natural sand, crushed stone or crushed gravel sand, or a combination of any of these.

The sand shall be hard, durable, clean and free from adherent coatings and organic matter and shall not contain clay balls or pellets as specified further below ;

The sand shall not contain any harmful impurities, such as iron pyrites, alkaline, salts, coal, mica shale or similar laminated or other materials in such form or in such quantities as to affect adversely the hardening, the strength, the durability or the appearance of the mortar applied.

Unless found satisfactory, as a result of further tests as may be specified by the Project Manageror unless these evidence of the performance is offered which is satisfactory to him, the maximum quantities of clay, fine silt, fine dust and organic impurities in the sand shall not exceed the following limits.

|  |  |  |
| --- | --- | --- |
| 1 | Clay, fine silt and fine dust (determined in accordance with Appendix of I.S 386, 1 963 and also I.S 2386 (Part II) 1963. | Not more than 5 per cent by weight. |
| 2 | Organic impurities (determined in accordance IS:2386 (Part-Ii) 1963 | Below that indicated by comparison with the standard solution specified in 6.2.2 of I.S 2386 (Part II) 1963. |

Sand shall generally conform to specification except that the sand for mortar shall confirm to the grading as given in clause 4 of I.S. 2116-1980.

A sand whose grading falls out-side the specified limits due to excess or deficiency of coarse or fine particles, may be processed to comply with the standard by screening through suitably sized sieves and /or blending with required quantities of suitable sized sand particles.

If the sand brought to site is not clean, it must be washed clean in water. Fine dirt sand, or sea sand, or sand containing saline impurities shall on no account be used.

## Cost

The cost of sand for masonry shall not be measured and paid separately and the cost of the sand including the cost of collection / stripping and transporting and storing and royalty all labor charges shall be included in the unit price per cubic meter bid there for in the relevant item of work in the bill of quantities for which this sand is required.

## CEMENT

The specifications and conditions specified for supply of cement shall be applicable here also.

Ordinary Portland cement conforming to I.S. 269-1976 shall be used for Masonry work. Portland Pozzoiana cement conforming to I.S. 1489-1 976 may also be used for masonry work, in the event of non-availability of ordinary Portland cement with the approval of Project Manager.

## WATER

The specifications and conditions specified for procuring water shall be applicable here also.

## MORTAR

## PREPARATION OF MORTAR

Unless otherwise specified the cement mortar used in masonry work shall be cement mortar mix 1:4 (one cement four sand by volume).

Mixing shall be done thoroughly preferably in a mechanical mixer. In such case the cement and sand in the specified proportion shall be mixed dry thoroughly in the mixer operating manually or by power.

Water shall then be poured gradually and wet mixing continued at least for 2 minutes. Water should not be more than that required for bringing the mortar to the required working consistency of 90 to 1 30 millimeters as required in clause 9:1.1 of I:S. 2250-1981. The mix shall be clean and free from injurious kind of soil, acid, alkali, organic matter or deleterious substances.

## TIME OF USE OF CEMENT MORTAR

Cement mortar shall be used as soon as possible after mixing before it has begun to set, within 30 minutes after the water is added to the dry mixture.

Mortar unused for more than 30 minutes should not be used and shall be removed from the site of work. The cost of such wasted mortar shall be borne-by contractor.

## TESTS OF MORTAR

Mortar test cubes shall be cast for the mortar used on the work and shall be tested in accordance with Appendix-A of I.S. 2250-1965 code of practice for preparation and use of Masonry mortar. Such cubes shall develop a compressive strength of at least 75 Kgs. / square meter for mortar mix 1:4.

Mortar not conforming to the specifications will be rejected and-the cost of such wasted mortar shall be borne by the contractor.

## General

Laterite Stone masonry in General shall conform to the requirements of I.S. 1129-1972 specification for dressing natural building stones.

Fine tooled dressing or fine dressing means the finest surface which can be given to a stone with a chisel and without rubbing.

## Mortar

Mortar shall be prepared as specified in Para 6.2. Should the mortar perish i.e., become dry, white or Powderly through neglect of watering, the work shall be pulled down and rebuilt at the contractor's expense or should the contractor fail to cure the work to the satisfaction of the Project Manager, the latter shall get the work done at the risk and cost of the contractor.

‘All masonry shall be washed clean on completion and all stains-due to cement or other materials shall be removed from the face.

## MOVING BRICK AFTER IT HAS BEEN PLACED UPON THE MORTAR BED

If it is necessary to move a brick after it has been placed on the mortar bed, it should be lifted clear and reset. Attempt must never be made to slide it over brick already laid. Care must be taken not to disturb joints already laid when handling or moving.

## CUING

All masonry surface shall be treated as specified to prevent loss of masonry or mortar until the required curing period is elapsed or until prior to placement of other masonry or concrete or back fill against surfaces. The contractor shall make his own arrangements to procure and convey water for curing.

All masonry built with cement mortar shall be kept watered continuously for a minimum period of two weeks from the date of construction. Watering shall be done carefully so as not to wash out the mortar, joints or disturb the masonry in any manner.

If the Contractor fails to do curing to the satisfaction of the Project Managerof the work, the latter will either make arrangement to cure the masonry at the risk and cost of the contractor or order the masonry to be pulled down. The masonry so pulled down should be rebuilt by the contractor at his own cost.

## Measurement and Payment

## MEASUREMENT

The measurement for brick masonry shall be to the lines shown in the drawings. The measurement will be in cubic meter.

## PAYMENT

Payment for brick masonry in cement motor in specified cement mix shall be paid as per item of BOQ, the unit price bid in the bill of quantities shall include cost of all labor, material, T & P, machinery ,equipments and consumable for the following operations.

1. Clearing the site of work / slope of dam for slope protection.
2. Procurement of BRICK at work site.
3. Laying of stone as per approved specification and curing.
4. Laying and compacting of moorum below BRICK for slope protection work as per approved drawing including procurement of moorum.
5. Construction of approach road, haul road, site illumination, construction of coffer dam till completion of the work and subsequent removal at appropriate time, and all mobilization and demobilization cost to complete the work.
6. Recording of photographs. Quality control works and tests.
7. Payment of all taxes, royalties, GST etc.
8. Any other cost incidental to complete the items of work as per specification and direction of Project Manager.

## PLASTERING AND POINTING

## Materials

## SAND FOR MORTAR FOR PLASTERING AND POINTING

General

Sand for preparation of Mortar for plastering and pointing shall conform to the gradation, as per I.S 1542-1977.The procurement of sand for usage for plastering and pointing shall confirm to the specifications.

Cost

The cost of procurement of sand for mortar for plastering and pointing will not be measured for payment and shall be included in the unit price per cu. meter bid in the relevant item of work in the bill of quantities for which this sand is required.

## CEMENT

Ordinary Portland cement conforming to I.S 269-1976 shall normally be used for preparation of mortar for plastering, pointing and for masonry work. In the event of non-availability of ordinary Portland cement, Portland Pozzolana cement conforming to IS 1489-1976 may be used with the approval of Project Manager.

## WATER

The Specification and condition specified for procurement of water shall be applicable here also.

## MORTAR

## Preparation of Mortar For Plastering Work

The cement mortar used in plastering work shall be as per specifications of approved drawings.

The other specifications and conditions shall apply for the mortar for plastering work also.

## Preparation of Mortar for Pointing

The cement mortar used in pointing work shall be cement mortar mix 1:4 { One cement four sand by volume).

The other specifications and conditions shall apply for this mortar for pointing work also.

## Plastering with Cement Mortar

## Preparation of Surface

The roughening of the background improves the bond of plaster. All joints shall be thoroughly raked. After roughening the surface, care shall be taken to moisten the surface sufficiently before plastering as otherwise freshly exposed surface may tend to absorb considerable amount of water from the plaster. The surface shall be wetted evenly before applying the plaster. Care shall be taken to see that the surface is not too dry as this may cause lack of adhesion or excessive suction of water from the plaster. A fog spray may be used for this work. As far possible, the plaster work shall not be done under hot sun.

## Laying of plastering with cement mortar 12 mm. Thick.

The mortar used for plastering shall be stiff enough to cling and hold when laid. To ensure even thickness and true surface, plaster shall be applied in patches of 150 mm x 150 mm of the required 12 mm thickness at not more than 2 metres intervals horizontally and vertically over the entire surface to serve as guides. The surface of these guides shall be truly in the plane-of the to be finished plaster surface and truly in plumb. The mortar shall then be applied to the surface to be plastered between the guides with a trowel. Each trowel full of mortar shall overlap and sufficient pressure shall be used to force it into thorough contact with the surface. On relatively smooth surfaces, the mortar shall be dashed on with the trowel to ensure adequate bond. The mortar shall be applied to a thickness slightly more than that specified, using a string, stretched out between the guides. This shall then be brought to a true surface by working with a long wooden float with Medium motion. The surface shall be periodically checked with a string stretched across it. Finally the surface shall be rendered smooth with a Medium wooden float, over working shall be avoided, All corners, edges and junctions shall be brought truly lo a line with any necessary rounding and chambering.

If it is necessary to suspend the work at the end of the day, it shall be left in a clean horizontal or vertical line not nearer than 150 millimeters from any corner or edges or on parapet tops or on coping etc. When recommencing the work, the edges of the old work shall be scraped clean and treated with cement slurry before the new plaster is laid adjacent to it. After the first coat is done it shall be kept undisturbed for the next 24 hours and thereafter kept moist and not to be permitted to dry until the final rendering is applied.

After the plaster has sufficiently hardened cement slurry with cream like consistency shall be applied as thinly and evenly and rubbed to a fine condition.

The finished surface shall be cured with water for a minimum period of 14 days.

Should the mortar crack or perish, the plastering shall be removed and redone at the contractor's expense or should contractor fail to cure the work to the satisfaction or the Project Managerthe later may cure the work at the risk and cost of the Contractor.

All portions which sound hallow when tapped or found to be soft or otherwise defective shall be cut out in regular shape and redone as directed by the Project Managerat the contractor's expense.

## Pointing to C.R. Masonry/ laterite masonry with Cement Mortar

## PREPARATION OF SURFACE

The joints in the masonry shall be raked out to a depth not less than the width of the joint or as directed when the mortar is green. Joints shall be brushed clean of dust and loose particles with a stiff brush. The area shall then be washed and the joint thoroughly wetted before pointing is commenced.

## Flush pointing with cement mortar for coursedRubble / Laterite Masonry

The pointing to be done shall be flush pointing with cement mortar. The mortar shall be pressed into the raked out joints according to the type of pointing required. The mortar shall not be spread over the corners, edges or surface of the masonry. The pointing shall then be finished as detailed below. The mortar shall be finished off flush and level with the edges of the stones, so as to give a smooth appearance. The edges shall be neatly trimmed with a trowel and a straight edge. When finished the mortar pointing shall be restricted to the width of the joints and all superfluous mortar shall be removed with a trowel. The work shall be executed as rapidly as possible (and not again touched after it has begun to set) and kept wet for a minimum period of 14 days thereafter. The pointing shall also be cured for 14 days.

## Measurement

The measurement of plastering and pointing shall be in units of square meters and it shall be paid at the relevant unit price bid per square metres of plastering / pointing in the bill of quantities.

## Payment

The item of BOQ provides unit rates for payment of plastering which includes all costs for labor, material, T & P machineries, equipments and consumables required for carrying out the following items .

1. Cleaning of Surface Area
2. Procurement of all materials at work site
3. Mixing and laying of plaster as per approved drawing and curing .
4. Construction of approach road, haul road, site illumination, construction of coffer dam till completion of the work and subsequent removal at appropriate time, and all mobilization and demobilization cost to complete the work.
5. All testing and Quality control works.
6. Payment of all taxes, royalties, VAT etc.
7. Any other cost incidental to complete the items of work as per specification and direction of Project Manager.

## ROAD WORK

## General

1. Road shall be constructed to the lines, level and grade with sand and moorum fill having desired parameters of density cohesion, etc. so as to ensure the designed stability and performances of the whole road. The Quality Control Organization of the project may carry out requisite test for the suitability of construction materials well in advance and the contractor shall ensure that only approved materials are brought to place of fill and used for construction of Road.
2. The Contractor shall submit sequence of operation which he proposes to follow to the Project Managerand shall obtain approval to it prior to commencing work and shall adhere to the agreed sequence after modification if any by the Project Manager.
3. The methods and plants and equipments to be used by Contractor is subject to
4. Placing of the layers for the road portion program for construction in the season shall be continuous and approximately horizontal. In case the whole length of road is not constructed simultaneously, the incomplete end of the road shall be kept at slope not steeper than 1 in 4.
5. No materials shall be placed in any section of the road until the road seat for that section has been dewatered, suitably prepared and approved by the Project Manager. All portions of excavation made for test pits or other sub-surface investigations, all holes, hollows, and all other existing cavities found within the area to be covered and which extend below the established lines of excavation for road seats, shall be filled with suitable earth fill of the corresponding zone of the road and suitably compacted.
6. Pools of water shall not be permitted in the foundation for road and such water shall be drained and cleared prior to placing the first layer of road materials.
7. The contractor shall construct and maintain good diversion in case the existing communication are disturbed. Precautionary measures such as night lamp, danger facing signals, diversion signals etc. shall be provided by the contractor at his cost to avoid accidents on the communication lines because of contracts activities.
8. Proper care shall be taken to avoid any interference with or damage to works of other discipline such as water supply, sewerage, electricity etc. approval of Project Manager
9. The Contractor shall at all time carry out work in a manner creating least interference to the traffic during execution. The Contractor shall provide and maintain during execution a passage for traffic either along or as part of existing way under construction or a separate diversion road at his own cost.
10. Quality of all materials should be approved by Project Managerprior to collection at site. If any materials brought to site is found inferior and rejected shall be removed from site immediately by the Contractor at his own cost.
11. Construction traffic shall not be allowed to use the newly prepared surface without prior permission from Project Manager. Any damage arising out of such use shall however be made good by the Contractor at his own cost.
12. All measurements unless otherwise indicated shall be recorded / computed to the following limit
13. Length and breadth –0.01 m .
14. Height, depth or thickness of earthwork, Sub base and base course- 5mm.
15. Areas - 0.01 Sqm.
16. Cubic content - 0.01 cum.
17. Works rejected by the Project Manageron ground of poor quality or workmanship shall be dismantled and redone by the Contractor at his own cost.
18. Complete stacking of materials like sand, moorum, H.G. chips as per requirement shall be carried out in 2Km. length before spreading, The collection shall always commence at one end and be carried continuously towards the other unless the Project Managerdirects otherwise.

## Setting Out of The Work:

1. Before starting any work and during execution (if required) the contractor shall erect reference Bench Marks, reference lines and check profiles at convenient locations as per the direction of the Project Manager. The centre line of the road and the reference line for all alignments for demarcation purpose shall be laid by properly dug-belling on the ground.
2. The Check profiles shall be located at 30M. apart or closer as directed by the Project Managerso as to ensure execution of all slopes, steps and elevations, to the profile as indicated in the approved drawings. All important levels and all control points with respect to Bench Marks and reference lines shall be fixed and co-related by the Project Manager.
3. To ensure correctness of execution the edges of cutting, the lines of the road and those of spoil bank shall be marked carefully with pegs at close intervals. The pegs shall then be connected by stretching string from peg to peg and dug belling into ground along the strings. The lines so connected shall be corrected whenever necessary to provide a stream lined plan of the features. Special care shall be taken at curves to ensure uniform curvature of the alignment. The layout of the structures shall have to be given in appropriate manner with pegs & pillars.
4. All materials and labor for settings out works including construction of reference Bench Marks, reference lines check profiles and surveys, as may be required at various stages of the construction, shall be supplied by the contractor at his own cost. The cost of such works shall be deemed to have been included in the costs of items for road work in schedule.

## PREPARATION OF SITE

## Clearing the Site

The contractor shall clear of all tree stumps, bushes, roots, brushwood, rubbish of all kinds, loose stones and all other objectionable materials in the entire area required for setting out. The ownership of all the useful materials so removed from clearing site and or excavation shall rest with the department. The roots of the trees shall be grubbed to full depth. The contractor shall dispose off all such materials as directed by the Project Manager.

1. No separate payment will be made to the contractor for complying the requirements of clearing the site and all cost shall be deemed to have been included in the rates quoted in schedule for the items.

## Recording of Cross Section

Initial cross sections shall be taken at every 30 m interval or closer depending on nature of the ground up to sufficient distance outside the limit if work. Levels on these cross sections shall be taken at 5 m. or closer intervals as directed by the Project Managerand recorded in the field and level books in the presence of the contractor or his authorized agent who shall sign the field book/level book in the token of acceptance. These cross section. shall form the basis of all future measurements and payments.

## Foundation Preparation

## Soil Foundation

Soil foundation under the seat of road shall be scarified and loosened by means of a plough or other means to a depth of about 15 cm .to 20 cm .to the satisfaction of the Project Manager. Roots and other debris turned up during scarifying shall be removed from entire foundation area for the fill. Before placing of fill materials, the stripped surface of the road is to be initially compacted. The first layer of fill for the road shall be of depth of 10 cm to 15 cm and shall be carefully placed, ensuring uniform compaction and a satisfactory intimate bond between the foundation soil and fill materials. Heavy rubber type rollers or vibratory rollers may be used for compaction. Power Road Rollers shall be used for compaction of impervious soil and preferably vibratory type roller shall be used for compaction of all other soil.

Separate payment shall not be made for preparation of foundation as above and it shall be deemed to have been included in the unit rate quoted for respective item of road.

## Borrow Area

## General

All materials required for the construction of road shall be obtained from borrow areas duly approved by the Project Manager. The contractor has to arrange borrow area for necessary testing and approval of Project Managerto borrow sandy soil, sand &moorum. Borrow pits shall be operated so as not to disfigure/disturb the appearance of any part of the work or any other property.

## Preparation / Stripping of Borrow Area

All areas required for borrowing sand / sandy soil / moorum for road shall be cleared of all tree stumps, roots, bushes, rubbish and other objectionable materials. Borrow areas shall be stripped of top soil, and any other objectionable materials to the required depth as directed by the Project Manager. The work may be done manually or with suitable machine. Stripping operations shall be limited only to designated borrow areas. Materials from stripping shall be disposed of in exhausted borrow areas or in the approved adjacent areas as directed. Particular care shall be taken to exclude all organic matter from the materials. The cleared areas shall be maintained free of vegetable growth during the progress of the work.

No extra payment shall be admissible for preparation and stripping the borrow area, as this is deemed to have been included in the unit bid price.

## Hau roads and approach roads

Construction and maintenance of approach roads and haulage roads will be the responsibility of the contractor. The department will have full right of way to those roads for inspection purposes. Proper road sign as directed have to be provided for safety. For haulage of road materials, the contractor shall construct ramps and haul roads of sufficient width along the shortest but most practical route and shall maintain and illuminate them to a satisfactory manner. Watering of the haul road shall be done by the contractor as often as necessary to prevent raising of dust, formation of cuts and consequent deterioration of the surface. Whenever service roads meant for public thorough fare traverse through or run close to the borrow areas, the contractor shall direct his excavation and haulage operation in such manner as to ensure uninterrupted use of the service road and safety to the public. At the haul road and the service road crossing, the contractor shall install necessary check gates and road signs.

No extra payment for haul road and approach road is admissible as this is deemed to have been included in the unit bid price for the earth work item being contingent to the main work.

## Weatherconditions :

Road materials shall be placed only when the weather conditions are satisfactory to permit accurate control of the moisture content in the road materials. Before closing work on road, the top surface shall be graded and rolled with a smooth wheeled roller to facilitate run off. Prior to resuming work, the top surface shall be scarified and moistened or allowed to dry as necessary and approved by the Project Managerfor resumption. The contractor shall provide suitable protection works to protect the slope from erosion due to rainwater. No payment whatsoever shall be made for providing such protection work and rectifying of monsoon damages.

## Watering

Adequate watering to the sand fills are to be done to facilitate proper compaction. Similarly water content to moorum is to be controlled for proper compaction. No compensation will be made to the contractor due to held up of work for rain, fog and moisture content in the working process.

## Compaction

1. Having decided on the filling materials to be used, standard compaction test shall be made on the materials proposed for road to indicate broadly which are the most suitable type of equipment to be used and the moisture content at which compaction should be undertaken and also to determine the effects of soil moisture content, thickness of layer and number of passes.
2. Having decided on the thickness of layer and range of moisture contents, tests should be made with different types of equipments available and the required number of passes should also be determined.
3. In all this work, the state of compaction should be measured in terms of dry density.
4. Density tests if felt necessary by Project Managershall be made after rolling. Standard proctor density test shall be carried out at regular intervals to account for variations in the borrow area materials as well as that in situ excavated materials.
5. The contractor shall supply all materials labor machinery and equipment at his cost for the work.
6. No extra payment shall be made for compaction operations as this shall be deemed to have been included in the price bid in schedule of Quantities for the respective item of work.

## Rolling

When each layer of materials has been prepared so as to have the proper moisture content uniformly distributed throughout the materials it shall be compacted by passing the vibrating roller or P. R .R .The exact number of passes for each layer to obtain specified density shall be designed by the field laboratory after necessary test. The layers shall be compacted in strips overlapping not less than 0.6 m. Rolling shall commence at edges and progress towards centre longitudinally. The rollers of loaded vehicle shall travel in a direction parallel to the axis of the road. Turns shall be made carefully to ensure uniform compaction. Rollers shall always be pulled. Density tests shall be made after rolling and dry density attained shall satisfy the compaction standards specified in relevant I.S. Codes.

## Compaction of Cohesionless Materials

Where compaction of cohesion less free draining materials such as sand and gravel is required, the materials shall be deposited in horizontal layers and compacted to the relative density specified. The excavation and placing operations shall be such that the materials when compacted shall be blended sufficiently to secure the highest practicable unit weight and best stability. Water shall be added to the materials as may be required to obtain the specified density by method of compaction being used. The thickness of the horizontal layers after compaction shall not be more than 10 cm, if compaction is performed by tampers and not more than 15cm, if by rollers.

## DRESSING OF SLOPES

The slopes of road shall be neatly dressed to lines and grade as shown on the drawing as the placing of fill progress, compaction shall extend over the full width of the road and materials in slopes shall be compacted as for the rest of the road. To ensure proper compaction of the edges, the cross section of the fill during construction shall be kept wider as directed by the Project Managerand cross section shall be dressed to the designed requirement after compaction for which no extra payment shall be made as it is deemed to have been included in unit bid price for item of schedule of Quantities. Materials used to fill depression shall be of same type as used in the road and shall be thoroughly compacted and bonded to the original surface. Slopes shall be maintained until final completion and acceptance. Any material that is lost by rains, weathering or other causes shall be replaced at the cost of the contractor till completion of the works and taking over by the department.

## SETTLEMENT ALLOWANCES

In the fill road/embankment, settlement allowances of 2% will be provided. Accordingly extra height shall be provided but payment for design height will be made. The base width of the road will not be increased to maintain the design slopes indicated in the drawing for the additional height as settlement allowances, but the following procedure will be adopted. Settlement allowances will be calculated at various levels where the slopes is to be changed and the elevations including settlement allowances will be derived keeping the road widths of the designed levels unchanged. The edges of road at the increased elevations (including settlement) when joined with the point where the slope has changed earlier bellow, shall give the slope to be adopted for constructions.

If the road is raised in more than one season, provision for settlement shall be made in the last season's construction as described above.

## MEASUREMENT AND PAYMENT

1. All works shall be measured by levels.
2. For payments the level books, field books, the cross section sheets and calculations sheets shall be treated as adjuncts to the measurement books. The quantities between the levels taken after stripping and cross sectional levels taken after construction of consolidated road will be recorded for payment. It shall be clearly understood that construction of road to extra width/height for settlement allowance as specified earlier will not include for payment. The measurement will be limited to the design section.
3. Final measurement and levels shall be taken at the cross sections of the completed compacted bank design section after the slopes dressed to ensure that work is completed as shown in the drawing plus settlement allowances.

## RATE FOR PAYMENT

The Unit rate for different items for Construction of road shall include all costs for labor, materials, tools and plants, machinery, excavation, transportation and incidental operations required for carrying out and completing the item of work in accordance with the specification, drawing and as directed by the Project Managerincluding all costs for (i) Site clearance (ii) Setting out works (iii) Marking out, providing and forming model section with strings and stakes as may be considered necessary by the Project Managerto guide the contractor in road construction (iv) compacting the original ground including preparation of seat under road (v) Scarifying and benching etc. (vi) Clearing trees stumps and bushes, stripping of the borrow area up to required depth including cost of arranging borrow area (vii) Maintaining borrow area free from vegetation growth, drainage arrangement and moisture control including watering (viii) Loading, conveyance from designated borrow area, unloading and spreading of suitable materials including rehandling (ix) Construction and maintenance of approach roads and haul roads, site illumination and borrow area illumination (x) Cutting and trimming as specified in dressing of slopes (xi) Restricted working near sites of structures (xii) Settlement allowance (xiii) Spreading in thinner layers at required places (xiv) Compaction with suitable compactors (xv) Removal of materials like bushes, roots, sods, other perishable materials and pebbles etc. from the fill materials (xvi) Providing labor for recording of levels and testing charge for testing of samples (xvii) All drainage and dewatering as required (xviii) The section of all work to be maintained in good order during execution and also in rainy season (xix) All safety measures.(xx) All taxes, royalties of materials (xxi) any other incidental expenditure to complete the work including mobilization and demobilization as per drawing, specification and direction of Project Manager.

## Materials

1. Moorum And Sand

The moorum shall have plasticity index not less than 6 as determined in accordance with I.S. 2720. It shall be free from all rubbish, dust and organic materials as well as clods of clay / black cotton soil. The moorum should be granular and gritty.

Sand shall consist of hard, dense, durable and uncoated siliceous gritty materials. Sand to be used shall be natural as obtained from river bed from specified quarries. It shall be free from all rubbish, dust and organic materials as well as clods of earth loam and other deleterious substances.

1. STONE AGGREGATE

(a) METAL: The hard granite crusher broken stone metal shall be obtained from quarries containing hard, tough, sound, durable stone of close texture, free from decay and weathering. Pieces of the stone shall be angular and roughly cubical in shape. Round, elongated or flaky materials shall be rejected. The size of the metal shall be well graded as per specification.

(b) Sample metals, collected from the quarries shall be got tested by the Contractor at his cost in the laboratory. The test results shall conform to the standard requirement laid down for metal to be used for this work.

The physical requirement for standard size metal shall conform to the test results as per IS:2386.The grading requirement of coarse aggregates shall confirm to IRC specification.

1. Chips

Stone chips shall consist of regular fragments of clean hard, tough and durable rock of uniform quality throughout by crushing granite rock, and shall be free of elongated and flaky pieces, soft and disintegrated materials, and vegetable or deleterious matter. They shall satisfy the physical requirements set-forth as under.

|  |  |  |
| --- | --- | --- |
| Test | IS for Test Method | Requirements. |
| Los Angeles Abrasion value | IS:2386 (Part-IV) | 35% Maximum |
| Aggregate impact value | IS:2386 (Part-IV) | 30% Maximum |
| Flakiness index | IS:2385 (Part-l) IS:624 | 30% Maximum |
| Stripping value | IS:624 | 25% Maximum |
| Water Absorption | IS:3386 (Part-lll) | 2% Maximum. |

Size of stone chips shall be as under :

1. For premix carpet 20mm to 12mm size: Passing 20mm sieve and retained on 10 mm sieve.
2. For pre-coated seal coat 6mm and downgraded size: passing 10mm sieve and retained on 2.36mm. sieve.
3. Samples of stone chips collected from the quarries shall be got tested by the Contractor at his cost in laboratory. The test results shall confirm to the standard requirement as per BIS.
4. Control on quality of material will be exercised by the Project Managerby carrying out the following tests at frequencies shown against each.
5. Measurements:

The materials such as sand, moorum , and crusher broken granite metals are to be separately stacked at approved stack yard beyond trafficable berm in standard stacks of 1.5mX1.5mX1m. Accounting deduction of voids, each such stack is to be measured and paid as 1 cum.

1. Payment:

Rate for collection of materials under item provides all costs for labor, material, T&P, machineries, excavation, transportation and incidental operations required for carrying out and completing the items of work with specification and includes all costs for 1) selection and permission for quarry operation, 2) all required tests for selection of materials as per BIS / IRC / MORTH, 3) Quarry operation and procurement of approved materials at approved stack yard and stacking, 4) Royalties of material and all other taxes pertaining to the operations, 5) storage charge and watch & ward of materials and machineries, 6) all wastages during operations, 7) all safety operations, 8) insurance and compensation of labor, 9) any other incidental expenditure to complete the finished item of work.

## CONSTRUCTION PROCEDURE

1. Sub-Base below Pavement
2. Moorum and sand stacked separately shall be conveyed and mixed properly to make an admixture of moorum and sand in proportion as per direction of Project Manager.
3. The formation after excavation or trimming shall be dressed to required camber and grade.
4. The admixture of moorum shall be spread in sub base and also side shoulders in layers not exceeding 15cm. in thickness and should be adequately watered.
5. Immediately following spreading of moorum admixture rolling will be started with three wheeled roller of 8 to 10 tones capacity or equivalent vibratory roller. The rolling shall begin from edges and then progress gradually to centre, parallel to the centre line of the road and over lapping uniformly each preceding rear wheel track by one half width and shall continue until the entire area of the course has been rolled by the rear wheel. In case of super elevated portions rolling shall proceed from inner edge to the outer edge. Rolling to continue till the admixture of moorum is thoroughly keyed. During rolling sprinkling of water is to be done as required for a dense compacted mix layer.
6. The rolled surface to be checked transversely and longitudinally and any irregularities, ruts and soft yielding places be corrected by loosening surface, adding or removing amount of admixture moorum and rolling entire surface to confirm desired grade and camber of 1 in 50 (not flatter than 1 in 72).
7. `I.R.C. GRADE-I AND I.R.C. GRADE-III METALING

## Spreading Of Coarse Aggregate

1. I.R.C. Grade-III metal (size 40mm to 25mm .) shall satisfy criteria described under sub-head criteria “materials" in preceding paragraph
2. Stacking for Gr.-III shall be done after the spreading of Gr.-I metal.
3. The surface to receive I.R.C. Gr-I or Gr.-III water bound macadam course (metaling) shall be made free from dust and other extraneous material.
4. The respective grade metals shall be spread uniformly to achieve compacted nominal thickness of 11.5cm. and 10 cm for I.R.C. Grade-1 and I.R.C Grade-III metaling respectively.
5. The spreading shall be done from stacks along the side of the roadways or approved stock yards. In no case shall aggregates be dumped in heaps directly on the surface prepared for the metaling nor shall hauling over un compacted or partially completed base be permitted. No segregation of large or fine particles shall be allowed. The surface of the aggregates shall be carefully checked with Templates and all high or low spots remedied by removing or adding aggregates as may be required by hand packing the same to proper grade and camber.
6. The bunds of earth or moorum one on either side shall be made along the outer edge of metaling prior to or simultaneously with spreading of metal. In addition wherever required turf edging are to be provided. These bunds and turf edging are required to prevent loose metal from spreading out beyond width of road to be metalled. No extra payment will be made for the bunding or turf edging as the same are deemed to be included in the unit rate of respective items.
7. Spreading of metal shall proceed only 200m. in advance of rolling operation.

## Consolidation

1. Immediately following the spreading of the coarse aggregates, rolling shall be started with three wheeled power roller of 8 to 10 tone capacity or equivalent vibratory roller. The weight of the roller shall depend upon the type of the aggregate and shall be as indicated by Project Manager.
2. Except on super elevated portions where the rolling shall proceed from inner edge to outer, rolling shall begin from the edges gradually progressing towards the centre. First the edge/edges shall be compacted with roller moving forward and backward. The roller shall then move inwards parallel to the centre one half wheel width.
3. Rolling shall continue until the aggregate is thoroughly keyed and the creeping of the aggregate ahead of the roller is no longer visible. During, rolling slight sprinkling of water may be done, if necessary. Rolling shall not be done when the sub-grade is soft or yielding or when it causes a wave like motion in the sub-grade or sub-base course.
4. The rolled surface shall be checked transversely and longitudinally with Templates and any irregularities corrected by loosening the surface, addition or removing necessary amounts of aggregates and re rolling till the entire surface conforms to desired camber and grade. In no case shall use of screenings be permitted to make up depression.
5. Moorum as blinding material shall be applied, successively in two or more thin layers at a slow and uniform rate. After each application, the surface shall be copiously sprinkled with water, the resulting slurry swept in with hand brooms or mechanical brooms to fill the voids properly, and rolled, during which water shall be applied to the wheels of the rollers, if necessary to wash down the blinding materials sticking to them. These operations shall continue until the resulting slurry after filling the voids, forms a wave ahead of the wheels of the moving roller.
6. After final compaction of water bound macadam course, the road shall be allowed to dry overnight. Next morning hungry spots shall be filled with screenings or binding materials as directed, lightly sprinkled with water, if necessary &rolled .No traffic shall be allowed on the road until the macadam has set. The Project Managershall have the discretion to stop hauling traffic from using the completed water bound macadam course if in his opinion it would cause damage to the surface.
7. Material which crushed excessively during compaction or becomes segregated shall be removed & replaced with suitable aggregate.
8. It shall be ensured that shoulders are built up simultaneously along with water bound macadam courses.

**Consumption Of Materials**

Consumption of material for specified thickness of pavement in case of both I.R.C. Gr.I and I.R.C. Gr. III metaling shall be as follows:

|  |  |  |
| --- | --- | --- |
| ITEM OF WORK | I.R.C. Gr.I | I.R.C. Gr.111 |
| Over all (Nominal) thickness of layer laid | 115 mm. | 100 mm. |
| Compacted thickness | 90 mm | 75mm. |
| Consumption of metal | 0.115 cum/Sqm |  |
| Consumption of moorum as blinding material. | 0.028 cum/Sqm |  |

Note : Quantity of metal and moorum is after deduction of void from stacked measurement.

1. Measurement :

Spreading of admixture of moorum and sand or Gr-I & Gr-III metals are to be measured on level sections as indicated vide clause 8.7 in preceding paragraph. The volume quantities of different items calculated from level sections are totally with the corresponding stack measurement quantities computed vide items of BOQ respectively.

1. Payment :

Rate for conveying from stacks and spreading different items as per of BOQ provides all costs for labor, T&P, machineries, transportation and incidental expenditure required for carrying out and completing the items of work with specifications and includes all costs of labor, materials, machineries T&P, equipment and consumables for (a) operations described for conveying from stacks and spreading moorum sand admixture / metal IRC Gr-I / metal IRC Gr-III, compaction and watering (b) cost of road diversion and road signaling & safety precautions (c) cost of procurement / storage and application of water and any other incidental expenditure required to complete the finished item of work.

## REHABILITATION AND REPAIR WORKS

## General

Repairing of different types of works is required after a long period of service, to restore the strength, flexibility, durability and characteristics of the original work. Depending on the level of the damage, the type of the components, works can be repaired and/or rehabilitated, or upgraded by different methods. It is of paramount importance to realize that in all repair works the instructions of the Project Managershall be followed. All soil, turf, gravel, stone, timber and other materials obtained in the excavation and clearing of the site of the Works shall belong to the Employer and shall not be removed from the Works or sold without the consent of the Project Manager. The Contractor may use for the construction of the Works any of the materials excavated, which the Project Managermay determine to be fit for such use.

## Requirement for Repairs

The Contractor shall ensure that certain requirements are satisfied for the repair works to be executed efficiently. The following requirements are necessary for the proper execution of the works: -

1. Adequacy of tools and equipment used.
2. Safety measures taken to avoid unnecessary damage to the existing structures. - Sequence and methodology of work adopted.
3. Suitability of materials used and quality of workmanship.

## Tools and Equipment for dismantling old structure :

In repairing the damaged works, the Contractor shall use simple hand tools, light devices and if necessary, mechanical means as may be required and approved by the Project Managerto avoid damages to existing structures and its surroundings. Damaged parts shall be removed with care to avoid causing vibrations and movements of the works under repair that may cause a threat to the existing structures or its surroundings. Use of explosives shall not be allowed.

## Safety Measures

The Contractor shall explore the Site conditions and identify the nature and scope of the works under this Contract, its limitations and risks. The procedures and measures to be adopted in carrying out the repair works and handing over the site clean and neat shall be decided in consultation with the Project Manager. The provisions of clauses in earlier sections of this Specification shall apply in regard to safety measures needed for this kind of work. Temporary supports, scaffolding and all required shall be provided by the Contractor at his own cost to carry out the works efficiently and safely and finish the same in good condition. The Contractor shall safely dispose of all refuse matter within the haul distance as directed by Project Manager.

## Sequence of Works

The Contractor shall strictly follow the adopted procedures and accepted practices related to the methodology of works and sequential execution of the different activities pertaining to repair works. Repair woks shall have the following sequential stages:

- Cleaning and Clearing the area.

- Removal of the damaged parts.

- Application of the appropriate repair technique in the right sequential order.

- Restoration of work to its original condition.

The method of work, and sequence of implementing the works under repair shall be finalized by the Project Managerand shall be strictly followed by the Contractor. No permission shall be granted by the Project Managerto the Contractor to proceed from one stage of work to the next unless the previous works are inspected and accepted by the Project Manager.

## Materials and Workmanship

The Contractor shall furnish all materials and supplies and complete works required for repair works under this Contract in accordance with this Specification described herein and referred to elsewhere in the Specifications.

## Repair Works

In carrying out repair works the contractor shall use the most efficient method that is suitable to remedy a specific damage.

Damaged works can be upgraded, rehabilitated and repaired by the following repairing techniques:

- Removal and Replacement of the damaged parts.

- Jacketing.

- Injection

The location, extent and type of major repair works are indicated on the Drawings. The contractor shall resort to the appropriate type of repair technique shown on the Drawings and shall strictly follow the procedures stipulated in the specifications to carry out the works under this item as described in the Bill of Quantities.

## Removal and Replacement of Damaged Parts

When the concrete / masonry is heavily damaged, the steel reinforcement is exposed, abraded or completely rusted, and/or the concrete is crushed, total removal and replacement of the damaged parts must be carried out. If only repair is required, the original cross- section size will be maintained. If strengthening is necessary, the area of the original cross section may increase; damaged and loose concrete must be removed, new reinforcement inserted and welded to existing sound reinforcement and new ties be placed. Special attention must be paid to achieve good bond between new and old concrete.

In carrying out of repair work in concrete, the Contractor shall follow the stages explained below:

1. The Contractor shall demolish and chip away the damaged parts of the concrete.
2. Chipping away the concrete surface shall be done to the levels required to remove the damaged, rusted reinforcement. The Contractor shall remove the damaged steel parts and ties and replace them with new ones of the same diameter or higher.
3. The existing sound steel parts and ties shall be cleaned from rust by use of mechanical steel brushes or sand gun.
4. The new reinforcement and ties shall be welded to the existing sound reinforcement and ties to restore the reinforcement level to its original condition before the damage as per the direction of Project Manager.
5. Prior to concreting, the rough surface shall be cleaned from dust and loose materials and shall be treated with suitable and approved bonding epoxy resin glue paint (NITOBOND or equivalent) to achieve bond between the old and new works. Applying cement mortar on the surface may be used as another option as per approval of the Project Manager.
6. Formwork for the concrete shall be placed to restore the shape, lines and dimensions as shown on the Drawings. Formwork shall comply with the relevant clauses in earlier sections.
7. Concrete of specified grade shall be laid/ poured in the formwork to produce the required dimension. Concrete shall comply with the requirements of clauses in section-4 of the Specifications.

When rendering and/or repair work is required along existing masonry structure all loose stones and defective joints shall be thoroughly raked out and cleaned back to expose a sound base for application of the repair work. All such exposures shall be inspected by the Project Manager. The Contractor shall not commence any repair work before the Project Manager's approval is obtained. The stone and mortar mix used for remedial works should be consistent with the general clauses of the Specifications described earlier and also with the general color and appearance of the existing structure.

1. The procedure to be followed by the Contractor for cracking repair shall be as follows:
2. Clean out all cracks with water. Remove old mortar from any masonry joints and clean the joints.
3. Deposits in cracks can be easily removed by compressed air.
4. The contractor shall fill the cracks with mortar and finally fill the joints with mortar to replace the old mortar that has been removed from the joints. Then the mortar shall be trowelled smoothly after the cracks have been filled, and the joints treated.
5. The Contractor shall remove all loose stones and rack defective joints using compressed air or a water spray, hammer and chisel. The Contractor shall clean all cavities defective joints of old mortar to establish a sound base for formation of the new repair works.

The surface under repair shall be moistened with spray water, and the Contractor shall place a new mortar bed to receive the masonry stones, and shall also apply fresh mortar to the joints between the new stones and the old ones, and filling all space available, compacting with a suitable tamping tools. The joints shall be smoothened with suitable tool. The joints width shall be within 10 – 20mm.

## Jacketing in Concrete work

Jacketing should be applied in cases of heavily damaged concrete works or in cases of insufficient strength of concrete elements. Jacketing may be used for strengthening purposes of the concrete structures, although it can also be used for repairing. Jacketing can be performed by adding reinforced concrete, steel profiles (angles and straps) or steel encasement.

In carrying out this type of repair technique, the contractor shall follow the procedures set below:

1. Same procedure as in 1 of 9.3.1

The Contractor shall remove the loose concrete and chip away the concrete cover manually or with suitable mechanical equipment under the supervision of the Project Managerwithout damaging portion of the structure in good condition.For protecting the edges where required, M.S. angles of suitable size (not less than 50X50X5 ) shall then be fixed in position by welding them to exposed reinforcement with due care to achieve the correct finished lines as per the drawing. Formwork shall be placed as required confirming to the design profile complying to the requirement of levant clauses of section-4 of the specification. The concrete and steel surface shall then be cleaned properly and a layer of suitable grade of Epoxy resin adhesive shall be applied, and concrete of suitable grade poured. The concrete to be used for repair shall be of at least one grade higher than the old concrete.

## Jacketing in masonry work

For major repair works, where excessive stones is required to be removed, many repair operations are involved; strengthening the wall by steel jacketing; reconstruction of the damaged portion of the wall; filling the cavities inside the wall by grouting. The Contractor shall proceed as follows as per the direction of Project Manager:

-Prior to commencement of repair works, the Contractor shall make necessary arrangements to ensure the stability and safety of the structure under repair and its surroundings and the safety of all persons working at the Site whether employed by him or not.

- The Contractor shall rack the joints, repair/remove the surface boulders and prepare surface to accommodate the new works.

- Vertical reinforced steel wire mesh comprising welded steel wire fabric shall be put in position close to the wall by 12/16 mm Dia anchors fixed in masonry at 75 to 100 cm apart. Form work shall be placed in position along-with arrangement of edge protection and concreting done.

## Injection

Resin or cement grout injections are to be applied only for works with slight cracks, without damaging concrete or reinforcement.

## Grouting in Masonry

Where felt necessary the old and distressed masonry works shall be grouted. After completion of the works in the manner described, a number of holes are drilled in the masonry wall at the rate of 1 holes per square meter taking care to drill the hole centrally. First water is injected in order to wash the wall inside and to improve the cohesion between the grouted mixture and the wall elements. Then cement grout and (1 cement; 1 water) shall be grouted at low pressure of 1 to 2kg/cm2 in the holes. In most cases the pressure needed for grouting can be obtained by gravity flow of the grout from supper elevated tanks.

## Rehablitation of Hydromechanical equipment

It is not the intention of these specification to specify the complete details of equipment, however the contractor shall supply the equipment/finished material, which will meet in all respect, the requirements of the owner in regard to performance, durability and satisfactory operations. All the equipment /finished material supplied or works done shall conform to their relevant Indian/specified Standards. Wherever the Indian Standards are not existent or silent, i relevant ASTM, DIN, Japanese Industrial Standards (JIS) or BS standard shall be adopted. i The broad scope of the work for the equipment as specified in the work requirement and BOQ includes Design, preparation of detailed fabrication, sub assembly and assembly drawings, procurement, fabrication/manufacturing, inspection, shop assembly, testing, painting , transportation, site storage & site erection, testing and commissioning including provision for all the required labor, plant & material for the above, handing over to owner for trouble free operation for all gates and their operating systems.

Supply and installation of all incidentals not specified but necessary for the proper completion and satisfactory functioning of works and guarantee of the permanent equipment, along with all auxiliary equipment in the designated location of the project as specified in the technical specifications or BOQ, shall also be in the scope of work.

Repairing of different types of works is required after a long period of service, to restore the strength, flexibility, durability and characteristics of the original work. Depending on the level of the damage, the type of the components, works can be repaired and/or rehabilitated, or upgraded by different methods. It is of paramount importance to realize that in all rehabilitation works, the instructions of the Project Manager shall be followed.

The scope of work shall include all tools and devices including lifting devices, ropes, etc. necessary for total assembly and disassembly (If required) of all parts of the supplied Works or for repairing / replacement. The scope of work shall also include dismantling of existing equipment as necessary complete in all respect, for erection of new equipment, transportation of dismantled/non usable parts to specified storage location for proper facilitation of erection Works. Painting of all (newly supplied as well as already installed (except the dismantled items) Hydro mechanical equipment shall be carried out as per specification.

Requirement for Rehabilitation

The Contractor shall ensure that certain requirements are satisfied for the rehabilitation works to be executed efficiently. The following requirements are necessary for the proper execution of the works: -

1. Adequacy of tools and equipments used.
2. Safety measures taken to avoid unnecessary damage to the existing structures. - Sequence and methodology of work adopted.
3. Suitability of materials used and quality of workmanship.

**13,13,1 Fabrication of Steel Work**

Rounds, Chamfers and Edges:

The edges of surfaces to be painted shall be rounded (minimum radius 2 mm) or chamfered accordingly. This requirement must be stated in all shop drawings for the relevant parts.

Steel Work

Work shall conform to the requirement hereinafter specified, unless otherwise called for in these specifications or on the drawings. Finished members shall be free from twists, bends and open joints. Compression joints shall have surfaces truly faced so as to have full contact bearing when aligned and welded or bolted.

All the joints shall be made by welding or bolting only.

Straightening of materials:

Before being laid off or worked, rolled material shall be straightened and shall be cleaned of all rust and dirt. If straightening is necessary, it shall be done by methods that will not be cause for rejection of the material.

Shearing and cutting:

Shearing and cutting by torch shall be performed carefully and in all work which will be exposed to view after completing shall be finished neatly. Sheared or cut edges of plates more than 16mm thick, which carry computed stresses shall be planed to a depth of 6mm. Re-entrant cuts shall be filleted before cutting.

Holes:

Holes in structural steel members carrying calculated stresses shall be sub-punched to 3mm less than the nominal diameter and reamed to full size or drilled after assembly. All other members may be punched to full size. Main members shall be assembled in the shop prior to reaming or drilling holes for field connection.

Accuracy of punched holes

Holes shall be punched so accurately that after assembling the component parts of a member, a cylindrical pin 3mm smaller in diameter than the nominal diameter of the punched hole may be entered

perpendicular to the face of the member without drifting in not less than 75 per cent of any group of continuous holes in the same plane. All holes shall punch a pin 5mm smaller in diameter than the nominal diameter of the holes.

Reaming

Reamed holes shall be cylindrical, perpendicular to the member, and not less than 1.5 mm or more than 2.5 mm than the nominal diameter of the bolts. Built up members shall be assembled and firmly bolted together before any reaming is done. Reamed parts shall not be interchanged. Burrs and savings from reaming shall be removed and, if necessary, reamed pieces shall be taken apart before being joined and the shavings removed.

Drilling

Drilled holes shall be cylindrical perpendicular to the member and 1.5mm larger than the nominal diameter of the rivet/bolt.

Accuracy of reamed and drilled holes

Holes shall be drilled and reamed so accurately after assembly that not less than 85 per cent of any group of continuous holes in the same plane shall show no off-set greater than 0.8mm between adjacent thickness of metal.

Removal of burrs

Burrs resulting from reaming or drilling shall be removed with a tool making a 1.5mm level.

## Surface Finish

### Finished Surfaces

Where the finish is not indicated or specified, the type of finish shall be provided as per Indian standard most suitable for the required function of surface and shall be consistent. Surface finish shall be indicated on the shop drawings by symbols. Compliance with the specified surface shall be determined by the sense of feel and by visual inspection of the facility compared to applicable "Standard Roughness Specimens", or with roughness filler gauge instruments. Both "Standard Roughness Specimens" and filler gauge instrument shall be provided by the Contractor at the request of the Engineer.

### Unfinished Surfaces

As far as practicable, all facility shall be laid out to secure proper matching of adjoining unfinished surfaces. Where there is a large discrepancy between adjoining unfinished surfaces, they shall be chipped and ground smooth, or machined to secure proper alignment.

Unfinished surfaces shall be true to the lines and dimensions shown on the drawings and shall be chipped or ground free of all projections and rough spots. Depressions or holes not affecting the strength or usefulness of the parts shall be filled in a manner approved by the Engineer.

### Protection of Finished Surface

Finished surfaces shall be thoroughly cleaned of foreign matter. Finished surfaces of large parts and other surfaces shall be protected with wooden pads or other suitable means. Unassembled pins or bolts shall be oiled or greased and wrapped with moisture-resistant paper or protected by other approved means.

## Fasteners

* + 1. *Bolts, Studs, Nuts and Screws*

They shall have standard threads and be of high quality steel. All standard size bolts, studs, nuts and screws (including their washers) shall be supplied in 5 % extra quantity and heavily protected against corrosion or made of stainless steel if so specified in the technical Specifications. Nuts and bolts heads shall be hexagonal in shape & truly faced. Nuts & bolts and screws, which might become loose during operation, shall be locked in fastened position by means approved by the Project Manager.

All bolts shall have unified threads. Bolts in tension shall have a net section at root of thread, 15 percent in excess of the net section required in tension.

* + 1. *Field Jointing*

All fasteners for field joint shall be supplied 5 per cent in excess of actual requirements. This should be indicated in the drawings/bill of material

## Welding

Members to be joined by welding shall be cut accurately to size, and where required, shall be rolled or pressed to proper curvature in accordance with the approved drawings. Flattening of curvature along edges by blows for correction will not be permitted. The dimensions and shape of edges to be joined shall be such as to allow thorough fusion and complete penetration and plates shall be planed if necessary and edges to be formed/prepared properly, to accomplish this result. Members to be welded together shall be in sufficient intimate contact at the time of welding so that members will not be forced more closely together with the cooling of the weld, thus setting up additional strains and distortions in the weld and parent metal.

The cut surface shall be free from all visible defects such as lamination, surface defects caused due to shearing or cutting or flame cutting operations. The surfaces of plates to be welded shall be free from dust, grease and scale for a distance of 12 mm from the welding edge at the time of welding. Flame cutting may be used in the preparation of the various members provided the operation is performed carefully and the edge so cut are cleaned thoroughly after being cut so as to expose clean metal. Any contour irregularities at points of critical stress shall be removed by grinding.

All welding shall be carried out using a suitable welding sequence/procedures approved by the Engineer and in such a way that harmful effects of welding are avoided.

When the welding process has been approved by the Engineer, the contractor shall produce a record drawing to show the approved process. The drawing shall include details such as the form of edges to be welded, electrodes and other welding materials, welding sequence etc. Changes in the welding process after the welding method has been approved shall require the consent of the Engineer.

Additional copies of all records of all welding procedures, including preheating and stress relieving, chemical analysis and physical properties, shall be made available to the Project Manager upon request.

Unless otherwise allowed by the Engineer all welded parts to be welded shall be manufactured of steel produced by open-hearth or electric furnace with carbon content not more than 0.20% and a Phosphorous content not more than 0.05%.

A welding process approved by the Engineer generally in accordance with the standards specified in the Technical Specification shall be followed. Approval of the welding procedure shall not relieve the Contractor of his responsibility for correct welding and correct selection of electrodes and minimizing of defects in the finished structure.

All welding shall be done by the electric arc method or by a process, which will exclude the atmosphere from the molten metal, except where otherwise specifically permitted. The welding electrodes shall be heavily coated type designed for all position welding. Welding electrodes to be used in welding shall be of reputed /standard certified make and make shall be got approved before its use. In assembling and during welding, the component parts of built up members shall be held in place by sufficient number of clamps or other adequate means to keep all parts in proper position.

The Contractor shall follow the steel manufacturers instructions/ recommendations concerning electrodes and other materials and post & preheat treatment. Notwithstanding the above, the suitability of electrodes to be used for welding for both shop and field welding shall be demonstrated by trials to the satisfaction of the Project Manager.

The strength of welding of all equipment subject to high and/ or alternating stresses, vibrations etc. shall be at least equal to the strength of the parts being welded. Between plates and other sections where such stresses are to be transmitted only butt welds shall be permitted. At welded butt joints, where the weld material is required to be deposited on both sides of the joints, the weld shall be chipped thoroughly to obtain a clean surface prior to the application on the first run of the welding on the opposite side of the joint. Where fillet welds are used, the lapped sections shall fit closely and shall be held together during the welding operation. Surfaces to be welded shall be cleaned of loose scale, slag, rust, paint and other foreign matter, except that a thin coat of linseed oil need not be removed before welding. When weld metal is deposited in two or more layers, each layer shall be brushed with a wire brush or otherwise cleaned before subsequent layer is deposited. In welding precautions shall be taken to minimize stresses due to expansion or contraction by peening the welds while hot, or by other satisfactory methods. After welding is completed and the place is cold, correction of distortion by blows will not be permitted. Upon completion, the welds shall be brushed with wire brushes and shall show uniform section, smoothness of weld metal, feather edges without excessive overlaps and freedom from porosity and clinkers. Visual inspection at edges and ends of fillets and butt joints welds shall indicate good fusion and penetration into base metals.

The specification regarding welding including the technique of welding employed, the appearance and quality of welds made, and the methods used in testing of the welds, and in correcting defective work shall conform to relevant Indian Standard or other standards specified.

All shop and field welding performed on the facility shall be subject to inspection by Project Manager when welding plates, of which one or both exceed 25 mm in thickness. Contiguous areas of plates around the welding operation shall be preheated to not less than 70º C and kept at a substantially uniform temperature throughout the process. The temperature shall be measured by Tempil sticks or other approved means. Low hydrogen electrodes shall be used wherever necessary, particularly if the temperatures are below 10º C. Peening of multiple pass welds to control distortion or to minimize residual stresses may be carried out with light blows from a power hammer using an elongated round nosed tool. Peening shall be done after the weld has cooled to a temperature warm to the hand. Care shall be exercised to prevent scaling, flaking or rupturing of weld and base metal from over peening. Neither the first nor the last pass of a multiple pass weld shall be peened.

All welds on stress-carrying members shall be done in Manufacturer's shop unless otherwise agreed by Project Manager. In general, only non-load- carrying seal welds will be permitted in the field. All field welding shall have prior agreement of Project Manager. Tack welds shall be permitted only as a temporary welds required for assembly purposes.

The welding sequence shall be planned to control and minimize distortion and, where necessary, shall include stress relief to minimize residual stresses. Minimum stress-relieving requirements are specified in the appropriate sections of these specifications.

Welded components subject to vibration and stress reversals shall be fabricated with full-penetration welds.

For welding of principal stress carrying parts the standards of welding procedures, qualification of welders and welding accessories shall conform to relevant Indian Standards or equivalent to the requirements of the ASME Boiler and pressure vessel codes section VIII and IX, or DIN EN 287. All welders assigned to the facility shall have passed a performance qualification test. If more than one year has elapsed since the welder passed his last test, then he shall be tested and qualified again. The required certificates for welder qualifications shall be submitted to Project Manager prior to start of welding.

## Stress Relieving

The post weld thermal stress relieving shall be part of approved welding procedure and shall be carried out in accordance with the relevant provision ASME boiler and pressure vessel code section VIII division–2 or IS: 2825. The method statement procedure for conducting thermal stress relieving shall depend upon the particular structure, grade and composition of steel and thickness involved. The contractor shall obtain prior approval regarding the above from Project Manager.

Stress relieving of the parts where required shall be accomplished by heating the member in closed stress relieving furnace to a temperature of 580 º C to 620 º C for one hour for each 25 mm of metal thickness and allowing the member to cool slowly in the furnace. Below 315º C, the member may be removed from the furnace and allowed to cool in still air.

All plates to be welded above the thickness of 28mm shall be stress relieved except if specified otherwise. All forgings shall be normalised and all castings shall be annealed.

## Corrosion Protection

### Surface Treatment and Protection

The manufacturer shall provide as part of his work/supply the surface treatment, priming, corrosion protection and painting of the equipment furnished. Such work shall include the coating and painting work at the workshop and at the site unto and including the finish painting. Unless otherwise specified the coating and painting shall be carried out in accordance with the latest Indian Standards or International standards.

All primer and painting material shall satisfactorily fulfill the requirements imposed by the site conditions, as well as the stresses to which the respective equipment is subjected during operation of the facilities. Shades of the finished coatings shall be as approved by the Project Manager.

Only primer coating shall be carried out in shop and finished coat shall be applied at site after erection of parts.

Surfaces shall be prepared and accepted as per standards (SA 2.5) before application of paints.

Each coat of primer and paint shall be compatible with the previous and subsequent coats. All pigmented primers and paints which will be used for primer and painting at the site shall be delivered in original and sealed containers packed by the manufacturer bearing brand name, colour designation, storage and handling instructions.

The manufacturer shall supply full details regarding the extent to which sand-blasting, primer and paintings will be carried out in his workshops (or his sub-contractors, as the case may be) at the site and after erection. A properly equipped paint shop shall be set up at the site using a specialist organization , experienced and skilled in the preparation and application of protective coatings at the conditions prevailing at the site.

Materials shall be thoroughly mixed at the time of application. It is essential that before any primer and coat of paint is applied, the surface is properly prepared. Such preparation shall include sand-blasting, cleaning, soothing, drying and similar operation that may be required to ensure that the primer and/or paint is applied on suitable surfaces. Clean cloths and clean fluids shall be used to avoid having film or grease residue on the surfaces being cleaned.

Each coat shall be free from runs, drops, pinholes, waves, laps, sags and unnecessary brush marks and shall be allowed to dry or to harden before the succeeding coat is applied.

Machinery paint may be thinned, if necessary to permit satisfactory application, but the amount of thinner shall be kept to a minimum.

For removing rust and mill scale from structural steel, plate sheets, piping and other steel surfaces, as well as from other parts blast cleaning shall be carried out to clean bare metal. The average surface roughness after sand blasting shall not exceed 40 microns. Sand blasting shall be performed with corundum or sand of type approved by Project Manager. Parts which cannot be blast- cleaned shall be cleaned free from rust and scale by power tool cleaning to the highest possible degree.

Stainless steel and bronze surfaces shall only be cleaned but not painted. All surfaces of the embedded parts, which are to come in contact with concrete, shall be cleaned as mentioned above and given two coats of cement latex to prevent rusting during shipment and while awaiting installation. All finished surfaces of the gates and stop logs that will be exposed to atmosphere during shipment or while awaiting installation shall be given a coat of gasoline soluble rust preventive compound. For preservation of hydraulic cylinders during shipment and while awaiting installation these shall be filled minimum 10% with hydraulic oil suited to temperature range for the particular Project, and 2% VSI or equivalent corrosion inhibitor shall be added prior to dispatch to site .The grade of oil shall be got approved from employer.

All precautions and requirements as per IS: 14177 shall be followed. The paints used shall be of reputed “make” and the “make” shall be got approved from Project Manager prior to painting. The paints should be consumed within its validity period as per standard norms and paint manufacturer’s recommendations.

### Painting Systems

*Gates*

Perfect cleaning of all surfaces which are not to be covered with concrete shall be carried out by sand blasting to the requirements of SA 2½ of Swedish Standard.

Over the prepared surfaces one coat of inorganic zinc rich primer by spray (preferably airless spray) should be applied giving a dry film thickness of 70 ± 5 microns.

The interval between surface preparation and painting shall be as short as practicable and in no case longer than 4 hours. Over the primer, two coats of solvent-less coaltar epoxy paint shall be provided at an interval of about 24 hours. Each coat shall give a dry film thickness of 150 microns. The total dry film thickness of all the coats shall not be less than 350 microns.

*Embedded Parts*

All unfinished surfaces of embedded parts exposed to atmosphere or water shall be sand blasted to Sa 2½ of Swedish Standard and given 2 coats of zinc rich epoxy primer giving a dry film thickness of about 35-40 microns.

*Hoists*

1. Structural components:

Cleaning of all the surfaces shall be done by sand blasting to SA 2½. In such areas where it is not possible the parts shall be cleaned by brushing and scraping.

The parts after surface preparation shall be given one coat of zinc silicate / zinc chromate primer paint in the shop before dispatch. One further coat of primer shall be applied after erection. The primer coats shall give a minimum dry film thickness of 40 microns per coat. The finish paint shall consist of coats of micaceous iron oxide paint or synthetic enamel paint. Each coat of paint shall give a dry film thickness of 50 microns. The interval between coats of micaceous iron oxide paint or synthetic enamel paint shall be 24 hours. The total dry film thickness should not be less than 175 microns.

1. Machinery:

All surfaces of machinery (except machined surfaces) including motor, gearing, housing, shafting bearing pedestals shall be given two heavy duty chemically resistant epoxy coatings (thick), each of having thickness more than 60 microns followed by another heavy duty chemically resistant epoxy coatings (thin) of thickness not less than 40 microns. Total DFT of paint should not be less than 160 microns. Unfinished interior surfaces of oil reservoir and gearboxes and unfinished surfaces of gears which will run in oil need not be painted

*Machined Surfaces*

Machined surfaces shall be protected with adhesive tapes/or other suitable means during the cleaning and painting operations. All machined surfaces of ferrous metal including screw threads, which will be exposed during shipment or while awaiting installation, shall be cleaned with solvent and coated with a gasoline soluble rust preventive compound.

### Colour Scheme

**S.No. /Item Colour / Scheme**

1. Super structure columns, trestles, platform & staircase : Grey
2. Hoist Machinery : Yellow
3. Handrails : Black & white

## Rubber Seals

Rubber seals shall be of the moulded type only. The materials used for rubber seals shall be compound of neoprene rubber, a copolymer of butadiene and styrene, or a blend of both, and shall contain reinforcing carbon black, zinc oxide, accelerators, anti-oxidants, vulcanizing agents and plasticizers. For Clad seals, sheath of cladding material with rubber shall be inserted in mould with raw non vulcanized rubber compound and then moulded and vulcanized. The thickness of clad sheath shall be in the range of 1.0 mm to 1.5 mm and will have good bonding strength with rubber. Fluoro carbon sheath shall have minimum tensile strength as 13.7 MPa and minimum elongation as 250 %. The contractor shall provide all seal with adequate temperature and age resistant properties which will provide, in the moulded form, suitable sealing properties.

The seals shall meet the properties as per IS: 11855.

All corners shall be remoulded and have a suitable radius on the inside edge. All joints, shop and field, shall be located at reasonable distance from the corners and shall meet the following requirements:

* All shop joints shall be vulcanized. Joint geometry shall be such as to avoid feather edges on the sealing surfaces.
* Field joints shall be kept to a minimum and shall be accurately machine cut and carefully butted during assembly to an interference fit. The field joints shall be held with double fasteners on each side of the joint.
* Vulcanized joints shall not break on tear when bent 1800 around a mandrel of a diameter equal to the maximum cross section thickness of the seal.
* The longitudinal strength in tension of vulcanized joints shall be not less than 71.4 kg/cm2 as verified by tests on a tensile specimen prepared from one joint in accordance with ASTM D15 Part C. The joint tested shall be located at the midpoint of the test specimen and its strength determined in accordance with ASTM D 412.
* The joints in the rubber seal shall be vulcanized butt joints and at right angle to the rubber seal. Oblique joints at the corner shall not be permitted in the rubber seal. Vertically placed strips of rubber seals shall be formed in one piece and no joints of any sort shall be permitted.
* Sufficient quantity of seal jointing compound shall be supplied with rubber seals.
* Joints shall be water tight and seal materials shall have following physical properties as determined by tests made in accordance with the relevant Standards.

**Property Limits**

Tensile strength 14.5 Mpa minimum

Ultimate elongation 450% minimum

Durometer hardness (Shore, Type A) 60 - 70

Specific gravity 1.1 to 1.3

Water absorption (700C for 48 hours) 5% by weight (max.)

Compression set 30% maximum

Tensile strength after accelerated ageing in 80% (min.) of tensile strength

oxygen (48 hours at 700C)

## Screw Hoaist for Canal Head Regulator gates

1. **General**

Six (6) nos. ( 1 no. per gate ) of Screw hoist shall be provided for operation of 6 nos. slide type Gate at 3 nos. sluices .. The gate shall be opened and closed by means of electrically operated double acting type screw spindle hoist under unbalanced water pressure. The scope of supply shall also include dogging devices , covers and position transmitter with indicator for each gate.

Under normal operation the gate will be designed for raising under maximum water head at the upstream side and be lowered under maximum flow condition design. Indian standard IS:11288 (latest vesion) shall be followed for design . selection of material , manufacture and installation of screw hoist.

For inspection and repair, the design of screw hoist shall be such that facilitate the gate to lifted above the deck level by lifting devices such as Gantry cranes /mobile crane etc. following the dismantling of the screw hoist, lifting rods & couplings etc.

The screw spindle hoist shall be supported at deck level.

Electric Screw Hoists shall be from the reputed and experienced manufacturer as approved by Engineer/Purchaser. The hoists shall be operated both manually and electrically. The hoists shall be installed on base frame suitably anchored at deck level. The stem of the screw hoist shall be supported intermediately with the help of removable support brackets bolted with steel plate anchored on the downstream concrete wall.

General design of the Electric Screw Hoist involves design of its components viz:

Stem, Nut, Gearing, Shafts, Keys and keyways, coupling, Bearings, Pedestal, Gate Position Indicator and Electrical System. The determination of hoist capacity, design of the Hoist components and the principal requirements shall be as per IS: 11228.

Each hoist shall include the following components:

* A reversible 415 volt three phase electric motor driving a threaded stem by way of an adequate reduction system.
* A motor-integrated brake serving to hold the gate in its partially or fully open position (if required, depending on the component characteristics).
* Adjustable upper and lower limit switches.
* A hand wheel along with detachable coupling, connected to the output of the reducer to permit manual operation of the gates in case of power failure.
* A position indicator to show the position of the gate at any time.
* A local push button station in a lockable cabinet.

The hoist screw shall be connected to a rigid lifting rod. The lifting rod shall be connected to the gate. Both connections shall be designed and manufactured to allow dismantling and reassembling of the hoist equipment if required in the future. The connections shall be able to withstand the driving forces resulting from the gate operation and double-acting hoist (tension and compression) under all possible load conditions. The supply includes also the necessary accessories, frames, fixed or movable pieces, even if not mentioned above, required for warranting a trouble-free and safe operation, inspection, maintenance of the gates and control / monitoring by the control system.

1. **Hoist Capacity**

The hoists capacity shall be determined by taking into consideration the following forces which might be required to be overcome:

* Weight of the gate along with all its components including the weight of stem and intermediate stem, if any.
* All frictional forces comprising of Guide friction, Seal friction including friction due to initial interference,
* Any hydrodynamic load, like down pull force/uplift, etc.
* Silt load wherever encountered
* Minimum Seating pressure as prescribed in IS: 11228 ( or 2.5 KN/M length of seal)
* Any other consideration specific to a particular site.

The worst combination of the above forces, during either lowering cycle or raising cycle, shall be considered. The hoist capacity thus arrived at shall be increased by 30 percent to cater for the reserve hoist capacity unless otherwise specified by the Engineer/Purchaser. The gates shall be designed for the downward forces closing the gates while lowering shall be at least 20 percent higher than the frictional or other forces opposing the downward motion. The necessary closing/seating load shall be calculated considering the net cross-sectional area of the bottom seal. However, The usual operating speed for raising and lowering of such hoists shall be 500 mm per minute.

1. **Lifting Rod/Stem**

The stem shall normally be made of mild steel. It shall be galvanized in the unthreaded portion. The stem shall be provided with standard metric thread conforming to IS: 4218 (latest revision) at one end for connection with the gate. It shall be connected to the horizontal girders and shall be required to be tightened against a minimum of two girders. The bottom end shell be provided with an additional lock nut. In case the gate does not require positive thrust for closing, pin jointing the stem to the gate shall be considered. Standard square threads conforming to IS: 4694 (latest revision) or acme threads shall be cut on the stem at the other end for transmission of power. The minimum length for which the threads may be provided shall be the sum of the following:

* Total lift of the gate,
* Length of the nut in contact with the stem, and
* Extra allowance of 300 mm.

More than one start of the screw threads shall be provided in order to achieve quick linear movement. The screw stem rod shall be designed for direct torsional compressive load by taking the root diameter at the minimum cross-section. The diameter so arrived at shall be checked for torsional shear stress, buckling and for combined maximum shear and maximum tensile compressive stresses. Suitable supports shall be provided at intermediate points, if required.

The maximum length and weight of the lifting rod shall be such, that it can be properly handled at deck level by means of mobile / Gantry crane and/or personnel. The lifting rod shall be of corrosion resistant material and the coupling or connections shall be made of corrosion-resistant steel. The lifting rod shall be designed and manufactured to withstand the compression and tension forces during operation without any possible instability. The rod shall be guided as required, to provide proper slenderness and to guarantee a free-trouble operation mechanism.

1. **Nut**

The nut, through which the power is to be transmitted to the stem, shall generally be of a material having lesser wear resistance than the material of the stem. Square or acme threads matching with those provided on the screw stem shall be provided on the inner surface of the nut. The total number of threads to be cut on the nut shall be calculated on the basis of the total bearing area to be provided. The bearing pressure on the threads of phosphor bronze nut shall not exceed 0.04 UTS. The total length of the nut shall also be governed accordingly. The number of threads provided on the basis of the bearing stress shall be checked for shear stress at the threads cross section. The minimum outside diameter of the nut shall be at least twice the minimum inside diameter.

1. **Gearing**

Standard helical reducer shall be used for the first stage reduction at the drive unit and it shall be of high grade suitable for the service intended. Rating and efficiency of the reducer used in calculation shell be as per manufacturer's recommendations. Bevel gears as the second stage reduction shall be used for electric screw hoist. Worm and worm wheel gearing shell be used for manual screw hoist.

Design of Gears shall be as per the relevant IS codes (latest revision). The allowable stress shall be taken as 20 percent of the ultimate tensile strength of material used for the manufacture of the gear for the normal operating condition.

For breakdown torque condition, the allowable stress shall be taken as 80 percent of the yield point stress of the materiel. Manual drive system shall be provided in case of power failure/emergency. Rating and efficiency of the reducers used in calculations shall be according to the manufacturer's recommendation.

Gear boxes shall be of rigid construction fitted with inspection covers and lifting handles. The gear boxes shall be so designed that the gears can be easily removed or replaced and shall be such that the gears are suitably lubricated. Facilities for oil filling and draining, connection for oil level indication and adequate breathing shall be provided where necessary. Allowable stresses for hoists supporting structure shall be in accordance with IS 800 (latest revision) and an impact factor of 1.1 shall be considered. For breakdown torque condition, the allowable stress shall be taken as 80% of the yield point stress of the material. The shafts shall be designed for appropriate load/torque that is being transmitted. Shafts shall have ample strength and rigidity and adequate bearing surfaces.

1. **Shafts, Key and Keyways**

The shafts shall be designed for appropriate load/ torque that is being transmitted. Shafts shall have ample strength and rigidity and adequate bearing surfaces. They shall be finished smoothly and provided with suitable changes of cross-section for easy assembly and disassembly.

In dimensioning the shafts with ratio of length/diameter greater than 50, the angle of twist and the revolutions/minute shell be taken into account, in addition to simple bending , pure torsion, or the combined effect of bending end torsion. The twist that shall be permitted is 1/4 0 to 1/3 0per meter. Linear deflection in the shaft shall not exceed 1.0 mm/m length.

1. **Bearings**

All the running shafts shall be provided with either roller bearings or ball bearings or sleeve type removable bronze bushings with flanges at both ends. Bearings shall be easily accessible for lubrication & or replacement. In case of more than one bearing on one shaft, every bearing shall be provided with separate & individual lubrication arrangements. The minimum thickness of bronze bush shall be calculated by formula given in IS: 6938 (latest revision).

The special thrust bearings required for taking the entire hoisting/lowering load shall be provided between the nut and the pedestal body.

1. **Couplings**

All couplings shall be of forged steel or cast steel designed to transmit torque which may develop. Solid couplings shall be aligned in such a way that they meet accurately. The flexible couplings shall be initially with the same accuracy as solid couplings. Flexible couplings shall be fitted between motor shafts and extension shafts.

1. **Pedestal**

The pedestal shall be fabricated or cast and shall be mounted on hoisting platform. The pedestal shall be designed as a column against crippling due to total hoist end shall preferably have tapered sides in order to achieve greater stability.

1. **Manual Operation**

The manual operation arrangement shall be so designed thet the continuous effect per man does not exceed a crank force of 100 N at 400mm crank radius at a continuous rating of 24 revolutions per minute. Suitable electrical interlocks shall be provided to prevent operation by electrical power when the manual drive is engaged.

1. **Gates Position Indicator**

A mechanical gate position indicator shall be installed on each hoist. Its dial shall have a minimum diameter of 300 mm and shall be easily readable . It shall be graduated in meters and centimeters end shall indicate the position of the bottom of each gate above the sill up to its highest position.

1. **Lifting Rod Dismantling and Storage Devices**

Devices shall be provided to dismantle the lifting rod, to bring the gate in its highest position (above deck) for repair. The lifting rod may be stored temporarily in the nearby facilities.

1. **Control Equipment**

The gate operation will be from existing control panel and the Contractor shall furnish the required cabling for connection to the control system. Cables shall be laid in covered ducts or installed in PVC conduits. The gate opening at deck elevation shall be covered by heavy duty galvanized steel gratings. The gratings shall be designed for a load of 5.0 kN/m2

## Oiling / greasing and General Maintenance of Equipment

Contractor shall carry out the general repair. Oiling, greasing and maintenance of all spillway/overflow and sluiceVertical gates as necessary including electrical for safe and proper functioning of equipment. The roller wheels / guide wheels in the gates shall be lubricated through the grease nipple provided. Gear box in the hoist assembly shall be topped up with additional gear oil up to the maximum level as recommended by the manufacturer. The gear assembly and plumber blocks in the transmission shaft shall be cleaned to remove old spoiled grease and then new good quality grease shall be applied. The ropes in the hoist and cranes shall also be cleaned of dust and other foreign particles using water jet cleaning machine and then new lubricant oil shall be applied. The gates and associated steel structure / embedded parts shall be inspected for any erosion / corrosion and then it shall be cleaned properly and thoroughly. The drain holes in the stiffeners in the rear side of the gates shall be cleaned for easy draining of water. The rubber seals shall be inspected for any foreign particles and then cleaned thoroughly. All fasteners shall be checked for its effectiveness. Steel structural if found damaged or corroded, shall be suitably replaced or got corrected as approved by dam authority.The details indicated herein are the minimum guidelinesThorough Inspection with maintenance of all gates and hoists/crane as per relevant Indian standard including ropes and hoisting mechanism , bearings , shafts, sheaves, couplings, gearing arrangement, oil , seals , brakes, motors, pump , valves gate position indicator, limit switches, control panels, cables and wiring , covers, manual operating arrangements, trestles, hoist housing, foundation anchors, ladders, walk ways, (chequered plates, grating and removable hatch covers) hand railings, instrumentation and control system shall be carried out for their good condition with smooth, safe and trouble free operation.

## Measurement and Payment

Recording of measurements for rehabilitation works are similar to the measurement of different items like concrete, masonry, centering, shuttering, reinforcement and plastering / pointing etc. Similarly, payment will be made at the rates provided for different items of work in the BOQ.

The for the dismantling items required for execution of rehabilitation work will be measured under Item of BOQ. The payment for the items includes all cost for labor, materials, T & P, Machinery, equipments and consumables required for carrying out the following operations.

1. Cleaning of surface area.
2. Carrying out dismantling work as per instruction of Project Manager.
3. Removing dismantled debris away from work site and stacking useful materials for reuse.
4. Laboratory testing of sample of aggregates, cement , water. (excluding items specified in BOQ .
5. Procurement of fine aggregates, coarse aggregates, cement, admixtures, water and all other materials at site of work. (Procurement cost of Reinforcement bars & placement are excluded )
6. Batching, mixing, laying of concrete, vibrating and curing as per Specifications.
7. Erection of gangways, scaffolding, chutes and dismantling the same after completion of work.
8. Construction of approach road, haul road, site illumination, construction of coffer dam till completion of the work and subsequent removal at appropriate time, and all mobilization and demobilization cost to complete the above operations.
9. Recording of photographs. Quality control works.
10. Payment of all taxes, royalties, GST etc.
11. Cost of all safety precautions.
12. Any other incidental cost to complete the items of work as per specification and direction of Project Manager.

To ensure the quality standards of the work to be executed a Third Party will be engaged to do testing and submission of reports in light of the IS standards.

## QUALITY CONTROL MEASURES &FREQUENCY OF TESTING

## General

1. For all field test contractor shall established a fully equipped field laboratory at site at his own cost with all testing equipment,laboratory personnel as desired by Project Managerfor smooth working of quality control lab. The Contractor will maintain the record of testing.
2. Also the contractor will provide all necessary laboratory personnel labor, tools, equipment etc for observing the testing of material and other as and when demand at site at his own level.
3. Any test / periodically test which are being conducted time to time outside field laboratory will be got conducted by contractor at his own cost, as per direction of Project Managerfrom recognized laboratory.

(iv) The quality control manual and relevant IS Code shall be basis of conducting all such tests.

1. The sample of each specimen shall be preserved under the sealed cover duly signed by the site Engineer and Authorized representative of contractor. The sample shall be preserved and deposited in the office of the executive wing by the Contractor.

(vi) The contractor shall have to exercise quality control measures and frequency of testing as defined in the specification.

1. The Quality control of the department and relevant specification and IS Code shall be basis for testing of materials, Civil work and required testing after completion of the work in case of any discrepancy relevant IS Code shall be final.

The actual frequencies shall be determined by the Project Manager to suit the nature and variability of material placed and the rate of fill placement with the objective of ensuring best quality control and quality construction.

## Quality Control Measures”

A Central Quality Control Laboratory and field labs with requisite equipments as per requirement satisfactory to the Project Manager, to be established by the contractor at convenient location as per direction of Project Manager, along with the required number of mobile testing units with requisite testing equipment relevant to the tests required to be performed in the Package. vehicles and personnel regarding testing of material and other test concerning with specification of work, shall be arranged by the bidder. Tests which cannot be conducted at central laboratory will have to be got done at ID&R Raipur or at such other laboratory of repute as directed by Project Manager by the bidder at his own cost. No separate payment will be made to the bidder on this account by the Department.

O.K. cards shall have to be maintained by contractor for each major activity specified in bid document, bidder shall get it issued from Project Manager. The O.K. cards contain important entries/ information during execution of work at all stages and liable to be referred/ perused at a later stage also.

The O.K. card is condensed form of specifications and essential requirement for achieving specified workmanship and quality level of output. Each work is sub divided into various construction activities in proper sequence/order methodology for construction of work.

Besides the location and type of work, the first column of O.K. card is to be filled by the construction agency (Contractor) by preparing each feature and making it ready for inspection by project construction engineer who okay through his signatures and then puts up to Q.C. engineer for his final O.K. If. Q.C. Engineer is not available at site then O.K. given by construction engineer will be treated as final, if anything otherwise is not observed. If anything otherwise be found, the O.K. card shall not be signed by him and ask the construction engineer/Agency for necessary rectification before start the work.

Subsequently, O.K. card should refer to defects removed, if pointed out previously in O.K. card and counter reference to the previous check and should be singed of Okayed.

The O.K. cards shall be maintained in triplicate in three colors. After processing through various levels and entering observations and rectification. O.K. card will be closed at the time of taking measurement for releasing payment to the contractor. Confirmation regarding rectification of defects be obtained from Q.C. unit before making payment once in three bills and final bill of contractor.

Specimen of O.K. cards for various work such as embankment, concrete masonry etc. have been enclosed herewith. However O.K. cards other then above if found necessary during course of execution will be prescribe in consultation with Q.C. unit of W.R. Department. Shall have to be maintained by the contractor.

Note: All expenditure towards testing before commencement of work, doing work and after completion to test finished section shall have to be borne by bidder. The expenditure towards laboratory testing, transportation of samples, vehicles requires for supervision of work etc. shall have to be borne by bidder. The bidder should quote his rate accordingly. Separate payment for their activity shall not be payable.

## O.K. Card for Quality Control of Works

###### PLAIN & REINFORCED CEMENT CONCRETE

Name of Division:-

Name of work :

Agreement No.

Name of Agency :

Date :

Location :

| **Description of activities** | **Remarks & Dated Signature** | **Remarks & Dated Signature of Construction Staff** | | | **Remarks & Dated Signature of Q.C/.inspection Engineer** |
| --- | --- | --- | --- | --- | --- |
| **Supervisor** | **JEN** | **AEN** |
| **MATERIAL SUITABILITY** |  |  |  |  |  |
| 1.Cement |  |  |  |  |  |
| 2.Steel |  |  |  |  |  |
| 3.Aggregate 20 mm |  |  |  |  |  |
| 4.Sand |  |  |  |  |  |
| 5.Water |  |  |  |  |  |
| 6.Admixture |  |  |  |  |  |
| **OK FOR MATERIALS** |  |  |  |  |  |
| **Form work & Centering** |  |  |  |  |  |
| (i)Tightness, Stability, Smoothness |  |  |  |  |  |
| (ii) Cleaning, oiling, Perfectness of form work |  |  |  |  |  |
| (iii)R.L.of Centering/lift and its alignment |  |  |  |  |  |
| (iv)Checking of reinforcement |  |  |  |  |  |
| **OK FOR REINFORCEMENT** |  |  |  |  |  |
| **Tool & Plants** |  |  |  |  |  |
| (i) Mixers & Vibrator |  |  |  |  |  |
| (ii)Adequacy of concrete production/transportation, placement, consolidation |  |  |  |  |  |
| **OK FOR PLACEMENT** |  |  |  |  |  |
| 1.Design mix. measurement |  |  |  |  |  |
| 2.Mixing/Consistency |  |  |  |  |  |
| 3.Slump |  |  |  |  |  |
| 4.Compaction of concrete |  |  |  |  |  |
| 5.Joints |  |  |  |  |  |
| 6.Finishing |  |  |  |  |  |
| 7.Casting of cubes |  |  |  |  |  |
| 8.Curing |  |  |  |  |  |
| 9.Compressive strength 28 days |  |  |  |  |  |
| **FINAL O.K** |  |  |  |  |  |

Note: Before pouring of concrete the reinforcement should be checked by Q.C. Unit working stand by vibrator & mixer should be kept at site before start of concreting.

**O.K Card for Random Rubble Stone Masonry**

Name of Division:-

Name of work :

Agreement No.

Name of Agency :

Date :

Location :

| **Description of activities** | **Dated Signature of agency or authorized Signatory** | **Remarks & Dated Signature of Construction Staff** | | | **Remarks & Dated Signature of Q.C/.inspection Engineer** |
| --- | --- | --- | --- | --- | --- |
| **Supervisor** | **JEn** | **AEn** |
| Stone – quality /Size |  |  |  |  |  |
| SUITABILITY OF : |  |  |  |  |  |
| (a) Cement |  |  |  |  |  |
| (b) Sand |  |  |  |  |  |
| (c ) Water |  |  |  |  |  |
| 1. Mortar |  |  |  |  |  |
| (i) Mix measurement |  |  |  |  |  |
| (ii) Mixing consistency |  |  |  |  |  |
| Pointing Thickness of joints, staggering of joints, laying of stones, Hearting stones, Bond Stones spacing |  |  |  |  |  |
| Whether samples of mortar collected in cubes for testing |  |  |  |  |  |
| Green cutting with proper air, water gun / sand blasting. |  |  |  |  |  |
| Adequacy of curing for masonry work |  |  |  |  |  |
| Verticality of structure check by using plumb rod |  |  |  |  |  |
| Embedded material |  |  |  |  |  |
| FINAL OK FOR MASONRY WORK |  |  |  |  |  |

1. Note : The OK card shall be maintained by agency and to be submitted to construction staff. The agency required to obtained approval before start of the activity.**LOAD REGISTER**

Name of Division:-

Name of work :

Agreement No.

Name of Agency :

Date :

Location :

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **S. No** | **Cement** | **Sand** | **Agg**  **10mm** | **Agg 20mm** | **Water** | **AEA / Other** | **Sig.** | **Remarks** |
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**SIEVE ANALYSIS COARSE AGGREGATE**

Name of Division:-

Name of work :

Agreement No.

Name of Agency :

Date :

Location :

Source-------------------------- Sample No.-----------------

Note : Specimen of course aggregate form query & form site shall be preserved as per instruction of Project Manager/ Project Manager.

**F.M. TESTING FINE AGGREGATE**

Name of Division:-

Name of work :

Agreement No.

Name of Agency :

Date :

Location :

Source-------------------------- Sample No.--------------------

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **S.No.** | **Sieve Size** | **4.75** | **2.36** | **1.18** | **600** | **300** | **150** | **75** | **Pan** | **Total** |
| **1.** | **Weight Retained** |  |  |  |  |  |  |  |  |  |
| **2.** | **Cumulative Wt. Retained** |  |  |  |  |  |  |  |  |  |
| **3.** | **Cumulative % Retained** |  |  |  |  |  |  |  |  |  |
| **4.** | **Cumulative % weight Passing** |  |  |  |  |  |  |  |  |  |

**% O/S % SILT F.M ------------ =**

100

Note : Specimen of fine aggregate form query & form site shall be preserved as per instruction of Project Manager/ Project Manager.

**Observation Sheet for Dry Bulk Density By Core Cutter Method**

Name of Division:-

Name of work :

Agreement No.

Name of Agency :

Source-------------------------- MDD------------------ OMC-------------------------

Site Description---------------------------------------------------------------.--------------------

Sample No.----------------------------------------------------------------------------------------

Date of Receipt-----------------------------------------------------------------------------------

Date of Testing--------------------------------------------------------------------------------**---**

|  |
| --- |
| 1. DETERMINATION OF FIELD DENSITY 2. Wt. of Core cutter (gm) W1 3. Wt. of Cutter + Wt. of Soil (gm) W2 4. Wt. of wet soil ( gm) W2 - W1  = W3 5. Volume of Core Cutter (cm3)V1 6. Field Density v = W3 / V1  g/cm3 |
|  |
| 1. DETERMINATION OF WATER CONTENT 2. Container No. 3. Wt. of Container + Moist Soil (gm) W1 4. Wt. of Container + Dry Soil (gm) W2 5. Wt. of Container (gm) W3 6. Wt. of Water (W1- W2) = W4 7. Wt. of Dry Soil (W2- W3) = W5 8. Water Content W = W4 /  W5 ratio |
|  |

In place dry density Vd = V g/cm3

1+W

|  |
| --- |
|  |

Results :

Comments if any :

Test Performed by :

Checked By : Assistant Engineer

**CEMENT REGISTER**

Name of Division:-

Name of work :

Agreement No.

Name of Agency :

Date -----------------

Location  **: ---------------------------------------------------------------------**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| S.No. | Date | Opening Balance | Receipt | Bill No. R.R.No. Batch No. | Vehicle No. & Type | Issue | Closing Balance | Sig. of Agency | Signature of Project Manager | Signature of officer | Remarks |
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**CUBE CASTING & TESTING REGISTER**

Name of Division:-

Name of work :

Agreement No.

Name of Agency :

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **S.No.** | **Date of casting** | **Specimen no.** | **Location of Sample** | | **Mark on the Cube** | **Proportion** | **W/C Ratio** | **Slump** | **Compressive Strength** | | **Sig. of Site in-charge** | **Dated initial of QC unit** |
| **Block RD** | **RL** | **7 days** | **28 days** |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
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Note :

* 1. Three specimen shall be tested after 7 days and three after 28 days as per frequency specified in specification.
  2. One specimen from each sample shall be preserved duly signed by bidder for his authorized representative & Project Manageror his authorized representative duly marked with date.

**O.K. CARD FOR EMBANKMENT/BUND**

*Name of work:*

*Chainage:*

*Agency: Contract/ Package no.:*

*Location:*

*Sr. No:*

*(OK card remains in the custody of QC, Construction wing & attached with bill and therefore shall be maintained in Triplicate)*

|  |  |  |  |
| --- | --- | --- | --- |
| Date:  Location of work from km\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to km\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Elevation (R.L.):  Sequence of layer: | | | |
| **Sr.no.** | **DESCRIPTION** | **YES/NO** | **REMARKS**  ***(Values to be entered)*** |
| **A** | **Bank Foundation Preparation** |  |  |
| 1 | Whether the over burden, roots and foreign materials are removed from the bank seat |  |  |
| 2 | Whether the width of bank seat demarcated at site |  |  |
| 3 | Whether the bank seat has been moistened sufficiently and compaction done |  |  |
| 4 | Whether the levels are recorded |  |  |
| 5 | Whether density and FMC are taken for approval of seat |  |  |
| 6 | % Compaction |  |  |
| 7 | % FMC |  |  |
| **B** | **Borrow Area** |  |  |
| 8 | Name and Location |  |  |
| 9 | Whether the required over burden roots and foreign materials are removed |  |  |
| 10 | Whether the grid lines marked and level taken |  |  |
| 11 | Whether sample were collected from borrow area for testing and results are available |  |  |
| 12 | Type of material |  |  |
| 13 | Quantity of material available |  |  |
| 14 | Moisture Content checked at the Borrow Area |  |  |
| **C** | **Stockpile** |  |  |
| 15 | Name and Location |  |  |
| 16 | Whether sample taken for testing and results are available |  |  |
| 17 | Moisture Content checked at the stockpile |  |  |
| **D** | **Embankment** |  |  |
| 18 | Whether the foundation preparation for the embankment is approved |  |  |
| 19 | Whether the filter is required |  |  |
| 20 | Are filter criteria fulfilled |  |  |
| 21 | 1. Percent material finer than 75 micron |  |  |
| 22 | 1. Maximum particle size of filter |  |  |
| 23 | % Compaction of filter |  |  |
| 24 | % FMC |  |  |
| 25 | Thickness of loose layer in different zones for raising the embankment |  |  |
| 26 | Thickness of layer after compaction |  |  |
| 27 | Whether the required watering and compaction done |  |  |
| 28 | Insitu bulk density |  |  |
| 29 | Insitu Dry Density |  |  |
| 30 | Compaction Efficiency (%) |  |  |
| 31 | Specified Compaction (%) of Proctor |  |  |
| 32 | Re-Rolling/Re-compaction if required |  |  |
| 33 | Insitu Dry Density after Re-Rolling |  |  |

**INSPECTION REGISTER**

**( for Departmental Officer’s)**

Name of Division:-

Name of work :

Agreement No.

Name of Agency :

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S.No.** | **Remark of Inspecting Officer** | **Name and Designation of Inspecting Officer** | **Date** | **Compliance by execution Units** | **Name and designation of officer** |
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**INSTRUCTION/INSPECTION REGISTER**

**( for Contractor)**

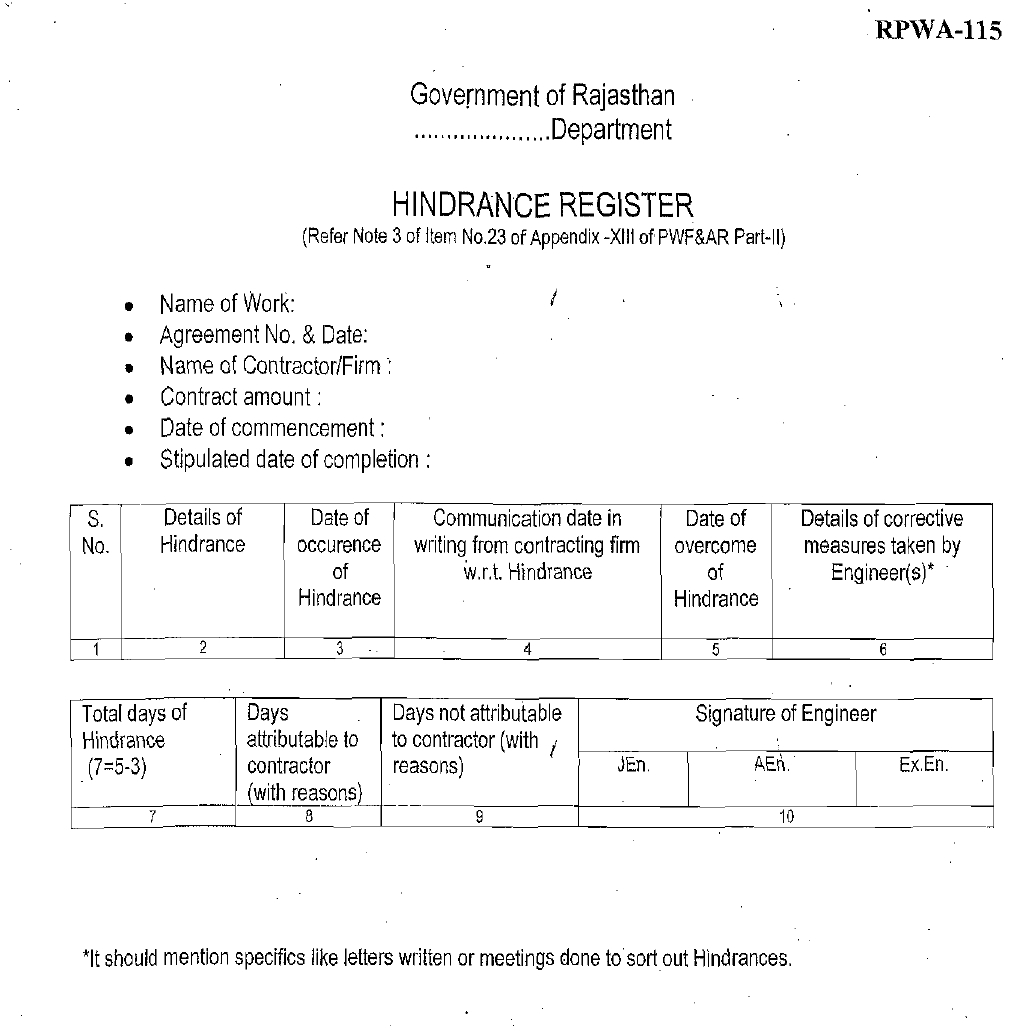
Name of Division:-

Name of work :

Agreement No.

Name of Agency :

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **S.No.** | **Remark of Department Officers** | **Name and Designation of Department Officer** | **Date** | **Dated initial of bidder of is authorize representative as a token of acceptance** | **Compliance made by bidder** | **Dated initial of bidder** | **Signature of accepting officers** |
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Environmental and Social Requirements

(As and where applicable under relevant sections)

*[The Employer’s team preparing the ES requirements should include a suitably qualified Environmental and Social specialist/s.*

*In preparing detailed specifications for ES requirements the Borrower should refer to and consider the applicable environmental and social standards in the ESF including the specific requirements set out in the Environmental and Social Commitment Plan (ESCP), ESIA/ESA/ESMP, EHSGs and other GIIP as well as SEA and SH prevention and management obligations.*

*The ES requirements should be prepared in manner that does not conflict with the relevant General Conditions of Contract (and the corresponding Particular Conditions of Contract if any), and other parts of the Specifications.*

*The following is a non-exhaustive list of Sub-Clauses of the Conditions of Contract that make reference to ES matters stated in the Specifications.]*

| **Sub-Clause/Clause No.** | **Sub-Clause/Clause** | **Remarks** |
| --- | --- | --- |
| *8.2* | *Other Contractors* | *Indicate specific aspects (if any) that require contractor’s cooperation such as to conduct environmental and social assessment.* |
| *9.4.1, 9.4.2, 9.4.7, 9.4.8* | *labor* | *State applicable requirements in accordance with the labor management procedure.* |
| *9.4.6* | *Facilities for Staff and Labor* | *-Indicate if access to or provision of services that accommodate physical, social and cultural needs of Contractor’s Personnel is required.* |
| *9.4.20* | *Training of Contractor’s Personnel* | *As set out in the ESCP, specify, details of any training to relevant Contractor’s Personnel to be provided by the Employer’s Personnel on environmental and social aspects*. (whom, what, when, where, how long etc.) |
| *15.2* | *Contractor to Construct the Works* | *If the Contract specifies that the Contractor shall design any part of the Permanent Works, state any applicable technical standards and requirements including to address:*   * *climate change considerations,* * *universal access,* * *risks of the public’s potential exposure to operational accidents or natural hazards, including extreme weather events, applicable certification or approval requriements*   *[Refer to ESS4 on requirements for design]* |
| *18.2* | *Health and Safety Obligations* | *Indicate any additional requirements for the health and safety manual* |
| *18.3* | *Protection of the Environment* | *Specify any values for emissions, surface discharges, effluent and any other pollutants from the Contractor’s activities that shall not be exceeded.* |
| *19.1* | *Archeological and Geological Findings* | *Specify other requirements if any in accordance with the ESF – ESS8* |
| *29.1* | *Security of the Site* | *State any additional requirements for the security arrangements (ESS4 of the ESF states the principles of proportionality, GIIP and applicable laws. Include any other requirement set out in the ESCP.* |

*In addition to provisions in the above table, the Employer shall specify the following as applicable.*

***Management and Safety of Hazardous Materials***

*As applicable, specify requirements for the management and safety of hazardous materials (see ESF - ESS4 para. 17 and 18* *and relevant guidance notes).*

***Resource Efficiency and Pollution Prevention and Management***

*As applicable specify Resource Efficiency and Pollution Prevention and Management measures (see ESF -ESS3 and relevant guidance notes).*

* ***Resource efficiency***

*The Employer shall specify, as applicable, measures for improving efficient consumption of energy, water and raw materials, as well as other resources.*

* ***Energy:*** *When the Works have been assessed to involve a potentially significant use of energy, specify any applicable measures to optimize energy usage.*
* ***Water:*** *When the Works have been assessed to involve a potentially significant use of water or will have potentially significant impacts on water quality, specify any applicable measures that avoid or minimize water usage so that the Works’ water use does not have significant adverse impacts on communities, other users and the environment.*
* ***Raw material:*** *When the Works have been assessed to involve a potentially significant use of raw materials, specify any applicable measures to support efficient use of raw materials.*
* ***Pollution prevention and management***
* ***Management of air pollution:*** *specify any measure to avoid or minimize Works related air pollution.* *See also GCC Sub-Clause 18.3 and the table above on Conditions of Contract that make reference to ES matters in the Specification.*
* ***Management of hazardous and nonhazardous wastes:*** *specify any applicable measures to minimize the generation of waste, and reuse, recycle and recover waste in a manner that is safe for human health and the environment including storage, transportation and disposal of hazardous wastes. See also GCC Sub-Clauses 18.2 and 18.3 and the table above on Conditions of Contract that make reference to ES matters in the Specification.*
* ***Management of chemicals and hazardous materials:*** *specify any applicable measures to**minimize and control the release and use of hazardous materials for Works activities including the production, transportation, handling, and storage of the materials. See also GCC Sub-Clauses 18.2 and 18.3 and the table above on Conditions of Contract that make reference to ES matters in the Specification.*
* ***Biodiversity Conservation and Sustainable Management of Living Natural Resources***

*The Employer shall specify, as applicable, Biodiversity Conservation and Sustainable Management of Living Natural Resources (see ESF - ESS6 and relevant guidance notes). This includes, as applicable:*

* *invasive alien species: managing the risk of invasive alien species during the execution of the Works;*
* *sustainable management of living natural resources; and*
* *certification and verification requirements for the supply of natural resource materials where there is a risk of significant conversion or significant degradation of natural or critical habitats**.*

*See also GCC Sub-Clause 18.3 and the table above on Conditions of Contract that make reference to ES matters in the Specification.*

* **Road Safety**
* *State any specific traffic and road safety requirement, as applicable.* *See also Sub-Clause 9.3 of the General Conditions of Contract. For details, refer to the Guidance Note on Road safety.*

**Payment for ES Requirements**

*The Employer’s ES and procurement specialists should consider how the Contractor will cost the delivery of the ES requirements. In the majority of cases, the payment for the delivery of ES requirements shall be a subsidiary obligation of the Contractor covered under the prices quoted for other Bill of Quantity items or activities. For example, normally the cost of implementing workplace safe systems of work, including the measures necessary for ensuring traffic and road safety, shall be covered by the Bidder’s rates for the relevant works. Alternatively, provisional sums could be set aside for discrete activities for example for HIV counselling service, and, GBV/SEA awareness and sensitization or to encourage the contractor to deliver additional ES outcomes beyond the requirement of the Contract.*

Drawings

*Insert here a list of Drawings.*

**List of Drawings:**

1. ,,.
2. ,,,
3. ,,,
4. …

Drawings

*The actual Drawings specifically pertaining to the proposed works including but not limited to layouts, cross-sections, longitudinal sections, site plans and other relevant drawings related with specific works, should be attached to this section or annexed in a separate folder.*

Supplementary Information

PART 3 – Conditions of Contract and Contract Forms

Section VIII - General Conditions of Contract

These General Conditions of Contract (GCC), read in conjunction with the Particular Conditions of Contract(PCC) and other documents listed therein, should be a complete document expressing fairly the rights and obligations of both parties.

These General Conditions of Contract have been developed on the basis of considerable international experience in the drafting and management of contracts, bearing in mind a trend in the construction industry towards simpler, more straightforward language.

*[The GCC can be used for both smaller admeasurement contracts and lump sum contracts.]*

**General Conditions of Contract**

A. General

|  |  |  |  |
| --- | --- | --- | --- |
| 1. Definitions | Boldface type is used to identify defined terms.   1. The **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. 2. The **Activity Schedule** is a schedule of the activities comprising the construction, installation, testing, and commissioning of the Works in a lump-sum contract. It includes a lump-sum price for each activity, which is used for valuations and for assessing the effects of Variations and Compensation Events. 3. The **Adjudicator** is the person appointed jointly by the Employer and the Contractor to resolve disputes in the first instance, as provided for in GCC 23. 4. **Bank** means the financing institution **named in the PCC**. 5. **Bill of Quantities** means the priced and completed Bill of Quantities forming part of the Bid. 6. **Compensation Events** are those defined in GCC Clause 46 hereunder. 7. The **Completion Date** is the date of completion of the Works as certified by the Project Manager, in accordance with GCC Sub-Clause 57.1. 8. The **Contract** is the Contract between the Employer and the Contractor to execute, complete, and maintain the Works. It consists of the documents listed in GCC Sub-Clause 2.3 below. 9. The **Contractor** is the party whose Bid to carry out the Works has been accepted by the Employer. 10. The **Contractor’s Bid** is the completed bidding document submitted by the Contractor to the Employer. 11. The **Contract Price** is the Accepted Contract Amount stated in the Letter of Acceptance and thereafter as adjusted in accordance with the Contract. 12. **Days** are calendar days; months are calendar months. 13. **Dayworks** are varied work inputs subject to payment on a time basis for the Contractor’s employees and Equipment, in addition to payments for associated Materials and Plant. 14. A **Defect** is any part of the Works not completed in accordance with the Contract. 15. The **Defects Liability Certificate** is the certificate issued by Project Manager upon correction of defects by the Contractor. 16. The **Defects Liability Period** is the period **named in the PCC** pursuant to GCC Sub-Clause 38.1 and calculated from the Completion Date. 17. **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, include calculations and other information provided or approved by the Project Manager for the execution of the Contract. 18. The **Employer** is the party who employs the Contractor to carry out the Works, **as specified in the PCC**. 19. **Equipment** is the Contractor’s machinery and vehicles brought temporarily to the Site to construct the Works. 20. “**In writing”** or “**written”** means hand-written, type-written, printed or electronically made, and resulting in a permanent record; 21. The **Initial Contract Price** is the Contract Price listed in the Employer’s Letter of Acceptance. 22. The **Intended Completion Date** is the date on which it is intended that the Contractor shall complete the Works. The **Intended Completion Date** is specified in the PCC. The **Intended Completion Date** may be revised only by the Project Manager by issuing an extension of time or an acceleration order. 23. **Materials** are all supplies, including consumables, used by the Contractor for incorporation in the Works. 24. **Plant** is any integral part of the Works that shall have a mechanical, electrical, chemical, or biological function. 25. The **Project Manager** is the person named in the PCC (or any other competent person appointed by the Employer and notified to the Contractor, to act in replacement of the Project Manager) who is responsible for supervising the execution of the Works and administering the Contract. 26. **PCC** means Particular Conditions of Contract. 27. The **Site** is the area defined as such in the PCC. 28. **Site Investigation Reports** are those that were included in the bidding document and are factual and interpretative reports about the surface and subsurface conditions at the Site. 29. **Specification** means the Specification of the Works included in the Contract and any modification or addition made or approved by the Project Manager. 30. The **Start Date** is **given in the PCC**. It is the latest date when the Contractor shall commence execution of the Works. It does not necessarily coincide with any of the Site Possession Dates. 31. A **Subcontractor** is a person or corporate body who has a Contract with the Contractor to carry out a part of the work in the Contract, which includes work on the Site. 32. **Temporary Works** are works designed, constructed, installed, and removed by the Contractor that are needed for construction or installation of the Works. 33. A **Variation** is an instruction given by the Project Manager which varies the Works. 34. The **Works** are what the Contract requires the Contractor to construct, install, and turn over to the Employer, as defined in the PCC. 35. “**Contractor’s Personnel**” refers to all personnel whom the Contractor utilizes on the Site or other places where the Works are carried out, including the staff, labor and other employees of each Subcontractor. 36. **“Key Personnel”** means the positions (if any) of the Contractor’s personnel that are stated in the Specification. 37. **“ES”** means Environmental and Social (including Sexual Exploitation and Abuse (SEA), and Sexual Harassment (SH)). 38. **“Sexual Exploitation and Abuse” “(SEA)”** means the following:   **Sexual Exploitation** is defined as any actual or attempted abuse of position of vulnerability, differential power or trust, for sexual purposes, including, but not limited to, profiting monetarily, socially or politically from the sexual exploitation of another;  **Sexual Abuse** is defined as the actual or threatened physical intrusion of a sexual nature, whether by force or under unequal or coercive conditions.   1. **“Sexual Harassment” “(SH)”** is defined as unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature by the Contractor’s Personnel with other Contractor’s or Employer’s Personnel; and 2. “**Employer’s Personnel”** refers to the Project Manager and all other staff, labor and other employees (if any) of the Project Manager and of the Employer engaged in fulfilling the Employer’s obligations under the Contract; and any other personnel identified as Employer’s Personnel, by a notice from the Employer or the Project Manager to the Contractor. | | |
| 1. Interpretation | | * 1. In interpreting these GCC, words indicating one gender include all genders. Words indicating the singular also include the plural and words indicating the plural also include the singular. Headings have no significance. Words have their normal meaning under the language of the Contract unless specifically defined. The Project Manager shall provide instructions clarifying queries about these GCC.   2. If sectional completion is **specified in the PCC**, references in the GCC to the Works, the Completion Date, and the Intended Completion Date apply to any Section of the Works (other than references to the Completion Date and Intended Completion Date for the whole of the Works).   3. The documents forming the Contract shall be interpreted in the following order of priority:  1. Agreement, 2. Letter of Acceptance, 3. Contractor’s Bid, 4. Particular Conditions of Contract, 5. General Conditions of Contract, including Appendices, 6. Specifications, 7. Drawings, 8. Bill of Quantities,[[39]](#footnote-40) and 9. any other document **listed in the PCC** as forming part of the Contract. | |
| 1. Language and Law | | * 1. The language of the Contract and the law governing the Contract are **stated in the PCC**.   2. Throughout the execution of the Contract, the Contractor shall comply with the import of goods and services prohibitions in the Employer’s country when   (a) as a matter of law or official regulations, the Borrower’s country prohibits commercial relations with that country; 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 from that country or any payments to any country, person, or entity in that country. | |
| 1. Project Manager’s Decisions | | * 1. Except where otherwise specifically stated, the Project Manager shall decide contractual matters between the Employer and the Contractor in the role representing the Employer. | |
| 1. Delegation | | * 1. Unless otherwise **specified in the PCC,** the Project Manager may delegate any of his duties and responsibilities to other people, except to the Adjudicator, after notifying the Contractor, and may revoke any delegation after notifying the Contractor. | |
| 1. Communica­tions | | * 1. Communications between parties that are referred to in the Conditions shall be effective only when in writing. A notice shall be effective only when it is delivered. | |
| 1. Subcontracting | | * 1. The Contractor may subcontract with the approval of the Project Manager, but may not assign the Contract without the approval of the Employer in writing. Subcontracting shall not alter the Contractor’s obligations. The Contractor shall require that its Subcontractors execute the Works in accordance with the Contract, including complying with the relevant ES requirements and the obligations set out in Sub-Clause 28.1. | |
| 1. Other Contractors | | * 1. The Contractor shall cooperate and share the Site with other contractors, public authorities, utilities, and the Employer between the dates given in the Schedule of Other Contractors, as **referred to in the PCC.** The Contractor shall also provide facilities and services for them as described in the Schedule. The Employer may modify the Schedule of Other Contractors, and shall notify the Contractor of any such modification.   2. The Contractor shall also, as stated in the Specifications or as instructed by the Project Manager, cooperate with and allow appropriate opportunities for the Employer’s or any other personnel, notified to the Contractor by the Employer or Project Manager, to conduct any environmental and social assessment. | |
| 1. Personnel and Equipment | | * 1. The Contractor shall employ the Key Personnel and use the Equipment identified in its Bid, to carry out the Works or other personnel and Equipment approved by the Project Manager. The Project Manager shall approve any proposed replacement of Key Personnel and Equipment only if their relevant qualifications or characteristics are substantially equal to or better than those proposed in the Bid.   2. The Project Manager may require the Contractor to remove (or cause to be removed) any person employed on the Site or Works, including the Key Personnel (if any), who:  1. persists in any misconduct or lack of care; 2. carries out duties incompetently or negligently; 3. fails to comply with any provision of the Contract; 4. persists in any conduct which is prejudicial to safety, health, or the protection of the environment; 5. based on reasonable evidence, is determined to have engaged in Fraud and Corruption during the execution of the Works; 6. has been recruited from the Employer’s Personnel; 7. undertakes behavior which breaches the Code of Conduct for Contractor’s Personnel (ES).   If appropriate, the Contractor shall then promptly appoint (or cause to be appointed) a suitable replacement with equivalent skills and experience.  Notwithstanding any requirement from the Project Manager to remove or cause to remove any person, the Contractor shall take immediate action as appropriate in response to any violation of (a) through (g) above. Such immediate action shall include removing (or causing to be removed) from the Site or other places where the Works are being carried out, any Contractor’s Personnel who engages in (a), (b), (c), (d), (e) or (g) above or has been recruited as stated in (f) above.”   * 1. The Contractor shall take all necessary safety measures to avoid the occurrence of incidents and injuries to any third party associated with the use of, if any, Equipment on public roads or other public infrastructure. The Contractor shall monitor road safety incidents and accidents to identify negative safety issues, and establish and implement necessary measures to resolve them.   2. Labor      1. *Engagement of Staff and Labor.* The Contractor shall provide and employ on the Site for the execution of the Works such skilled, semi-skilled and unskilled labor as is necessary for the proper and timely execution of the Contract. The Contractor is encouraged, to the extent practicable and reasonable, to employ staff and labor with appropriate qualifications and experience from sources within the Country.   Unless otherwise provided in the Contract, the Contractor shall be responsible for the recruitment, transportation, accommodation and welfare facilities in accordance with GCC Sub-Clause 9.4.6, of the Contractor’s Personnel, and for all payments in connection therewith.  The Contractor shall provide the Contractor’s Personnel information and documentation that are clear and understandable regarding their terms and conditions of employment. The information and documentation shall set out their rights under relevant labor laws applicable to the Contractor’s Personnel (which will include any applicable collective agreements), including their rights related to hours of work, wages, overtime, compensation and benefits, as well as those arising from any requirements in the Specifications. The Contractor’s Personnel shall be informed when any material changes to their terms or conditions of employment occur.   * + 1. *Conditions of Labor.* The Contractor shall inform the Contractor’s Personnel about:     2. any deduction to their payment and the conditions of such deductions in accordance with the applicable laws or as stated in the Specifications; and     3. their liability to pay personal income taxes in the Country in respect of such of their salaries, wages, allowances and any benefits as are subject to tax under the laws of the Country for the time being in force.   The Contractor shall perform such duties in regard to such deductions thereof as may be imposed on him by such laws.  Where required by applicable laws or as stated in the Specifications, the Contractor shall provide the Contractor’s Personnel written notice of termination of employment and details of severance payments in a timely manner. The Contractor shall have paid the Contractor’s Personnel (either directly or where appropriate for their benefit) all due wages and entitlements including, as applicable, social security benefits and pension contributions, on or before the end of their engagement/ employment.   * + 1. The Contractor may bring into the Country any foreign personnel who are necessary for the execution of the Works to the extent allowed by the applicable Laws. The Contractor shall ensure that these personnel are provided with the required residence visas and work permits. The Employer will, if requested by the Contractor, use its best endeavors 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.     2. The Contractor shall at its own expense provide the means of repatriation to and the Contractor’s Personnel employed on the Contract at the Site to their various home countries. It shall also provide suitable temporary maintenance of all such persons from the cessation of their employment on the Contract to the date programmed for their departure. In the event that the Contractor defaults in providing such means of transportation and temporary maintenance, the Employer may provide the same to such personnel and recover the cost of doing so from the Contractor.     3. *Disorderly conduct.* The Contractor shall at all times during the progress of the Contract use its best endeavors to prevent any unlawful, riotous or disorderly conduct or behavior by or amongst the Contractor’s Personnel.     4. *Facilities for Staff and Labor.* Except as otherwise stated in the Specification, the Contractor shall provide and maintain all necessary accommodation and welfare facilities for the Contractor’s Personnel. If stated in the Specification, the Contractor shall give access to or provide services that accommodate the physical, social and cultural needs of the Contractor’s Personnel. The Contractor shall also provide similar facilities for the Employer’s Personnel if stated in the Specifications.     5. The Contractor shall, in all dealings with the Contractor’s Personnel, pay due regard to all recognized festivals, official holidays, religious or other customs and all local laws and regulations pertaining to the employment of labor. The Contractor shall provide the Contractor’s Personnel annual holiday and sick, maternity and family leave, as required by applicable laws or as stated in the Specifications.     6. *Supply of Foodstuff*s. 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.     7. *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.     8. *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.     9. *Alcoholic Liquor or Drugs*. The Contractor shall not, otherwise than in accordance with the laws of the Country, import, sell, give, barter or otherwise dispose of any alcoholic liquor or drugs, or permit or allow importation, sale, gift, barter or disposal thereto by Contractor’s Personnel.     10. *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.     11. *Funeral Arrangements.* The Contractor shall be responsible, to the extent required by local regulations, for making any funeral arrangements for any of its local employees who may die while engaged upon the Works.     12. *Forced Labor.* The Contractor, including its Subcontractors, shall not employ or engage forced labor. Forced labor 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 labor, such as indentured labor, bonded labor or similar labor-contracting arrangements.   No persons shall be employed or engaged who have been subject to trafficking. Trafficking in persons is defined as the recruitment, transportation, transfer, harboring or receipt of persons by means of the threat or use of force or other forms of coercion, abduction, fraud, deception, abuse of power, or of a position of vulnerability, or of the giving or receiving of payments or benefits to achieve the consent of a person having control over another person, for the purposes of exploitation.   * + 1. *Child Labor*. The Contractor, including its Subcontractors, shall not employ or engage a child under the age of 14 unless the national law specifies a higher age (the minimum age).   The Contractor, including its Subcontractors, shall not employ or engage a child between the minimum age and the age of 18 in a manner that is likely to be hazardous, or to interfere with, the child’s education, or to be harmful to the child’s health or physical, mental, spiritual, moral, or social development.  The Contractor including its Subcontractors, shall only employ or engage children between the minimum age and the age of 18 after an appropriate risk assessment has been conducted by the Contractor with the Project Manager’s approval. The Contractor shall be subject to regular monitoring by the Project Manager that includes monitoring of health, working conditions and hours of work.  Work considered hazardous for children is work that, by its nature or the circumstances in which it is carried out, is likely to jeopardize the health, safety, or morals of children. Such work activities prohibited for children include work:   1. with exposure to physical, psychological or sexual abuse; 2. underground, underwater, working at heights or in confined spaces; 3. with dangerous machinery, equipment or tools, or involving handling or 4. transport of heavy loads; 5. in unhealthy environments exposing children to hazardous substances, agents, or processes, or to temperatures, noise or vibration damaging to health; or 6. under difficult conditions such as work for long hours, during the night or in confinement on the premises of the employer.    * 1. *Employment Records of Workers.* The Contractor shall keep complete and accurate records of the employment of labor 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 project Manager.      2. *Workers’ Organizations*. In countries where the relevant labor laws recognize workers’ rights to form and to join workers’ organizations of their choosing and to bargain collectively without interference, the Contractor shall comply with such laws. In such circumstances, the role of legally established workers’ organizations and legitimate workers’ representatives will be respected, and they will be provided with information needed for meaningful negotiation in a timely manner. Where the relevant labor laws substantially restrict workers’ organizations, the Contractor shall enable alternative means for the Contractor’s Personnel to express their grievances and protect their rights regarding working conditions and terms of employment. The Contractor shall not seek to influence or control these alternative means. The Contractor shall not discriminate or retaliate against the Contractor’s Personnel who participate, or seek to participate, in such organizations and collective bargaining or alternative mechanisms. Workers’ organizations are expected to fairly represent the workers in the workforce.      3. *Non-Discrimination and Equal Opportunity.* The Contractor shall not make decisions relating to the employment or treatment of Contractor’s Personnel on the basis of personal characteristics unrelated to inherent job requirements. The Contractor shall base the employment of Contractor’s Personnel on the principle of equal opportunity and fair treatment, and shall not discriminate with respect to any aspects of the employment relationship, including recruitment and hiring, compensation (including wages and benefits), working conditions and terms of employment, access to training, job assignment, promotion, termination of employment or retirement, and disciplinary practices.   Special measures of protection or assistance to remedy past discrimination or selection for a particular job based on the inherent requirements of the job shall not be deemed discrimination. The Contractor shall provide protection and assistance as necessary to ensure non-discrimination and equal opportunity, including for specific groups such as women, people with disabilities, migrant workers and children (of working age in accordance with GCC Sub-Clause 9.4.15).   * + 1. *Contractor’s Personnel Grievance Mechanism.* The Contractor shall have a grievance mechanism for Contractor’s Personnel, and where relevant the workers’ organizations stated in GCC Sub-Clause 9.4.17, to raise workplace concerns. The grievance mechanism shall be proportionate to the nature, scale, risks and impacts of the Contract. The mechanism shall address concerns promptly, using an understandable and transparent process that provides timely feedback to those concerned in a language they understand, without any retribution, and shall operate in an independent and objective manner.   The Contractor’s Personnel shall be informed of the grievance mechanism at the time of engagement for the Contract, and the measures put in place to protect them against any reprisal for its use. Measures will be put in place to make the grievance mechanism easily accessible to all Contractor’s Personnel.  The grievance mechanism shall not impede access to other judicial or administrative remedies that might be available, or substitute for grievance mechanisms provided through collective agreements.  The grievance mechanism may utilize existing grievance mechanisms, providing that they are properly designed and implemented, address concerns promptly, and are readily accessible to Contractor’s Personnel. Existing grievance mechanisms may be supplemented as needed with Contract-specific arrangements.   * + 1. *Training of Contractor’s Personnel.* The Contractor shall provide appropriate training to relevant Contractor’s Personnel on ES aspects of the Contract, including appropriate sensitization on prohibition of SEA and SH, and health and safety training referred to in GCC Sub-Clause 18.2.   As stated in the Specifications or as instructed by the Project Manager, the Contractor shall also allow appropriate opportunities for the relevant Contractor’s Personnel to be trained on ES aspects of the Contract by the Employer’s Personnel.  The Contractor shall provide training on SEA and SH, including its prevention, to any of its personnel who has a role to supervise other Contractor’s Personnel. | |
| 1. Employer’s and Contractor’s Risks | | * 1. The Employer carries the risks which this Contract states are Employer’s risks, and the Contractor carries the risks which this Contract states are Contractor’s risks. | |
| 1. Employer’s Risks | | * 1. From the Start Date until the Defects Liability Certificate has been issued, the following are Employer’s risks:  1. The risk of personal injury, death, or loss of or damage to property (excluding the Works, Plant, Materials, and Equipment), which are due to    1. use or occupation of the Site by the Works or for the purpose of the Works, which is the unavoidable result of the Works or    2. negligence, breach of statutory duty, or interference with any legal right by the Employer or by any person employed by or contracted to him except the Contractor. 2. The risk of damage to the Works, Plant, Materials, and Equipment to the extent that it is due to a fault of the Employer or in the Employer’s design, or due to war or radioactive contamination directly affecting the country where the Works are to be executed.    1. From the Completion Date until the Defects Liability Certificate has been issued, the risk of loss of or damage to the Works, Plant, and Materials is an Employer’s risk except loss or damage due to 3. a Defect which existed on the Completion Date, 4. an event occurring before the Completion Date, which was not itself an Employer’s risk, or 5. the activities of the Contractor on the Site after the Completion Date. | |
| 1. Contractor’s Risks | | * 1. From the Starting Date until the Defects Liability Certificate has been issued, the risks of personal injury, death, and loss of or damage to property (including, without limitation, the Works, Plant, Materials, and Equipment) which are not Employer’s risks are Contractor’s risks. | |
| 1. Insurance | | * 1. The Contractor shall provide, in the joint names of the Employer and the Contractor, insurance cover from the Start Date to the end of the Defects Liability Period, in the amounts and deductibles **stated in the PCC** for the following events which are due to the Contractor’s risks:  1. loss of or damage to the Works, Plant, and Materials; 2. loss of or damage to Equipment; 3. loss of or damage to property (except the Works, Plant, Materials, and Equipment) in connection with the Contract; and 4. personal injury or death.    1. Policies and certificates for insurance shall be delivered by the Contractor to the Project Manager for the Project Manager’s approval before the Start Date. All such insurance shall provide for compensation to be payable in the types and proportions of currencies required to rectify the loss or damage incurred.    2. If the Contractor does not provide any of the policies and certificates required, the Employer may effect the insurance which the Contractor should have provided and recover the premiums the Employer has paid from payments otherwise due to the Contractor or, if no payment is due, the payment of the premiums shall be a debt due.    3. Alterations to the terms of an insurance shall not be made without the approval of the Project Manager.    4. Both parties shall comply with any conditions of the insurance policies. | |
| 1. Site Data | | * 1. The Contractor shall be deemed to have examined any Site Data **referred to in the PCC**, supplemented by any information available to the Contractor. | |
| 1. Contractor to Construct the Works | | * 1. The Contractor shall construct and install the Works in accordance with the Specifications and Drawings.   2. If the Contract specifies that the Contractor shall design any part of the permanent Works, the Contractor shall take into account the Employer’s requirements which may include, if stated in the Specifications:  1. designing structural elements of the Works taking into account climate change considerations; 2. applying the concept of universal access (the concept of universal access means unimpeded access for people of all ages and abilities in different situations and under various circumstances; and 3. considering the incremental risks of the public’s potential exposure to operational accidents or natural hazards, including extreme weather events. | |
| 1. The Works to Be Completed by the Intended Completion Date | | * 1. The Contractor may commence execution of the Works on the Start Date and shall carry out the Works in accordance with the Program submitted by the Contractor, as updated with the approval of the Project Manager, and complete them by the Intended Completion Date.   2. The Contractor shall not carry out mobilization to the Site unless the Project Manager gives approval, an approval that shall not be unreasonably delayed, to the measures the Contractor proposes to address environmental and social risks and impacts, which at a minimum shall include applying the Management Strategies and Implementation Plans (MSIPs) and Code of Conduct for Contractor’s Personnel submitted as part of the Bid and agreed as part of the Contract.   The Contractor shall submit, to the Project Manager for its approval any additional MSIPs as are necessary to manage the ES risks and impacts of ongoing Works. These MSIPs collectively comprise the Contractor’s Environmental and Social Management Plan (C-ESMP). The Contractor shall review the C-ESMP, periodically (but not less than every six (6) months), and update it as required to ensure that it contains measures appropriate to the Works. The updated C-ESMP shall be submitted to the Project Manager for its approval. | |
| 1. Approval by the Project Manager | | * 1. The Contractor shall submit Specifications and Drawings showing the proposed Temporary Works to the Project Manager, for his approval.   2. The Contractor shall be responsible for design of Temporary Works.   3. The Project Manager’s approval shall not alter the Contractor’s responsibility for design of the Temporary Works.   4. The Contractor shall obtain approval of third parties to the design of the Temporary Works, where required.   5. All Drawings prepared by the Contractor for the execution of the temporary or permanent Works, are subject to prior approval by the Project Manager before this use. | |
| 1. Health, Safety and Protection of the Environment | | * 1. The Contractor shall be responsible for the safety of all activities on the Site.   2. The Contractor shall:  1. comply with all applicable health and safety regulations and Laws; 2. comply with all applicable health and safety obligations specified in the Contract; 3. take care for the health and safety of all persons entitled to be on the Site and other places, if any, where the Works are being executed; 4. keep the Site and Works clear of unnecessary obstruction so as to avoid danger to these persons; 5. provide fencing, lighting, safe access, guarding and watching of the Works until the issue of the Contract Completion Certificate; 6. 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; 7. provide health and safety training of Contractor’s Personnel as appropriate and maintain training records; 8. actively engage the Contractor’s Personnel in promoting understanding, and methods for, implementation of health and safety requirements, as well as in providing information to Contractor’s Personnel, training on occupational safety and health, and provision of personal protective equipment without expense to the Contractor’s Personnel; 9. put in place workplace processes for Contractor’s Personnel to report work situations that they believe are not safe or healthy, and to remove themselves from a work situation which they have reasonable justification to believe presents an imminent and serious danger to their life or health. 10. Contractor’s Personnel who remove themselves from such work situations shall not be required to return to work until necessary remedial action to correct the situation has been taken. Contractor’s Personnel shall not be retaliated against or otherwise subject to reprisal or negative action for such reporting or removal; 11. where the Employer’s Personnel, any other contractors employed by the Employer, and/or personnel of any legally constituted public authorities and private utility companies are employed in carrying out, on or near the site, of any work not included in the Contract, collaborate in applying the health and safety requirements, without prejudice to the responsibility of the relevant entities forthe health and safety of their own personnel; and 12. establish and implement a system for regular (not less than six-monthly) review of health and safety performance and the working environment.   Subject to GCC Sub-Clause 16.2, the Contractor shall submit to the Project Manager for its approval a health and safety manual which has been specifically prepared for the Works, the Site and other places (if any) where the Contractor intends to execute the Works.  The health and safety manual shall be in addition to any other similar document required under applicable health and safety regulations and laws.  The health and safety manual shall set out all the health and safety requirements under the Contract,   1. which shall include at a minimum: 2. the procedures to establish and maintain a safe working environment without risk to health at all workplaces, machinery, equipment and processes under the control of the Contractor, including control measures for chemical, physical and biological substances and agents; 3. details of the training to be provided, records to be kept; 4. the procedures for prevention, preparedness and response activities to be implemented in the case of an emergency event (i.e. an unanticipated incident, arising from both natural and man-made hazards, typically in the form of fire, explosions, leaks or spills, which may occur for a variety of different reasons including failure to implement operating procedures that are designed to prevent their occurrence, extreme weather or lack of early warning); 5. remedies for adverse impacts such as occupational injuries, deaths, disability and disease; 6. the measures to be taken to avoid or minimize the potential for community exposure to water-borne, water-based, water-related, and vector-borne diseases, 7. the measures to be implemented to avoid or minimize the spread of communicable diseases (including transfer of Sexually Transmitted Diseases or Infections (STDs), such as HIV virus) and non-communicable diseases associated with the execution of the Works, taking into consideration differentiated exposure to and higher sensitivity of vulnerable groups. This includes taking measures to avoid or minimize the transmission of communicable diseases that may be associated with the influx of temporary or permanent Contract-related labor; 8. the policies and procedures on the management and quality of accommodation and welfare facilities if such accommodation and welfare facilities are provided by the Contractor in accordance with GCC Sub-Clause 9.4.6; and 9. any other requirements stated in the Specification    1. Protection of the environment   The Contractor shall take all necessary measures to:   * + 1. protect the environment (both on and off the Site); and     2. limit damage and nuisance to people and property resulting from pollution, noise and other results of the Contractor’s operations and/ or activities.   The Contractor shall ensure that emissions, surface discharges, effluent and any other pollutants from the Contractor’s activities shall exceed neither the values indicated in the Specifications, nor those prescribed by applicable laws.  In the event of damage to the environment, property and/or nuisance to people, on or off Site as a result of the Contractor’s operations, the Contractor shall agree with the Project Manager the appropriate actions and time scale to remedy, as practicable, the damaged environment to its former condition. The Contractor shall implement such remedies at its cost to the satisfaction of the Project Manager. | |
| 1. Archaeological and Geological Findings | | * 1. All fossils, coins, articles of value or antiquity, structures, groups of structures, and other remains or items of geological, archaeological, paleontological, historical, architectural or religious interest found on the Site shall be placed under the care and custody of the Employer. The Contractor shall:  1. take all reasonable precautions, including fencing-off the area or site of the finding, to avoid further disturbance and prevent Contractor’s Personnel or other persons from removing or damaging any of these findings; 2. train relevant Contractor’s Personnel on appropriate actions to be taken in the event of such findings; and 3. implement any other action consistent with the requirements of the Specifications and relevant laws.   The Contractor shall, as soon as practicable after discovery of any such finding, notify the Project Manager of such discoveries and carry out the Project Manager’s instructions for dealing with them. | |
| 1. Possession of the Site | | * 1. The Employer shall give possession of all parts of the Site to the Contractor. If possession of a part is not given by the date **stated in the PCC,** the Employer shall be deemed to have delayed the start of the relevant activities, and this shall be a Compensation Event. | |
| 1. Access to the Site | | * 1. The Contractor shall allow the Project Manager and any person authorized by the Project Manager (including the Bank staff or consultants acting on the Bank’s behalf, stakeholders and third parties, such as independent experts, local communities, or non-governmental organizations), including to carry out environmental and social audit, as appropriate,access to the Site and to any place where work in connection with the Contract is being carried out or is intended to be carried out. | |
| 1. Instructions, Inspections and Audits | | * 1. The Contractor shall carry out all instructions of the Project Manager which comply with the applicable laws where the Site is located. | |
|  | | * 1. The Contractor shall keep, and shall make all reasonable efforts to cause its Subcontractors and subconsultants to keep, accurate and systematic accounts and records in respect of the Works in such form and details as will clearly identify relevant time changes and costs. | |
|  | | * 1. Inspections &Audit by the Bank   Pursuant to paragraph 2.2 e. of Appendix A to the GCC- Fraud and Corruption, the Contractor shall permit and shall cause its agents (where declared or not), subcontractors, subconsultants, service providers, suppliers, and personnel, to permit, the Bank and/or persons appointed by the Bank to inspect the site and/or the accounts, records and other documents relating to the procurement process, selection and/or contract execution, and to have such accounts, records and other documents audited by auditors appointed by the Bank. The Contractor’s and its Subcontractors’ and subconsultants’ attention is drawn to GCC Sub-Clause 25.1 (Fraud and Corruption) which provides, inter alia, that acts intended to materially impede the exercise of the Bank’s inspection and audit rights constitute a prohibited practice subject to contract termination (as well as to a determination of ineligibility pursuant to the Bank’s prevailing sanctions procedures). | |
| 1. Appointment of the Adjudicator | | * 1. The Adjudicator shall be appointed jointly by the Employer and the Contractor, at the time of the Employer’s issuance of the Letter of Acceptance. If, in the Letter of Acceptance, the Employer does not agree on the appointment of the Adjudicator, the Employer will request the Appointing Authority **designated in the PCC**, to appoint the Adjudicator within 14 days of receipt of such request.   2. Should the Adjudicator resign or die, or should the Employer and the Contractor agree that the Adjudicator is not functioning in accordance with the provisions of the Contract, a new Adjudicator shall be jointly appointed by the Employer and the Contractor. In case of disagreement between the Employer and the Contractor, within 30 days, the Adjudicator shall be designated by the Appointing Authority **designated in the PCC** at the request of either party, within 14 days of receipt of such request. | |
| 1. Procedure for Disputes | | * 1. If the Contractor believes that a decision taken by the Project Manager was either outside the authority given to the Project Manager by the Contract or that the decision was wrongly taken, the decision shall be referred to the Adjudicator within 14 days of the notification of the Project Manager’s decision.   2. The Adjudicator shall give a decision in writing within 28 days of receipt of a notification of a dispute.   3. The Adjudicator shall be paid by the hour at the **rate specified in thePCC,** together with reimbursable expenses of the types **specified in the PCC**, and the cost shall be divided equally between the Employer and the Contractor, whatever decision is reached by the Adjudicator. Either party may refer a decision of the Adjudicator to an Arbitrator within 28 days of the Adjudicator’s written decision. If neither party refers the dispute to arbitration within the above 28 days, the Adjudicator’s decision shall be final and binding.   4. The arbitration shall be conducted in accordance with the arbitration procedures published by the institution named and in the place**specifiedin the PCC.** | |
| 1. Fraud and Corruption | | * 1. The Bank requires compliance with the Bank’s Anti-Corruption Guidelines and its prevailing sanctions policies and procedures as set forth in the WBG’s Sanctions Framework, as set forth in Appendix A to the GCC.   2. The Employer requires the Contractor to disclose any commissions or fees that may have been paid or are to be paid to agents or any other party with respect to the bidding process or execution of the Contract. The information disclosed must include at least the name and address of the agent or other party, the amount and currency, and the purpose of the commission, gratuity or fee. | |
| 1. Stakeholder Engagement | | * 1. The Contractor shall provide relevant contract- related information, as the Employer and/or Project Manager may reasonably request to conduct Stakeholder engagements. “Stakeholder” refers to individuals or groups who:      + 1. are affected or likely to be affected by the Contract; and        2. may have an interest in the Contract.   The Contractor may also directly participate in Stakeholder engagements, as the Employer and/or Project Manager may reasonably request | |
| 1. Suppliers (other than Subcontractors) | | * 1. Forced Labor: The Contractor shall take measures to require its suppliers (other than Subcontractors) not to employ or engage forced labor including trafficked persons as described in GCC Sub-Clause 9.4.14. If forced labor/trafficking cases are identified, the Contractor shall take measures to require the suppliers to take appropriate steps to remedy them. Where the supplier does not remedy the situation, the Contractor shall within a reasonable period substitute the supplier with a supplier that is able to manage such risks.   2. *Child Labor:* The Contractor shall take measures to require its suppliers (other than Subcontractors) not to employ or engage child labor as described in GCC Sub-Clause 9.4.15. If child labor cases are identified, the Contractor shall take measures to require the suppliers to take appropriate steps to remedy them. Where the supplier does not remedy the situation, the Contractor shall within a reasonable period substitute the supplier with a supplier that is able to manage such risks.   3. *Serious Safety Issues:* The Contractor, including its Subcontractors, shall comply with all applicable safety obligations, including as stated in GCC Sub-Clause 18.2. The Contractor shall also take measures to require its suppliers (other than Subcontractors) to adopt procedures and mitigation measures adequate to address safety issues related to their personnel. If serious safety issues are identified, the Contractor shall take measures to require the suppliers to take appropriate steps to remedy them. Where the supplier does not remedy the situation, the Contractor shall within a reasonable period substitute the supplier with a supplier that is able to manage such risks.   4. *Obtaining natural resource materials in relation to supplier:* The Contractor shall obtain natural resource *materials* from suppliers that can demonstrate, through compliance with the applicable verification and/ or certification requirements, that obtaining such materials is not contributing to the risk of significant conversion or significant degradation of natural or critical habitats such as unsustainably harvested wood products, gravel or sand extraction from river beds or beaches.   If a supplier cannot continue to demonstrate that obtaining such materials is not contributing to the risk of significant conversion or significant degradation of natural or critical habitats, the Contractor shall within a reasonable period substitute the supplier with a supplier that is able to demonstrate that they are not significantly adversely impacting the habitats. | |
| 1. Code of Conduct | | * 1. The Contractor shall have a Code of Conduct for the Contractor’s Personnel.   The Contractor shall take all necessary measures to ensure that each Contractor’s Personnel is made aware of the Code of Conduct including specific behaviors that are prohibited, and understands the consequences of engaging in such prohibited behaviors.  These measures include providing instructions and documentation that can be understood by the Contractor’s Personnel and seeking to obtain that person’s signature acknowledging receipt of such instructions and/or documentation, as appropriate.  The Contractor shall also ensure that the Code of Conduct is visibly displayed in multiple locations on the Site and any other place where the Works will be carried out, as well as in areas outside the Site accessible to the local community and project affected people. The posted Code of Conduct shall be provided in languages comprehensible to Contractor’s Personnel, Employer’s Personnel and the local community.  The Contractor’s Management Strategy and Implementation Plans shall include appropriate processes for the Contractor to verify compliance with these obligations. | |
| 1. Security of the Site | | * 1. The Contractor shall be responsible for the security of the Site, and:  1. for keeping unauthorized persons off the Site; 2. authorized persons shall be limited to the Contractor’s Personnel, the Employer’s Personnel, and to any other personnel identified as authorized personnel (including the Employer’s other contractors on the Site), by a notice from the Employer or the Project Manager to the Contractor.   Subject to GCC Sub-Clause 16.2, the Contractor shall submit for the Project Manager’s No-objection a security management plan that sets out the security arrangements for the Site  The Contractor shall (i) conduct appropriate background checks on any personnel retained to provide security; (ii) train the security personnel adequately (or determine that they are properly trained) in the use of force (and where applicable, firearms), and appropriate conduct towards Contractor’s Personnel, Employer’s Personnel and affected communities; and (iii) require the security personnel to act within the applicable Laws and any requirements set out in the Specifications.  The Contractor shall not permit any use of force by security personnel in providing security except when used for preventive and defensive purposes in proportion to the nature and extent of the threat.  In making security arrangements, the Contractor shall also comply with any additional requirements stated in the Specification.” | |
| B. Time Control | | | |
| 1. Program and Progress Reports | | * 1. Within the time **stated in the PCC**, after the date of the Letter of Acceptance, the Contractor shall submit to the Project Manager for approval a Program showing the general methods, arrangements, order, and timing for all the activities in the Works. In the case of a lump-sum contract, the activities in the Program shall be consistent with those in the Activity Schedule. The Project Manager’s approval of the Program shall not alter the Contractor’s obligations. The Contractor may revise the Program and submit it to the Project Manager again at any time. A revised Program shall show the effect of Variations and Compensation Events.   2. An update of the Program shall be a program showing the actual progress achieved on each activity and the effect of the progress achieved on the timing of the remaining work, including any changes to the sequence of the activities.   3. The Contractor shall monitor progress of the Works and submit to the Project manager progress report and any updated Program showing the actual progress achieved and the effect of the progress achieved on the timing of the remaining Works, including any changes to the sequence of the activities, at intervals no longer than the period **stated in the PCC.** If the Contractor does not submit an updated Program within this period, the Project Manager may withhold the amount **stated in the PCC** from the next payment certificate and continue to withhold this amount until the next payment after the date on which the overdue Program has been submitted. In the case of lump-sum Contract, the Contractor shall provide an updated Activity Schedule within 14 days of being instructed to by the Project Manager.   4. Unless otherwise stated in the Specifications, each progress report shall include the Environmental and Social (ES) metrics set out in Appendix B.   5. In addition to the progress reports, the Contractor shall inform the Project Manager immediately of any allegation, incident or accident in the Site, which has or is likely to have a significant adverse effect on the environment, the affected communities, the public, Employer’s Personnel, Project Manager’s personnel or Contractor’s Personnel. This includes, but is not limited to, any incident or accident causing fatality or serious injury; significant adverse effects or damage to private property; or any allegation of SEA and/or SH. In case of SEA and/or SH, while maintaining confidentiality as appropriate, the type of allegation (sexual exploitation, sexual abuse or sexual harassment), gender and age of the person who experienced the alleged incident should be included in the information.   The Contractor, upon becoming aware of the allegation, incident or accident, shall also immediately inform the Project Manager of any such incident or accident on the Subcontractors’ or suppliers’ premises relating to the Works which has or is likely to have a significant adverse effect on the environment, the affected communities, the public, Employer’s Personnel, or Contractor’s, its Subcontractors’ and suppliers’ personnel. The notification shall provide sufficient detail regarding such incidents or accidents. The Contractor shall provide full details of such incidents or accidents to the Project Manager within the timeframe agreed with the Project Manager.  The Contractor shall require its Subcontractors and suppliers (other than Subcontractors) to immediately notify the Contractor of any incidents or accidents referred to in this Subclause. | |
| 1. Extension of the Intended Completion Date | | * 1. The Project Manager shall extend the Intended Completion Date if a Compensation Event occurs or a Variation is issued which makes it impossible for Completion to be achieved by the Intended Completion Date without the Contractor taking steps to accelerate the remaining work, which would cause the Contractor to incur additional cost.   2. The Project Manager shall decide whether and by how much to extend the Intended Completion Date within 21 days of the Contractor asking the Project Manager for a decision upon the effect of a Compensation Event or Variation and submitting full supporting information. If the Contractor has failed to give early warning of a delay or has failed to cooperate in dealing with a delay, the delay by this failure shall not be considered in assessing the new Intended Completion Date. | |
| 1. Acceleration | | * 1. When the Employer wants the Contractor to finish before the Intended Completion Date, the Project Manager shall obtain priced proposals for achieving the necessary acceleration from the Contractor. If the Employer accepts these proposals, the Intended Completion Date shall be adjusted accordingly and confirmed by both the Employer and the Contractor.   2. If the Contractor’s priced proposals for an acceleration are accepted by the Employer, they are incorporated in the Contract Price and treated as a Variation. | |
| 1. Delays Ordered by the Project Manager | | * 1. The Project Manager may instruct the Contractor to delay the start or progress of any activity within the Works. | |
| 1. Management Meetings | | * 1. Either the Project Manager or the Contractor may require the other to attend a management meeting. The business of a management meeting shall be to review the plans for remaining work and to deal with matters raised in accordance with the early warning procedure.   2. The Project Manager shall record the business of management meetings and provide copies of the record to those attending the meeting and to the Employer. The responsibility of the parties for actions to be taken shall be decided by the Project Manager either at the management meeting or after the management meeting and stated in writing to all who attended the meeting. | |
| 1. Early Warning | | * 1. The Contractor shall warn the Project Manager at the earliest opportunity of specific likely future events or circumstances that may adversely affect the quality of the work, increase the Contract Price, or delay the execution of the Works. The Project Manager may require the Contractor to provide an estimate of the expected effect of the future event or circumstance on the Contract Price and Completion Date. The estimate shall be provided by the Contractor as soon as reasonably possible.   2. The Contractor shall cooperate with the Project Manager in making and considering proposals for how the effect of such an event or circumstance can be avoided or reduced by anyone involved in the work and in carrying out any resulting instruction of the Project Manager. | |
| C. Quality Control | | | |
| 1. Identifying Defects | | * 1. The Project Manager shall check the Contractor’s work and notify the Contractor of any Defects that are found. Such checking shall not affect the Contractor’s responsibilities. The Project Manager may instruct the Contractor to search for a Defect and to uncover and test any work that the Project Manager considers may have a Defect. | |
| 1. Tests | | * 1. If the Project Manager instructs the Contractor to carry out a test not specified in the Specifications to check whether any work has a Defect and the test shows that it does, the Contractor shall pay for the test and any samples. If there is no Defect, the test shall be a Compensation Event. | |
| 1. Correction of Defects | | * 1. The Project Manager shall give notice to the Contractor of any Defects before the end of the Defects Liability Period, which begins at Completion, and is **defined in the PCC.** The Defects Liability Period shall be extended for as long as Defects remain to be corrected.   2. Every time notice of a Defect is given, the Contractor shall correct the notified Defect within the length of time specified by the Project Manager’s notice. | |
| 1. Uncorrected Defects | | * 1. If the Contractor has not corrected a Defect within the time specified in the Project Manager’s notice, the Project Manager shall assess the cost of having the Defect corrected, and the Contractor shall pay this amount. | |
| D. Cost Control | | | |
| 1. Contract Price | | * 1. The Bill of Quantities shall contain priced items for the Works to be performed by the Contractor. The Bill of Quantities is used to calculate the Contract Price. The Contractor will be paid for the quantity of the work accomplished at the rate in the Bill of Quantities for each item. | |
| 1. Changes in the Contract Price | | * 1. If the final quantity of the work done differs from the quantity in the Bill of Quantities for the particular item by more than 25 percent, provided the change exceeds 1 percent of the Initial Contract Price, the Project Manager shall adjust the rate to allow for the change. The Project Manager shall not adjust rates from changes in quantities if thereby the Initial Contract Price is exceeded by more than 15 percent, except with the prior approval of the Employer.   2. If requested by the Project Manager, the Contractor shall provide the Project Manager with a detailed cost breakdown of any rate in the Bill of Quantities. | |
| 1. Variations | | * 1. All Variations shall be included in updated Programs produced by the Contractor.   2. The Contractor shall provide the Project Manager with a quotation for carrying out the Variation when requested to do so by the Project Manager. The Contractor shall also provide information of any ES risks and impacts of the Variation. The Project Manager shall assess the quotation, which shall be given within seven (7) days of the request or within any longer period stated by the Project Manager and before the Variation is ordered.   3. If the Contractor’s quotation is unreasonable, the Project Manager may order the Variation and make a change to the Contract Price, which shall be based on the Project Manager’s own forecast of the effects of the Variation on the Contractor’s costs.   4. If the Project Manager decides that the urgency of varying the work would prevent a quotation being given and considered without delaying the work, no quotation shall be given and the Variation shall be treated as a Compensation Event.   5. The Contractor shall not be entitled to additional payment for costs that could have been avoided by giving early warning.   6. If the work in the Variation corresponds to an item description in the Bill of Quantities and if, in the opinion of the Project Manager, the quantity of work above the limit stated in GCC Sub-Clause 41.1 or the timing of its execution do not cause the cost per unit of quantity to change, the rate in the Bill of Quantities shall be used to calculate the value of the Variation. If the cost per unit of quantity changes, or if the nature or timing of the work in the Variation does not correspond with items in the Bill of Quantities, the quotation by the Contractor shall be in the form of new rates for the relevant items of work. [[40]](#footnote-41)   7. Value Engineering: The Contractor may prepare, at its own cost, a value engineering proposal at any time during the performance of the contract. The value engineering proposal shall, at a minimum, include the following;  1. the proposed change(s), and a description of the difference to the existing contract requirements; 2. a full cost/benefit analysis of the proposed change(s) including a description and estimate of costs (including life cycle cost) the Employer may incur in implementing the value engineering proposal; 3. a description of any effect(s) of the change on performance/functionality; and 4. a description of the proposed work to be performed, a program for its execution and sufficient ES information to enable an evaluation of ES risks and impacts.   The Employer may accept the value engineering proposal if the proposal demonstrates benefits that:   1. accelerates the contract completion period; or 2. reduces the Contract Price or the life cycle costs to the Employer; or 3. improves the quality, efficiency, safety or sustainability of the Facilities; or   (d) yields any other benefits to the Employer,  without compromising the functionality of the Works.  If the value engineering proposal is approved by the Employer and results in:   1. a reduction of the Contract Price; the amount to be paid to the Contractor shall be the **percentage specified in the PCC** of the reduction in the Contract Price; or 2. an increase in the Contract Price; but results in a reduction in life cycle costs due to any benefit described in (a) to (d) above, the amount to be paid to the Contractor shall be the full increase in the Contract Price. | |
| 1. Cash Flow Forecasts | | * 1. When the Program,[[41]](#footnote-42) is updated, the Contractor shall provide the Project Manager with an updated cash flow forecast. The cash flow forecast shall include different currencies, as defined in the Contract, converted as necessary using the Contract exchange rates. | |
| 1. Payment Certificates | | * 1. The Contractor shall submit to the Project Manager monthly statements of the estimated value of the work executed less the cumulative amount certified previously.   2. The Project Manager shall check the Contractor’s monthly statement and certify the amount to be paid to the Contractor.   3. The value of work executed shall be determined by the Project Manager.   4. The value of work executed shall comprise the value of the quantities of work in the Bill of Quantities that have been completed.[[42]](#footnote-43)   5. The value of work executed shall include the valuation of Variations and Compensation Events.   6. The Project Manager may exclude any item certified in a previous certificate or reduce the proportion of any item previously certified in any certificate in the light of later information.   7. If the Contractor was, or is, failing to perform any ES obligations or work under the Contract, the value of this work or obligation, as determined by the Project Manager, may be withheld until the work or obligation has been performed, and/or the cost of rectification or replacement, as determined by the Project Manager, may be withheld until rectification or replacement has been completed. Failure to perform includes, but is not limited to the following:  1. failure to comply with any ES obligations or work described in the Works’ Requirements which may include: working outside site boundaries, excessive dust, failure to keep public roads in a safe usable condition, damage to offsite vegetation, pollution of water courses from oils or sedimentation, contamination of land e.g. from oils, human waste, damage to archeology or cultural heritage features, air pollution as a result of unauthorized and/or inefficient combustion; 2. failure to regularly review C-ESMP and/or update it in a timely manner to address emerging ES issues, or anticipated risks or impacts; 3. failure to implement the C-ESMPe.g. failure to provide required training or sensitization; 4. failing to have appropriate consents/permits prior to undertaking Works or related activities; 5. failure to submit ES report/s (as described in Appendix B), or failure to submit such reports in a timely manner; 6. failure to implement remediation as instructed by the Project Manager within the specified timeframe (e.g. remediation addressing non-compliance/s). | |
| 1. Payments | | * 1. Payments shall be adjusted for deductions for advance payments and retention. The Employer shall pay the Contractor the amounts certified by the Project Manager within 28 days of the date of each certificate. If the Employer makes a late payment, the Contractor shall be paid interest on the late payment in the next payment. Interest shall be calculated from the date by which the payment should have been made up to the date when the late payment is made at the prevailing rate of interest for commercial borrowing for each of the currencies in which payments are made.   2. If an amount certified is increased in a later certificate or as a result of an award by the Adjudicator or an Arbitrator, the Contractor shall be paid interest upon the delayed payment as set out in this clause. Interest shall be calculated from the date upon which the increased amount would have been certified in the absence of dispute.   3. Unless otherwise stated, all payments and deductions shall be paid or charged in the proportions of currencies comprising the Contract Price.   4. Items of the Works for which no rate or price has been entered in shall not be paid for by the Employer and shall be deemed covered by other rates and prices in the Contract. | |
| 1. Compensation Events | | * 1. The following shall be Compensation Events:  1. The Employer does not give access to a part of the Site by the Site Possession Date pursuant to GCC Sub-Clause 20.1. 2. The Employer modifies the Schedule of Other Contractors in a way that affects the work of the Contractor under the Contract. 3. The Project Manager orders a delay or does not issue Drawings, Specifications, or instructions required for execution of the Works on time. 4. The Project Manager instructs the Contractor to uncover or to carry out additional tests upon work, which is then found to have no Defects. 5. The Project Manager unreasonably does not approve a subcontract to be let. 6. Ground conditions are substantially more adverse than could reasonably have been assumed before issuance of the Letter of Acceptance from the information issued to bidders (including the Site Investigation Reports), from information available publicly and from a visual inspection of the Site. 7. The Project Manager gives an instruction for dealing with an unforeseen condition, caused by the Employer, or additional work required for safety or other reasons. 8. Other contractors, public authorities, utilities, or the Employer does not work within the dates and other constraints stated in the Contract, and they cause delay or extra cost to the Contractor. 9. The advance payment is delayed. 10. The effects on the Contractor of any of the Employer’s Risks. 11. The Project Manager unreasonably delays issuing a Certificate of Completion.     1. If a Compensation Event would cause additional cost or would prevent the work being completed before the Intended Completion Date, the Contract Price shall be increased and/or the Intended Completion Date shall be extended. The Project Manager shall decide whether and by how much the Contract Price shall be increased and whether and by how much the Intended Completion Date shall be extended.     2. As soon as information demonstrating the effect of each Compensation Event upon the Contractor’s forecast cost has been provided by the Contractor, it shall be assessed by the Project Manager, and the Contract Price shall be adjusted accordingly. If the Contractor’s forecast is deemed unreasonable, the Project Manager shall adjust the Contract Price based on the Project Manager’s own forecast. The Project Manager shall assume that the Contractor shall react competently and promptly to the event.     3. The Contractor shall not be entitled to compensation to the extent that the Employer’s interests are adversely affected by the Contractor’s not having given early warning or not having cooperated with the Project Manager. | |
| 1. Tax | | * 1. The Project Manager shall adjust the Contract Price if taxes, duties, and other levies are changed between the date 28 days before the submission of bids for the Contract and the date of the last Completion certificate. The adjustment shall be the change in the amount of tax payable by the Contractor, provided such changes are not already reflected in the Contract Price or are a result of GCC Clause 49. | |
| 1. Currencies | | * 1. Where payments are made in currencies other than the currency of the Employer’s country **specified in the PCC,** the exchange rates used for calculating the amounts to be paid shall be the exchange rates stated in the Contractor’s Bid. | |
| 1. Price Adjustment | | * 1. Prices shall be adjusted for fluctuations in the cost of inputs only if **provided for in the PCC.** If so provided, the amounts certified in each payment certificate, before deducting for Advance Payment, shall be adjusted by applying the respective price adjustment factor to the payment amounts due in each currency. A separate formula of the type specified below applies to each Contract currency:   **Pc = Ac + BcImc/Ioc**  where:  Pc is the adjustment factor for the portion of the Contract Price payable in a specific currency “c.”  Ac and Bc are coefficients[[43]](#footnote-44)**specified in the PCC,** representing the nonadjustable and adjustable portions, respectively, of the Contract Price payable in that specific currency “c;” and  Imc is the index prevailing at the end of the month being invoiced and Ioc is the index prevailing 28 days before Bid opening for inputs payable; both in the specific currency “c.”   * 1. If the value of the index is changed after it has been used in a calculation, the calculation shall be corrected and an adjustment made in the next payment certificate. The index value shall be deemed to take account of all changes in cost due to fluctuations in costs. | |
| 1. Retention | | * 1. The Employer shall retain from each payment due to the Contractor the proportion **stated in the PCC** until Completion of the whole of the Works.   2. Upon the issue of a Certificate of Completion of the Works by the Project Manager, in accordance with GCC Sub-Clause 57.1, half the total amount retained shall be repaid to the Contractor and half when the Defects Liability Period has passed and the Project Manager has certified that all Defects notified by the Project Manager to the Contractor before the end of this period have been corrected. The Contractor may substitute retention money with an “on demand” Bank guarantee. | |
| 1. Liquidated Damages | | * 1. The Contractor shall pay liquidated damages to the Employer at the rate per day **stated in the PCC** for each day that the Completion Date is later than the Intended Completion Date. The total amount of liquidated damages shall not exceed the amount **defined in the PCC.** The Employer may deduct liquidated damages from payments due to the Contractor. Payment of liquidated damages shall not affect the Contractor’s liabilities.   2. If the Intended Completion Date is extended after liquidated damages have been paid, the Project Manager shall correct any overpayment of liquidated damages by the Contractor by adjusting the next payment certificate. The Contractor shall be paid interest on the overpayment, calculated from the date of payment to the date of repayment, at the rates specified in GCC Sub-Clause 45.1. | |
| 1. Bonus | | * 1. The Contractor shall be paid a Bonus calculated at the rate per calendar day **stated in the PCC** for each day (less any days for which the Contractor is paid for acceleration) that the Completion is earlier than the Intended Completion Date. The Project Manager shall certify that the Works are complete, although they may not be due to be complete. | |
| 1. Advance Payment | | * 1. The Employer shall make advance payment to the Contractor of the amounts **stated in the PCC** by the date **stated in the PCC,** against provision by the Contractor of an Unconditional Bank Guarantee in a form and by a bank acceptable to the Employer in amounts and currencies equal to the advance payment. The Guarantee shall remain effective until the advance payment has been repaid, but the amount of the Guarantee shall be progressively reduced by the amounts repaid by the Contractor. Interest shall not be charged on the advance payment.   2. The Contractor is to use the advance payment only to pay for Equipment, Plant, Materials, and mobilization expenses required specifically for execution of the Contract. The Contractor shall demonstrate that advance payment has been used in this way by supplying copies of invoices or other documents to the Project Manager.   3. The advance payment shall be repaid by deducting proportionate amounts from payments otherwise due to the Contractor, following the schedule of completed percentages of the Works on a payment basis. No account shall be taken of the advance payment or its repayment in assessing valuations of work done, Variations, price adjustments, Compensation Events, Bonuses, or Liquidated Damages. | |
| 1. Securities | | * 1. The Performance Security shall be provided to the Employer no later than the date specified in the Letter of Acceptance and shall be issued in an amount **specified in the PCC,** by a bank or surety acceptable to the Employer, and denominated in the types and proportions of the currencies in which the Contract Price is payable. The Performance Security shall be valid until a date 28 days from the date of issue of the Certificate of Completion in the case of a Bank Guarantee, and until one year from the date of issue of the Certificate of Completion in the case of a Performance Bond. | |
| 1. Dayworks | | * 1. If applicable, the Dayworks rates in the Contractor’s Bid shall be used only when the Project Manager has given written instructions in advance for additional work to be paid for in that way.   2. All work to be paid for as Dayworks shall be recorded by the Contractor on forms approved by the Project Manager. Each completed form shall be verified and signed by the Project Manager within two days of the work being done.   3. The Contractor shall be paid for Dayworks subject to obtaining signed Dayworks forms. | |
| 1. Cost of Repairs | | * 1. Loss or damage to the Works or Materials to be incorporated in the Works between the Start Date and the end of the Defects Correction periods shall be remedied by the Contractor at the Contractor’s cost if the loss or damage arises from the Contractor’s acts or omissions. | |
| E. Finishing the Contract | | | |
| 1. Completion | | | * 1. The Contractor shall request the Project Manager to issue a Certificate of Completion of the Works, and the Project Manager shall do so upon deciding that the whole of the Works is completed. | |
| 1. Taking Over | | | * 1. The Employer shall take over the Site and the Works within seven days of the Project Manager’s issuing a certificate of Completion. | |
| 1. Final Account | | | * 1. The Contractor shall supply the Project Manager with a detailed account of the total amount that the Contractor considers payable under the Contract before the end of the Defects Liability Period. The Project Manager shall issue a Defects Liability Certificate and certify any final payment that is due to the Contractor within 56 days of receiving the Contractor’s account if it is correct and complete. If it is not, the Project Manager shall issue within 56 days a schedule that states the scope of the corrections or additions that are necessary. If the Final Account is still unsatisfactory after it has been resubmitted, the Project Manager shall decide on the amount payable to the Contractor and issue a payment certificate. | |
| 1. Operating and Maintenance Manuals | | | * 1. If “as built” Drawings and/or operating and maintenance manuals are required, the Contractor shall supply them by the dates **stated in the PCC.**   2. If the Contractor does not supply the Drawings and/or manuals by the dates **stated in the PCC** pursuant to GCC Sub-Clause 60.1**,** or they do not receive the Project Manager’s approval, the Project Manager shall withhold the amount **stated in the PCC** from payments due to the Contractor. | |
| 1. Termination | | | * 1. The Employer or the Contractor may terminate the Contract if the other party causes a fundamental breach of the Contract.   2. Fundamental breaches of Contract shall include, but shall not be limited to, the following: | |
|  | | | 1. the Contractor stops work for 28 days when no stoppage of work is shown on the current Program and the stoppage has not been authorized by the Project Manager; 2. the Project Manager instructs the Contractor to delay the progress of the Works, and the instruction is not withdrawn within 28 days; 3. the Employer or the Contractor is made bankrupt or goes into liquidation other than for a reconstruction or amalgamation; 4. a payment certified by the Project Manager is not paid by the Employer to the Contractor within 84 days of the date of the Project Manager’s certificate; 5. the Project Manager gives Notice that failure to correct a particular Defect is a fundamental breach of Contract and the Contractor fails to correct it within a reasonable period of time determined by the Project Manager; 6. the Contractor does not maintain a Security, which is required; 7. the Contractor has delayed the completion of the Works by the number of days for which the maximum amount of liquidated damages can be paid, as **defined in the PCC**; or 8. if the Contractor, in the judgment of the Employer has engaged in Fraud and Corruption, as defined in paragraph 2.2 a of the Appendix A to the GCC, in competing for or in executing the Contract, then the Employer may, after giving fourteen (14) days written notice to the Contractor, terminate the Contract and expel him from the Site.    1. Notwithstanding the above, the Employer may terminate the Contract for convenience. | |
|  | | | * 1. If the Contract is terminated, the Contractor shall stop work immediately, make the Site safe and secure, and leave the Site as soon as reasonably possible. | |
|  | | | * 1. When either party to the Contract gives notice of a breach of Contract to the Project Manager for a cause other than those listed under GCC Sub-Clause 61.2 above, the Project Manager shall decide whether the breach is fundamental or not. | |
| 1. Payment upon Termination | | | * 1. If the Contract is terminated because of a fundamental breach of Contract by the Contractor, the Project Manager shall issue a certificate for the value of the work done and Materials ordered less advance payments received up to the date of the issue of the certificate and less the percentage to apply to the value of the work not completed, as **specified in the PCC.** Additional Liquidated Damages shall not apply. If the total amount due to the Employer exceeds any payment due to the Contractor, the difference shall be a debt payable to the Employer.   2. If the Contract is terminated for the Employer’s convenience or because of a fundamental breach of Contract by the Employer, the Project Manager shall issue a certificate for the value of the work done, Materials ordered, the reasonable cost of removal of Equipment, repatriation of the Contractor’s personnel employed solely on the Works, and the Contractor’s costs of protecting and securing the Works, and less advance payments received up to the date of the certificate. | |
| 1. Property | | | * 1. All Materials on the Site, Plant, Equipment, Temporary Works, and Works shall be deemed to be the property of the Employer if the Contract is terminated because of the Contractor’s default. | |
| 1. Release from Performance | | | * 1. If the Contract is frustrated by the outbreak of war or by any other event entirely outside the control of either the Employer or the Contractor, the Project Manager shall certify that the Contract has been frustrated. The Contractor shall make the Site safe and stop work as quickly as possible after receiving this certificate and shall be paid for all work carried out before receiving it and for any work carried out afterwards to which a commitment was made. | |
| 1. Suspension of Bank Loan or Credit | | | * 1. In the event that the Bank suspends the Loan or Credit to the Employer, from which part of the payments to the Contractor are being made:  1. The Employer is obligated to notify the Contractor of such suspension within 7 days of having received the Bank’s suspension notice. 2. If the Contractor has not received sums due to it within the 28 days for payment provided for in GCC Sub-Clause 45.1, the Contractor may immediately issue a 14-day termination notice. | |
| 1. Force Majeure | | | * 1. **Definition of Force Majeure**   In this Clause, "Force Majeure" means an exceptional event or circumstance:   1. which is beyond a Party's control, 2. which such Party could not reasonably have provided against before entering into the Contract, 3. which, having arisen, such Party could not reasonably have avoided or overcome, and 4. 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:   * + 1. war, hostilities (whether war be declared or not), invasion, act of foreign enemies,     2. rebellion, terrorism, revolution, insurrection, military or usurped power, or civil war,     3. riot, commotion, disorder, strike or lockout by persons other than the Contractor's Personnel and other employees of the Contractor and Subcontractors ,     4. 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     5. natural catastrophes such as earthquake, hurricane, typhoon or volcanic activity.     6. Spread of any Pandemic diseases   1. **Notice of Force Majeure**   If a Party is or will be prevented from performing any of its 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 such 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.   * 1. **Duty to Minimise Delay**   Each Party shall at all times use all reasonable endeavors 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.   * 1. **Consequences of Force Majeure**   If the Contractor is prevented from performing any of his obligations under the Contract by Force Majeure of which notice has been given under Sub-Clause 66.2 *[Notice of Force Majeure].* and suffers delay and/or incurs Cost by reason of such Force Majeure, the Contractor shall be entitled subject to Clause 46 *[Compensation Events ]*to:   1. an extension of time for any such delay, if completion is or will be delayed, under Clause 32371 Extension of the Intended Completion Date *,*and 2. if the event or circumstance is of the kind described in sub-paragraphs (i) to (iv) of Sub-Clause 66.1*[Definition of Force Majeure]* and, in the case of sub­ paragraphs (ii) to (iv) occurs in the Country, payment of any such Cost.   After receiving this notice, the Engineer shall proceed in accordance with Clause 4 *[Project Manager’s Decisions]* to agreed or determine these matters.   * 1. **Force Majeure Affecting Sub- Contractor**   If any Sub-contractor is entitled under any contract or agreement relating to the works to relief 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.   * 1. **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 66.2 *[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 61.4 of Clause 61 *[Termination].*  Upon such termination, the Engineer shall determine the value of the work done and issue a Payment Certificate which shall include:   1. the amounts payable for any work carried out for which a price is stated in the Contract; 2. 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; 3. any other Cost or liability which in the circumstances was reasonably incurred by the Contractor in the expectation of completing the Works; 4. 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 5. the Cost of repatriation of the Contractor's staff and labour employed wholly in connection with the Works at the date of termination.    1. **Release from Performance under the Law**   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:   1. 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 2. the sum payable by the Employer to the Contractor shall be the same as would have been payable under Sub-Clause 66.6 *[Optional Termination, Payment and Release]* if the Contract had been terminated under Sub-Clause 66.6. | |

**APPENDIX A**

**TO GENERAL CONDITIONS**

**Fraud and Corruption**

***(Text in this Appendix shall not be modified)***

1. **Purpose**
   1. The Bank’s Anti-Corruption Guidelines and this annex apply with respect to procurement under Bank Investment Project Financing operations.
2. **Requirements**
3. The Bank requires that Borrowers (including beneficiaries of Bank financing); bidders (applicants/proposers),consultants, contractors and suppliers; any sub-contractors, sub-consultants, service providers or suppliers; any agents (whether declared or not); and any of their personnel, observe the highest standard of ethics during the procurement process, selection and contract execution of Bank-financed contracts, and refrain from Fraud and Corruption.
4. To this end, the Bank:
5. Defines, for the purposes of this provision, the terms set forth below as follows:
6. “corrupt practice” is the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;
7. “fraudulent practice” is any act or omission, including misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain financial or other benefit or to avoid an obligation;
8. “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;
9. “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;
10. “obstructive practice” is:
11. 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
12. acts intended to materially impede the exercise of the Bank’s inspection and audit rights provided for under paragraph 2.2 e. below.
13. Rejects a proposal for award if the Bank determines that the firm or individual recommended for award, any of its personnel, or its agents, or its sub-consultants, sub-contractors, service providers, suppliers and/ or their employees, has, directly or indirectly, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices in competing for the contract in question;
14. In addition to the legal remedies set out in the relevant Legal Agreement, may take other appropriate actions, including declaring misprocurement, if the Bank determines at any time that representatives of the Borrower or of a recipient of any part of the proceeds of the loan engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices during the procurement process, selection and/or execution of the contract in question, without the Borrower having taken timely and appropriate action satisfactory to the Bank to address such practices when they occur, including by failing to inform the Bank in a timely manner at the time they knew of the practices;
15. Pursuant to the Bank’s Anti- Corruption Guidelines and in accordance with the Bank’s prevailing sanctions policies and procedures, may sanction a firm or individual, either indefinitely or for a stated period of time, including by publicly declaring such firm or individual ineligible (i) to be awarded or otherwise benefit from a Bank-financed contract, financially or in any other manner;[[44]](#footnote-45) (ii) to be a nominated[[45]](#footnote-46) sub-contractor, consultant, manufacturer or supplier, or service provider of an otherwise eligible firm being awarded a Bank-financed contract; and (iii) to receive the proceeds of any loan made by the Bank or otherwise to participate further in the preparation or implementation of any Bank-financed project;
16. Requires that a clause be included in bidding/request for proposals documents and in contracts financed by a Bank loan, requiring (i) bidders(applicants/proposers), consultants, contractors, and suppliers, and their sub-contractors, sub-consultants, service providers, suppliers, agents personnel, permit the Bank to inspect[[46]](#footnote-47) all accounts, records and other documents relating to the procurement process, selection and/or contract execution, and to have them audited by auditors appointed by the Bank.

**APPENDIX B**

**Environmental and Social (ES) Metrics for Progress Reports**

***[Note to Employer: the following metrics may be amended to reflect the specifics of the Contract. The Employer shall ensure that the metrics provided are appropriate for the Works and impacts/key issues identified in the environmental and social assessment]***

*Metrics for regular reporting:*

1. *environmental incidents or non-compliances with contract requirements, including contamination, pollution or damage to ground or water supplies;*
2. *health and safety incidents, accidents, injuries that require treatment and all fatalities;*
3. *interactions with regulators: identify agency, dates, subjects, outcomes (report the negative if none);*
4. *status of all permits and agreements:*
5. work permits: number required, number received, actions taken for those not received;
6. status of permits and consents:

* list areas/facilities with permits required (quarries, asphalt & batch plants), dates of application, dates issued (actions to follow up if not issued), dates submitted to resident engineer (or equivalent), status of area (waiting for permits, working, abandoned without reclamation, decommissioning plan being implemented, etc.);
* list areas with landowner agreements required (borrow and spoil areas, camp sites), dates of agreements, dates submitted to resident engineer (or equivalent);
* identify major activities undertaken in each area in the reporting period and highlights of environmental and social protection (land clearing, boundary marking, topsoil salvage, traffic management, decommissioning planning, decommissioning implementation);
* for quarries: status of relocation and compensation (completed, or details of activities and current status in the reporting period).

1. *health and safety supervision:*
2. safety officer: number days worked, number of full inspections & partial inspections, reports to construction/project management;
3. number of workers, work hours, metric of PPE use (percentage of workers with full personal protection equipment (PPE), partial, etc.), worker violations observed (by type of violation, PPE or otherwise), warnings given, repeat warnings given, follow-up actions taken (if any);
4. *worker accommodations:*
5. number of expats housed in accommodations, number of locals;
6. date of last inspection, and highlights of inspection including status of accommodations’ compliance with national and local law and good practice, including sanitation, space, etc.;
7. actions taken to recommend/require improved conditions, or to improve conditions.
8. *Health services: provider of health services, information and/or training, location of clinic, number of non-safety disease or illness treatments and diagnoses (no names to be provided);*
9. *gender (for expats and locals separately): number of female workers, percentage of workforce, gender issues raised and dealt with (cross-reference grievances or other sections as needed);*
10. *training:*
11. number of new workers, number receiving induction training, dates of induction training;
12. number and dates of toolbox talks, number of workers receiving Occupational Health and Safety (OHS), environmental and social training;
13. number and dates of communicable diseases (including STDs) sensitization and/or training, no. workers receiving training (in the reporting period and in the past); same questions for gender sensitization, flag person training.
14. number and date of SEA and SH prevention sensitization and/or training events, including number of workers receiving training on Code of Conduct for Contractor’s Personnel (in the reporting period and in the past), etc.
15. *environmental and social supervision:*
16. environmentalist: days worked, areas inspected and numbers of inspections of each (road section, work camp, accommodations, quarries, borrow areas, spoil areas, swamps, forest crossings, etc.), highlights of activities/findings (including violations of environmental and/or social best practices, actions taken), reports to environmental and/or social specialist/construction/site management;
17. sociologist: days worked, number of partial and full site inspections (by area: road section, work camp, accommodations, quarries, borrow areas, spoil areas, clinic, HIV/AIDS center, community centers, etc.), highlights of activities (including violations of environmental and/or social requirements observed, actions taken), reports to environmental and/or social specialist/construction/site management; and
18. community liaison person(s): days worked (hours community center open), number of people met, highlights of activities (issues raised, etc.), reports to environmental and/or social specialist /construction/site management.
19. *Grievances*: list new grievances (e.g. number of allegations of SEA and SH) received in the reporting period and number of unresolved past grievances by date received, complainant’s age and sex, how received, to whom referred to for action, resolution and date (if completed), data resolution reported to complainant, any required follow-up (Cross-reference other sections as needed):
20. Worker grievances;
21. Community grievances
22. *Traffic, road safety and vehicles/equipment:*
23. traffic and road safety incidents and accidents involving project vehicles & equipment: provide date, location, damage, cause, follow-up;
24. traffic and road safety incidents and accidents involving non-project vehicles or property (also reported under immediate metrics): provide date, location, damage, cause, follow-up;
25. overall condition of vehicles/equipment (subjective judgment by environmentalist); non-routine repairs and maintenance needed to improve safety and/or environmental performance (to control smoke, etc.).
26. *Environmental mitigations and issues (what has been done):*
27. dust: number of working bowsers, number of waterings/day, number of complaints, warnings given by environmentalist, actions taken to resolve; highlights of quarry dust control (covers, sprays, operational status); % of rock/ spoil lorries with covers, actions taken for uncovered vehicles;
28. erosion control: controls implemented by location, status of water crossings, environmentalist inspections and results, actions taken to resolve issues, emergency repairs needed to control erosion/sedimentation;
29. quarries, borrow areas, spoil areas, asphalt plants, batch plants: identify major activities undertaken in the reporting period at each, and highlights of environmental and social protection: land clearing, boundary marking, topsoil salvage, traffic management, decommissioning planning, decommissioning implementation;
30. blasting: number of blasts (and locations), status of implementation of blasting plan (including notices, evacuations, etc.), incidents of off-site damage or complaints (cross-reference other sections as needed);
31. spill clean-ups, if any: material spilled, location, amount, actions taken, material disposal (report all spills that result in water or soil contamination;
32. waste management: types and quantities generated and managed, including amount taken offsite (and by whom) or reused/recycled/disposed on-site;
33. details of tree plantings and other mitigations required undertaken in the reporting period;
34. details of water and swamp protection mitigations required undertaken in the reporting period.
35. *compliance:*
36. compliance status for conditions of all relevant consents/permits, for the Work, including quarries, etc.): statement of compliance or listing of issues and actions taken (or to be taken) to reach compliance;
37. compliance status of C-ESMP/ESIP requirements: statement of compliance or listing of issues and actions taken (or to be taken) to reach compliance
38. compliance status of SEA and SH prevention and response action plan: statement of compliance or listing of issues and actions taken (or to be taken) to reach compliance
39. compliance status of Health and Safety Management Plan re: statement of compliance or listing of issues and actions taken (or to be taken) to reach compliance
40. other unresolved issues from previous reporting periods related to environmental and social: continued violations, continued failure of equipment, continued lack of vehicle covers, spills not dealt with, continued compensation or blasting issues, etc. Cross-reference other sections as needed.

Section IX - Particular Conditions of Contract

*Except where otherwise specified, all Particular Conditions of Contract should be filled in by the Employer prior to issuance of the bidding document. Schedules and reports to be provided by the Employer should be annexed.*

|  |  |
| --- | --- |
| **A. General** | |
| **GCC 1.1 (d)** | The financing institution is: The World Bank |
| **GCC 1.1 (r)** | The Employer is *[insert name, address, and name of authorized representative]*. |
| **GCC 1.1 (v)** | The Intended Completion Period/ Date for the whole of the Works shall be *[insert Period/date]*  *[If different dates are specified for completion of the Works by section (“sectional completion” or milestones), these dates should be listed here]* |
| **GCC 1.1 (y)** | The Project Manager is *[insert name, address, and name of authorized representative]*. |
| **GCC 1.1 (aa)** | The Site is located at *[insert address of Site]* and is defined in drawings No. *[insert numbers]* |
| **GCC 1.1 (dd)** | The Start Date shall be *10 days after the date of issue of notice to proceed with works to the contractor [insert date e.g. one week after the date of issue of notice to proceed with works to the contractor]*. |
| **GCC 1.1 (hh)** | The Works consist of *[insert brief summary, including relationship to other contracts under the Project]*.   1. *Protection work of ..*   SAMPLE LIST OF ACTIVITIES. TO BE MODIFIED AS PER WORKS REQUIREMENTS   1. *Repair & strengthening of…* 2. *Electrification & allied works of..* 3. *Construction of…*   Identification number of Contract is……………….. |
| **GCC 1.1 (jj)** | GCC **1.1 (jj)** is replaced with the following:  “Key Personnel are the Contractor’s personnel named in GCC 9.1 of the Particular Conditions of Contract.” |
| **GCC 2.2** | Sectional Completions are: *[insert nature and dates, if appropriate]*   |  |  | | --- | --- | | **Civil-electrical-mechanical works** | **Time for completion** | | **Mile Stone –I**  *E/W 36230Cum,CC 3914Cum, Shotcrete 5677 sqm,Gate Painting 1984 sqm Rubber Seal-193 mtr.* | 9 months from the date of commencement of work | | **Mile Stone –II**  *E/W 72467Cum,CC 7828 Cum, Shotcrete 11354 sqm,Gate Painting – 3967 sqm. Rubber Seal 386 mtr.* | 18 months from the date of commencement of work  SAMPLE ACTIVITIES AND MILESTONE.  TO BE MODIFIED AS PER WORKS REQUIREMENTS | | **Mile Stone –III**  *E/W 108700 Cum,CC 11742Cum, Shotcrete 17031 sqm* | 27 months from the date of commencement of work | | **Mile Stone –IV**  *E/W 144933 Cum,CC 15656 Cum,Shotcrete 22708 sqm* and Complete entire work as specified in the contract | 36 months from the date of commencement of work | |
| **GCC 2.3(i)** | The following documents also form part of the Contract:   |  |  |  | | --- | --- | --- | | S. No. | Document | Description of the document | | 1. | Construction Methodology | Construction methodology given in bid amended as per comments of employer given in letter of acceptance. | | 2. | Quality control | Quality control procedures and assurance plans given in the bid and amended as per comments of Employer given in letter of acceptance. | | 3. | Fraud and Corruption | Appendix A – Fraud and Corruption | | 4. | Environmental and Social | Appendix B - Environmental and Social (ES) Metrics for Progress Reports. | | 5. | JV Agreement | Joint Venture Agreement (for JVs only). |   *[list any other documents]* |
| **GCC 3.1** | The following is inserted as a sub-clause at the end of GCC 3.1:  “Salient features of major labour and other laws that are applicable to construction industry in India are given as Appendix 1 to these General Conditions of Contract.”  The language of the contract is *English.*  The law that applies to the Contract are the laws of Union of India*.* |
| **GCC 4.1** | The following is inserted as a sub-paragraph at the end of GCC 4.1:  “However, if the Project Manager is required, under the rules and regulations and orders of the Employer, to obtain approval of some other authorities for specific actions, he will so obtain the approval. Provided further that any requisite approval shall be deemed to have been given by the Employer for any such authority exercised by the Project Manager.” |
| **GCC 5.1** | The Project manager *[may or may* *not]* delegate any of his duties and responsibilities. |
| **GCC 6.1** | The following is inserted at the end of GCC 6.1:  “All oral instructions shall be confirmed in writing in seven working days.” |
| **GCC 7** | The first sentence of GCC 7. 1 is modified as:  “The Contractor may subcontract with the approval of the Project Manager up to a ceiling **specified in PCC**, but may not assign the Contract without the approval of the Employer in writing.”  The following sub-clauses are inserted at the end of GCC 7.1:  “7.2 The Project Manager should satisfy himself before recommending to the Employer whether:  a) the circumstances warrant such sub-contracting; and,  b) the sub-Contractor so proposed for the Work possesses the experience, qualifications and equipment necessary for the job proposed to be entrusted to him in proportion to the quantum of Works to be sub-contracted.  7.3 If payments are proposed to be made directly to that sub-contractor, this should be subject to specific authorization by the prime contractor so that his arrangement does not alter the contractor’s liability or obligations under the contract.  7.4 The Contractor shall not be required to obtain any consent from the Employer for:  (a) the sub-contracting of any part of the Works for which the Sub-Contractor is already named in the contract;  (b) the provision for labour, or labour component, and,  (c) the purchase of materials which are in accordance with the standards specified in the contract.  (*Note: 1. All bidders are expected to indicate clearly in the bid, if they proposed sub-contracting elements of the works amounting to more than 10 percent of the Bid Price. For each such proposal the qualification and the experience of the identified sub-contractor in the relevant field should be furnished along with the bid to enable the employer to satisfy himself about their qualifications before agreeing for such sub-contracting and include it in the contract. In view of the above, normally no additional sub-contracting should arise during execution of the contract.*  *2. However, [a] sub-contracting for certain specialized elements of the work is not unusual and acceptable for carrying out the works more effectively; but vertical splitting of the works for sub-contracting is not acceptable. [b] In any case, proposal for sub-contracting in addition to what was specified in bid and stated in contract agreement will not be acceptable if the value of such additional sub-contracting exceeds 25% of value of work which was to be executed by Contractor without sub-contracting.*  *3. Assignment of the contract may be acceptable only under exceptional circumstances such as insolvencies/liquidation or merger of companies etc.)”* |
| **GCC 7.1** | The ceiling for sub-contractor is 25% [*This is in addition to what was stated in bid and incorporated in contract agreement.*]. Hiding information about any sub-contracting not authorized by the Employer shall be treated as violation of Appendix A to General Conditions (Fraud and Corruption). |
| **GCC 8.1** | Schedule of other contractors: *[insert Schedule of Other Contractors, if appropriate , else* ***Not Applicable****]* |
| **GCC 9** | The following is inserted as a sub-clause at the end of GCC 9.2:  “In all the above cases, the contractor shall ensure that the person leaves the site within seven days and has no further connection with the work in the contract. The Contractor shall appoint a suitable replacement within 28 days or earlier as may be agreed to between the Project Manager and the Contractor.”  The following sentence is deleted from first paragraph of GCC 9.4.1:  “The Contractor is encouraged, to the extent practicable and reasonable, to employ staff and labor with appropriate qualifications and experience from sources within the Country.”  GCC 9.4.3 and GCC 9.4.4 are deleted.  The following sub-clauses are inserted at the end of GCC 9.4:  “9.5 The Contractor shall not employ any retired Gazetted officer who has either not completed two years after the date of retirement or has not obtained permission from the Government authorities for employment with the Contractor[[47]](#footnote-48).  9.6 During continuance of the Contract, the Contractor and his Sub-Contractors shall abide at all times by all existing labour enactments and rules made there under, regulations, notifications and bye laws of the State or Central Government or local authority and any other labour laws (including rules), regulations, bye laws that may be passed or notification that may be issued under any labour law prevailing on the Base Date either by the State or the Central Government or the local authority. The Contractor shall keep the Employer indemnified in case any action is taken against the Employer by the competent authority on account of contraventions including amendments. If the Employer is caused to pay or reimburse, such amounts as may be necessary to cause or observe, or for non-observance of the provisions stipulated in the notifications/bye laws/Acts/Rules/regulations including amendments, if any, on the part of the Contractor, the Project Manager/ Employer shall have the right to deduct any money due to the Contractor including his amount of performance security and if applicable, the Environmental and Social (ES) Performance Security. The Employer/ Project Manager shall also have right to recover from the Contractor any sum required or estimated to be required for making good the loss or damage suffered by the Employer.  9.7 The employees of the Contractor and the Sub-Contractor in no case shall be treated as the employees of the Employer at any point of time.  9.8 The Contractor shall duly comply with the provisions of the Apprentices Act 1961 (III of 1961) and the rules made there under, and comply, failure or neglect to shall be subject to all liabilities and penalties provided in the said Act and Rules.” |
| **GCC 9.1** | *[insert the name/s of each Key Personnel agreed by the Employer prior to Contract signature, Schedule of Key Personnel and equipment as indicated in accepted bid & construction methodology].* |
| **GCC 13.1** | The minimum insurance amounts and deductibles shall be:  *[Employers should fill these columns carefully in consultation with insurance companies. It should not be left blank]*   |  |  |  |  | | --- | --- | --- | --- | | S.No. | Description | Minimum cover for Insurance | Maximum deductible for Insurance | | (i) | Works and Plant and Materials | 2 Crores | Rs. 4000/- | | (ii) | Loss or damage to Equipment | 20 Lacs | Rs. 1000/- | | (iii) | Other Property (except the Works, Plant, Materials, and Equipment)  INDICATIVE FIGURES. TO BE MODIFIED IN CONSULTATION WITH INSURANCE SERVICE PROVIDER. | 20 Lacs | Rs. 1000/- | | (iv) | Personal injury or death insurance:  a) for other people; | 50 Lacs | Rs. 150/- | |  | b) for Contractor’s Employees | In accordance with the statutory requirements applicable in India | | |
| **GCC 14.1** | Site Data are: *[list Site Data]* |
| **GCC 15.1** | GCC 15.1 is replaced with the following:  “The Contractor shall construct and install the Works in accordance with the Specifications and Drawings and as per instructions of Project Manager.” |
| **GCC 18 (add new 18.3.3)** | The following is inserted as a new sub-clause 18.3.3:  “18.3.3 During continuance of the contract, the contractor and his sub-contractors shall abide at all times by all existing enactments on environmental protection and rules made thereunder, regulations, notifications and by-laws of the State or Central Government, or local authorities and other law, bye-law, regulations that may be passed or notification that may be issued in this respect in future by the State or Central Government or the local authority. Salient features of the major laws are given in Appendix 1 to the General Conditions of Contract.” |
| **GCC 20.1** | The Site Possession Date(s) shall be: *[insert location(s) and date(s)]*  The Site Possession Dates shall be:  Section 1 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Section 2\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Section 3 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  *[Alternatively, in case of Site possession of entire Works on the same day:*  *The Site Possession Date(s) shall be: Within 10 days from issuance of letter of acceptance.]* |
| **GCC 23** | The following is inserted as a new sub-clause 23.1.1:  “23.1.1 The Adjudicator should be in position before “notice to proceed with work” is issued to the Contractor and an agreement should be signed with the Adjudicator jointly by the Employer and the Contractor in the form attached – Appendix 3.” |
| **GCC 23.1 &**  **GCC 23.2** | Name of the agreed Adjudicator ………………………………………... *(insert name before signing contract)*.  Appointing Authority for the Adjudicator: *[insert name of Authority]*.  *[Note: if ITB 51 provides for an Adjudicator from list provided by an Institution, insert the name of the same institution as the appointing authority]* |
| **GCC 24** | In the first sentence in GCC 24.3, the words “The Adjudicator shall be paid by the hour at the rate” are replaced by the words “The Adjudicator shall be paid daily at the rate” |
| **GCC 24.3** | Daily rate and types of reimbursable expenses to be paid to the Adjudicator: *[insert daily fees - not less than Rs. 10,000 per day, and* *reimbursable expenses – boarding/ lodging/ travel etc.]*.  *[Note: if ITB 51 provides for provision of an Adjudicator from list provided by an institution, kindly state that ‘the daily fee and reimbursable expenses payable to the Adjudicator will be governed by rules of ………. [name of the Institution]*. |
| **GCC 24.4** | The procedure for adhoc arbitration will be as follows:   1. In case of Dispute or difference arising between the Employer and a Contractor relating to any matter arising out of or connected with this agreement, such disputes or difference shall be settled in accordance with the Arbitration and Conciliation Act, 1996. The arbitral tribunal shall consist of 3 Arbitrators one each to be appointed by the Employer and the Contractor. The third Arbitrator shall be chosen by the two Arbitrators so appointed by the Parties and shall act as Presiding Arbitrator. In case of failure of the two Arbitrators appointed by the parties to reach upon a consensus within a period of 30 days from the appointment of the Arbitrator appointed subsequently, the Presiding Arbitrator shall be appointed by the\* Indian Council of Arbitration/ President of the Institution of Engineers (India)/The International Centre for Alternative Disputes Resolution (India). 2. If one of the parties fails to appoint its Arbitrator in pursuance of sub-clause (a) above within 30 days after receipt of the notice of the appointment of its Arbitrator by the other party, then the \*Indian Council of Arbitration/President of the Institution of Engineers (India)/The International Centre for Alternative Disputes Resolution (India), both in cases of Foreign Contractor as well as Indian Contractor, shall appoint the Arbitrator. A certified copy of the order of the\* Indian Council of Arbitration/President of the Institution of Engineers (India)/The International Centre for Alternative Disputes Resolution (India), making such an appointment shall be furnished to each of the parties. 3. Arbitration may be commenced prior to or after completion of the Works, provided that the obligations of the Employer, the Project Manager, the Contractor and the Adjudicator shall not be altered by reason of the arbitration being conducted during the progress of the Works. 4. Arbitration proceedings shall be held at\_\_\_\_\_\_\_\_\_\_, and the language of the arbitration proceedings and that of all documents and communications between the parties shall be English. 5. The decision of the majority of Arbitrators shall be final and binding upon both parties. The cost and expenses of Arbitration proceedings will be paid as determined by the arbitral tribunal. However, the expenses incurred by each party in connection with the preparation, presentation, etc. of its proceedings as also the fees and expenses paid to the Arbitrator appointed by such party or on its behalf shall be borne by each party itself. 6. Where the value of the contract is Rs. 50 million and below, the disputes or differences arising shall be referred to the Sole Arbitrator. The Sole Arbitrator should be appointed by agreement between the parties; failing such agreement, by the appointing authority, namely the \* Indian Council of Arbitration/President of the Institution of Engineers (India)/The International Centre for Alternative Disputes Resolution (India). 7. The Arbitrator should give final award within……… days of starting of the proceedings *[indicate the days (Between 120-180) by which arbitrator should give award].* 8. Performance under the contract shall continue during the arbitration proceedings and payments due to the contractor by the Employer shall not be withheld, unless they are the subject matter of the arbitration proceedings.   (g) \* Choose *one alternative. Insert Chairman of the Executive Committee of the Indian Roads Congress (for highway project) or any other appropriate institution (for other types of works).*  ***Alternatively***  *[Apart from the adhoc arbitration services obtained through mutually agreed Arbitrator(s) as above, Institutional arbitration services are also available in India. Institutional arbitration (and mediation) dispute resolution mechanisms can be gainfully used, preferably for relatively larger contracts. Following clause may be included, if it is decided to use Institutional Services for arbitration for resolution of disputes, and in such a case other clauses related to Arbitration/ Arbitrator would be deleted. In the sample clause below, substitute the reference to ‘Rules of Domestic Commercial Arbitration of the Indian Council of Arbitration’ by the specific institution that is sought to be engaged e.g. The International Centre for Alternative Dispute Resolution (ICADR), The Indian Institute of Arbitration and Mediation (IIAM), Indian Chamber’s Council of Arbitration, Delhi International Arbitration Centre (DAC), Construction Industry Arbitration Council (CIAC), Council for National and International Commercial Arbitration, London Court of International Arbitration (India Centre) or the like.]*  "Any dispute or difference whatsoever arising between the parties out of or relating to the construction, meaning, scope, operation or effect of this contract or the validity or the breach thereof shall be settled by arbitration in accordance with the Rules of Domestic Commercial Arbitration of the Indian Council of Arbitration and the award made in pursuance thereof shall be binding on the parties.  The arbitral tribunal shall consist of 3 Arbitrators, arbitration proceedings shall be held at\_\_\_\_\_\_\_\_\_\_, India and the language of the arbitration proceedings and that of all documents and communications between the parties shall be English”. *[ICA rules provide for arbitration tribunal of 3 arbitrators if the value of claim is over Rs. 1 crore unless the parties have agreed otherwise for a sole arbitrator].* |
| **B. Time Control** | |
| **GCC 30.1** | The Contractor shall submit for approval a Program for the Works within 14 days of delivery of the Letter of Acceptance.  Any revision in Program should only be agreed in writing.  [*This program should be in adequate detail and generally conform to the program submitted along with bid. Deviations, if any from that should be clearly explained and should be satisfactory to the Project Manager]* |
| **GCC 30.3** | The period between Program updates is 14 days.  The amount to be withheld for late submission of an updated Program is INR 5,00,000/-\_\_\_\_\_\_ *[insert amount, say Rs. 500,000]*.  The period for submission of progress reports is *[insert number]* days. |
| **GCC 31** | GCC 31.1 is replaced with the following:  “31.1 The Project Manager shall extend the Intended Completion Date including milestones if a Compensation Event occurs or a Variation is issued which makes it impossible for Completion to be achieved by the Intended Completion Date as per the agreed milestones without the Contractor taking steps to accelerate the remaining work, which would cause the Contractor to incur additional cost.”  In GCC 31.2, replace the words “Intended Completion Date” at the first occurrence by the words “Intended Completion Date/ Milestones”; and at the second occurrence by the words “Intended Completion Date/ Milestone”. |
| **GCC 34** | GCC 34.1 is replaced with the following:  “Either the Project Manager or the Contractor may require the other to attend a management meeting (which will be held at the place **indicated in PCC**. The periodicity shall be fixed by Project Manager/ Contractor jointly). The business of a management meeting shall be to review the progress of construction with reference to the construction program given in accordance with GCC 30.1, the plans for remaining work and to deal with matters raised in accordance with the early warning procedure.” |
| **GCC 34.1** | Venue of management meeting will be……………….*(State the venue).*  The management meetings shall be held at intervals of …….. *(State the periodicity).* |
| **C. Quality Control** | |
| **GCC 36** | The following sub-clause is inserted at the end of GCC 36.1:  “36.2 The contractor shall permit the Employer’s Technical auditor to check the contractor’s work and notify the Project Manager and Contractor of any defects that are found. Such a check shall not affect the Contractor’s or the Project Manager’s responsibility as defined in the Contract Agreement.” |
| **GCC 37** | The following sub-clauses are inserted before GCC 37.1, and GCC 37.1 is re-numbered as GCC 37.3:  “GCC 37.1 The Contractor shall institute Quality Assurance (QA) and Quality Control (QC) systems in accordance with Quality Assurance Plan to demonstrate compliance with the requirements of the Contract as approved by the Project Manager. Compliance with the QA/QC systems shall not relieve the Contractor of any of his duties obligations or responsibilities under the Contract.  GCC 37.2 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.” |
| **GCC 38.1** | The Defects Liability Period is: **365 days.**  *[The Defects Liability Period is usually limited to 12 months, but could be less (but not less than 6 months) in very simple cases]* |
| **GCC 39.1** | The following notes are added at the end of GCC 39.1:  ***“Note: 1. Where in certain cases, the technical specifications provide for acceptance of works within specified tolerance limits at reduced rates, Project Manager will certify payments to Contractor accordingly*.**  ***2. Where the failure to correct a particular defect within the specified time is considered as a fundamental breach of contract a notice should be given to the contractor as stated in GCC 61.2(e).”*** |
| **D. Cost Control** | |
| **GCC 41** | GCC 41.1 is replaced with the following, and existing GCC 41.2 is re-numbered as GCC 41.3:  “41.1 If the final quantity of the work done differs from the quantity in the Bill of Quantities for the particular item by more than 25 percent, provided the change exceeds 1 percent of the Initial Contract Price, the Project Manager shall adjust the rate to allow for the change.   1. If the quantity of work executed exceeds the quantity of the item in BOQ beyond the higher specified limit the Project Manager shall fix the rate to be applied for the additional quantity of the work executed. 2. If the quantity of work executed is less than the quantity of the item in BOQ and is lesser than the lower specified limit, the Project Manager shall fix the rate to be applied for whole of the quantity of the work so executed   41.2 The Project Manager shall not adjust rates from changes in quantities if thereby the Initial Contract Price is exceeded by more than 15 percent, except with the prior approval of the Employer.” |
| **GCC 42** | In GCC 42.2, the first sentence is modified as follows:  “The Contractor shall provide the Project Manager with a quotation (with breakdown of unit rates) for carrying out the Variation when requested to do so by the Project Manager. The Contractor shall also provide a description of the varied work performed or to be performed, including details of the resources and methods adopted or to be adopted by the Contractor.”  In the first sentence in GCC 42.3, after the words ‘If the Contractor’s quotation is unreasonable’, the following is added:  “[*or if contractor fails to provide the Project Manager with a quotation within a reasonable time specified by Project Manager in accordance with GCC 42.2*]” |
| **GCC 42.7** | Provisions related to Value Engineering do not apply. |
| **GCC 43.1** | The second sentence in GCC 43.1 is replaced with the following:  “The cash flow forecast shall be in Indian Rupees.” |
| **GCC 44** | At the end of GCC 44.1 after the word ‘previously’, the following words are added:  “alongwith details of measurement of the quantity of works executed in a tabular form approved by the Project Manager”  At the end of GCC 44.2 after the words ‘the Contractor’, the following words are added:  “after taking into account any credit or debit for the month in question in respect of materials for the works in the relevant amount and under conditions set forth in GCC Sub-Clause 53.1 (Secured Advance)” |
| **GCC 45** | GCC 45.1 is replaced with the following:  “Payments shall be adjusted for deductions for advance payments, retention, other recoveries in terms of contract & taxes to be deducted at source [TDS] as per applicable law. The Employer shall pay the Contractor the amounts certified by the Project Manager within 28 days of the date of each certificate. If the Employer makes a late payment, the Contractor shall be paid interest on the late payment in the next payment. Interest shall be calculated from the date by which the payment should have been made up to the date when the late payment is made at the rate **stated in the PCC**.”  A new sub-clause 45.5 is added after sub-clause 45.4:  “45.5 The Contractor shall open an Escrow Account with his bank for the purpose of receiving all the payments as well as incurring expenditure under this Contract. The Account shall be open to verification and audit at any time by the Employer or designee of the Employer. This account will be controlled solely by the Contractor’s Project Officers (Project Manager and/or Finance Manager or equivalent designate). No other Contractor employees or associates will have access to the Project Account or the funds therein. The Contractor shall report monthly on the status of this account including actual bank account statements. The Contractor shall provide all Account statements as requested by the Employer.” |
| **GCC 45.1** | Interest rate for Delayed payment is 5% per annum |
| **GCC 45.3** | All payments (and deductions) shall be paid or charged in Indian Rupees. |
| **GCC 45.5** | [*delete this clause if Escrow Account is not to be used*] |
| **GCC 47** | The following sub-clause is inserted before GCC 47.1, and GCC 47.1 is re-numbered as GCC 47.2:  “47.1 The rates quoted by the Contractor shall be deemed to be inclusive of the GST and other taxes that the Contractor will have to pay for the performance of this Contract. The Employer will perform such duties in regard to the deduction of such taxes at source [TDS] as per applicable law.”  In first line of the re-numbered GCC 47.2, replace the words ‘the date 28 days before’ with the words ‘the deadline for’. |
| **GCC 48** | All payments shall be made in Indian Rupees. |
| **GCC 49** | GCC 49.1 is replaced with the following:  “Contract price shall be adjusted for increase or decrease in rates and price of labour, materials, fuels and lubricants and other inputs to the works in accordance with the principles and procedures outlined below. A table of adjustment data is **included in the PCC** which indicates the coefficients of various inputs and the sources of indices for various schedules of BOQ. If the PCC does not include a table of adjustment data this sub clause shall not apply and there shall be no price adjustment.   * + 1. The price adjustment according to sub para (d) below, shall apply for the work done from the start date given in the PCC up to the end of the Intended Completion Date. If there is delay in completion beyond such date for reasons attributable to the contractor, the Price Adjustment for the work carried out during such period, for reasons attributable to the Contractor, shall be regulated by sub-para (g) below.     2. The Contract Price shall be adjusted to take account of any increase or decrease in cost after the base date, which affect the Contractor in performance of obligations under the Contract.     3. The total value (R) of the work done during the specified period [GCC 44.1] shall be as under:   R= SUM (RS1 + RS2 + RS3 + …….RSn),  Where,  ‘Rsn’ is the value of work done during the specified period to which the price adjustment shall be applied for the relevant schedule of Bill of Quantities (BOQ) specified in P.C.C during the specified period, and represented as under:  Rsn = (Vsn + Ssn) minus (amount of secured advance recovered in the same period + value of works executed under variations for which price adjustments will be worked separately based on terms mutually agreed between the Project Manager and the Contractor)  where,  Vsn is the total value of work done during the specified period for the respective schedule of BOQ, and  Ssn is the secured advance paid during the specified period for the respective schedule of BOQ**,**   1. The adjustment to be applied to the amount otherwise payable to the Contractor, as valued in accordance with the appropriate schedule of BOQ and certified in Payment Certificates, shall be determined from formulae which shall be of the following general type:   Pn = a + b Ln/Lo +c En/Eo + d Mn/Mo+ ……….  where,  “Pn” is the adjustment multiplier to be applied to the value of the work done during the period “n”, this period being a month unless otherwise stated in the PCC.  “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;  “Ln”[*Labour*], “En”[*Equipment*], “Mn”[*Material*], …. are the current cost indices or reference prices for period “n”, each of which is applicable to the relevant tabulated cost element [*Labour, Equipment, Steel, Cement, Fuel/Lubricants, Bitumen, others*] on the date, specified in the Table-2 of Adjustment Data, prior to the last day of the period (to which the particular Payment Certificate relates); and  “Lo”, “Eo”, “Mo”, ….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.  (e) The cost indices or reference prices stated in the tables of adjustment data given in PCC shall be used. The base date shall be the deadline for submission of bids.  (f) If the Contractor fails to complete the Works within the Intended Completion date, adjustment of prices thereafter shall be made using either:  (i) index or price applicable for each cost element tabulated in the tables of adjustment data on the specified date prior to the expiry of the Intended Completion Date, or  (ii) the current index or price applicable for the period in question whichever is more favourable to the Employer.   1. The weightings (coefficients) for each of the factors of cost stated in the table(s) of adjustment data shall only be varied by the Project Manager if they have been rendered unreasonable, unbalanced or inapplicable, as a result of Variations. 2. Unless otherwise **stated in the P.C.C**., the Price adjustment shall be done in each monthly Interim Payment Certificate [IPC]. The coefficients and indices are given in the Tables of Adjustment Data in Contract data.   To the extent that full compensation for any rise or fall in costs to the contractor is not covered by the provisions of this or other clauses in the contract, the unit rates and prices included in the contract shall be deemed to include amounts to cover the contingency of such other rise or fall in costs.” |
| **GCC 49.1** | Price Adjustment :  The contract [*insert “is” or “is not”*] subject to price adjustment in accordance with G.C.C. Clause 49 and following information regarding coefficients [*specify “does” or “does not” apply*]  [*Price adjustment is mandatory for all contract with completion time exceeding 18 months.]*  The Price Adjustment shall be done in accordance with Tables 1&2 of Adjustment Data given in Appendix 2. The base and current price of the following items shall be based on the source indicated below:   1. Diesel: Selling price of IOC depot at ….In case the work extends over long stretches or different sections specify separate identified depot… 2. Bitumen: Selling Price of Bitumen from the IOC refinery at … [*specify*]… 3. Cement Selling price at ***\_\_\_\_\_*** 4. Steel Selling price at ***\_\_\_\_\_***   **The price Adjustment will be done Annually** *(or if it is different state here)* |
| **GCC 50.1** | The proportion of payments retained (Retention Money) shall be 6% from each bill subject to the maximum of 5% of final contract price.  *[The retention amount is usually close to 5 percent and in no case exceeds 10 percent.]* |
| **GCC 50.2** | The last line of GCC 50.2 is replaced with the following:  “On completion of the whole works the Contractor may substitute the balance retention money with an “on demand” Bank guarantee.” |
| **GCC 51** | In the first sentence of GCC 51.1, the following words are inserted after the words ‘Intended Completion Date’:  “(for the whole of the works or the milestones as stated in the PCC)”  The following is inserted as a sub-paragraph at the end of GCC 51.1:  “Time is the essence of the contract and payment or deduction of liquidated damages shall not relieve the contractor from his obligation to complete the work as per agreed construction program and milestones, or from any of the Contractor’s other obligations and liabilities under the contract.”  In the first sentence in GCC 51.2 the following words are inserted after the words ‘Intended Completion Date’:  “including milestones” |
| **GCC 51.1** | The liquidated damages for the whole of the Works are ***[0.05% of the final Contract Price]****[insert percentage of the final Contract Price]* per day. The maximum amount of liquidated damages for the whole of the Works is ***[10 percentage]*** *[insert percentage]* of the final Contract Price.  For milestone 1 Rs. \_\_\_\_\_\_\_\_\_\_\_\_per day  For milestone 2 Rs. \_\_\_\_\_\_\_\_\_\_\_\_per day  All works Rs. \_\_\_\_\_\_\_\_\_\_\_\_per day  *[Usually liquidated damages are set between 0.05 percent and 0.20 percent per day, and the total amount is not to exceed between 5 percent and 10 percent of the Contract Price.* *If Sectional Completion and Damages per Section have been agreed, the latter should be specified here]* |
| **GCC 52.1** | Bonus for the whole of the Works is [*insert percentage of the final Contract Price*] per day. The maximum amount of Bonus for the whole of the Works is [*insert percentage*] of the final Contract Price[[48]](#footnote-49).  *[If early completion would provide benefits to the* Employer*, this clause should remain; otherwise delete.* *Normally the rate of bonus and rate of liquidated damages should be the same.]* |
| **GCC 53** | The following is inserted as a new sub-clause 53.4:  “The Project Manager shall make advance payment in respect of materials intended for but not yet incorporated in the Works in accordance with conditions **stipulated in the PCC**.” |
| **GCC 53.1** | Advance Payments shall be made in Indian Rupees only. The amount of the Advance Payments are:   |  |  |  | | --- | --- | --- | | Nature of Advance | Amount (Rs.) | Conditions to be fulfilled | | 1. Mobilization[[49]](#footnote-50) | 5% of the Contract price | On submission of un-conditional Bank Guarantee. *(to be drawn before end of 20% of Contract period*) | | 2. Equipment  (*This advance is not applicable for equipment already owned or hired/leased by the contractor*.)  USUALLY EQUIPMENT AND SECURED ADVANCES ARE NOT ENVISAGED IN REHABILITATION WORKS. ACCORDINGLY MENTION “NA” UNDER RELEVENT COLUMNS | 90% for new and 50% of depreciated value for old equipment. Total amount will be subject to a maximum of 5%/10%/15%\* of the Contract price.  *(\*Choose one and delete others)* | After equipment is brought to site as per agreed construction program (*provided the Project Manager is satisfied that the equipment is required for performance of the contract)* and on submission of unconditional Bank Guarantee for amount of advance. | | 3. Secured advance for non-perishable materials brought to site [*Specify the item or items for which this will be given here*] | 75% of Invoice value or Market value –lower of the two. | a) The materials are in-accordance with the specification for Works;  b) Such materials have been delivered to site, and are properly stored and protected against damage or deterioration to the satisfaction of the Project Manager.  c) the Contractor’s records of the requirements, orders, receipt and use of materials are kept in a form approved by the Project Manager and such records shall be available for inspection by the Project Manager;  d) The contractor has submitted with his monthly statement the estimated value of the materials on site together with such documents as may be required by the Project Manager for the Purpose of valuation for material and providing evidence of ownership and payment thereof;  e) Ownership of such materials shall be deemed to vest in the Employer for which the Contractor has submitted an Indemnity Bond in an acceptable format; and  f) The quantity of materials are not excessive and shall be used within a reasonable time as determined by the Project Manager. | | (The advance payment will be paid to the Contractor no later than 15 days after fulfilment of the above conditions). | | |   **Repayment of advance payment for mobilization and equipment**:  The advance shall be repaid with percentage deductions from the interim payments certified by the Project Manager under the Contract. Deductions shall commence in the next Interim Payment Certificate following that in which the total of all such payments to the contractor has reached not less than 15 percent of the Contract Price or 9 months from the date of payment of first instalment of advance, whichever period concludes earlier, and shall be made at the rate of 15% (Fifteen percent) of the amounts of all Interim Payment Certificates until such time as the advance has been repaid, always provided that the advance shall be completely repaid prior to the expiry of the original time for completion.  On recovery of 100% amount paid against of the Advance Payment, the Employer shall release the Bank Guarantee to the Contractor, within 21 days from such request made by the Contractor. If the terms of the guarantee specify its expiry date, and the advance payment has not been repaid by the date 21 days prior to the expiry date, the Contractor shall extend the validity of the guarantee until the advance payment is repaid.  **Repayment of secured advance**: *(Delete para in case Secured Davnce is mentioned as “NA”)*  The advance shall be repaid from each succeeding monthly payments to the extent materials [*for which advance was previously paid pursuant to Clause 53 of GCC and 53.1(3) of PCC*.] have been incorporated into the Works.  @ *Stipulate appropriately, namely 30% for 20% advance, 25% for 15% advance, 15% for 10% advance and 7.5% for 5% advance respectively.*  The amount of the Guarantee may be progressively reduced by the amounts repaid by the Contractor, each instalment not less than Rs. 500,000. |
| **GCC 54** | GCC 54.1 is replaced with the following:  “The Performance Security and an Environmental and Social (ES) Performance Security shall be provided to the Employer no later than the date specified in the Letter of Acceptance and shall be issued in the amounts **specified in the PCC**, and shall be issued by a Nationalized or Scheduled bank in India. The Performance Security including additional security for unbalanced bids, and the ES Performance Security, shall be valid until a date 28 days from the date of issue of the Certificate of Completion.  [If the](https://www.lawinsider.com/contracts/NlrtpzkQgyjee8NHOg9Jz/renewable-fuel-corp/contract-agreement/2011-02-09#performance-security) terms of the Performance Security and additional security, specify its expiry date, and the Contractor has not become entitled to receive the Completion Certificate by the date 28 days prior to the expiry date, the Contractor shall extend the validity of the Performance Security and additional security, until the end of extended Completion Period.” |
| **GCC 54.1** | The Performance Security amount is Five percent of the Accepted Contract Amount plus additional security for unbalanced bids [*in terms of ITB Clause 41.2*], and Environmental and Social (ES) Performance Security amount is One percent of the Accepted Contract Amount [*delete ES performance security if not applicable*]..The standard forms of Performance Security and if applicable ES Security acceptable to the Employer shall be unconditional Bank Guarantees from Scheduled or Nationalized banks in India of the types as presented in Section X of the Bidding Document.  *[Notes: The* ***Bank Guarantees*** *shall be unconditional (on demand) (see Section X, Contract Forms). The ES Performance Security will normally be in the amount(s) of between 1% to 3% of the Accepted Contract Amount. The sum of the total “demand guarantees” (a) Performance Security and ES Performance Security shall normally not exceed 10 % of the Accepted Contract Amount; and (b) Performance Security; additional Performance Security for bids which are seriously unbalanced, front-loaded or substantially below updated estimates; and ES Performance Security shall normally not exceed 20 % of the Accepted Contract Amount].*  Throughout this bidding document the term ’performance security’, unless the context clearly indicates otherwise, means and includes both ‘the performance security and the ES performance security’ to be submitted by the successful bidder in the amounts specified above. |
| **E. Finishing the Contract** | |
| **GCC 59.1** | The following is added after the words ‘issue a payment certificate’ at the end of GCC 59.1:  “within 56 days of receiving the contractor’s revised account” |
| **GCC 60.1** | The date by which operating and maintenance manuals are required is within 28 days of issue of certificate of completion of whole or section of work, as the case may be*,…………. [insert date/ No. of days after commencement of works].*  The date by which “as built” drawings (in scale 1:25) including a compact disc containing digitized drawings in 2 sets are required, is within 28 days of issue of certificate of completion of whole or section of the work, as the case may be ………….. *[insert date/ No. of days]* after commencement of works. |
| **GCC 60.2** | The amount to be withheld for failing to produce “as built” drawings and/or operating and maintenance manuals by the date required in GCC 60.1 is Rs. 1% of the Bid value.…………………….. *[insert amount]*. |
| **GCC 61** | The following sub-clauses are added after GCC 61.2 (h):  “(i) The contractor has contravened Clauses 7 and 9 of GCC.  (j) The contractor does not adhere to the agreed construction program, agreed ES-MSIP [Clause 30 of GCC], and also fails to take satisfactory remedial action as per agreements reached in the management meetings [Clause 30 of GCC] for a period of 60 days.  (k) The contractor fails to carry out the instructions of the Project Manager within a reasonable time determined by the Project Manager in accordance with GCC Clause 15.1 and 22.  (l) The contractor (in case of Joint Venture) has modified the composition of the joint venture and/or the responsibility of each member of the joint venture from what is stated in joint venture agreement without the prior approval of the Employer.” |
| **GCC 61.2 (g)** | The maximum number of days is**: *[insert number; consistent with Clause 51.1 on liquidated damages]*.200 days** after commencement of works |
| **GCC 61.2 (l)** | Hiding any information regarding changes in roles and responsibilities of JV members, which is not authorized by the Employer, shall also be treated as violation of Appendix A to General Conditions (Fraud and Corruption). |
| **GCC 62** | The following is added after the words ‘issue of the certificate’ in the first sentence of GCC 62.1;  “less other recoveries due in terms of contract, less taxes to be deducted at source [TDS] as per applicable law,”  The following is added after the words ‘date of the certificate’ at the end of GCC 62.2:  “less other recoveries due in terms of contract, less taxes to be deducted at source [TDS] as per applicable law” |
| **GCC 62.1** | The percentage to apply to the value of the work not completed, representing the Employer’s additional cost for completing the Works, is 20%. |

Appendices

Appendix 1

## Salient Features of Labour & Environment Protection Laws[[50]](#footnote-51)

SALIENT FEATURES OF SOME MAJOR LABOUR LAWS

APPLICABLE TO ESTABLISHMENTS ENGAGED IN BUILDING AND OTHER CONSTRUCTION WORK

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| 1. Employees Compensation Act 1923: The Act provides for compensation in case of injury, disease or death arising out of and during the course of employment. 2. Payment of Gratuity Act 1972: gratuity is payable to an employee under the Act on satisfaction of certain conditions on separation if an employee has completed 5 years’ service or more or on death at the rate of 15 days wages for every completed year of service. The Act is applicable to all establishments employing 10 or more employees. 3. Employees P.F. and Miscellaneous Provision Act 1952 (*since amended*): The Act provides for monthly contribution by the employer plus workers @ 10% or 8.33%. The benefits payable under the Act are:   (i) Pension or family pension on retirement or death, as the case may be.  (ii) Deposit linked insurance on the death in harness of the worker.  (iii) Payment of P.F. accumulation on retirement/death etc.   1. Maternity Benefit Act 1961: The Act provides for leave and some other benefits to women employees in case of confinement or miscarriage etc. 2. Sexual Harassment of Women at the Workplace (Prevention, Prohibition and Redressal) Act, 2013: This Act defines sexual harassment in the workplace, provides for an enquiry procedure in case of complaints and mandates the setting up of an Internal Complaints Committee or a Local Complaints Committee 3. Contract Labour (Regulation & Abolition) Act 1970: The Act provides for certain welfare measures to be provided by the Contractor to contract labour and in case the Contractor fails to provide, the same are required to be provided, by the Principal Employer by law. The Principal Employer is required to take Certificate of Registration and the Contractor is required to take license from the designated Officer. The Act is applicable to the establishments or Contractor of Principal Employer if they employ 20 or more contract labour. 4. Minimum Wages Act 1948: The Employer is supposed to pay not less than the Minimum Wages fixed by appropriate Government as per provisions of the Act if the employment is a scheduled employment. Construction of Buildings, Roads, Runways are scheduled employments. 5. Payment of Wages Act 1936: It lays down the mode, manner and by what date the wages are to be paid, what deductions can be made from the wages of the workers. 6. Equal Remuneration Act 1976: The Act provides for payment of equal wages for work of equal nature to male and female workers and for not making discrimination against Female employees in the matters of transfers, training and promotions etc. 7. Payment of Bonus Act 1965: The Act is applicable to all establishments employing 20 or more employees. Some of the State Governments have reduced this requirement from 20 to 10. The Act provides for payments of annual bonus subject to a minimum of 8.33% of the wages drawn in the relevant year. It applies to skilled or unskilled manual, supervisory, managerial, administrative, technical or clerical work for hire or reward to employees who draw a salary of Rs. 10,000/- per month or less. To be eligible for bonus, the employee should have worked in the establishment for not less than 30 working days in the relevant year. The Act does not apply to certain establishments.      1. Industrial Disputes Act 1947: the Act lays down the machinery and procedure for resolution of Industrial disputes, in what situations, a strike or lock-out becomes illegal and what are the requirements for laying off or retrenching the employees or closing down the establishment. 2. Trade Unions Act 1926: The Act lays down the procedure for registration of trade unions of workmen and employers. The Trade Unions registered under the Act have been given certain immunities from civil and criminal liabilities. 3. Child Labour (Prohibition & Regulation) Act 1986: The Act prohibits employment of children below 14 years of age in certain occupations and processes and provides for regulation of employment of children in all other occupations and processes. Employment of Child Labour is prohibited in the Building and Construction Industry. 4. Inter-State Migrant workmen’s (Regulation of Employment & Conditions of Service) Act 1979: The Act is applicable to an establishment which employs 5 or more inter-state migrant workmen through an intermediary (who has recruited workmen in one state for employment in the establishment situated in another state). The Inter-State migrant workmen, in an establishment to which this Act becomes applicable, are required to be provided certain facilities such as housing, medical aid, traveling expenses from home up to the establishment and back, etc. 5. The Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act 1996 and the Building and Other Construction Workers Welfare Cess Act, 1996 (BOCWW Cess Act): All the establishments who carry on any building or other construction work and employ 10 or more workers are covered under these Acts. All such establishments are required to pay cess at the rate not exceeding 2% of the cost of construction as may be notified by the Government. The Employer of the establishment is required to provide safety measures at the building or construction work and other welfare measures, such as Canteens, First – Aid facilities, Ambulance, Housing accommodations for workers near the work place etc. The Employer to whom the Act applies has to obtain a registration certificate from the Registering Officer appointed by the Government. 6. Factories Act 1948: the Act lays down the procedure for approval of plans before setting up a factory engaged in manufacturing processes, health and safety provisions, welfare provisions, working hours, annual earned leave and rendering information regarding accidents or dangerous occurrences to designated authorities. It is applicable to premises employing 10 persons or more with aid of power or 20 or more persons without the aid of power. 7. Weekly Holidays Act -1942 8. Bonded Labour System (Abolition) Act, 1976: The Act provides for the abolition of bonded labour system with a view to preventing the economic and physical exploitation of weaker sections of society. Bonded labour covers all forms of forced labour, including that arising out of a loan, debt or advance. 9. Employer’s Liability Act, 1938: This Act protects workmen who bring suits for damages against employers in case of injuries endured in the course of employment. Such injuries could be on account of negligence on the part of the employer or persons employed by them in maintenance of all machinery, equipment etc. in healthy and sound condition. 10. Employees State Insurance Act 1948: The Act provides for certain benefits to insured employees and their families in case of sickness, maternity and disablement arising out of an employment injury. The Act applies to all employees in factories (as defined) or establishments which may be so notified by the appropriate Government. The Act provides for the setting up of an Employees’ State Insurance Fund, which is to be administered by the Employees State Insurance Corporation. Contributions to the Fund are paid by the employer and the employee at rates as prescribed by the Central Government. The Act also provides for benefits to dependents of insured persons in case of death as a result of an employment injury. 11. The Personal Injuries (Compensation Insurance) Act, 1963: This Act provides for the employer’s liability and responsibility to pay compensation to employees where workmen sustain personal injuries in the course of employment. 12. Industrial Employment (Standing Order) Act 1946: It is applicable to all establishments employing 100 or more workmen (employment size reduced by some of the States and Central Government to 50). The Act provides for laying down rules governing the conditions of employment by the Employer on matters provided in the Act and get the same certified by the designated Authority. |

SALIENT FEATURES OF SOME OF THE MAJOR LAWS THAT ARE APPLICABLE FOR PROTECTION OF ENVIRONMENT.

|  |
| --- |
| 1. The Environment (Protection) Act, 1986 and as amended: This provides for the protection and improvement of environment and for matters connected therewith, and the prevention of hazards to human beings, other living creatures, plants and property. ‘Environment’ includes water, air and land and the inter-relationship which exists among and between water, air and land, and human beings, other living creatures, plants, micro-organism and property. 2. The Forest Conservation Act, 1980, as amended, and Forest (Conservation) Rules, 1981 as amended: These provides for protection of forests by restricting conversion of forested areas into non- forested areas and prevention of deforestation, and stipulates the procedures for cutting any trees that might be required by the applicable rules. Permissions under the Act also stipulates the norms and compliance requirements of the employer and any contractor on behalf of the employer. 3. State Tree Preservation Acts as may be in force: These provide for protection of trees of important species. Contractors will be required to obtain prior permission for full or partial cutting, uprooting, or pruning of any such trees. 4. The Wildlife (Protection) Act, 1972, and as amended: This provides for protection of wildlife through notifying National Parks and Sanctuaries and buffer areas around these zones; and to protect individuals of nationally important species listed in the Annex of the Act. 5. The Biological Diversity Act, 2002: This provides for conservation of biological diversity, sustainable use of components of biological diversity, and fair and equitable sharing of the benefits arising out of the use of biological resources, knowledge and for matters connected therewith or incidental thereto. 6. The Public Liability Insurance Act, 1991 as amended and The Public Liability Insurance Rules, 1991 as amended: These provide for public liability insurance for the purpose of providing immediate relief to the persons affected by accident occurring while handling hazardous substances and for mattes connected herewith or incidental thereto. Hazardous substance means any substance or preparation which is defined as hazardous substance under the Environment (Protection) Act 1986, and exceeding such quantity as may be specified by notification by the Central Government. 7. The Ancient Monuments and Archaeological Sites and Remains Act, 1958 and the Ancient Monuments and Archaeological Sites and Remains (Amendment and Validation) Act, 2010, the Ancient Monuments and Archaeological Sites and Remains Rules, 1959 amended 2011, the National Monuments Authority Rules, 2011 and the similar State Acts: These provide for conservation of cultural and historical remains found in India. Accordingly, area within the radii of 100m and 300m from the “protected property” are designated as “protected area” and “controlled area” respectively. No development activity (including building, mining, excavating, blasting) is permitted in the “protected area” and development activities likely to damage the protected property is not permitted in the “controlled area” without prior permission of the Archaeological Survey of India (ASI) or the State Departments of Art and Culture or Archaeology as applicable. 8. The Environmental Impact Assessment Notification, 2006 and as amended: This provides for prior environmental clearance for new, modernization and expansion projects listed in Schedule 1 of the Notification. Contractors will be required to ensure that no work starts until applicable clearances under the Notification is not available. Contractors will be responsible for implementation of any environmental management plan stipulated as per the permission under this Notification; and will be required to prepare and submit to the employer and compliance report stipulated in the permission under the Notification. 9. The Water (Prevention and Control of Pollution) Act, 1974 as amended, and the Water (Prevention and Control of Pollution) Rules, 1975 as amended: These provide for the prevention and control of water pollution and the maintaining and restoring of wholesomeness of water. ‘Pollution’ means such contamination of water or such alteration of the physical, chemical or biological properties of water or such discharge of any sewage or trade effluent or of any other liquid, gaseous or solid substance into water(whether directly or indirectly) as may, or is likely to, create a nuisance or render such water harmful or injurious to public health or safety, or to domestic, commercial, industrial, agricultural or other legitimate uses, or to the life and health of animals or plants or of aquatic organisms. Contractors will need to obtain consent for establishment and consent for operation of any item of work or installation of equipment that generates waste water, and observe the required standards of establishment and operation of these items of work or installations; as well as install and operate all required waste water treatment facilities. 10. The Water (Prevention and Control of Pollution) Cess Act, 1977 and The Water (Prevention and Control of Pollution) Cess Rules, 1978: These provide for the levy and collection of a cess on water consumed by persons carrying on certain industries and by local authorities, with a view to augment the resources of the Central Board and the State Boards for the prevention and control of water pollution under the Water (Prevention and Control of Pollution) Act, 1974. 11. The Air (Prevention and Control of Pollution) Act, 1981 as amended, and the Air (Prevention and Control of Pollution) Rules, 1982: These provides for prevention, control and abatement of air pollution. ‘Air Pollution’ means the presence in the atmosphere of any ‘air pollutant’, which means any solid, liquid or gaseous substance (including noise) present in the atmosphere in such concentration as may be or tend to be injurious to human beings or other living creatures or plants or property or environment. Contractors will need to obtain consent for establishment and consent for operation of any item of work or installation of equipment that generates air pollution such as batching plants, hot mix plants, power generators, backup power generation, material handling processes, and observe the required standards of establishment and operation of these items of work or installations. 12. Noise Pollution (Control and Regulation) Rules, 2000, and as amended: This provides for standards for noise for day and night for various land uses and specifies special standards in and around sensitive receptors of noise such as schools and hospitals. Contractors will need to ensure compliance to the applicable standards, and install and operate all required noise control devices as may be required for all plants and work processes. 13. Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996: This provides for Requirement of preparation of on-site and off-site Disaster Management Plans for accident-prone areas. 14. The Explosives Act 1884 and the Explosives Rules, 2008: These provide for safe manufacture, possession, sale, use, transportation and import of explosive materials such as diesel, Oil and lubricants etc.; and also for regulating the use of any explosives used in blasting and/or demolition. All applicable provisions will need compliance by the contractors. 15. The Petroleum Rules, 2002: This provides for safe use and storage of petroleum products, and will need to be complied by the contractors. 16. The Gas Cylinder Rules 2004 and amendments: This provides for regulations related to storage of gas, and possession of gas cylinder more than the exempted quantity. Contractors should comply with all the requirements of this Rule. 17. Manufacture, Storage and Import of Hazardous Chemical Rules of 1989 and as amended: These provide for use and storage of hazardous material such as highly inflammable liquids like HSD/LPG. Contractors will need to ensure compliance to the Rules; and in the event where the storage quantity exceeds the regulated threshold limit, the contractors will be responsible for regular safety audits and other reporting requirements as prescribed in the Rules. 18. Hazardous & Other Wastes (Management and Transboundary Movement) Rules, 2016: These provide for protection of general public from improper handling storage and disposal of hazardous waste. The rules prescribe the management requirement of hazardous wastes from its generation to final disposal. Contractors will need to obtain permission from the State Pollution Control Boards and other designated authorities for storage and handling of any hazardous material; and will to ensure full compliance to these rules and any conditions imposed in the permit. 19. The Bio Medical Waste Management Rules, 2016: This provides for control, storage, transportation and disposal of bio-medical wastes. As and where the contractor has any first aid facility and dispensaries, established in either temporary or permanent manner, compliance to these Rules are mandatory. 20. Construction and Demolition Waste Management Rules, 2016: This provides for management of construction and demolition waste (such as building materials possible to be reused, rubble and debris or the like); and applies to all those waste resulting from construction, re-modelling, repair or demolition of any civil structure. Contractor will need to prepare a waste disposal plan and obtain required approval from local authorities, if waste generation is more than 20 tons in any day or 300 tons in any month during the contract period; and ensure full compliance to these rules and any conditions imposed in the regulatory approval. 21. The E-Waste (Management) Rules, 2016: This provides for management of E-wastes (but not covering lead acid batteries and radio-active wastes) aiming to enable the recovery and/or reuse of useful material from e-waste, thereby reducing the hazardous wastes destined for disposal and to ensure the environmentally sound management of all types of waste of electrical and electronic equipment. This Rule applies to every manufacturer, producer, consumer, bulk consumer, collection centers, dealers, e-retailer, refurbisher, dismantler and recycler involved in manufacture, sale, transfer, purchase, collection, storage and processing of e-waste or electrical and electronic equipment listed in Schedule I, including their components, consumables, parts and spares which make the product operational. 22. Plastic waste Management Rules, 2016: This provides for control and management of the plastic waste generated from any activity. Contractors will ensure compliance to this Rule. 23. The Batteries (Management and Handling) Rules 2001: This provides for ensuring safe disposal and recycling of discarded lead acid batteries likely to be used in any equipment during construction and operation stage. Rules require proper control and record keeping on the sale or import of lead acid batteries and recollection of the used batteries by registered recyclers to ensure environmentally sound recycling of used batteries. Contractors will ensure compliance to this Rule. 24. The Ozone Depleting Substances (Regulation and Control) Rules, 2000 and as amended: This provides for regulation of production and consumption of ozone depleting substances in the country, and specifically prohibits export to or import from countries not specified in the Rules, and prohibits unless specifically permitted, any use of ozone depleting substance. 25. The Coastal Regulation Zone Notifications, 1991 and as amended: This provides for regulation of development activities within the 500m of high tide line in coastal zone and 100m of stretches of rivers and estuaries influenced by tides. Contractors will be required to ensure that no work starts until applicable clearances under the Notification is not available. Contractors will be responsible for implementation of any plan stipulated as per the permission under this Notification; and will be required to prepare and submit to the employer and compliance report stipulated in the permission under the Notification. 26. The Motor Vehicle Act 1988 as amended (and State Motor Vehicle Acts as may be in force) and the Motor Vehicle Rules, 1989, and as amended (and State Motor Vehicle Rules as may be in force): To minimize the road accidents, penalizing the guilty, provision of compensation to victim and family and check vehicular air and noise pollution. Contractors will be required to ensure full compliance to these rules. 27. Easement Act, 1882: This provides for the rights of landowners on groundwater. Contractors will need to ensure that other landowners’ rights under the Act is not affected by any groundwater abstraction by the contractors. 28. State Groundwater Acts and Rules as may be in force and the Guidelines for Groundwater Abstraction for drinking and domestic purposes in Notified Areas and Industry/Infrastructure project proposals in Non-Notified areas, 2012: These provide for regulating extraction of ground water for construction/industrial and drinking and domestic purposes. Contractors will need to obtain permission from Central/State Groundwater Boards prior to groundwater abstraction through digging any bore well or through any other means; and will to ensure full compliance to these rules and any conditions imposed in the permit. 29. The Mines Act, 1952 as amended; the Minor Mineral and concession Rules as amended; and the State Mineral (Rights and Taxation) Acts as may be in force: These provide for for safe and sound mining activity. The contractors will procure aggregates and other building materials from quarries and borrow areas approved under such Acts. In the event the contractors open any new quarry and/or borrow areas, appropriate prior permission from the State Departments of Minerals and Geology will need to be obtained. Contractors will also need to ensure full compliance to these rules and any conditions imposed in the permit. 30. The Insecticides Act, 1968 and Insecticides Rules, 1971 and as amended: These provide for regulates the manufacture, sale, transport, distribution, export, import and use of pesticides to prevent risk to human beings or animals, and for matters connected therewith. No one should import or manufacture; sell, stock or exhibit foe sale; distribute, transport, use: (i) any misbranded insecticides, (ii) any insecticide the sale, distribution or use of which is for the time being prohibited under the Act; and (iii) any insecticide except in accordance with the condition on which it was registered under the Act. 31. National Building Codes of India, 2005 and as amended: This provides guidelines for regulating the building construction activities in India. The code mainly contains administrative regulations, development control rules and general building requirements; stipulations regarding materials, structural design and construction; and building and plumbing services. Contractors will be required to comply with all Bureau of Indian Standards Codes dealing with: (i) use and disposal of asbestos containing materials in construction; (ii) paints containing lead; (iii) permanent and temporary ventilations in workplace; (iv) safety, and hygiene at the workplace; (v) prevention of fire; (vi) prevention of accidents from faulty electrical gadgets, equipment and accessories; and all other such codes incidental to the Contract. |

Appendix 2

## 

## Tables of Adjustment Data

(Cl. 49 of GCC)

**Table 1: Coefficients governing the adjustment for changes in cost**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **S. No.** | **Coefficients Name** | **Symbol** | **Schedules (Reference Number)**  **[*Description of each schedule is given below*]** | | | | | | | | |
|  |  |  | S1 | S2 | S3 | S4 | S5 | S6 | S7 | S8 | S9 |
| 1. | Fixed | a | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| 2. | Labour [L] | b |  |  |  |  |  |  |  |  |  |
| 3. | Steel [S] | c |  |  |  |  |  |  |  |  |  |
| 4. | Cement [C] | d |  |  |  |  |  |  |  |  |  |
| 5. | Plant & Equipment spares [E] | e  STATE SHALL PROVIDE DATA UNDER RELEVENT COLUMNS , IN0LINE WITH PCC 49 |  |  |  |  |  |  |  |  |  |
| 6. | Diesel and Petroleum products [D] | f |  |  |  |  |  |  |  |  |  |
| 7. | Bitumen [B] | g |  |  |  |  |  |  |  |  |  |
| 8. | Others[O] | 0 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  | **Total** |  | **100%** | **100%** | **100%** | **100%** | **100%** | **100%** | **100%** | **100%** | **100%** |

Note: (a) *Fixed element is normally 15%; (b) Employer to fill-up above Table.*

|  |
| --- |
| ***BOQ SCHEDULES***  *[The following Schedules are for example only. The schedules may be modified and specified as appropriate for each work*]  Schedule 1: Earth Work In Formation  Schedule 2: Civil Engineering Work (Bridge)  Schedule 3: Civil Engineering Work Building,  Schedule 4: Steel Fabrication Works  Schedule 5: Road Works –WBM  Schedule 6: Road BTM  Schedule 7: |

**Table 2:** Cost Indices and Reference Prices (applicable for specific items) for adjustment in contract prices [as per GCC 49].

WPI with base 2011-2012 = 100 on the Base Date

Base Date = Deadline for submission of bids

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| S. No. | Cost Element | Symbol | Indices or Cost on the Base Date | Index for adjustment | Sources of Index |
|
| [1] | [2] | [3] | [4] | [5] | [6] |
| 1. | Fixed | a |  |  |  |
| 2. | Labour | b | Lo- all India average Consumer Price Index(CPI) Number for Industrial Workers for ….. centre[[51]](#footnote-52) (Base 2001 = 100) on the base date. | Ln-CPI for the month for which the IPC is related | Labour Bureau, Ministry of Labour and Employment, Government of India. |
| 3. | Steel | c | So – Whole-sale Price Index (WPI) for Steel [*Steel Long]* | Sn-WPI for the month which is two months prior to the month to which IPC is related | Economic Advisor, Ministry of Commerce and Industry, Government of India. |
| 4. | Cement | d | Co-WPI for Grey Cement | Cn-WPI for the month which the cement is brought to site or one month prior to the month to which IPC is related, whichever is less | Economic Advisor, Ministry of Commerce and Industry, Government of India |
| 5. | Plant & Equipment spares | e | Eo-WPI for “Construction machinery ” | En – WPI for the month to which IPC is related | Economic Advisor, Ministry of Commerce and Industry, Government of India |
| 6. | Diesel**[[52]](#footnote-53)** | f | Do-Unit Cost from the identified depot on the base date | Dn-Unit Cost for on the first day of the month to which the IPC relates | From the ………. Depot |
| 7. | Bitumen**[[53]](#footnote-54)** | g | Bo-Unit Cost from the identified refinery on the base date | Bn- Cost per unit quantity on the first day of the month in which the material is brought to site or two months prior to the date to which IPC is related | From …. Refinery |
| 8. | Others | h | Oo- All India Wholesale Price Index(WPI) for all commodities | On- All India WPI for all commodities for the month to which IPC is related | Economic Advisor, Ministry of Commerce and Industry, Government of India |

IPC – Interim Payment Certificate

Appendix - 3[[54]](#footnote-55)

Appointment of Adjudicator

Suggested Draft of Letter of Appointment of Adjudicators in civil works contracts

Sub:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(Name of the Contract)

**To**

Name and address of the Adjudicator

We hereby confirm your appointment as Adjudicator for the above contract to carry out the assignment specified in this Letter of Appointment.

For administrative purpose\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(*name of the officer representing the Employer*) has been assigned to administer the assignment and to provide the Adjudicator with all relevant information needed to carry out the assignment on behalf of both the employer and the contractor. The services will be required during the period of contract for the work of (Name of the Contract)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

The Adjudicator shall visit the worksite once in 3 (three)months till the completion of the work indicated above or as specifically requested by Employer/ Contractor for the period up to the end of defects liability period with prior intimation to the Employer and the contractor. The duration of each visit shall ordinarily be for one day only. These durations are approximate and (*Name of the employer and Name of the Contractor*) may find it necessary to postpone or cancel the assignment and/or shorten or extend the duration.

The appointment will become effective upon confirmation of letter by you. The appointment of Adjudicator shall be liable for termination under a 30 (thirty) days written notice from the date of issue of the notice, if both Employer and the Contractor so desire. Also the appointment shall automatically stand terminated 14 days after the defect notice / correction period as stated in Clauses 23 and 24 of the Conditions of Contract is over.

The Adjudicator will be paid a fee of Rs.\_\_\_\_\_\_ (Rupees \_\_\_\_\_\_\_\_\_\_\_\_only) per each day of visit at the worksite. The actual expenses for boarding and traveling in connection with the assignment will be reimbursed to the Adjudicator. The Adjudicator will submit a pre-receipted bill in triplicate to the employer indicating the date of the visit, fees for the visit and a proof in support of the actual expenditure [only for items valued above Rs. 500 each] incurred by him against boarding, lodging and traveling expenses after performing the visit on each occasion. The Employer will make the admissible payment (both the Employer’s and the Contractor’s share) to the Adjudicator within 30 days of the receipt of the bill. The Contractor’s share on this account (half the paid amount) will be recovered by the Employer from the Contractor’s bills against the work.

In accepting this assignment, the Adjudicator should understand and agree that he is responsible for any liabilities and costs arising out of risks associated with travel to and from the place of emergency repatriation, loss or damage to personal/professional effects and property. The Adjudicator is advised to effect personal insurance cover in respect of such risks if he does not already have such cover in place. In this regard, the Adjudicator shall maintain appropriate medical, travel, accident and third-party liability insurance. The obligation under this paragraph will survive till termination of this appointment.

Procedures for resolution of disputes by the Adjudicator is described in the contract of \_\_\_\_\_\_\_\_\_\_\_\_\_(name of the contract) between the employer and the contractor vide Clause No. 24 of the General Conditions of Contract. Your recommendation should be given in the format attached, within 28 days of receipt of a notification of dispute.

The Adjudicator will carry out the assignment in accordance with the highest standard of professional and ethical competence and integrity, having due regard to the nature and purpose of the assignment, and will conduct himself in a manner consistent herewith. After visiting the worksite, the Adjudicator will discuss the matter with the Employer and if necessary with the Contractor before arriving at any decision.

The Adjudicator will agree that all knowledge and information not within the public domain, which may be acquired while carrying out this service shall be all time and for all purpose, regarded as strictly confidential and held in confidence, and shall not be directly or indirectly disclosed to any party whatsoever, except with the permission of the employer and the contractor. The Adjudicator’s decision should be communicated in the form of a speaking order specifying the reasons.

The Adjudicator will agree that any manufacturing or construction firm with which he might be associated with, will not be eligible to participate in bidding for any goods or works resulting from or associated with the project of which this consulting assignment forms a part

Read and Agreed Name of Adjudicator

Signature

Place:

Date:

Name of Employer

Signature of authorized representative of Employer

Name of the Contractor

Signature of authorized representative of Contractor

Attachment: Copy of contract document between the employer and contractor and format for recommendation.

**SUMMARY OF AJUDICATOR’S RESPONSIBILITIES**

The Adjudicator has the following principal responsibilities:

1. Visit the site periodically.
2. Keep abreast of job activities and developments.
3. Encourage the resolution of disputes by the parties.
4. When a dispute is referred to it, conduct a hearing (no legal presentation), complete its deliberations, and prepare a recommendations in a professional and timely manner (as per sample format)

Sample Format of Adjudicator’s Recommendation

**[Project Name]**

**Recommendation of Adjudicator**

Dispute No. XX [*NAME OF DISPUTE*]

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

**Dispute**

Description of dispute. A one or two sentence summation of the dispute.

**Contractor’s Position**

A short summation of the contractor’s position as understood by the Adjudicator.

**Employer’s Position**

A short summation of the Employer’s position as understood by the Adjudicator.

**Recommendation**

The Adjudicator’s specific recommendation for settlement of the dispute. (*The recommended course is consistent with the explanation*).

**Explanation**

(*This section could also be called Considerations, Rationale, Findings, Discussion, and so on.*)

The Adjudicator’s description of how each recommendation was reached.

Respectfully submitted,

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

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

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

**Section X - Contract Forms**

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

NOTIFICATION OF AWARD

Letter of Acceptance

***[on letterhead paper of the*** Employer***]***

[The Letter of Acceptance shall be the basis for formation of the Contract as described in ITB Clause 47. This Standard Form of Letter of Acceptance shall be filled in and sent to the successful Bidder only after evaluation of bids has been completed, subject to any review by the World Bank required under the Loan Agreement.]

*. . . . . . .* ***[date]****. . . . . . .*

To: . . . . . . . . . . ***[name and address of the Contractor]*** . . . . . . . . . .

Subject: . . . . . . . . . . ***[Notification of Award Contract No]***. . . . . . . . . . .

This is to notify you that your Bid dated . . . . ***[insert date] . .*** . . for execution of the . . . . . . . . . ***.[insert name of the contract and identification number, as given in the PCC]***. . . . . . . . . . for the Accepted Contract Amount of . . . . . . . . ***.[insert*** ***amount in numbers and words]***, as corrected and modified[[55]](#footnote-56) in accordance with the Instructions to Bidders is hereby accepted by our Agency.

You are requested to furnish the Performance Security, plus additional security for unbalanced bids in terms of ITB Clause 41, and ES Performance Security ***[Delete ES Performance Security if it is not required under the contract]*** in the form detailed in ITB Clause 50 for amounts[[56]](#footnote-57) of Rs. …….., and Rs. ……. specified therein, within 21 days of the receipt of this letter of acceptance, and visit this office to sign the contract, failing which action as stated in ITB Clause 50.2 will be taken in accordance with the Conditions of Contract. The securities shall be valid up to 28 days from the date of completion i.e. up to …………. and shall be as per the Performance Security Form and the ES Performance Security Form ***[Delete reference to the ES Performance Security Form if it is not required under the contract]***,included in Section X - Contract Forms, of the bidding document.

***[Choose one of the following statements:]***

We accept that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***[insert the name of Adjudicator proposed by the Bidder]*** be appointed as the Adjudicator[[57]](#footnote-58).

***[or]***

We do not accept that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***[insert the name of the Adjudicator proposed by the Bidder]*** be appointed as the Adjudicator, and by sending a copy of this Letter of Acceptance to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***[insert name of the Appointing Authority]***, the Appointing Authority, we are hereby requesting such Authority to appoint the Adjudicator in accordance with ITB 51.1 and GCC 23.1[[58]](#footnote-59).

We note that as per your bid, you do not intend to subcontract any component of work.

[OR]

We note that as per your bid, you propose to employ M/s. ………………… as sub-contractor for executing ……………………..

We have reviewed the construction methodology submitted by you along with the bid in response to ITB Clause 16 and our comments are given in the attachment. You are requested to submit a revised Program including ES requirements as per Clause 30 of General Conditions of Contract within 14 days of receipt of this letter of acceptance.

Authorized Signature:

Name and Title of Signatory:

Name of Agency:

Issue of Notice to proceed with the work

(letterhead of the Employer)

\_\_\_\_\_\_\_\_\_ (*date*)

To

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(*name and address of the Contractor)*

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Dear Sirs:

Pursuant to your furnishing the requisite securities as stipulated in ITB clause 50.1, insurance policy as per GCC 13, construction methodology as stated in letter of acceptance and signing of the contract agreement for the construction of\_\_\_\_\_\_\_\_\_\_\_\_\_\_@ a Bid Price of Rs.\_\_\_\_\_\_\_\_\_\_\_, you are hereby instructed to proceed with the execution of the said works in accordance with the contract documents.

Yours faithfully,

(Signature, name and title of signatory authorized to sign on behalf of Employer)

**Attachment: Contract Agreement**

Contract Agreement

THIS AGREEMENT made the . . . . . .day of . . . . . . . . . . . . . . . . ., . . . . . . ., between . . . . . ***[name of the*** Employer***]***. . . . .. . . . . (hereinafter “the Employer”), of the one part, and . . . . . ***[name of the Contractor]***. . . . .(hereinafter “the Contractor”), of the other part:

WHEREAS the Employer desires that the Works known as . . . . . ***[name of the Contract]****. . . . .*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.

1. This Agreement
2. the Letter of Acceptance
3. the Contractor’s Bid including completed schedules and priced bill of quantities,
4. the addenda Nos \_\_\_\_\_\_\_\_(if any)
5. the Particular Conditions
6. the General Conditions of Contract, including appendix;
7. the Specification
8. the Drawings
9. Construction Program, Methodology, Quality Assurance Program, the ES Management Strategies and Implementation Plans, and Code of Conduct for Contractor’s Personnel (ES)
10. Joint Venture Agreement [for JVs only]; and
11. any other document **listed in the PCC** as 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 India on the day, month and year specified above.

|  |  |  |  |
| --- | --- | --- | --- |
| Signed by: |  | Signed by: |  |
| for and on behalf of the Employer | | for and on behalf the Contractor | |
| in the presence of: |  | in the presence of: |  |
| Witness, Name, Signature, Address, Date | | Witness, Name, Signature, Address, Date | |

Performance Security - Bank Guarantee

**[including Additional Performance Security for unbalanced bids]**

*[Guarantor letterhead or SWIFT identifier code]*

Performance Guarantee No……………………. *[insert guarantee reference number]*

Date…………………………. *[insert date of issue of the guarantee]*

To: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ *[name of Employer]*

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ *[address of Employer]*

WHEREAS \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ *[name and address of Contractor[[59]](#footnote-60)]* (hereinafter called "the Applicant") has undertaken, in pursuance of Contract No. \_\_\_\_\_ dated \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to execute \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ *[name of Contract and brief description of Works]* (hereinafter called "the Contract");

AND WHEREAS it has been stipulated by you in the said Contract that the Applicant shall furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security for compliance with his obligations in accordance with the Contract;

AND WHEREAS we have agreed to give the Applicant such a Bank Guarantee;

NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you, on behalf of the Applicant, up to a total of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ *[amount of guarantee**[[60]](#footnote-61)]* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ *[in words]*, such sum being payable in the types and proportions of currencies in which the Contract Price is payable, and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ *[amount of guarantee]* as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the Applicant before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the Contract or of the Works to be performed thereunder or of any of the Contract documents which may be made between you and the Applicant shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.

This guarantee shall be valid until ……… [[61]](#footnote-62), and any demand for payment under it must be received by us at this office on or before that date.

Signature and seal of the guarantor \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Name of Bank \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Address \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

***Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.***

**Environmental and Social (ES) Performance Security**

**ES – Bank Guarantee**

*[Guarantor letterhead or SWIFT identifier code]*

**ES Performance Guarantee No.:** *[Insert guarantee reference number]*

Date…………………………. *[insert date of issue of the guarantee]*

To: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ *[name of Employer]*

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ *[address of Employer]*

WHEREAS \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ *[name and address of Contractor[[62]](#footnote-63)]* (hereinafter called "the Applicant") has undertaken, in pursuance of Contract No. \_\_\_\_\_ dated \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to execute \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ *[name of Contract and brief description of Works]* (hereinafter called "the Contract");

AND WHEREAS it has been stipulated by you in the said Contract that the Applicant shall furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security for compliance with his Environmental and/or Social (ES) obligations in accordance with the Contract;

AND WHEREAS we have agreed to give the Applicant such a Bank Guarantee;

NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you, on behalf of the Applicant, up to a total of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ *[amount of guarantee[[63]](#footnote-64)]* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ *[in words]*, such sum being payable in the types and proportions of currencies in which the Contract Price is payable, and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ *[amount of guarantee]* as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the Applicant before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the Contract or of the Works to be performed thereunder or of any of the Contract documents which may be made between you and the Applicant shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.

This guarantee shall be valid until ……… [[64]](#footnote-65), and any demand for payment under it must be received by us at this office on or before that date.

Signature and seal of the guarantor \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Name of Bank \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Address \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

***Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.***

**Advance Payment Security**

**Demand Guarantee**

*[Guarantor letterhead or SWIFT identifier code]*

Advance Payment Guarantee No……………………. *[insert guarantee reference number]*

Date…………………………. *[insert date of issue of the guarantee]*

To: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ *[name of Employer]*

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ *[address of Employer]*

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ *[name of Contract]*

Gentlemen:

In accordance with the provisions of the Conditions of Contract, Subclause 53.1 ("Advance Payment") of the above-mentioned Contract, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ *[name and address of Contractor[[65]](#footnote-66)]* (hereinafter called "the Applicant") shall deposit with \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_­\_\_\_\_\_\_ *[name of Employer]* a bank guarantee to guarantee his proper and faithful performance under the said Clause of the Contract in an amount of \_\_\_\_\_\_\_\_\_\_\_\_\_ *[amount of guarantee**[[66]](#footnote-67)]* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ *[in words]*.

We, the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ *[bank or financial institution]*, as instructed by the Applicant, agree unconditionally and irrevocably to guarantee as primary obligator and not as Surety merely, the payment to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ *[name of Employer]* on his first demand without whatsoever right of objection on our part and without his first claim to the Applicant, in the amount not exceeding \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ [amount of guarantee] \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ *[in words]*.

We further agree that no change or addition to or other modification of the terms of the Contract or of Works to be performed thereunder or of any of the Contract documents which may be made between \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ *[name of Employer]* and the Applicant, shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.

This guarantee shall remain valid and in full effect from the date of the advance payment under the Contract until \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ *[name of Employer]* receives full repayment of the same amount from the Applicant. Consequently any demand for payment under this guarantee must be received by us at this office on or before that date.

Yours truly,

Signature and seal: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Name of Bank: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Address: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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

***Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.***

**Retention Money Security**

**Demand Guarantee**

*[Guarantor letterhead or SWIFT identifier code]*

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ *[Bank’s name and address of issuing branch or office]*

**Beneficiary: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** *[Name and Address of Employer]*

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

**RETENTION MONEY GUARANTEE NO.: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

We have been informed that \_\_\_\_\_\_\_\_\_\_\_\_\_\_ *[name of contractor[[67]](#footnote-68)]* (hereinafter called “the Applicant”) has entered into Contract No. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ *[reference number of the contract]* dated \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ with you, for the execution of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ *[name of contract and brief description of Works]* (hereinafter called “the Contract”).

Furthermore, we understand that, according to the conditions of the Contract, when the Taking-Over Certificate has been issued for the Works and the first half of the Retention Money has been certified for payment, payment of \_\_\_\_\_\_\_\_\_\_\_ *[insert* the second half of the Retention Money*]* is to be made against a Retention Money guarantee.

At the request of the Applicant, we \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ *[name of Bank]* hereby irrevocably undertake to pay you the sum or sums not exceeding in total an amount of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ *[amount in Rupees]* (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_) *[amount in words[[68]](#footnote-69)]* upon receipt by us of your first demand in writing accompanied by a written statement stating that the Applicant is in breach of its obligation under the Contract without cavil or argument.

It is a condition for any claim and payment under this guarantee to be made that the payment of the second half of the Retention Money referred to above must have been received by the Applicant on its account number \_\_\_\_\_\_\_\_\_ at \_\_\_\_\_\_\_\_\_\_\_ *[name and address of Bank].*

This guarantee shall expire, at the latest, 21 days after the date when the Employer has received a copy of the Defects Liability Certificate issued by the Project Manager. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

*\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*

*[Signature(s) and seal of the guarantor]*

***Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.***

# *Attachment 1*

## Amendments for Permitting Standstill Period[[69]](#footnote-70)

(Refer ITB Clause 44)

In works contracts where it is proposed to permit Standstill Period [*in the case of high risk or specialized/complex works only*], the following corrections shall be incorporated in this document

**1. Instructions to Bidders & Bid Data Sheet**

**1.1 Insert ITB 44.1 as under:**

**44.1** The Contract shall be awarded not earlier than the expiry of the Standstill Period. The duration of the Standstill Period is **specified in the BDS.** Where only one Bid is submitted, the Standstill Period shall not apply.

**1.2 Insert ITB 45.1 as under:**

**45.1** When a Standstill Period applies, it shall commence when the Employer has transmitted to each Bidder (that has not already been notified that it has been unsuccessful) the Notification of Intention to Award the Contract to the successful Bidder. The Notification of Intention to Award shall contain, at a minimum, the following information:

(a) the name and address of the Bidder submitting the successful Bid;

(b) the Contract price of the successful Bid;

(c) the names of all Bidders who submitted Bids, and their Bid prices as readout, and as evaluated;

(d) a statement of the reason(s) the Bid (of the unsuccessful Bidder to whom the letter is addressed) was unsuccessful, unless the price information in (c) above already reveals the reason;

(e) the expiry date of the Standstill Period;

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

**1.3 Substitute ITB 47.1 as under:**

**47.1** Prior to the expiration of the Bid Validity Period and upon expiry of the Standstill Period, specified in BDS ITB 44.1 or any extension thereof, or upon satisfactorily addressing a complaint that has been filed within the Standstill Period, the Employer shall transmit the Letter of Acceptance to the successful Bidder. The Letter of Acceptance shall specify the sum that the Employer will pay the Contractor in consideration of the execution of the contract (hereinafter and in the Conditions of Contract and Contract Forms called “the Contract Price”).

**1.4 Insert ITB 48 as under:**

**48. Debriefing by the Employer**

**48.1** On receipt of the Employer’s Notification of Intention to Award referred to in ITB 45.1, an unsuccessful Bidder has three (3) Business Days to make a written request to the Employer for a debriefing. The Employer shall provide a debriefing to all unsuccessful Bidders whose request is received within this deadline.

**48.2** Where a request for debriefing is received within the deadline, the Employer shall provide a debriefing within five (5) Business Days, unless the Employer decides, for justifiable reasons, to provide the debriefing outside this timeframe. In that case, the standstill period shall automatically be extended until five (5) Business Days after such debriefing is provided. If more than one debriefing is so delayed, the standstill period shall not end earlier than five (5) Business Days after the last debriefing takes place. In any case, irrespective of the circumstances, all debriefings shall be completed within 10 business days. The Employer shall promptly inform, by the quickest means available, all Bidders of the extended standstill period.

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

**48.4** Debriefings of unsuccessful Bidders may be done in writing or verbally. The debriefing will cover only the bid of particular bidder requesting the debriefing, and not the bids of the competitors. The Bidder shall bear its own costs of attending such a debriefing meeting.

**1.5 Insert ITB 52 as under:**

**52. Procurement Related Complaint**

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

**1.6 Insert BDS ITB 44 as under:**

**ITB 44 Standstill Period**

The Standstill Period is 10 Business Days ***[note: the minimum number of Business Days is ten (10)]*** after the date the Employer has transmitted to all Bidders that submitted a Bid, the Notification of its Intention to Award the Contract to the successful Bidder.

Note: Where a Bidder has previously received notification, in accordance with ITB 34.1, that its Technical Part of Bid failed to meet the requirements of the bidding document, the Bidder will not receive a Notification of Intention to Award the Contract.

***[If this Bidding process is in response to an emergency situation recognized by the Bank state: “No Standstill Period applies to this Bidding process.”]***

**1.7 Insert BDS ITB 52.1 as under:**

**………………………………………………………………………………………………….**

**ITB 52.1**

The procedures for making a Procurement-related Complaint are detailed in the “Procurement Regulations for IPF Borrowers (Annex III).” If a Bidder wishes to make a Procurement-related Complaint, the Bidder should submit its complaint following these procedures, in writing (by the quickest means available, that is either by email or fax), to:

**For the attention:** *[insert full name of person receiving complaints]*

**Title/position:** *[insert title/position]*

**Employer:** *[insert name of Employer]*

**Email address:** *[insert email address]*

**Fax number:** *[insert fax number]* ***delete if not used***

**In summary, a Procurement-related Complaint may challenge any of the following:**

**1. the terms of the Bidding Document;**

**2. the Employer’s decision to exclude a Bidder from the procurement process prior to the award of contract; and**

**3. the Employer’s decision to award the contract.**

**…………………………………………………………………………………………………..**

**2. Contract Forms**

**2.1 Insert the Form ‘Notification of Intention to Award’ as under:**

**…………………………………………………………………………………………………..**

Notification of Intention to Award

**[*This Notification of Intention to Award shall be sent to each Bidder that submitted a Bid, unless the Bidder has previously received notice of exclusion from the process at an interim stage of the procurement process*]**

**[*Send this Notification to the Bidder’s Authorized Representative named in the Bidder Information Form*]**

For the attention of Bidder’s Authorized Representative

Name: *[insert Authorized Representative’s name]*

Address: *[insert Authorized Representative’s Address]*

Telephone/Fax numbers: *[insert Authorized Representative’s telephone/fax numbers]*

Email Address: *[insert Authorized Representative’s email address]*

***[IMPORTANT: insert the date that this Notification is transmitted to Bidders. The Notification must be sent to all Bidders simultaneously. This means on the same date and as close to the same time as possible.]***

**DATE OF TRANSMISSION**: This Notification is sent by: [*email/fax*] on [*date*] (local time)

**Notification of Intention to Award**

**Employer:** *[insert the name of the Employer]*

**Project:***[insert name of project]*

**Contract title:** *[insert the name of the contract]*

**Country:** *[insert country where RFB is issued]*

**Loan No. /Credit No. / Grant No.:** *[insert reference number for loan/credit/grant]*

**RFB No:** *[insert RFB reference number from Procurement Plan]*

This Notification of Intention to Award (Notification) notifies you of our decision to award the above contract. The transmission of this Notification begins the Standstill Period. During the Standstill Period, you may:

1. request a debriefing in relation to the evaluation of your Bid, and/or
2. submit a Procurement-related Complaint in relation to the decision to award the contract.
3. **The successful Bidder**

|  |  |
| --- | --- |
| **Name:** | [*insert name* *of successful Bidder*] |
| **Address:** | [*insert address* *of the successful Bidder*] |
| **Contract price:** | [*insert contract price* *of the successful Bid*] |

1. **Other Bidders *[INSTRUCTIONS: insert names of all Bidders that submitted a Bid. If the Bid’s price was evaluated include the evaluated price as well as the Bid price as read out.]***

|  |  |  |
| --- | --- | --- |
| **Name of Bidder** | **Bid price** | **Evaluated Bid price**  **(if applicable)** |
| [*insert name*] | [*insert Bid price*] | [*insert evaluated price*] |
| [*insert name*] | [*insert Bid price*] | [*insert evaluated price*] |
| [*insert name*] | [*insert Bid price*] | [*insert evaluated price*] |
| [*insert name*] | [*insert Bid price*] | [*insert evaluated price*] |
| [*insert name*] | [*insert Bid price*] | [*insert evaluated price*] |

1. **Reason/s why your Bid was unsuccessful**

|  |
| --- |
| ***[INSTRUCTIONS: State the reason/s why this Bidder’s Bid was unsuccessful. Do NOT include: (a) a point by point comparison with another Bidder’s Bid or (b) information that is marked confidential by the Bidder in its Bid.]*** |

1. **How to request a debriefing**

|  |
| --- |
| **DEADLINE: The deadline to request a debriefing expires at midnight on [*insert date*] (local time).**  You may request a debriefing in relation to the results of the evaluation of your Bid. If you decide to request a debriefing your written request must be made within three (3) Business Days of receipt of this Notification of Intention to Award.  Provide the contract name, reference number, name of the Bidder, contact details; and address the request for debriefing as follows:  **Attention**: [*insert full name of person, if applicable*]  **Title/position**: [*insert title/position*]  **Agency**: [*insert name of Employer*]  **Email address**: [*insert email address*]  **Fax number**: [*insert fax number*] ***delete if not used***  If your request for a debriefing is received within the 3 Business Days deadline, we will provide the debriefing within five (5) Business Days of receipt of your request. If we are unable to provide the debriefing within this period, the Standstill Period shall be extended by five (5) Business Days after the date that the debriefing is provided. If this happens, we will notify you and confirm the date that the extended Standstill Period will end.  The debriefing may be in writing, by phone, video conference call or in person. We shall promptly advise you in writing how the debriefing will take place and confirm the date and time.  If the deadline to request a debriefing has expired, you may still request a debriefing. In this case, we will provide the debriefing as soon as practicable, and normally no later than fifteen (15) Business Days from the date of publication of the Contract Award Notice. |

1. **How to make a complaint**

|  |
| --- |
| **Period: Procurement-related Complaint challenging the decision to award shall be submitted by midnight, [*insert date*] (local time).**  Provide the contract name, reference number, name of the Bidder, contact details; and address the Procurement-related Complaint as follows:  **Attention**: [*insert full name of person, if applicable*]  **Title/position**: [*insert title/position*]  **Agency**: [*insert name of Employer*]  **Email address**: [*insert email address*]  **Fax number**: [*insert fax number*] ***delete if not used***  At this point in the procurement process, you may submit a Procurement-related Complaint challenging the decision to award the contract. You do not need to have requested, or received, a debriefing before making this complaint. Your complaint must be submitted within the Standstill Period and received by us before the Standstill Period ends.  Further information:  For more information see the [Procurement Regulations for IPF Borrowers](https://policies.worldbank.org/sites/ppf3/PPFDocuments/Forms/DispPage.aspx?docid=4005) (Procurement Regulations)[https://policies.worldbank.org/sites/ppf3/PPFDocuments/Forms/DispPage.aspx?docid=4005] (Annex III). You should read these provisions before preparing and submitting your complaint. In addition, the World Bank’s Guidance “[How to make a Procurement-related Complaint](http://www.worldbank.org/en/projects-operations/products-and-services/brief/procurement-new-framework#framework)” [http://www.worldbank.org/en/projects-operations/products-and-services/brief/procurement-new-framework#framework] provides a useful explanation of the process, as well as a sample letter of complaint.  In summary, there are four essential requirements:   1. You must be an ‘interested party’. In this case, that means a Bidder who submitted a Bid in this bidding process, and is the recipient of a Notification of Intention to Award. 2. The complaint can only challenge the decision to award the contract. 3. You must submit the complaint within the period stated above. 4. You must include, in your complaint, all of the information required by the Procurement Regulations (as described in Annex III). |

1. **Standstill Period**

|  |
| --- |
| **DEADLINE: The Standstill Period is due to end at midnight on [*insert date*] (local time).**  The Standstill Period lasts ten (10) Business Days after the date of transmission of this Notification of Intention to Award.  The Standstill Period may be extended as stated in Section 4 above. |

If you have any questions regarding this Notification, please do not hesitate to contact us.

On behalf of the Employer:

**Signature:** ­­­­­­­­­­­­­­­­­­­­­­­­ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Name:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Title/position:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Telephone:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Email:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**…………………………………………………………………………………………………..**

**2.2 Substitute the first note in Italics in the Form ‘Notification of Award’ as under:**

*[The Letter of Acceptance shall be the basis for formation of the Contract as described in ITB Clause 47. This Standard Form of Letter of Acceptance shall be filled in and sent to the successful Bidder only upon expiry of the Standstill Period, specified in BDS ITB 44.1 or any extension thereof, or upon satisfactorily addressing a complaint that has been filed within the Standstill Period, subject to any review by the World Bank required under the Loan Agreement.]*

1. *Pre-bid meeting should be held no later than 2 weeks before the deadline for submission Delete, if a pre-bid meeting is not scheduled for this procurement* [↑](#footnote-ref-2)
2. *Substitute “contracts” where Bids are invited concurrently for multiple contracts. Add a new para. 5 as follows: “Bidders may bid for one or several contracts, as further defined in the bidding document. Bidders wishing to offer discounts in case they are awarded more than one contract will be allowed to do so, provided those discounts are included in the Letter of Bid.” and renumber paras 5 – 12.* [↑](#footnote-ref-3)
3. *Modify or delete, based on registration requirement, if any for bidders from India.* [↑](#footnote-ref-4)
4. *Insert if applicable other methods of payment also for example cashier’s check,* *certified check (payable at …. in favour of …. ), direct deposit to specified account number, etc.* [↑](#footnote-ref-5)
5. *Insert if applicable other methods of payment also for example cashier’s check, certified check (payable at …. in favour of …. ), direct deposit to specified account number, etc.* [↑](#footnote-ref-6)
6. *A brief description of the type(s) of works should be provided, including quantities, location, construction period, and other information necessary to enable potential Bidders to decide whether or not to respond to the Request for Bids. Bidding document may require Bidders to have specific experience or capabilities; such qualification requirements should also be included.* [↑](#footnote-ref-7)
7. *Delete, if the Employer proposes use of bid securing declaration as bid security.* [↑](#footnote-ref-8)
8. Daywork is work carried out following instructions of the Project Manager and paid for on the basis of time spent by workers, and the use of materials and the Contractor’s equipment, at the rates quoted in the Bid. For Daywork to be priced competitively for Bid evaluation purposes, the Employer must list tentative quantities for individual items to be costed against Daywork (e.g., a specific number of tractor driver staff-days, or a specific tonnage of Portland cement), to be multiplied by the Bidders’ quoted rates and included in the total Bid price. [↑](#footnote-ref-9)
9. 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. [↑](#footnote-ref-10)
10. This requirement also applies to contracts executed by the Bidder as JV member. [↑](#footnote-ref-11)
11. 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 seven years. A consistent history of court/arbitral awards against the Bidder or any member of a joint venture may result in disqualifying the Bidder. [↑](#footnote-ref-12)
12. The Employer may use this information to seek further information or clarifications in carrying out its due diligence. [↑](#footnote-ref-13)
13. In case the bidder submits a letter of intent from a commercial bank with the bid, firm commitment from the bank to provide line of credit shall be required before contract signing. [↑](#footnote-ref-14)
14. Substantial completion shall be based on 80% or more works completed under the contract. [↑](#footnote-ref-15)
15. 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 [↑](#footnote-ref-16)
16. 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 [↑](#footnote-ref-17)
17. 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. [↑](#footnote-ref-18)
18. Volume, number or rate of production of any key activity can be demonstrated in one or more contracts combined if executed during same time period.  [↑](#footnote-ref-19)
19. The minimum experience requirement for multiple contracts will be the sum of the minimum requirements for respective individual contracts, unless specified otherwise. [↑](#footnote-ref-20)
20. Delete if not applicable [↑](#footnote-ref-21)
21. Use one of the two options as appropriate [↑](#footnote-ref-22)
22. In case appointment of Adjudicator was proposed from the list provided by an Institution in ITB 51, the replacement should also be proposed from the list of same institution. [↑](#footnote-ref-23)
23. *Attach certificate(s) from the Engineer(s)-in-Charge*. [↑](#footnote-ref-24)
24. 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. [↑](#footnote-ref-25)
25. Immediately preceding the financial year in which bids are received. [↑](#footnote-ref-26)
26. If applicable. [↑](#footnote-ref-27)
27. Attach certificate from the Engineer-in-charge [↑](#footnote-ref-28)
28. *Insert name of the Bidder, which in the case of a joint venture shall be (a) the name of the joint venture that submits the bid if the JV has been constituted into a legally enforceable JV, or (b) the names of all future members of the JV as named in the letter of intent to execute the JV Agreement submitted by the bidder along with its bid.* [↑](#footnote-ref-29)
29. *The Applicant should insert the amount of the guarantee in words and figures denominated in Indian Rupees. This figure should be the same as shown in Clause 19.1 of the Instructions to Bidders.* [↑](#footnote-ref-30)
30. *45 days after the end of the validity period of the Bid.* [↑](#footnote-ref-31)
31. Delete if not applicable [↑](#footnote-ref-32)
32. Some parts of requirement can be met through a Specialized Subcontractor, if permitted in the bidding document. Also insert Schedules of Daywork Rates (labour, materials, and contractor’s equipment), if applicable. [↑](#footnote-ref-33)
33. The total amount is automatically calculated by the e-procurement system, from unit rates and quantities, where the e-procurement system supports such functionality [↑](#footnote-ref-34)
34. The amount in words is automatically populated by the e-procurement system, where the e-procurement system supports such functionality [↑](#footnote-ref-35)
35. For the avoidance of doubt, a sanctioned party’s ineligibility to be awarded a contract shall include, without limitation, (i) applying for pre-qualification, expressing interest in a consultancy, and bidding, either directly or as a nominated sub-contractor, nominated consultant, nominated manufacturer or supplier, or nominated service provider, in respect of such contract, and (ii) entering into an addendum or amendment introducing a material modification to any existing contract. [↑](#footnote-ref-36)
36. A nominated sub-contractor, nominated consultant, nominated manufacturer or supplier, or nominated service provider (different names are used depending on the particular bidding document) is one which has been: (i) included by the bidder in its pre-qualification application or bid because it brings specific and critical experience and know-how that allow the bidder to meet the qualification requirements for the particular bid; or (ii) appointed by the Borrower. [↑](#footnote-ref-37)
37. Inspections in this context usually are investigative (i.e., forensic) in nature. They involve fact-finding activities undertaken by the Bank or persons appointed by the Bank to address specific matters related to investigations/audits, such as evaluating the veracity of an allegation of possible Fraud and Corruption, through the appropriate mechanisms. Such activity includes but is not limited to: accessing and examining a firm's or individual's financial records and information, and making copies thereof as relevant; accessing and examining any other documents, data and information (whether in hard copy or electronic format) deemed relevant for the investigation/audit, and making copies thereof as relevant; interviewing staff and other relevant individuals; performing physical inspections and site visits; and obtaining third party verification of information. [↑](#footnote-ref-38)
38. The method of measurement should be spelled out precisely in the Preamble to the Bill of Quantities, describing for example the allowances (if any) for timbering in excavation, etc. Many national standard reference guides have been prepared on the subject, and one such guide is the *Standard Method of Measurement* of the U.K. Institution of Civil Engineers. [↑](#footnote-ref-39)
39. In lump-sum contracts, delete “Bill of Quantities” and replace with “Activity Schedule.” [↑](#footnote-ref-40)
40. In lump-sum contracts, delete this paragraph. [↑](#footnote-ref-41)
41. In lump-sum contracts, add “or Activity Schedule” after “Program.” [↑](#footnote-ref-42)
42. In lump-sum contracts, replace this paragraph with the following: “The value of work executed shall comprise the value of completed activities in the Activity Schedule.” [↑](#footnote-ref-43)
43. The sum of the two coefficients Ac and Bc should be 1 (one) in the formula for each currency. Normally, both coefficients shall be the same in the formulae for all currencies, since coefficient A, for the nonadjustable portion of the payments, is a very approximate figure (usually 0.15) to take account of fixed cost elements or other nonadjustable components. The sum of the adjustments for each currency are added to the Contract Price. [↑](#footnote-ref-44)
44. For the avoidance of doubt, a sanctioned party’s ineligibility to be awarded a contract shall include, without limitation, (i) applying for pre-qualification, expressing interest in a consultancy, and bidding, either directly or as a nominated sub-contractor, nominated consultant, nominated manufacturer or supplier, or nominated service provider, in respect of such contract, and (ii) entering into an addendum or amendment introducing a material modification to any existing contract. [↑](#footnote-ref-45)
45. A nominated sub-contractor, nominated consultant, nominated manufacturer or supplier, or nominated service provider (different names are used depending on the particular bidding document) is one which has been: (i) included by the bidder in its pre-qualification application or bid because it brings specific and critical experience and know-how that allow the bidder to meet the qualification requirements for the particular bid; or (ii) appointed by the Borrower. [↑](#footnote-ref-46)
46. Inspections in this context usually are investigative (i.e., forensic) in nature. They involve fact-finding activities undertaken by the Bank or persons appointed by the Bank to address specific matters related to investigations/audits, such as evaluating the veracity of an allegation of possible Fraud and Corruption, through the appropriate mechanisms. Such activity includes but is not limited to: accessing and examining a firm's or individual's financial records and information, and making copies thereof as relevant; accessing and examining any other documents, data and information (whether in hard copy or electronic format) deemed relevant for the investigation/audit, and making copies thereof as relevant; interviewing staff and other relevant individuals; performing physical inspections and site visits; and obtaining third party verification of information. [↑](#footnote-ref-47)
47. Based on Government Directives. [↑](#footnote-ref-48)
48. Normally the rate of bonus and rate of liquidated damages should be the same. [↑](#footnote-ref-49)
49. The amount of mobilization advance could be increased or decreased based on nature of the work. Also, the advance could be released in single or multiple instalments. [↑](#footnote-ref-50)
50. This list is only illustrative and not exhaustive. Bidders and Contractors are responsible for checking the correctness and completeness of the list. The law as current on the date of bid opening will apply. [↑](#footnote-ref-51)
51. The Centre to be specified should be the relevant one for which CPI is published by the Labour Bureau. [↑](#footnote-ref-52)
52. The PCC specifies the identified depot for the rate of diesel for the base date and the applicable date for price adjustment. [↑](#footnote-ref-53)
53. The PCC specifies the identified refinery for the rate of Bitumen for the base date and the applicable date price adjustment. [↑](#footnote-ref-54)
54. If ITB 51 makes provision of an Adjudicator from list provided by an institution, kindly modify Appendix 3 to state that the fee and reimbursable payable to the adjudicator shall be as per the rules of the Institution. [↑](#footnote-ref-55)
55. *Delete “corrected and” or “and modified” if not applicable. See Notes on Standard Form of Agreement, next page.* [↑](#footnote-ref-56)
56. *Insert amounts for (i) Performance Security, plus additional security for unbalanced bids in terms of ITB Clause 41; and (ii) ES Performance Security respectively.* [↑](#footnote-ref-57)
57. *To be used only if the Contractor disagrees in the Bid with the Adjudicator proposed by the Employer in the Instructions to Bidders, and has accordingly offered another candidate.*  [↑](#footnote-ref-58)
58. *To be used only if the Contractor disagrees in the Bid with the Adjudicator proposed by the Employer in the ITB, has accordingly offered another candidate, and the Employer does not accept the counterproposal.* [↑](#footnote-ref-59)
59. *In the case of a JV, insert the name of the Joint Venture* [↑](#footnote-ref-60)
60. *An amount shall be inserted by the Guarantor, representing the percentage of the Contract Price specified in the Contract less provisional sums, if any,* *plus additional performance security for unbalanced bids if any, and denominated in Indian Rupees.* [↑](#footnote-ref-61)
61. *Insert the date twenty-eight days after the expected completion date as described in GC Clause 53.1. 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 Employer’s written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee* [↑](#footnote-ref-62)
62. *In the case of a JV, insert the name of the Joint Venture* [↑](#footnote-ref-63)
63. *An amount shall be inserted by the Guarantor, representing the percentage of the Contract Price specified in the Contract less provisional sums, if any, and denominated in Indian Rupees.* [↑](#footnote-ref-64)
64. *Insert the date twenty-eight days after the expected completion date as described in GC Clause 53.1. 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 Employer’s written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee* [↑](#footnote-ref-65)
65. In the case of a JV, insert the name of the Joint Venture [↑](#footnote-ref-66)
66. An amount shall be inserted by the bank representing the amount of the Advance Payment, and denominated in Indian Rupees. [↑](#footnote-ref-67)
67. *In the case of a JV, insert the name of the Joint Venture* [↑](#footnote-ref-68)
68. *The Guarantor shall insert an amount representing the amount of the second half of the Retention Money* *or if the amount guaranteed under the Performance Guarantee when the Taking-Over Certificate is issued is less than half of the Retention Money, the difference between half of the Retention Money and the amount guaranteed under the Performance Security.* [↑](#footnote-ref-69)
69. These are instructions for the Borrower and should be removed from final bid document. [↑](#footnote-ref-70)