

STANDARD BIDDING DOCUMENT

PROCUREMENT OF

CIVIL WORKS

COMPLETE BIDDING DOCUMENT

Name Of Work :- Comprehensive Annual Rate Contract For Arvalli Panchayat
Irrigation Division, Modasa.



GOVERNMENT OF GUJARAT
Water Resources Department

Tender Clerk
Aravalli Panchayat Irrigation Division
Modasa

Divisional Accountant
Aravalli Panchayat Irrigation Division
Modasa

Deputy Executive Engineer
Panchayat Irrigation sub Division
Bhiloda

Deputy Executive Engineer
Panchayat Irrigation sub Division
Modasa

Deputy Executive Engineer
Tribal Irrigation Sub-Division
Meghraj

Executive Engineer
Aravalli Panchayat Irrigation Division
Modasa

Index

<u>Sr No</u>	<u>Section</u>	<u>Description</u>	<u>Page No</u>
1		Invitation for Bid (IFB)	3
2	Section -1	Instructions to Bidders	6
3	Section -2	Qualification Information	27
4	Section -3	Conditions of Contract	35
5	Section -4	Contract Data	63
6	Section -5	Technical Specification	72
7	Section -6	Form of Bid	73
8	Section -7	Bill of Quantities	76
9	Section -8	Securities and Other Forms	79
10	Section -9	Drawings	91
11	Section -10	Documents to be furnished by Bidder	92

**INVITATION FOR BID
(IFB)**

NATIONAL COMPETITIVE BIDDING

1. The Executive Engineer, Panchayat Irrigation Division, Aravalli-Modasa invites bids for the construction of works detailed in the table. The bidders may submit bids for any or all of the following works.

1. TABLE

Package No.	Name of work	Approximate value of works (Rs.)	Bid security (Rs.)	Cost of document	Period of completion	#Class of Registration/ Category of contractor if required
1	2	3	4	5	6	7
1	Comprehensive Annual Rate Contract For Aravalli Panchayat Irrigation Division, Modasa.	Annual Unit Rate	300000.00 Exemption Certificate Not Valid	900/-	12 Months	Class-E-2 and above

2. Prospective / Interested bidder may download the Bid Documents from website <https://www.nprocure.com> free of cost till the Time and Date as mentioned on online NIT at website <https://www.nprocure.com>.
3. However, Bidder who is submitting the Bid Online will have to pay the Bid Document Fee / Tender Fee through Demand Draft only of any Schedule Bank payable at Panchayat Irrigation Division, Aravalli-Modasa and in favour of 'Executive Engineer Panchayat Irrigation Division, Aravalli-Modasa, Once the Bid is received online, Bid Document / Tender Fee will not be refundable. As Per GoG R&B Department's Circular No. PARACH/102/000/IB/221/(59)/C Dated.24/01/2007

The Demand Draft for Bid Document / Tender fee and FDR / Bank Guarantee against Bid Security / EMD shall be submitted in electronic format through online (by scanning) while uploading the bid, this submission shall mean that bid document / tender fee and Bid Security / EMD has been received. Accordingly, the offer of only those shall be opened whose Bid Document / Tender Fee and Bid Security / EMD have been received electronically. However, for the purpose of realization of Demand Draft, and FDR / Bank Guarantee bidder shall send the same in original through R.P.A.D. so as to reach to 'Executive Engineer, Panchayat Irrigation Division, Aravalli-Modasa within 7 Days from the last day of bid submission.

Penalitive action for not submitting Demand Draft / FDR / Bank Guarantee in original to Executive Engineer / Tender Inviting Authority by bidder shall be initiated. **WRD GR No. PRC-102014-1-MICell-K.1 Dated: 29/10/2014**

4. Bids received online, will be opened on the time, date and place as specified in the online NIT at website <https://www.nprocure.com> in the presence of the bidders or their authorized representatives, who wish to remain present.
If the office happens to be closed on the day of opening of the bids as specified, the bids will be opened on the next working day at the same time and venue.
5. ~~A pre bid meeting will be held onathrs. 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 clause 9.2 of 'instructions to Bidders' of the bidding documents.~~
6. ~~#Bid Security (EMD) is equal to 1% of Estimated Amount put to bid / tender and should be rounded off to the next thousand rupees.~~
7. Other Information is as under:
 - A. Agencies can prepare and edit their offers a number of times before the end of the tender submission date and time. After the tender submission date and time, the bidder cannot modify / edit / withdraw their submitted offer in any case. No written or online request in this regard shall be granted.
 - B. Offers in physical form will not be accepted in any case.
 - C. Demand Draft purchased by the other then bidder and issued after the last date of submission of Bids, will not be considered or accepted.
 - D. The cost incurred by the contractor for this offer for clarification or attending discussion, conferences or site visits will not be reimbursed by the Employer or Engineer-in-Charge.
 - E. Conditional tender shall not be accepted.
 - F. Any changes, addition, alternation made in the prescribed form attached with tender are liable to be rejected.
 - G. Any change in format or conditional Bank Guarantee will not be accepted and the bidder will be considered non-responsive.
 - H. All the bidders are instructed to fill in information strictly in accordance with the format given in the checklist /qualification document / tender document.
 - I. It is mandatory for the bidders to supply each and every information as asked strictly in electronic format at appropriate places only.
 - J. Blank / insufficient information shall be treated as nil information and shall result in disqualification.
 - K. Even if the bidder has been qualified in a similar or larger size of project in the past, it shall not be deemed to be a ground / reason for not giving required information for this work / bid.
 - L. Information supplied for earlier projects shall not be considered while evaluation of this bid. The Government will not ask for any other information, unless it is found absolutely necessary by the competent authority.
 - M. If found necessary, the contractor will be intimated for negotiation,

For the works costing up to Rs. 7.5 crore (WRD Works), Rs. 7.0 crore (ROAD/ BRIDGE/ BUILDING WORKS), Rs. 0.5 Crore (Electrical Works) kindly refer to GoG NWRWS & K Department's Circular No. Paracha/1097/1397(11)/pa.fa./ MICELL(k-1) dated 18/01/2018 and Dated 30/09/2022

For the works costing under Rs. 7.5 crore for Construction work of Water Resources Department, Rs. 7.0 crore for Roads, Bridges and Building and Rs. 0.50 crore for Electrical work following documents shall be submitted in electronic format only through online

by scanning and the (i) Bid Document Fee / Tender Fee (ii) Bid Security / EMD should be sent in original to the Tender opening authority through RPAD, so as to reach the Executive Engineer within 7 days from last day of submission of Bid.

- (i) Bid Document Fee / Tender Fee
- (ii) Bid Security / EMD ~~or Valid EMD Exemption Certificate of Appropriate Class of Registration of Approved Contractors~~
- (iii) Registration Certificate of Appropriate Class
- (iv) ~~Registration Certificate of special category – Road/Building and Category I/II/III, if required~~
- (v) GST Number and PAN Number
- (vi) Work Experience, if necessary...
- (vii) Other Documents, as required...

SECTION-1
INSTRUCTIONS TO BIDDERS
(ITB)

Section 1: Instructions to Bidders

Table of Contents

	Page No.		Page No.
A. General		D. Submission of Bids	
1. Scope of Bid	8	19. Sealing & Marking of Bids	18
2. Source of Funds	8	20. Deadline for Submission of Bids	18
3. Eligible Bidders	8	21. Late Bids	18
4. Qualification of the Bidder	8	22. Modification and Withdrawal of Bids	18
5. One Bid per Bidder	12		
6. Cost of Bidding	12	E. Bid Opening and Evaluation	
7. Site Visit	12	23. Bid Opening	19
		24. Process to be Confidential	20
B. Bidding Documents		25. Clarification of Financial Bids	20
8. Content of Bidding Documents	13	26. Examination of Bids and Determination of Responsiveness	20
9. Clarification of Bidding Documents	13	27. Correction of Errors	20
10. Amendment of Bidding Documents	14	28. Deleted	21
		29. Evaluation and Comparison of Financial Bids	21
C. Preparation of Bids		30. Deleted	21
11. Language of Bid	15		
12. Documents Comprising the Bid	15	F. Award of Contract	
13. Bid Prices	15	31. Award Criteria	22
14. Currencies of Bid and Payment	16	32. Employer's Right to Accept any Bid and to Reject any or all Bids	22
15. Bid Validity	16	33. Notification of Award and Signing of Agreement	22
16. Bid Security	16	34. Performance Security	22
17. Alternative Proposals By Bidders	17	35. Advance Payment and Security	23
18. Format and Signing of Bid	17	36. Dispute Review Expert	23
		37. Correct or Fraudulent Practices	23

A. GENERAL

1. Scope of Bid

- 1.1 The Employer (Named in Appendix to ITB) invites bids for the Construction of works (as defined in these documents and referred to as 'the works') detailed in the table given in IFB. The bidders may submit bids for any or all of the works detailed in the table given in IFB.
- 1.2 The successful bidder will be expected to complete the works by the intended completion date specified in the Contract data.
- 1.3 Throughout these bidding documents, the terms 'bid' and 'tender' and their derivatives (bidder/ tenderer, bid / tender, bidding/ tendering, etc.) are synonymous.

2. Source of Funds

- 2.1 The expenditure on this project will be met from the budget of Govt. of Gujarat / Govt. of India for centrally sponsored projects.

3. Eligible Bidders

- 3.1 This Invitation for Bids is open to all eligible bidders.
- 3.2 All bidders shall provide in Section 2, Forms of Bid and Qualification Information, a statement that the Bidder is neither associated, nor has been associated, directly or indirectly, with the consultant or any other entity that has prepared the design, specifications, and other documents for the Project or being proposed as Project Manager for the Contract. A firm that has been engaged by the Employer to provide consulting services for the preparation or supervision of the works, and any of its affiliates, shall not be eligible to bid.

4. Qualification of the Bidder

- 4.1 All bidders shall provide in Section 2, Forms of Bid and Qualification Information, a preliminary description of the proposed work method and schedule, including drawings and charts, as necessary. The proposed methodology should include a program of construction backed with equipment planning and deployment duly supported with broad calculations and quality assurance procedures proposed to be adopted justifying their capability of execution and completion of work as per technical specifications, within stipulated period of completion.
- 4.2 Deleted
- 4.3 Deleted
- 4.4 Deleted

~~#4.5 QUALIFICATION CRITERIA:~~

~~(Applicable for the works which require Pre Qualification) As Per GoG NWRWS & K Department's Circular No. Paracha/1097/1397(11)/pa.fa./MICELL(k-1) Dated 18/01/2018~~

- ~~4.5.1~~** Qualification will be based on Applicant's meeting all the following minimum pass/fail criteria regarding the Applicant's general and particular experience, personnel and equipment capabilities and financial positions, as demonstrated by the applicant's responses in the forms attached to the letter of application (specified requirement for joint ventures are given under para 4.6 below) Subcontractors experience and resources shall not be taken in to account in determining the applicants compliance with the qualifying criteria

To qualify for more than one contract, the applicant must demonstrate having experience and resources sufficient to meet the aggregate of the qualification criteria for each contract given in paragraphs 4.5.4, 4.5.5 and 4.5.9 below

4.5.2 Base year and Escalation

The base year shall be taken as Current financial year

Following enhancement factors will be used for the costs of works executed and the financial figure to a common base value for works completed in India.

<u>Year</u>	<u>Financial Year</u>	<u>Multiplying factor</u>
Base year of inviting tender	20__-20__	1.00
-1	20__-20__	1.10
-2	20__-20__	1.21
-3	20__-20__	1.33
-4	20__-20__	1.46
-5	20__-20__	1.61

Applicant should indicate actual figures of costs and amount for the works executed by them without accounting for the above mentioned factors.

In case the financial figures and value of completed works are in foreign currency the above enhanced multiplying factors will not be applied. Instead, the current market exchange rate (State Bank of India BC Selling rate as on the last date of submission of the bid) will be applied for the purpose of conversion of the amount in foreign currency into India rupees.

4.5.3. General Experience.

The Applicant shall meet with the following minimum criteria:

- (a) Achieved a minimum annual financial turnover of Rs. ___ Crore for works in progress and completed in all classes of civil engineering construction works in any one year, over the last five financial years.
- (b) Experience in successfully completing or substantially completing at least one contract of similar work (.....) of at least 40 percent of the value of proposed contract within the last five financial years.

The works may have been executed by the applicant as prime contractor or as a member of a joint venture or as a nominated sub-contractor. As subcontractor, he should have acquired the experience of execution of all major items of works under the proposed contract. In case a project has been executed by a joint venture, weight towards experience of the project would be given to each joint venture in proportion to their financial participation in the joint venture if work executed jointly otherwise as per the scope of work define in Joint Venture agreement.

Substantially completed works means those works which are at least 90 % completed as on the date of submission (i.e. gross value of work done up to the last date of submission is 90 % or more of the original contract price) and continuing satisfactorily.

For these, a certificate from the employers shall be submitted along with the application incorporating clearly the name of the work, contract value, billing amount, date of commencement of works, satisfactory performance of the contractor and any other relevant information.

(the experience certificate should be signed by the officer not below the rank of EE)

- ~~(c) — Contractor should have completed 60% of quantity of principal items of work like concrete, earthwork, pipeline, pumping station etc. within last five financial years. Certificate of competent authority of work done with detail shall be produced.~~

4.5.4. Personnel Capabilities.

~~Availability for his work of personnel with adequate experience as required; as per Appendix.~~

4.5.5. Equipment Capabilities

~~Based on the studies carried out by the Engineer, the minimum suggested major equipment to attain the completion of works in accordance with the prescribed construction schedule are shown in the Appendix.~~

~~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 to allow the employer 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.~~

4.5.6. Financial Position

~~The Applicant should give undertaking that he has access to, or has available, liquid assets (aggregate of working capital, cash in hand and uncommitted bank guarantees) and / or credit facilities up to 25 percent of the value of the contract / contracts applied.~~

- ~~4.5.7. The audited balance sheets for the last five years should be submitted, which must demonstrate the soundness of the applicant's financial position, showing long — term profitability including an estimated financial projection for the next two years. If necessary, the employer will make inquiries with the applicant's bankers.~~

4.5.8. Litigation History

~~The Applicant should provide accurate information on any litigation or arbitration resulting from contracts completed or under execution by him over the last five financial years. A consistent history of awards against the Applicant or any partner of a joint venture may result in failure of the applicant.~~

4.5.9. Disqualification

~~Even though the applicants meet the above criteria, they are subject to be disqualified if they have:~~

~~Made misleading or false representation in the forms, statements submitted, and / or Record of poor performance such as abandoning the work, rescinding of contract for which the reasons are attributable to the non — performance of the contractor; consistent history of litigation awarded against the applicant or financial failure due to bankruptcy. The rescinding of contract of a joint venture on account of reasons other than non — performance, such as Most Experienced partner of joint venture pulling out, court directions leading to breaking up of a joint venture before the start of work, which are not attributable to the poor performance of the contractor will, however, not affect the qualification of the individual partners.~~

- ~~4.5.10. The bidder who have applied for corporate Debt Restructuring (CDR) / facing recovery proceedings from financial institutions / facing winding up processing / those under BIFR in the last 5 financial year shall be considered for bid qualification. However if the bank / financial institution has accepted the proposal of debt restructuring on or before the last date of online submission, the same shall be considered for further evaluation. An affidavit by bidder along with certificate from bank must be produced in such cases. In case of Joint Venture agreement, this provision shall be applicable for both lead partner and JV partner.~~

#4.6 — ~~JOINT VENTURE: (Maximum 3 Members i.e. 1 Lead & 2 Others)~~
~~(Applicable only for estimated project cost of 50 Crore and above)~~

4.6.1. — ~~Joint ventures must comply with the following requirement:~~

~~(a) — Following are the minimum qualification requirements:~~

~~(i) — The lead partner shall meet not less than 50 percent of all criteria given in para 4.5.3 & 4.5.6 above. The joint venture must collectively satisfy the criteria of para 4.5.3 & 4.5.6 above. The experience of the other joint venture partners shall be considered if it is not less than 30 percent of the qualifying criteria in para 4.5.3 & 4.5.6 above.~~

~~(ii) — Individually each member must satisfy the requirements of para 4.5.7 & 4.5.8 above.~~

~~(b) — Bid shall be signed so as to legally bind all partners, jointly and severally, and shall be submitted with a copy of the joint venture agreement providing the joint and several liabilities with respect to the contract.~~

4.6.2. — ~~Qualification of a joint venture does not necessarily qualify any of its partners individually or as a partner in any other joint venture. In case dissolution of a joint venture, each one of the constituent firms may qualify if they meet all the qualification requirements, subject to the written approval of the Employer.~~

4.7. — Bid Capacity.

~~Applicants who meet the minimum qualification criteria will be qualified only if their available bid capacity at the expected time of bidding is more than the total estimated cost of the works. The available bid capacity will be calculated as under:~~

Assessed Available Bid Capacity = (A*N*2-B), where

~~A = Maximum value of work executed in any one year during the last five years (updated to the price level of the year indicated in appendix) taking into account the completed as well as works in Progress.~~

~~B = Value at current price level of the existing commitments and ongoing works to be completed during the next (period of completion of work for which bids are invited); and~~

~~N = Number of years prescribed for completion of the works for which the bids are invited.~~

Note :- ~~In Case of joint venture, the available bid capacity will be applied for each partner to the extent of his proposed participation in the execution of the work.~~

4.8 Even though the bidders meet the above qualifying criteria, they are subject to be disqualified if they have:

- Made misleading or false representation in the forms, statements and Attachments the submitted in proof the qualification requirements; and / or

- Record of poor performance such as abandoning the works, not properly completing the contract, inordinate delay in completion, litigation history, or financial failures etc.; and/ or
- Participated in the previous bidding for the same work and had quoted unreasonably high bid prices and could not furnish rational justification to the employer.

5. One bid per bidder

- 5.1. Each bidder shall submit only one bid for one package. A bidder who submits or participates in more than one bid (other than as a subcontractor or in cases of alternatives that have been permitted or requested) will cause all the proposals with the bidder's participation to be disqualified.

6. Cost of Bidding

- 6.1. The bidder shall bear all costs associated with the preparation and submission of his Bid, and the Employer will in no case be responsible and liable for those costs.

7. Site Visit

- 7.1. The Bidder, at the Bidder's own responsibility and risk is encouraged to visit and examine the Site of work and its surrounding and obtain 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.

B. BIDDING DOCUMENTS

8. Content of Bidding Documents

8.1 The set of bidding documents comprises the documents listed below and addenda issued in accordance with Clause 10:

Section	Particulars	Volume No.
-	Invitation for Bids	I
1	Instructions to Bidders	
2	Qualification Information, and other forms	
3	Conditions of Contract	
4	Contract Data	
5	Technical Specifications	II
6	Form of Bid	III
7	Bill of Quantities	
8	Securities and other forms	
9	Drawings	IV
10	Documents to be furnished by bidder	V

8.2. Volumes I, II, III and IV are available online and documents to be furnished by the bidder in compliance to section 2 will be prepared by him and furnished as Volume-V in two parts (refer clause 12).

8.3. The bidder is expected to examine carefully all instructions, conditions of contract, contract data, forms, terms, technical specifications, bill of quantities, forms, Annexes and drawings in the Bid Document. Failure to comply with the requirements of Bid Documents shall be at the bidder's own risk. **Pursuant to clause 26 hereof**, bids which are not substantially responsive to the requirements of the Bid Documents shall be rejected.

9. Clarification Bidding Documents

9.1 A prospective bidder requiring any clarification of the bidding documents may notify the Employer in writing or through E-mail at the Employer's address indicated in the invitation to bid. The Employer will respond to any request for clarification which he received earlier than 15 days prior to the deadline for submission of bids. Employer's response will be published on website including a description of the enquiry but without identifying its source.

~~9.2. Pre-bid meeting~~

~~9.2.1. The bidder or his official representative is invited to attend a pre-bid meeting which will take place at the address, venue, time and date as indicated in the appendix.~~

- ~~9.2.2. The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.~~
- ~~9.2.3. The bidder shall be required to submit any questions in writing or e-mail to reach the Employer not later than 03 days before the meeting.~~
- ~~9.2.4 Minutes of the meeting, including the question raised (Without identifying the source of enquiry) and the responses given will be published without delay on the tender website i.e. www.nprocure.com. Any modification of the bidding documents listed in sub-Clause 8.1 which 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 Clause 10 and not through the minutes of the pre-bid meeting.~~
- ~~9.2.5. Non-attendance at the pre-bid meeting will not be a cause for disqualification of a bidder.~~

10. Amendment of Bidding Documents

- 10.1 Before the deadline for submission of bids, the Employer may modify the bidding documents by issuing addenda.
- 10.2 Any addendum thus issued shall be part of the bidding documents. The Employer will assume no responsibility for the same.
- 10.3 To give prospective bidders reasonable time in which to take an addendum into account in preparing their bids, the Employer may, at his discretion, extend as necessary the deadline for submission of bids, in accordance with Sub-Clause 20.2 below.

C. PREPARATION OF BIDS

11. Language of the Bid

11.1 All documents relating to the bid shall be in the English language.

12. Documents Comprising the Bid

12.1. The bid be submitted by the bidder as Volume V of the bid document (refer Clause 8.1) shall be in two separate parts:

Part I shall be named “Technical Bid” and shall comprise

- (i) Bid Security in the form specified in Section 8
- (ii) Qualification Information and supporting documents as specified in Section 2
- (iii) Certificates, undertakings, affidavits as specified in Section 2
- (iv) Any other information pursuant to Clause 4.5 of these instructions
- (v) Undertaking that the bid shall remain valid for the period specified in Clause 15.1

Part II shall be named “Financial Bid” and shall comprise

- (i) Form of Bid as specified in Section 6
- (ii) Priced Bill of Quantities for items specified in Section 7

12.2. The Bidder shall submit the details / information pertaining to each part i.e. technical as well as financial and must be submitted online only.

12.3. Following documents will be deemed to be part of the bid.

Section	Particulars	Volume No.
Invitation for Bids (IFB)		
1	Instruction to Bidders	Volume I
3	Conditions of Contract	
4	Contract Data	
5	Specifications	Volume II
9	Drawings	Volume IV

13. Bid Prices

13.1 The Contract shall be for the whole works as described in Sub-Clause 1.1, based on the priced Bill of Quantities submitted by the Bidder.

13.2 The bidder shall fill in rates and prices and line item total (both in figures and words) for all items of the Works described in the Bill of Quantities along with total bid price

(Both in figures and words). Items for which no rate or price is entered by the bidder will not be paid for by the Bill of Quantities.

- 13.3 All duties, taxes, and other levies except GST payable by the contractor under the contract, or for any other cause shall be included in the rates, prices and total Bid Price submitted by the Bidder. (GST will be paid extra)

- 13.4 Deleted

- 13.5 The rates and prices quoted by the bidder are subject to adjustment during the performance of the Contract in accordance with the provisions of Clause 47 of the Condition of Contract **(Irrespective of the time limit and Bid Amount)**

14. Currencies of Bid and Payment

- 14.1 The unit rates and the prices quoted by the bidder shall be entirely in Indian Rupees. All payments shall be made in Indian Rupees.

15. Bid Validity

- 15.1 Bids shall remain valid for a period of not less than 120 days after the deadline date for bid submission specified in Clause 20.
- 15.2 In exceptional circumstances, prior to expiry of the original time limit, the Employer may request that the bidders may extend the period of validity for a specified period. A bidder may refuse the request without forfeiting his bid security. A bidder agreeing to the request will not be required or permitted to modify his bid, but will be required to extend the validity of his security for a period of the extension, and in compliance with Clause 16 in all respects.

#16. Bid Security

- 16.1. The Bidder shall furnish, as part of his Bid, a Bid security in the amount as shown in column 4 of the table of IFB for this particular work. This Bid security shall be in favor of Employer as named in Appendix and may be in one of the following forms;
- a. Bank Guarantee from any scheduled Indian bank, in the format given in Volume III. **(Bank Guarantee is applicable only for Bid Estimated Amount of 01 Crore and above)** and Bank Guarantee of Schedule and Private Banks shall be considered as per GoG Finance Department's Circular No. FD/MSM/e-file/4/2023/0057/D.M.O. Date 21/04/2023 or as per their latest amendment.
- b. Fixed Deposit Receipt issued by any Scheduled Indian Bank or a foreign Bank approved by the Reserve Bank of India.

OR

A Valid Bid Security / EMD Exemption Certificate issued by (1) Road & Building Department or (2) Narmada Water Resources, Water Supply and Kalpsar Department of Govt of Gujarat. **Exemption Certificate is applicable only when Registration Certificate of Appropriate Class and Category of Approved Contractors is required as eligible criteria of bidder.**

- 16.2. Bank guarantees (and other instruments having fixed validity) issued as surety for the bid shall be valid for 45 days beyond the validity of the bid i.e. total validity of 120+45 = 165 Days
- 16.3. Any bid not accompanied by an acceptable Bid Security and not secured as indicated in Sub-Clauses 16.1 and 16.2 above shall be rejected by the Employer as non-responsive.
- 16.4. The Bid Security of unsuccessful bidders will be returned within 28 days of the end of the bid validity period specified in Sub-Clause 15.1
- 16.5. The Bid Security of the successful bidder will be discharged when the bidder has signed the Agreement and furnished the required Performance Security.
- 16.6. The bid Security may be forfeited
- (a) If the Bidder withdraws the bid after Bid opening during the period of Bid validity.
 - (b) If the Bidder does not accept the correction of the Bid Price, if any or
 - (c) In the case of a successful Bidders, if the Bidder fails the specified time limit to
 - (i) Sign the Agreement; or
 - (ii) Furnish the requirement Performance Security.
 - (d) #If found necessary, the bidder will be intimated for negotiation, He will be intimated maximum three times within the validity period for negotiation, If contractor does not respond in time, his Bid Security (EMD) will be forfeited and his tender will be rejected. Punitive action will be taken on such contractors. (As per GoG R&B Dept's Gr. No. S/22/2017/639/D, Dt.08/06/2018)

17. Alternative Proposals by Bidders.

- 17.1. Bidders shall submit offers that fully comply with the requirements of the bidding documents, including the conditions of contract (including mobilization advance or time for completion), basic technical design as indicated in the drawing and specifications. Conditional offers or alternative offers will not be considered further in the process of tender evaluation.

18. Format and Signing of Bid

- 18.1. The Bidder shall prepare documents comprising the bid as described in Clause 12 of these Instructions to bidder as the "Technical Bid" and "Financial Bid" in separate parts to be uploaded.

D. SUBMISSION OF BIDS

19. Deleted

20. Deadline for Submission of the Bids

- 20.1. Complete Bids must be received online by the Employer at the tender website specified above not later than the date indicated in appendix.
- 20.2. The Employer may extend the deadline for submission of bids by issuing an amendment in accordance with Clause 10, in which case all right and obligation of the Employer and the bidders previously subject to the original deadline will then be subject to the new deadline.

21. Deleted

22. Modification and Withdrawal of Bids

- 22.1. Bidders may modify or withdraw their bids online before the deadline prescribed in Clause 20 or pursuant to Clause 23.
- 22.2. Deleted
- 22.3. No bid shall be modified or withdrawn after the deadline for submission of Bid.
- 22.4. Withdrawal or modification of a bid between the deadline for submission of bids and the expiration of the original period of bid validity specified in Clause 15.1 above or as extended pursuant to Clause 15.2 may result in the forfeiture of the Bid security pursuant to Clause 16.

E. BID OPENING AND EVALUATION

23. Bid Opening

- 23.1 The Employer will open all the Bids received including modifications made pursuant to Clause 22, in the presence of the Bidders or their representatives who choose to attend at time, date and the place specified in Appendix in the manner specified in Clauses 20 and 23.3, 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.
- 23.2. Deleted.
- 23.3. The “Technical Bid” shall be opened. The amount, form and validity of the bid security furnished with each bid will be announced. If the bid security furnished does not conform to the amount and validity period as specified in the invitation for bid (ref. Column 4 and paragraph 3), and has not been furnished in the form specified in Clause 16, the technical bid will not be opened.
- 23.4. (i) Subject to confirmation of the bid security by the issuing Bank, the bids accompanied with valid bid security will be taken up for evaluation with respect to the Qualification information and other information furnished in part I of the bid pursuant to Clause 12.1.
- (ii) If required, the bidder will be asked in writing to clarify his Qualification Documents with respect to any required clarification.
- (iii) The bidders will respond in not more than 7 days of issue of the clarification letter.
- (iv) Immediately (usually within 3 or 4 days), on receipt of these clarification the Evaluation Committee will finalize the list of responsive bidders whose financial bids are eligible for consideration.
- 23.5. Deleted
- 23.6 At the time of opening of “Financial Bid”, the names of the bidders were found responsive in accordance with Clause 23.4(iv) will be announced. The bids of only these bidders will be opened. The responsive Bidders’ names, the Bid prices, the total amount of each bid, any discount and such other details as the Employer may consider appropriate, will be announced by the Employer at the opening.
- 23.7 the time of opening of “Financial Bid”, the names of the bidders were found responsive in accordance with Clause 23.4(iv) will be announced. The bids of only these bidders will be opened. The responsive Bidders’ names, the Bid prices, the total amount of each bid, any discount, and such other details as the Employer may consider appropriate, will be announced by the Employer at the opening.
- 23.8 In case bids are invited for more than one package, the order for opening of the “Financial Bid” shall be in order of Estimated amount of Bids from highest to lowest.
- 23.9 The Employer shall prepare minutes of the Bid opening, including the information disclosed to those present in accordance with Sub-Clause 23.6.

24 Process to be Confidential

- 24.1 Information relating to the examination, clarification, evaluation, and comparison of Bids and recommendations for the award of a contract shall not be disclosed to Bidders or any other persons not officially concerned with such process until the award to the successful Bidder has been announced. Any effort by Bidder to influence the Employer's processing of Bids or award decisions may result in the rejection of his Bid.

25. Clarification of Financial Bids

- 25.1. To assist in the examination, evaluation, and comparison of Bids, the Employer may, at his discretion, ask any Bidder for clarification of his Bid, including breakdowns of unit rates. The request for clarification and the response shall be in writing or by e-mail, but no change in the price or substances of the Bid shall be sought, offered, or permitted except as required to confirm the correction of arithmetic errors discovered by the Employer in the evaluation of the Bids.
- 25.2 Subject to sub-clause 25.1, no Bidder shall contact the Employer on any matter relating to his Bid opening to the contract is awarded. If the Bidder wishes to bring additional information to the notice of the Employer, it should do so in writing.
- 25.3. Any effort by the Bidder to influence the Employer in the Employer's bid evaluation, bid comparison or contract award decision may result in the rejection of the Bidders' bid.

26. Examinations of Bids and Determination of Responsiveness

- 26.1 During the detail evaluation of "Technical Bid", the Employer will determine whether each Bid (a) meets the eligibility criteria defined in Clause 3 and 4; (b) has been properly signed; (c) is accompanied by the required securities and; (d) is substantially responsive to the requirements of the Bidding document. During the detailed evaluation of the "Financial Bid", the responsiveness of the bids will be further determined with respect to the remaining bid conditions, i.e., priced bill of quantities, technical specifications, and drawings.
- 26.2 A substantially responsive "Financial Bid" is one which confirms all the terms, conditions and specifications of bidding documents, without material deviation or reservation. A material deviation or reservation is one (a) which affects in any substantial way the scope, quality, or performance of the Works; (b) which limits in any substantial way, inconsistent with the Bidding documents, the Employer's rights or the Bidder's obligations under the Contract; or (c) whose rectification would affect unfairly the competitive position of other Bidders presenting substantially responsive Bids.
- 26.3 If a "Financial Bid" is not substantially responsive, it will be rejected by the Employer, and may not subsequently be made responsive by correction or withdrawal of the non-conforming deviation or reservation.

27. Deleted

28. Deleted

29. Evaluation and Comparison of Financial Bids

- 29.1. The Employer will evaluate and compare only the Bids determined to be substantially responsive in accordance with Sub-Clause 26.2.
- 29.2. Deleted.
- 29.3. The Employer reserves the right to accept or reject any variation or deviation. Variation and deviations and other factors, which are in excess of the requirements of the Bidding documents or otherwise result in unsolicited benefits for the Employer, shall not be taken in to account in Bid evaluation.
- 29.4. The estimated effect of the price adjustment conditions under Clause 47 of the Conditions of Contract, during the period of implementation of the Contract, will not be taken in to account in Bid evaluation.
- 29.5. If the Bid of the successful Bidder is seriously unbalanced in relation to the Engineer's estimate of the cost of work to be performed under the contract the Employer may require the Bidder to produce detailed consistency of those prices with the construction methods and schedule proposed. After evaluation of the price analyses, the Employer may require that the amount of the performance security set forth in Clause 34 be increased at the expense of the successful /bidder to a level sufficient to protect the Employer against financial loss in the event of default of the successful Bidder under the Contract.
- 29.6. A bid which contains several items in the bill of Quantities which are unrealistically priced low and which cannot be substantiated satisfactorily by the bidder may be rejected as non-responsive.

30. Deleted

F. AWARD OF CONTRACT

31. Award Criteria

31.1. Subject to Clause 32, the Employer will award the contract to the Bidder whose Bid has been determined.

- (i) to be substantially responsive to the Bidding documents and who has offered the lowest evaluated Bid Price; and
- (ii) to be within the available bid capacity adjusted to account for his bid price which is the lowest evaluation in any of the packages opened earlier than the one consideration.

In no case, the contract shall be awarded to any bidder whose available bid capacity is less than the evaluated bid price, even if the said bid is the lowest evaluated bid. The contract will in such cases be awarded to the next lowest bidder at his evaluation bid price.

32. Employer's Right to Accept any Bid and to Reject any or all Bids

32.1. Notwithstanding Clause 31, the Employer reserves the right to accept or reject any Bid, and to cancel the Bidding process and reject all Bids, at any time prior to the award of contract, without thereby incurring any liability to the affected bidder or Bidder or any obligation to inform the affected Bidder or Bidders of the grounds for the Employer's action.

33. Notification of Award and Signing of Agreement

33.1. The Bidder whose Bid has been accepted will be notified of the award by the Employer prior to expiration of the Bid validity period by cable, telex or facsimile confirmed by registered letter. This letter (hereinafter and in the condition of contract called the "Letter of Acceptance") will state the sum that the Employer will pay the Contractor in consideration of the execution, completion, and maintenance of the Works by the Contractor as prescribed by the Contract (hereinafter and in the Contract called the "Contract Price").

33.2 The notification of award will constitute the formation of the contract, subject only to the furnishing of a performance security in accordance with the provisions of Clause.

33.3. The Agreement will incorporate all agreements between the Employer and the successful Bidder. It will be signed by the Employer and to the successful Bidder, within 28 days following the notification of award along with the Letter of Acceptance. Within 21 days of receipt, the successful Bidder will sign the Agreement and deliver it to the Employer.

33.4. Upon the furnishing by the successful Bidder of the Performance Security, the Employer will promptly notify the other Bidders that their Bids have been unsuccessful.

34. Performance Security

34.1. (A) Within 10 (Ten) days of receipt of Letter of Acceptance, the successful Bidder shall furnish to the Employer an irrevocable and unconditional guarantee from a Bank in the form set forth in Section 8 (the "Performance Security") for an amount equal to 5% (five percent) of its Contract Price. In case of bids mentioned below, the successful Bidder, along with the Performance Security,

shall also furnish to the Authority an irrevocable and unconditional guarantee from a Bank in the same form given at Section 8 towards an Additional Performance Security (The “Additional Performance Security”) for an amount calculated as under:

- (a) If the Contract Price offered by the Selected Bidder is lower than 10% but upto 20% of the Estimated Project Cost, then the Additional Performance Security shall be calculated @ 20% of the difference in the (i) Estimated Project Cost (as mentioned in Bid Document) - Minus 10% of the Estimated Project Cost and (ii) Contract Price offered by the selected Bidder.
 - (b) If the Contract Price offered by the Selected Bidder is lower than 20% of the Estimated Project Cost, then the Additional Performance Security shall be calculated @ 30% of the difference in the (i) Estimated Project Cost (as mentioned in Bid Document) - Minus 10% of the Estimated Project Cost and (ii) Contract Price offered by the selected Bidder.
 - (c) This Additional Performance Security shall be treated as part of the Performance Security.
- (B) The Performance Security shall be valid beyond 60(sixty) from the stipulated date of completion of the project and the Additional Performance Security shall be valid beyond 28 (twenty-eight) days of Project Completion Date.

Performance Security shall become refundable/releasable within 15 days after certified project completion date subject to Fulfillment of contractual obligation and settlement of all dues and claims.

34.2. If the performance security is provided by the successful Bidder in the form of a Bank Guarantee, it shall be issued either (a) at the Bidder’s option, by a Nationalized/Scheduled Indian bank or (b) by a foreign bank located in India and acceptable to the Employer. As per GoG Finance Department’s Circular No. FD/MSM/e-file/4/2023/0057/D.M.O. Date 21/04/2023 or as per their latest amendment.

34.3. Failure of the successful Bidder to comply with the requirement of Sub-Clause 34.1 shall constitute sufficient grounds for cancellation of the award and forfeiture of the Bid Security.

35 Advance Payment and Security

35.1 The Employer will provide an Advance payment on the Contract Price as stipulated in the Conditions of Contract, subject to maximum amount, as stated in the Contract Data.

36. Deleted

37. Corrupt or Fraudulent Practices

37.1 The Employer will reject a proposal if it determines that the Bidder recommended for award has engaged in corrupt or fraudulent practices in completing for the contract in question and will declare the firm ineligible, either indefinitely or for a stated period of time, to be awarded a contract with National Highways Authority of India/ State PWD and any other agencies, if it at any time determines that the firm has engaged in corrupt or fraudulent practices in completing for the contractor, or in execution.

37.2 Furthermore, Bidders shall be aware of the provision stated in Sub- Clause 59.2 of the Conditions of Contract.

APPENDIX TO ITB
Clause Reference With
respect to Section -I

1. The Name of the Employer is [Cl.1.1]
2. The last five financial years.
20.... – 20....
20.... – 20....
20.... – 20....
20.... – 20....
20.... – 20....
3. This Annual Financial Turnover Amount is Rs. [Cl.4.5.3 (a)]
.....
4. Value of Work is Rs.
5. Deleted
6. The cost of electric work is Rs.
7. The cost of water supply / sanitary works is Rs.
8. Liquid assets and / or availability of credit facilities is Rs. [Cl.4.5.6]
9. Price level of the financial year [Cl. 4.5.2]
10. The pre-bid meeting will take place at [Cl. 9.2.1]
11. The technical Bid will be opened at the office of the on dt..... atAM/PM
12. Address of the Employer:
13. Deleted
14. The bid should be submitted latest by [Cl. 20.1 & 20.2]
As stated on online NIT
15. The bid will be opened at [Cl. 23.1]
As stated on online NIT
16. The Bank Draft in favor of
17. Deleted
18. Escalation factors (for the cost of works executed and financial figure to a common base value) for works completed [Cl.4.5.2]

<u>Year</u>	<u>Financial Year</u>	<u>Multiplying factor</u>
Base year of inviting tender	20__20__	1.00
-1	20__20__	1.10
-2	20__20__	1.21
-3	20__20__	1.33
-4	20__20__	1.46
-5	20__20__	1.61

#LIST OF KEY PLANT & EQUIPMENT TO BE DEPLOYED ON CONTRACT WORK

[Reference CL. 4.5.5]

The contractors shall also give a list of machineries in his possession and which they propose to use on the work.

Sr. No.	Plant or Machinery	Location	Age of Machinery (maximum 15 years)	Make	Capacity	Approximate Value	Remark
1	2(a)	2(b)	3	4	5	6	7

List of Key Personnel to be deployed on Contract Work

(Reference Cl. 4.5.4)

Employment of a qualified site Engineer by the Contractor:

The Contractor shall employ full-time technically qualified staff during the execution of this work as under:-

1. ~~Two graduate Civil Engineers and three diploma Civil Engineers when cost of the work to be executed is more than Rs.50 lakhs.~~
2. ~~One graduate & two Diploma, Civil Engineers when the cost of the work to be executed is more than Rs.15 lakhs but less than Rs.50 lakhs.~~
3. ~~Minimum Two Diploma Civil Engineer when the cost of work is less than Rs.15 lakhs but more than Rs.5 lakhs.~~
4. ~~Minimum One Diploma Civil Engineers for the work when the cost of work to be executed is less than Rs. 5 lakhs. The Engineer so employed for the Government work must have sufficient experience to handle the work independently. Such an Engineer shall have to stay at the site of work and he shall not be entrusted with other duty except this work.~~

~~In case the contractor or partner of the contractor firm is a Civil Graduate Engineer, Employment of a separate Engineer will not be necessary provided that the Engineer partner himself attends the execution of the work on the site.~~

~~Within 15 days of issue of work order the Contractor will have to furnish to the Deputy Executive Engineer in charge of the work the Name, Qualifications, copy of marksheet, Color Photograph and the appointment order issued such engineers engaged for this contract work. If 15 days after issue of work order such designated Site Engineers do not resume or do not remain present on site of work, the recovery at the rate of Rs.15,000-00 per month per Engineer will be made from the bills/deposit/dues of the contractor. Such recovery shall be non-refundable.~~

SECTION - 2

QUALIFICATION INFORMATION

QUALIFICATION INFORMATION

~~The information to be filled in by the Bidder in the following pages will be used for the purpose of post qualification as provided for in Clause 4 of the Instruction to Bidders. This information will not be incorporated in the Contract.~~

1. For Individual Bidders

1.1 Constitution or legal status of Bidder

~~(Attach Copy)~~

Place of registration _____

Principal place of business _____

Power of attorney of signatory of Bid

~~(Attach)~~

1.2 ~~Total value of Civil engineering constructions~~ 2 0 ____ 20
~~Work performed in the last five years~~ 20 ____ 20
~~(— in Rs. Lakhs)~~ 20 ____ 20 ____
20 ____ 20 ____
20 ____ 20 ____

~~15.2.1 Work performed as prime contractor, work performed in the past as a nominated sub-contractor will also be considered the sub-contract involved execution of all main items of work described in the bid documents, provided further that all other qualification criteria are satisfied (in the same name) on works of a similar nature over the last five years** and in current year before the submission of the bid.~~

Project Name	Name of the Employer	Description of work	Contract No.	Value of contract (Rs. Crore)	Date of issue of work order	Stipulated period of completion	Actual date of completion*	Remark explaining reasons for delay & work Completed

~~*Attach certificate(s) from the Engineer(s) in-charge~~

~~** Immediately preceding the financial year in which bids are received.~~

#1.3.2 Quantities of work executed as prime contractor, work performed, in the past as a nominated sub-contractor, will also be considered provided the sub-contract involved execution of all main items of work described in the bid document, provided, further that all other qualification criteria are called (in the same name and style) in the last five years** and in current year before the submission of the bid.

*To be modified as per the nature and scope of work

Year	Name of the work	Name of the Employer	Quantity of work performed (Cum/MT)				Remarks* (indicate contract Ref)
			Cement Concrete (Including RCC & PCC) ITEM 1	Masonry ITEM 2	Earth Works ITEM 3	Bituminous Work ITEM 4	
20__20__							
20__20__							
20__20__							
20__20__							
20__20__							

1.4 Information on Bid Capacity (works for which bids have been submitted and works which are yet to be completed) as on the date of this bid.

(A) Existing commitments and on-going works:

Description of works	Place & State	Contract No.	Name & Address of Employer	Value Contract (Rs. Cr)	Stipulated Period of Completion	Value of Works* remaining to be completed (Rs. Cr)	Anticipated of completion
1	2	3	4	5	6	7	8

*Attach certificate (s) from the Engineer(s) in charge

** Immediately preceding the financial year in which bids are received.

1.5 Availability of key items of Contractors Equipment for carrying out the works (Ref. Clause 4.5.5). The Bidder should list all the information requested below.

Item of Equipment	Requirement		Availability Proposals			Remarks (from whom to be purchased)
	NO	Capacity	Owned/ Leased to be procured	Nos./ Capacity	Age/ Conditions	

~~1.6 — Qualifications and experience of key personnel required for administration and execution of the contract. Attach biographical data. Refer also to Sub-Clause 9.1 of the Conditions of Contract.~~

Position	Name	Qualification	Year of Experience (General)	Year of experience in the proposed position
Project Manager				
Etc.				

~~1.7 — Proposed sub-contract and firms involved~~

Sections of the works	Value of Sub-Contractor	Sub-Contractor (Name & Address)	Experience in similar work

~~Attach copies of certificates on possession of valid license for executing water supply/ sanitary work/ building electrification works.~~

- ~~1.8 Financial reports for the last five years: balance sheets, profit and loss statements, auditors' reports (in case of companies/corporations), etc. List them below and attach copies.~~
- ~~1.9 Evidence of access to financial resources to meet the qualification requirements: cash in hand, lines of credit, etc. List them below and attach copied documents.~~
- ~~1.10 Name, address, and telephone, telex, and fax numbers of the Bidders bankers who may provide references if contacted by the Employer.~~
- ~~1.11 Information on Litigation history in which the Bidder is involved.~~

Other Party (ies)	Employer	Cause of Dispute	Amount Involved	Remarks showing Present Status

- ~~1.12. Statement of compliance under the requirements of Sub Clause 3.2 of the instruction to Bidders. (Name of Consultant engaged for project preparations is *.....)~~

- ~~1.13 Proposed work method and schedule. The Bidder should attach descriptions, drawings and charts as necessary to comply with the requirements of the Bidding documents. (Refer ITB Clause 4.1)~~

- 1.14 Programme

2. Deleted

3. Additional Requirements

- 3.1 Bidders should provide any additional information required to fulfill the requirements of Clause 4 of the Instructions to the Bidders, if applicable.

- (i) Affidavit
(ii) Undertaking

* Fill the name of Consultant

**~~SAMPLE FORMAT FOR EVIDENCE OF ACCESS TO OR
AVAILABILITY OF CREDIT FACILITIES~~**

~~{CLAUSE 4.5.6 OF ITB}~~

~~BANK CERTIFICATE~~

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

~~If the contract for the work, namely _____ is awarded to the
above firm, we shall be able to provide overdraft/credit facilities to the extent of
Rs. _____ to meet their working capital requirements for executing the above
during the contract period.~~

~~{Signature}~~

~~Name of Bank~~

~~Senior Bank Manager~~

~~Address of the Bank~~

AFFIDAVIT

1. I, the undersigned, do hereby certify that all the statements made in the required attachments are true and correct.
2. The undersigned also hereby certifies that neither our firm M/s. _____
_____ have not abandoned any work of Government of Gujarat/Government of India/any Board or Corporation under Government of Gujarat/Government of India nor any contract awarded to us for such works have been rescinded, during last five years prior to the date of this bid.
3. The undersigned hereby authorize(s) and request (s) any bank, person, firm or corporation to furnish pertinent information deemed necessary and requested by the Department to verify this statement or regarding any (our) competence and general reputation.
4. The Undersigned understands and agrees that further qualifying information may be requested, and agrees to furnish any such information at the request of the Department/ Project implementing agency.

(Signed by an Authorized Officer of the Firm)

Title of Officer

Name of Firm

Date

UNDERTAKING

I, the undersigned do hereby undertake that our firm
M/s.....would invest a minimum cash
up to 25% of the value of the work during implementation of the contract.

(Signed by an Authorized officer of the firm)

Title of officer

Name of firm

DATE

SECTION - 3

CONDITIONS OF CONTRACT

Conditions of Contract

Table of Contents

A	General	Page No.	D.	Cost Control	
1	Definitions	37	37	Bill of Quantities	49
2	Interpretation	38	38	Changes in the Quantities	49
3	Language and Law	39	39	Variations	49
4	Engineer's Decisions	39	40	Payments for Variations	49
5	Delegations	39	41	Cash Flow Forecasts	50
6	Communications	39	42	Payment Certificates	51
7	Sub-Contractors	39	43	Payments	51
8	Other Contractors	39	44	Compensations Events	51
9	Personnel	40	45	Tax	52
10	Employer's & Contractor Risk	40	46	Currencies	52
11	Employers Risks	40	47	Price Adjustment	52
12	Contractor's Risk	40	48	Retention	52
13	Insurance	40	49	Liquidated damages	53
14	Site Investigations Reports	41	50	Bonus	54
15	Queries about the Contract	41	51	Advance Payment	54
16	Contractors to Construct the works	41	52	Securities	55
17	The Works to be Completed By the Intended Completion Date	41	53	Deleted	55
18	Approval by the Engineer	41	54	Cost of Repair	55
19	Safety	41			
20	Discoveries	42	E.	Finishing the Contract	
21	Possession of the Site	42	55	Completion	56
22	Access to the Site	42	56	Taking Over	56
23	Instructions	42	57	Final Account	56
24	Disputes	42	58	Operating and Maintenance manuals	56
25	Procedure for Disputes	43			
26	Deleted	43	59	Terminations	56
			60	Payment upon Terminations	57
B.	Time Control		61	Property	58
27	Programme	44	62	Release from Performance	58
28	Extensions of the Intended completion date	44			
29	Deleted	44	F.	Special Conditions of Contract	
30	Delays Ordered by The Engineer	44	63	Labour	59
			64	Compliance with labour regulations	59
31	Management Meetings	45	65	Arbitration	62
32	Early Warning	45			
C.	Quality Control				
33	Identifying Defects	46			
34	Tests	48			
35	Correction of Defects	48			
36	Uncorrected Defects	48			

CONDITIONS OF CONTRACT

A. GENERAL.

1. Definitions

- 1.1 Terms which are defined in the Contract Data are not also defined in the Conditions of Contract but keep their defined meaning.

Bill of Quantities means the priced and completed Bill of Quantities forming part of the Bid

Compensation Events are those defined in Clause 44 hereunder

The **Completion Date** is the date of completion of the Works as certified by the Engineer in accordance with Sub Clause 55.1

The Contract is the contract between the Employer and Contractor to execute, complete and maintain the Works **till the completion of Defects Liability Period**. It consists of the documents listed in Clause 2.3 below.

The **Contract data** defines the documents and other information which comprise the Contract.

The **Contractor** is a person or corporate body whose Bid to carry out the Work has been accepted by the Employer.

The **Contractor's Bid** is the completed Bidding document submitted by the Contractor to the Employer and includes Technical and Financial Bids.

The **Contract Price** is the price stated in the Letter of Acceptance and thereafter as adjusted in accordance with the provisions of the Contract.

Days are calendar days: **months** are calendar months.

The **Defects Liability Period** is the period named in the Contract Data and calculated from the Completion Date.

The **Employer** is the party who will employ the Contractor to carry out the Works.

The Engineer is the person named in the Contract Data (or any other competent person appointed and notified to the contractor to act in replacement of the Engineer) who is responsible for supervising the Contractor, administering the Contract, certifying payments due to the Contractor, issuing and valuing Variations to the Contract, awarding extensions of time, and valuing the Compensations Events.

Equipment is Contractor's machinery and vehicles brought temporarily to the site to construct the Works.

The **Initial Contract Price** is the Contract Price listed in the Employer's Letter of Acceptance.

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 Contract Data. The Intended Completion Date may be revised only by the Engineer by issuing an extension of time.

Materials are all supplies, including consumables, used by the contractor for incorporation in the works.

Plant is any integral part of the work which is to have mechanical, electrical, electronic or chemical or biological functions.

The **Site** is the area defined as such in the Contract Data.

Site Investigation Reports are those which were included in the Bidding documents and are factual interpretive reports about the surface and subsurface conditions at the site.

Specifications means the Specifications of the works included in the Contract and any modification or addition made or approved by the Engineer.

The **Start Date** is given in the Contract Data. It is the date when the Contractor shall commence execution of the works. It does not necessarily coincide with any of the Site Possession Dates.

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.

Temporary Works are works designed, constructed, installed, and removed by the Contractor which are needed for construction or installation of the Works.

A **Variation** is an instruction given by the Engineer, which varies the Works.

The **Works** are what the Contract requires the Contractor to construct, install, and turn over to the Employer, as defined in the Contract Data.

2. **Interpretation**

2.1 In interpreting these Conditions of Contract, singular also means plural, male also means female or neuter and the other way around. Heading have no significance. Words have their normal meaning under the language of the Contract unless specifically defined. The Engineer will provide instructions clarifying queries about Conditions of Contract.

2.2 If sectional completion is specified in the Contract Data, references in the Conditions of Contract to the Works, the Completion date, and Intended Completion Date apply to any Section of the Works (other than references to the Completion Date and Intended Completion date for the whole works)

2.3 The documents forming the Contract shall be interpreted in the following order of priority

- (1) Agreement
- (2) Letter of Acceptance, notice to proceed with works
- (3) Contractor's Bid

- (4) Contract Data
- (5) Conditions of Contract including Conditions of Contract
- (6) Specifications
- (7) Drawings
- (8) Bills of quantities and
- (9) Any other document listed in the Contract Data as forming part of the Contract.

3. Language and Law

- 3.1 The language of the Contract and the law governing the Contract are stated in the Contract Data.

4. Engineers Decisions

- 4.1 Except where otherwise specifically stated, the Engineer will decide contractual matters between the Employer and the Contractor in the role representing the Employer.

5. Delegation

- 5.1 The Engineer may delegate any of his duties and responsibilities to other people after notifying the Contractor and may cancel any delegation after notifying the Contractor.

6. Communications

- 6.1 Communications between parties which are referred to in the conditions are effective only when in writing. A notice shall be effective only when it is delivered (in terms of Indian Contract Act).

7. Sub-Contracting

- 7.1 The Contractor may subcontract any portion of work, up to a limit specified in contract data, with the approval of the engineer but may not assign the Contract without the approval of the Employer in writing. Subcontracting shall not alter the Contractor's obligations. **Sub-contracting of supply or specific items of work is not allowed.**
- 7.2 The sub-contractor must be registered in appropriate class and category for the part of work to be subcontracted.

8. Other Contractors

- 8.1 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 Contractor. The Contractors shall as refer to in the Contract Data, 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 modifications.

9. Personnel

- 9.1 The Contractor shall employ the key personnel named in the Schedule of Key Personnel as referred to in the Contract Data to carry out the functions stated in the Schedule or other personnel approved by the Engineer. The Engineer will approve any proposed replacement of key personnel only if their qualifications, abilities, and relevant experience are substantially equal to or better than those of the personnel listed in the Schedule.
- 9.2 If the engineer asks the Contractor to remove a person who is a member of the Contractor Staff or his work force stating the reasons the Contractor shall ensure that the person leaves the Site within seven days and has no further connection with the work in the Contract.

10. Employer's and Contractors Risks

- 10.1 The Employer carries the risk which these Contract states are Employer's risks, and the Contractor carries the risks which these Contracts states are Contractors risk.

11. Employer's Risks

- 11.1 The employer is responsible for the excepted risks which are (a) in so far as they directly affect the execution of the Works, the risks of war, hostilities, invasion, act of foreign enemies, rebellion, revolution, insurrection or military or usurped power, civil war, riot commotion or disorder (unless restricted to the Contractor's employees), and contamination from any nuclear fuel or nuclear waste or radioactive toxic explosive.

12. Contractor's Risks

- 12.1 All risks of loss of or damages to physical property and of personal injury and death which arise during and in consequence of the performance of the Contract other than the excepted risks are the responsibility of the Contractor.

13. Insurance

- 13.1 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 Contract data for the following events which are due to the Contractor's risks:

- (a) Loss of or damage to the works, Plant and materials,
- (b) Loss of or damage to Equipment
- (c) Loss of or damages of property (except the Works, Plant, Materials and Equipment) in connection with the Contract; and
- (d) Personal injury or death.

- 13.2 Policies and certificates for insurance shall be delivered by the Contractor to the Engineer for the Engineer'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.

13.3 If the Contractor does not provide any of the policies and certificates required, the Employer may affect 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.

13.4 Alterations to the terms of an insurance shall not be made without the approval of the Engineer.

13.5 Both parties shall comply with any conditions of the insurance policies.

14. Site Investigation Report

14.1 The Contractor in preparing the Bid shall rely on any site Investigation reports referred to in the Contract Data, supplemented by any information available to the Bidder.

15. Queries about the Contract data

15.1 The engineer will clarify queries on the Contract Data

16. Contractor to Construct the Works

16.1 The Contractor shall construct and install the works in accordance with the specification and Drawings.

17. The Works to be completed by the Intended Completion Date

17.1 The Contractor may commence execution of the Works on the Start Date and shall carry out the Works in accordance with the programme submitted by the Contractor, as updated with the approval of the Engineer, and complete them by the Intended Completion date

18. Approval by the Engineer

18.1 The Contractor shall submit Specifications and Drawings showing the proposed Temporary works to the Engineer, who is to approve them if they comply with the Specifications and drawings.

18.2 The Contractor shall be responsible for design of temporary works.

18.3 The Engineer's approval shall not alter the contractor responsibility for design of the Temporary works.

18.4 The Contractor shall obtain approval of third parties to the design of the Temporary works where required.

18.5 All Drawings prepared by the Contractors for the execution of the temporary or permanent work are subject to prior approval by the Engineer before their use.

19. Safety

19.1 The Contractor shall be responsible for the safety of all activities on the Site.

20. Discoveries

- 20.1 Anything of historical or other interest or of significant value unexpectedly discovered on the site is the property of the Employer. The contractor is to notify the engineer of such discoveries and carry out the Engineer's instructions for dealing with them.

21. Possession of the Site

- 21.1 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 Adu the Employer is deemed to have delayed the start of the relevant activities and this will be a Compensation Event.
- 21.2 If within 25% of the time limit of the project, 80% of possession of the site is not handed over to the Contractor, then contractor/ Employer may fore-close the contract. Contractor/Employer has to foreclose the work within 30 days after lapse of 25%-time limit and after 30 days foreclosure option will be closed.

22. Access to the Site

- 22.1 The Contractor shall allow the Engineer and any person authorized by the Engineer access to the Site, to any place where work in connection with the Contract is being carried out or is intended to be carried out and to any place where materials or plants are being manufactured/ fabricated/ assembled for the works.

23. Instructions

- 23.1 The Contractor shall carry out all instructions of the Engineer pertaining to works which comply with the applicable laws where the site is located.
- 23.2 The Contractor shall permit the Employer to inspect the Contractor's accounts and records relating to the performance of the Contractor and to have them audited by auditors appointed by the Employer, if so required by the Employer.

24. Disputes

- 24.1 If the Contractor is of the view that a decision taken by the Engineer was either outside the authority given to the Engineer by the Contract or that the decision was wrongly taken, the decision shall be referred to **#Superintending Engineer (..... Circle)** within 14 days of the notification of the Engineer's decision. If the issue is not resolved, any party can refer the matter for conciliation within 15 days from the decision given by the **#Superintending Engineer (..... Circle)**.
- 24.2
- (a) For the work up to Rs.100 Cr., if any of the parties is not satisfied with the decision of the **#Superintending Engineer (..... Circle)**, both the parties have to refer to the Chief Engineer concern for the conciliation process.
- (b) For the work more than Rs.100 Cr., if any of the parties is not satisfied with the decision of the **#Superintending Engineer (..... Circle)**, both the parties have to refer to the **#Secretary, Water Resources Department, Government of Gujarat** for the conciliation process.

If the dispute is not resolved through the conciliation process, he may refer the dispute to Gujarat Public Works Contract Dispute Arbitration Tribunal. If the Contractor fails to refer a claim / dispute to the Higher Authority within 14 days of the notification of the Engineer's decision, the Contractor shall not be entitled to any additional payment/claim if he doesn't follow the above sequence in stipulated time and he should not stop the work.

25. Procedure for Disputers

- 25.1 The arbitration shall be conducted in accordance with the arbitration procedure stated in the Special Conditions of Contract.

26. Deleted

B. TIME CONTROL

27. Programme

- 27.1 Within the time stated in the Contract Data the Contractor shall submit to the Engineer for approval a Programme showing the general methods, arrangements orders, and timing for all the activities in the works along with monthly cash flow forecast.
- 27.2 An update of the Programme shall be a programme 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.
- 27.3 The Contractor shall submit to the Engineer, for approval an updated programme at intervals no longer than the period stated in the Contract data. If the Contractor does not submit an updated programme within this period, the Engineer may withhold the amount stated in the Contract data from the next payment after the date on which the overdue programme has been submitted.
- 27.4 The Engineer's approval of the programme shall not alter the Contractor's obligations. The Contractor may revise the programme and submit it to the Engineer again at any time. A revised programme is to show the effect of Variations and Compensations events.

28. Extension of the Intended Completion Date

- 28.1 The Engineer 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 and which would cause the Contractor to incur additional cost.
- 28.2 The Engineer shall decide whether and by how much to extend the Intended Completion Date within 35 days of the Contractor asking the Engineer 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.
- 28.3 The Engineer shall within 14 days of receiving full justification from the contractor for extension of Intended Completion Date refer to the Employer his decision. The employer shall in not more than 21 days communicate to the engineer the acceptance or otherwise of the Engineer's decision. If the employer fails to give his acceptance, the Engineer shall not grant the extension and the contractor may refer the matter under Clause 24.1

29. Deleted

30. Delays Ordered by the Engineer

- 30.1 The Engineer may instruct the Contractor to delay the start or progress of any activity within the works.

31. Management Meetings

- 31.1 Either the Engineer 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.
- 31.2 The Engineer shall record the business of management meetings and is to provide copies of his record to those attending the meeting and to the Employer. The responsibility of the parties for actions to be taken is to be decided by the Engineer either at the management meeting or after the management meeting and stated in writing to all who attended the meeting.

32. Early Warning

- 32.1 The Contractor is to warn the Engineer 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 works. The Engineer 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 is to be provided by the Contractor as soon as reasonably possible.
- 32.2 The Contractor shall cooperate with the Engineer 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 Engineer.

C. QUALITY CONTROL

33. Identifying Defects/ Defect liability period

33.1 : Defect liability period: The contractor shall be responsible to make good and remedy at his own expense any defect which may develop or may be noticed before the period mentioned hereunder from the certified date of completion. The Engineer in charge shall give the contractor a notice in writing about the defects and the contractor shall make good the same within 15 days of receipt of the notice. In the case of failure on the part of the contractor, the Engineer-in-charge may rectify or remove or re-execute the work at the risk & cost of the contractor. The Engineer-in-charge shall be entitled to appropriate the whole or any part of the amount of security deposit towards the expenses, if any, Incurred by him in rectification, removal or re-execution. The Defects Liability period shall be as under....

A. For works of WRD Except Building

- (a) (1) For all works costing up to Rs. 50,000 (amount put to tender), the period shall be 3 Months from the certified date of completion.
- (b) (1) For WRD works likes Check Dam/ Canal / Drainage / Road Structure tender amount from RS. 50,000 to 10,00,000, the defect liability period shall be 12 months from the certified date of completion.
(2) For WRD work except likes Check Dam/ Canal / Drainage / Road Structure tender amount from RS. 50,000 to 10,00,000, the defect liability period shall be 6 months from the certified date of completion.
- (c) (1) For WRD works likes Check Dam/ Canal / Drainage / Road Structure tender amount more than RS. 10,00,000, the defect liability period shall be 3 Years from the certified date of completion.
(2) For WRD work except likes Check Dam/ Canal / Drainage / Road Structure tender amount from RS. 10,00,000 to 1 Crore, the defect liability period shall be 12 months from the certified date of completion.
- (d) (1) For all WRD works of tender amount more than RS. 1 Crore, the defect liability period shall be 3 Years from the certified date of completion

B. For Building works of WRD:-

For Building works of WRD, Follow the R&B Circular dated.03/12/2009

For original building works the defect liability period will be 4 years or elapse of 4 monsoon period following date of possession of building taken over by user agency following the certified date of completion, whichever is later.

For the purpose of deciding the monsoon period, the 30th September shall be treated as the last date.

WRD Circular No. Matas/102013/MICELL(K-1) Dated 13/12/2013

33.2 For Road works :

Free maintenance guarantee period for works of **Road/Bridge construction**

- (a) For resurfacing work of road free maintenance guarantee period one year from the date of completion.
- (b) In case of widening of the road/strengthening of the road/bridge, the contractor shall have to give four years free maintenance guarantee from the certified date of completion. During this period the contractor shall visit the site every six months along with the concerned Section Officer / Deputy Executive Engineer and will examine the work already carried out in this contract like road work, jungle cutting, side shoulders, side gutter, road furniture, patta etc. and will prepare Km. wise inspection report duly signed by all concerned and any defect observed shall be done within 15 days by the contractor at his risk and cost as per the direction of Engineer in charge. The contractor needs to do videography of these visits and require to submit at the time of release of FMG. If B.T. the surface during

the maintenance period of 4 years is worn out then agency shall have to provide renewal coating as per tender item as directed by the Engineer-in-charge. The amount equivalent to 5% of each running bill shall be withheld and will be released after the free maintenance guarantee period (i.e. 4 years) is over.

However, this amount shall be released against fixed deposit or bank guarantee pledged in the name of Executive Engineer after completion certificate of work is issued.

(1) The flakiness and elongation index (combined) for coarse aggregates under no circumstances shall exceed the allowable limit set forth in the relevant clause for the material in question.

(2) 2% of the amount eligible for the payment of bituminous items shall be withheld till the miscellaneous items like earthwork in embankment / cutting for side shoulders, side gutters, kilometer / indicator / guard stones, sign boards etc. are completed in all respect by the contractor. After completion of the miscellaneous items, the above said 2% withheld amount shall be released.

(Govt. of Gujarat's G.R. No.: TNC-10-2013-3(Part-3)/C, Dtd. 13/12/2013).

(3) Videography for the surface under Maintenance Guarantee is to be done as per Govt. letter No.: SSR/10/2015-16/26/C, Dtd. 26/11/15 for the work costing more than Rs. 5.00 Crore.

(4) Setting up of adequate laboratory & deployment of quality engineers.

The contractor shall have to set up the laboratory with adequate equipment. Till the setting up of adequate laboratory is completed & reported of this to the engineer (subject to due verification by engineer's representative) by contractor in writing, Rs.2,00,000/- shall be withheld. The qualified quality Engineer shall be deployed exclusively for this contract by the contractors. If quality Engineer is not deployed by contractor within one month after the date of work order, the amount equivalent to Rs.20,000 per month shall be recovered till the actual deployment of quality engineer. The amount so recovered towards the deployment of quality engineers shall not be refunded.

(5) Asphalt work will have to be cross checked as per G.R. No.: RGN/60/2006/35/C, dtd.31/05/07 before final bill is paid.

(6) Maintenance during Construction Period

During the Construction Period, the Contractor shall maintain, at his own risk and cost, the existing lane(s) of the road so that the traffic worthiness and safety thereof are at no time materially inferior as compared to their condition 10 (ten) days prior to the date of the Agreement, and shall undertake the necessary repair and maintenance works for this purpose; provided that the Contractor may, at his cost, interrupt and divert the flow

of traffic if such interruption and diversion is necessary for the efficient progress of works and conforms to Good Industry Practice; provided further that such interruption and diversion shall be undertaken by the Contractor only with the prior written approval of the Executive Engineer which approval shall not be unreasonably withheld. For the avoidance of doubt, it is agreed that the Contractor shall at all times be responsible for ensuring safe operation of the road.

- 33.3 The Engineer 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 Engineer may instruct the Contractor to search for a Defect and to uncover and test any work that the Engineer considers may have a Defect.

34. Tests

- 34.1 If the engineer instructs the Contractor to carry out a test not specified in the Specification 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.
- 34.2 #1% of the amount of work done for works upto Rs. 10 crore of estimate cost should be deducted from R.A. Bill of the contractor for testing the quality of material workmanship. Whereas for estimated cost of works more than 10 crore, the charges for testing of quality of material workmanship shall be deducted from R.A. bill of contractor as per actual charges. As Per GoG NWRWS & K Department's Circular No. PARCH/132023/401/MICELL Dated: 05/10/2023
- 34.3 Agency has to establish testing laboratory on site for the various test to be carried out in the work for this purpose agency shall construct a pukka laboratory building with all facility on site at location specified by the engineer in charge.

35. Correction of defects

- 35.1 The engineer 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 contract data. The Defects Liability Period shall be extended for as long as Defects remain to be corrected.
- 35.2 Every time notice of a Defect is given, the Contractor shall correct the notified defect within the length of time specified by the Engineer's notice.

36. Uncorrected Defects

- 36.1 If the Contractor has not corrected a defect within the time specified in the Engineer's notice, the Engineer will assess the cost of having the Defect corrected, and the Contractor will pay this amount.

D. COST CONTROL

37. Bill of Quantities

- 37.1 The bill of Quantities shall contain items for the constructions, installation, testing and commissioning work to be done by the Contractor.
- 37.2 The bill of Quantities is used to calculate the Contract price. The Contractor is paid for the quantity of the work done at the rate in the Bill of Quantities for each item.

38. Change in the Quantities

- 38.1 The Engineer shall have power to make any alterations in or addition to the original specifications , drawings, designs and instructions that may appear to him to be necessary or advisable during the progress of the work and the contractor shall be bound to carry out the work in accordance with any instruction in this connection which may be given to him in writing signed by the Engineer and such alteration shall not invalidate the contract and any additional work which the contractor may be directed to do in the manner above specified as part of the work shall be carried out by the contractor on the same conditions in all respects on which he agreed to do the main work and at the same rate as are specified in the tender for the main work.

Except that when the quantity of any item exceeds the quantity as in the tender by more than 130%, the contractor will be paid for the quantity in excess of 130%, at the rate entered in the SOR of the year during which the excess in quantity is first executed.

39. Variations

- 39.1 All Variations shall be included in updated programmes produced by the Contractor.

40. Payments for Variations

- 40.1 If the additional or altered work includes any class of work for which no rate is specified in this contract, then such class of work shall be carried out as under.
- (i) At the rate derived from the item within the contract which is comparable to the one involving additional or altered class of work; where there are more than one comparable items, the item of the contract which is nearest in comparison with regard to class or classes of the work involved shall be selected and the decision of the Superintending Engineer as to the nearest comparable item shall be final and binding on the contractor.
- (ii) If the rate cannot be derived in accordance with (i) above, such class of works shall be carried out at the rate entered in the Schedule of Rates of the division

for the year in which the tender was received, increased or decreased by the percentage by which the tender amount is more or less as compared to the amount arrived at the rates in the "Schedule of Rates" of the Division in the year in which the tender was received. If the Schedule of rates of the Division does not contain all the items, the percentage increase or decrease of the tender shall be calculated considering such items which were included in the "Scheduled Rates" of the division for the year and for materials consumed on such item the rate to be charged would be the basic rate taken into account for fixing the rate in S.O.R. referred to above.

- (iii) If it is not possible to arrive at the rate from (i) and (ii) above, such class of work shall be carried out at the rate decided by the competent authorities on the basis of detailed rate analysis after hearing the contractor before a Committee of two Superintending Engineers stationed at the same place or the nearest place.

- 40.2 If the additional or altered work, for which no rate is entered in the "Schedule of Rates" of the Division is ordered to be carried out before the rate is agreed upon, then the contractor shall within seven days of the date of receipt by him of the order to carry out the work, inform the Engineer-in-charge of the rate, which it is his intention to charge for such class of work and if the Engineer in charge does not agree to this rates, he shall by notice in writing be at liberty to cancel his order to carry out such class of work and arrange to carry it out in such manner as he may consider it advisable, provided always that if the contractor shall commence work or incur any expenditure in regard thereof before the rates shall have been determined as lastly herein before mentioned, then in such cases he shall only be entitled to be paid in respect of the work carried out or expenditure incurred by him prior to the date of the determination of the rate as aforesaid according to such rate or rates as shall be fixed by the Engineer-in-charge. In the event of the dispute, the decision of the Superintending Engineer of the Circle shall be final.

Where, however, the work is to be executed according to the designs, drawings and specifications recommended by the contractor and accepted by the competent authority, the alternation above referred to shall be within the scope of such designs, drawings and specifications appended to the tenders.

The time limit for the completion of the work shall be extended in the proportion that the increase in the cost occasioned by alterations bears to the cost of the original work and the certificate of the Engineer-in-charge as to such proportion shall be final and conclusive.

41. Cash Flow Forecasts

- 41.1 When the programme is updated, the contractor is to provide the engineer with an updated cash flow forecast.

42. Payment certificates.

- 42.1 The Contractor shall submit to the Engineer monthly statements of the estimated value of the work completed less the cumulative amount certified previously.
- 42.2 The Engineer shall check the Contractor's monthly statement within 14 days and certify the amount to be paid to the Contractor after taking in to account any credit or debit for the month in question in respect of materials for the works in the relevant amounts and under conditions set forth in sub-clause 32.3 of the Contract Data (secured Advance).
- 42.3 The value of work executed shall be determined by the Engineer.
- 42.4 The value of work executed shall comprise the value of the quantities of the items in the Bill of Quantities completed.
- 42.5 The value of work executed shall include the valuation of variations and compensation events.
- 42.6 The Engineer 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

43. Payments

- 43.1 Payments shall be adjusted for deductions for advance payments, retention, other recoveries in terms of the contract and taxes at source, as applicable under the law. The Employer shall pay the Contractor the amounts certified by the Engineer within 28 days of the date of each certificate.
- 43.2 Payment of GST (prevailing rates) on the amount payable under the contract to the Contractor will be made by the Employer. Hence, it is the responsibility of the contractor to pay the GST to the concerned Authority.
- 43.3 Items of the works for which no rate or price has been entered in will not be paid by the Employer and shall be deemed covered by other rates and prices in the Contract.

44. Compensation events

- 44.1 The following are compensation Events unless they are caused by the Contractor:
 - (a) The Employer does not give access to a part of the Site by the site Possession date stated in Contract data to the Contractor
- 44.2 In case of compensation event occurs and it prevents the work being completed beyond the Intended Completion Date then Authority will approve EOT with eligible contractual price escalation.

45. Tax

- 45.1 The rates quoted by the Contractor must be inclusive of all taxes prevailing on due date of bid submission except GST. However, any subsequent changes in the tax structure by Government after due date of bid submission will be compensated (+/-) on availability or submission of actual documentation. Contractor will have to intimate Engineer regarding changes occurred in the tax structure after bid submission. If the contractor fails to provide such information and if any financial obligation may arise due to change in tax structure, same will be recovered from the contractor.
- 45.2 GST will be paid separately on the bills. Hence, it is the responsibility of the contractor to pay the GST to the concerned Authority.

46. Currencies.

- 46.1 All payment shall be made in Indian Rupees.

47. Price Adjustment

- 47.1 Contract price shall be adjusted for increase or decrease in rates and price of labour, materials, fuels and lubricants in accordance with the following principles and procedures and as per formula given in the contract data:
- (a) The price adjustment shall apply for the work done from the start date given in the contract data up to end of the initial intended completion date or extensions granted by the Engineer and shall not apply to the work carried out beyond the stipulated time for reasons attributable to the contractor.
 - (b) The price adjustment shall be determined during each month from the formula given in the contract data.
 - (c) Following expressions and meanings during to the work done during each month
R = Total value of work done during the month. It would include the amount of secured advance granted, if any, during the month less the amount of secured advance recovered, if any during the month. It will exclude value for works executed under variations for which price adjustment will be worked separately based on the terms mutually agreed.
- 47.2 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 clause 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.

48. Retention

- 48.1 The Employer shall retain from each payment due to Contractor the proportion stated in the Contract Data until Completion of the whole of the Works.

- 48.2 On Completion of the whole of the Works half the total amount retained is repaid to the Contractor and half when the Defects Liability Period has passed and the Engineer has certified that all Defects notified by the Engineer to the Contractor before the end of this period have been corrected.
- 48.3 On completion of the whole works, the contractor may substitute retention money with an “on demand” Bank guarantee.

In case, Contractor requests for refund of the Retention Money deducted by the Employer under the provision of this clause, Employer shall consider the said request of the Contractor provided that the refund hereunder shall be made in tranches of not less than 1% (One Percent) of the Contract Price and Contractor furnishes an irrevocable and unconditional Bank guarantee for an equal amount substantially in the format of Bank Guarantee for Performance Guarantee enclosed with SBD and valid up to 60 day beyond the scheduled / extended Defects Liability Period. On completion of the whole works, the contractor has however an option to submit a fresh irrevocable and unconditional Bank Guarantee for an amount equal to 5% of the total value of work executed substantially in the format of Bank Guarantee for Performance Guarantee enclosed with SBD and valid up to 60 days beyond the Defect Liability Period and yet refund the Retention Money Bank Guarantee submitted for refund of Retention Money.

49. Liquidated Damages

- 49.1 The Contractor shall pay liquidated damages to the Employer at the rate per day stated in the Contract Data for each day that the Completion Date is later than the Intended Completion Date (for the whole works or the milestone as stated in the contract data). The total amount of liquidated damages shall not exceed the amount defined in the Contract Data. The Employer may deduct liquidated damages from payment due to the Contractor. Payment of liquidated damages does not affect the Contractor’s liabilities.
- 49.2 If the Intended Completion Date is extended after liquidated damages have been paid, the Engineer shall correct any overpayment of liquidated damages by the Contractor by adjusting the next payment certificate. The Contractor shall not be entitled for any interest on the over payment calculated from the date of payment to the date of repayment.
- 49.3 If the contractor fails to comply with the time for completion as stipulated in the tender, then the contractor shall pay to the employer the relevant sum stated in the Contract Data as Liquidated damages for such default and not as penalty for everyday or part of day which shall elapse between relevant time for completion and the date stated in the taking over certificate of the whole of the works on the relevant section, subject to the limit stated in the contract data.

The employer may, without prejudice to any other method of recovery deduct the amount of such damages from any monies due or to become due to the contractor. The payment or deduction of such damages shall not relieve

the contractor from his obligation to complete the works on from any other of his obligations and liabilities under the contract.

- 49.4 If, before the Time for Completion of the whole of the Works or, if applicable any Section, a Taking Over Certificate has been issued for any part of the Works or of a Section, the liquidated damages for delay in completion of the remainder of the Works or of that Section shall, for any period of delay after the date stated in such Taking-Over-Certificate, and in the absence of alternative provisions in the Contract, be reduced in the proportion which the value of the part so certified bears to the value of the whole of the Works or Section, as applicable. The provisions of this Sub-clause shall only apply to the rate of liquidated damages and shall not affect the limit thereof.

50 Bonus

- 50.1 If the contractor achieves completion of the whole of the works prior to the intended Completion Date prescribed in Contract Data the Employer shall pay to the contractor a sum stated in Contract Data as bonus for every completed month **but subjected to maximum amount as stated in Contract Data**; which shall elapse between the date of completion of all items of works as stipulated in the contract, including variations ordered by the Engineer and the time prescribed in Clause 17.
- 50.2 Bonus shall be paid only to works amounting to above INR 5 crore with time limit of the works is equal or more than 6 months. The bonus would be paid as under

% of Time Saved	% of Initial Contract Price entitled for Bonus
50 %	5%
40 %	4%
30 %	3%
20 %	2%
10 %	1%
Less than 10%	0%

51. Advance Payment.

- 51.1 The Employer shall make advance payment (not to be paid less than two installments except in special circumstances for which the reason to be Recorded in writing) to the Contractor of the amounts stated in the Contract Date by the date stated in the Contract Date, against provision by the Contactor of an Unconditional Bank Guarantee in a form and by a bank acceptable to the Employer in amounts and currencies equal to be at least 110% of 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. The Mobilization advance would be deemed as interest bearing advance at an interest rate of 10 % to be compounded, quarterly.

51.2 The Contractor is to use the advance payment only to pay for Equipment, plant and Mobilization expenses required specifically for execution of the Works. The Contractor shall demonstrate that advance payment has been used in this way by supplying copies of invoices or other documents to the engineer.

51.3 The advance payment shall be repaid by deduction proportionate amount 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, or Liquidated damages.

51.4 Deleted

52. Securities

52.1 The performance Security (including additional security for unbalanced bids) shall be provided to the Employer no later than the date specified in the Letter of Acceptance and shall be issued in an amount and form and by a bank or surety acceptable to the Employer, and denominated in Indian Rupees. The performance Security shall be valid until a date 60 days from the date of expiry of Defects Liability Period and the additional security for unbalanced bids shall be valid until a date 28 days from the date of issue of the certificate of completion.

Performance and Additional Performance Security become refundable/releasable within 15 days after project certified completion date subjected to fulfillment of contractual obligation and settlement of all dues and claims.

53. Deleted

54. Cost of Repairs.

54.1 Loss or damage to the Works or Materials to be incorporated in the Works between the Start date and the end of Defects Correction periods shall be remedied by the Contractor at the Contractor's cost if the loss or damages arises from the Contractor's acts or omissions.

E. FINISHING THE CONTRACT

55. Completion

- 55.1 The Contractor shall request the Engineer to issue a Certificate of Completion of the works and the Engineer will do so upon deciding that the work is completed.

56. Taking Over

- 56.1 The Employer shall take over the Site and the Works within seven days of the Engineer issuing a certificate of Completion.

57. Final Account

- 57.1 The Contractor shall supply to the Engineer a detailed final account of the total amount that the Contractor considers payable as full and final settlement of all claims under the Contract for items before the end of the Defects Liability Period. The Engineer shall issue a Defect 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 Engineer 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 Engineer shall decide on the amount payable to the Contractor and issue a payment certificate, within 56 days of receiving the Contractor's revised account.
- 57.2 If reversal in characteristic of tender (L1 becoming L2) on account of excesses and savings in final account is observed, the Engineer/Employer shall be at liberty to restrict the final payment of BOQ items to the lowest amount evaluated of the bids considering the final quantities and the rates quoted including the rebates if any. Payment of variation items shall however be made at the rates approved by the Employer, within 90 days from the physical completion of work.

58. Operating and Maintenance Manuals

- 58.1 If "as built" drawings and/or operating and maintenance manuals are required, the Contractor shall supply them by the dates stated in the Contract data.
- 58.2 If the Contractor does not supply the Drawings and/or manuals by the dates stated in the Contract data, or they do not receive the Engineer's approval, the Engineer shall withhold the amount stated in the Contract Data from payments due to the Contractor.

59. Termination

- 59.1 The Employer or the Contractor may terminate the Contract if the other party causes a fundamental breach of the Contract.

59.2 Fundamental breaches of Contract 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 programme and the stoppage has not been authorized by the Engineer
2. The Engineer instructs the Contractor to delay the progress of the Works and the instructions is not withdrawn within 28 days;
3. The Employer or the Contractor is made bankrupt or goes into liquidation other than for a reconstructions or amalgamation
4. A payment certified by the Engineer is not paid by the Employer to the Contractor within 56 days of the date of the Engineer's certificate
5. The Engineer 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 Engineer;
6. The Contractor does not maintain a security which is required;
7. The Contractor has delayed the completion of works by the number of days for which the maximum amount of liquidated damages can be paid as defined in the Contract data; and
8. If the Contractor, in the judgment of the Employer has engaged in corrupt or fraudulent practices in competing for or in executing the Contract.

For the purpose of this paragraph: "corrupt practice" means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution. "Fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the borrower, and includes collusive practice among Bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the Borrower of the benefits of free and open competition.

59.3 When either party to the Contract gives notice of a breach of contract to the Engineer for a cause other than those listed under Sub Clause 59.2 above, the Engineer shall decide whether the breach is fundamental or not.

59.4 Notwithstanding the above, the employer may terminate the Contract for convenience.

60. Payment upon Termination

60.1 If the Contract is terminated because of a fundamental breach of Contract by the Contractor, the Engineer shall issue a Certificate for the value of the work done less advance payments received up to the date of the issue of the

certificate, less other recoveries due in terms of the contract, less taxes due to deducted at source as per applicable law and less the percentage to apply to the work not completed as indicated in the Contract data. 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.

- 60.2 If the Contract is terminated at the Employer's convenience or because of a fundamental breach of Contract by the Employer, the Engineer shall issue a certificate for the value of the work done, the cost of balance material brought by the contractor and available at site, the reasonable cost of removal of equipment, repatriation of the Contractor's personnel employed solely on the works, and the Contractor's cost of protecting and securing the Works and less advance payment received up to the date of the certificate, less other recoveries due in terms of the contract and less taxes due to deducted at source as per applicable law.

61. Property

- 61.1 All materials on the Site, Plant Equipments, Temporary Works and Works are deemed to be property of the Employer, if the Contract is terminated because of a Contractor's default.

62. Release from Performance

- 62.1 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 Engineer 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 commitment was made.

F. SPECIAL CONDITIONS OF CONTRACT

63. LABOUR

The Contractor shall, unless otherwise provided in the Contract, make his own arrangements for the engagement of all staff and labour, local or other, and for their payment of housing, feeding and transport.

The Contractor shall, if required by the Engineer, deliver to the Engineer a return in detail, in such form and at such intervals as the Engineer may prescribe, showing the staff and the numbers of the several classes of labour from time to time employed by the Contractor on the site and such other information as the Engineer may require.

64. COMPLIANCE WITH LABOUR REGULATIONS

During continuance of the contract, the Contractor and his sub-contractor shall abide at all times by all existing labour enactments and rules made thereunder, regulations, notification and bye laws of the State or central Government or local authority and any other labour law (including rules), regulations, bye laws that may be passed or notifications that may be issued under any labour law in future either by the State or the Central Government or the local authority. Salient features of some of the major labour laws that are applicable to the construction industry are given below. The Contractor shall keep the Employer indemnified in case any action is taken against the Employer by the competent authority on account of contravention of any of the provisions of any Act or rules made thereunder, regulations or notifications including amendments. If the Employer is caused to pay or reimburse, such amounts as may be necessary to cause or observe, or for observance of the provisions stipulated in the notifications/bye laws/Acts/Rules/regulations including amendments, if any, on the part of the Contractor, the Engineer/employer shall have the right to deduct any money due to the Contractor including his amount of performance security. The Employer/Engineer shall also have the 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.

The employees of the Contractor and the Sub-Contractor in no case shall be treated as the employees of the Employer at any point to time.

SALIENT FEATURES OF SOME MAJOR LABOUR AND OTHER LAWS APPLICABLE TO ESTABLISHMENTS ENGAGED IN BUILDING AND OTHER CONSTRUCTIONS WORK

- A) **Workmen Compensation Act 1923** :- The Act provides for compensation in case of injury by accident arising out of and during the course of employment.
- B) **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 on death, the rate of 15 days wages for every completed year of service. The Act is applicable to all establishments employing 10 or more employees.
- C) **Employees P.F. and Miscellaneous Provision Act 1952:-** The Act Provides for monthly contributions by the employer plus workers @ 10% or 8.33% The benefits payable under the Act are :
1. Pension or family pension on retirement or death, as the case may be.
 2. Deposit linked insurance on the death in harness of the worker.
 3. Payment of P.F. accumulation on retirement/death etc.
- D) **Maternity Benefit Act 1951** :- The Act provides for leave and some other benefits to women employees in case of confinement or miscarriage etc.
- E) **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.
- F) **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 Building, Roads, Runways are scheduled employment.
- G) **Payments of wages Act 1936:-** It lays down as to by what date the wages are to be paid, when it will be paid and what deductions can be made from the wages of the workers.
- H) **Equal remunerations Act 1979** :- 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 matter of transfer, training and promotions etc.
- I) **Payments of Bonus Act 1965** :- The Act is applicable to all establishments employing 20 or more employees. The Act provides for payments of annual bonus subject to a minimum of 8.33% of wages and maximum of 20 % of wages to employees drawing Rs. 3500/- per month or less. The bonus to be paid to employees getting Rs, 2500/- per month or above Rs. 3500/- per month shall be worked out by taking wages as Rs. 2500/- per month only. The Act does not

apply to certain establishments. The newly set-up establishments are exempted for five years in certain circumstances. Some of the State Governments have reduced the employment size from 20 to 10 for the purpose of applicability of this Act.

- J) **Industrial Disputes Act 1947 :-** The Act lays down the machinery and procedure for resolutions 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.
- K) **Industrial employment (standing Orders) Act 1946 :-** It is applicable to all establishments employing 100 or more workmen (employment size reduced by some of the State 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.
- L) **Trade Unions Act 1926:-** The Act lays the procedure for registration of trade unions of workmen and employers. The Trade Unions registered under the Act have given certain immunities from civil and criminal liabilities.
- M) **Child Labour (Prohibition & Regulation Act 1986 :-** The Act prohibits employment of children below 14 years of age in certain occupations and process and provides for regulation of employment of children in all other occupations and processes. Employment of Child labour is prohibited in Building and Construction Industry.
- N) **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, is an establishment to which this Act becomes applicable, are required to be provided certain facilities such as housing, medical aid, traveling expenses from home upto the establishment and back, etc.
- O) **The Building and Other Construction workers (Regulation of employment and Conditions of Service) Act 1996 and the Cess Act of 1996:-** All the establishments who carry on any building or other constructions work and employ 10 or more workers are covered under this Act.
All such establishments are required to pay cess at the rate not exceeding 2% of the cost of construction as may be modified 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 workplace etc. The Employer to whom the Act applies has to obtain a registration certificate from the Registering Officers appointed by the Government.

- P) **Factories Act 1948 :-** The Act lays down the procedure for approval of plans before setting up a factory, 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 engaged in the manufacturing process.
- Q) **Royalty charges-**The contractor shall pay the royalty to the competent authority as per rule. The **royalty** charges paid shall be borne by the contractor and shall not be reimbursed by the Employer.
- R) **Following Pollution control Acts and amendments made thereof from time to time shall be applicable.**
1. Water (Preservation and control of Pollution) Act, 1974
 2. Air (Prevention and Control of Pollution Act 1981
 3. Environmental (Protection) Act 1986

The contractor must commit to adopting Environmental management plan for best energy use, waste management, the reduction of pollution as in EMS (Environmental Management system)ISO-14001-2015

65. ARBITRATION (GCC Clause 24)

The procedure for arbitration will be as follows: -

- 24.1 If the Contractor is of the view that a decision taken by the Engineer was either outside the authority given to the Engineer by the Contract or that the decision was wrongly taken, the decision shall be referred to **#Superintending Engineer** (Higher Authority) (..... Circle) within 14 days of the notification of the Engineer's decision. If the issue is not resolved, any party can refer the matter for conciliation within 15 days from the decision given by the #Superintending Engineer.

24.2

- (a) For the work up to Rs.100 Cr., if any of the parties is not satisfied with the decision of the #Superintending Engineer (..... Circle), both the parties have to refer to the #Chief Engineer concerned for the conciliation process.
- (b) For the work more than Rs.100 Cr., if any of the parties is not satisfied with the decision of the Superintending Engineer, both parties have to refer to the #Secretary, Water Resources Department, Government of Gujarat for the conciliation process.

If the dispute is not resolved through the conciliation process, contractor may refer the dispute to Gujarat Public Works Contract Dispute Arbitration Tribunal. If the Contractor fails to refer a claim / dispute to the Higher Authority within 14 days of the notification of the Engineer's decision, the Contractor shall not be entitled to any additional payment/claim if he doesn't follow the above sequence in stipulated time. However, during such period, he would not stop the work in any case.

SECTION - 4
CONTRACT DATA

#CONTRACT DATA

Clause Reference With respect To section 3

Item marked "N/A" do not apply to this Contract.

1. The Employers is [CL.1.1]
Name: The Executive Engineer, Panchayat Irrigation Division, Aravalli-Modasa
Address: Jilla Seva Sadan, Shamlaji Road, Aravalli-Modasa 383315.
Name of authorized Representative (will be intimated later)
2. The Engineer is The Executive Engineer, Panchayat Irrigation Division, Aravalli-
Name of Authorized Representative: Executive Engineer
3. The Defects Liability Period is 12 (Twelve) Months from the [CL.1.1&33]
date of completion.
4. The Start Date shall be 1st days for the date of issue of the Notice [CL.1.1]
to proceed with the work.
5. The Intended Completion Date for the whole of the works is [CL.1.1,17&2]
..... **Months** after start of work with the following milestones:
Milestone dates: [CL.2.2& 49.1]
Physical works to be completed Period from the start date
Milestone 1 i.e. %.....days.
Milestone 2 i.e. %..... days.
Milestone 3 i.e.%.....days.
Milestone 4 i.e.%.....days.
6. The Site is located at various dist. Under APID, Modasa. [CL.1.1]
7. The name and identification number of the Contract is: [CL.1.1]
8. The works consist of.....with items as per [CL.1.1]
B.O.Q. The works shall, inter alia, include the following, as
Specified or as directed:

(A) WRD Works

Site clearance; setting – out and layout; Construction and Maintenance of all types of dams and its component, earthen dam; spillway; installation of gate; excavation and earth work, approach road, Inspection Bungalows, checkdams, bandhara, T.R., weir, barrages, Flood Protection & Anti Sea Erosion work, canal lining and structures, , CD Works, structure repairing, Jungale cutting, Desilting, etc. other WRD works.

(B) Road Works :

Site clearance; setting out and layout widening of **existing** carriageway and strengthening including camber corrections; construction of new road/ Parallel service road; bituminous pavements remodeling/construction of Junctions, intersections, bus bays, lay-bays; supplying and placing of drainage Channels, flumes, guard posts and guard other related items; construction/extension of cross drainage works, bridge, approaches and other related stones; protective works for roads/bridge; all aspects of quality assurance of various components of the works; rectification of The defects in the completed works during the Defects Liability Period; submission of "As- built" drawings and any other related documents; and other item of work as may be required to be carried out for completing the work in accordance with the drawings and the provisions of the contract and to ensure safety.

(C) Bridge Works

provision of foundations, piers abutments and bearing; prestressed/reinforced cement concrete superstructure; wearing coat, hand railings, expansion joints, approach slabs, drainages spouts/ downtake pipes, arrangements for fixing light posts, water mains, utilities etc; provision of suitably designed protective works; providing wing/return walls; provision of road markings, road signs etc.; all aspects of quality assurance; clearing the site and handing over the works on completion; rectification of the defects during the Defects Liability Period and submission of "As-built" drawings and other related documents; and other items of work as may be required to be carried out for completing the works in accordance with the drawings and the provisions of the contract and to Insure safety

(D) Other Items

[CL.1.1]

Any Other Items as required to fulfill all contractual obligations as per the Bid documents.

10. The following documents also form part of the Contract:
_____As per clause 2-3_____ [CL.2.3(9)]
11. The law which applies to the Contract is the law of Union of India [CL.3.1]
12. The language of the Contract documents is English [CL.3.1]
13. Limit of subcontracting 25% of the Initial Contract Price [CL.7.1]
14. The Schedule of Other Contractors [CL.8]
15. The Schedule of Key Personnel As per Annex – II to Section I [CL.9]
16. The minimum insurance cover for physical property, injury and death is Rs. 5 lakhs per occurrence with the number of occurrences limited to four. After each occurrence, the contractor will pay an additional premium necessary to make insurance valid for four occurrences always. [CL.13]
17. Site Investigation report [CL.14]
18. The Site Possession dates shall be [CL.21]
19. The period for submission of programme for approval of the engineer shall be 21 days from the issue of Letter of Acceptance. [CL. 27.1]
20. The period between program updates will be days. [CL.27.3]
21. The amount to be withheld for late submission of an updated programme shall be Rslakhs [CL. 27.3]
22. The following events shall also be Compensation Events [CL. 44]
Substantially adverse ground conditions encountered during the course of execution of work not provided for in the bidding document.
 - (i) Removal of underground utilities detected subsequently
 - (ii) Significant changes in classification of soil requiring additional mobilization by the contractor, e.g. ordinary soil to rock excavation,
 - (iii) Removal of unsuitable material like marsh, debris dumps, etc. not caused by the contractor.

- (iv) Artesian conditions
- (v) Seepage, erosion landslide
- (vi) River training requiring protection of permanent work
- (vii) Presence of historical, archeological or religious structures, monuments interfering with the works
- (viii) Restriction of access to ground imposed by civil, judicial, or military authority

23. The currency of the Contract is Indian Rupees

[CL. 46]

24. **The formula (e) for adjustment of prices are as under:**

[CL.47]

~~— If any of the commodities like Cement, Steel or Bitumen are not found applicable in a work, the weight component of that commodities (i.e. 'Cement' (Pc), 'Steel' (Ps) or 'Bitumen' (Pb) as indicated in SBD for the purpose of Price Adjustment) shall be clubbed with the weight component of 'Other Material' (Pm), such that the gross % weight of the components shall remain as 100%.~~

~~R = value of work as defined in Clause 47.1 of Conditions of Contract~~

Adjustment for labour component

~~(i) — Price adjustment for increase or decrease in the cost due to labour shall be paid in accordance with the following formula:~~

$$V_L = \frac{0.85 \times (P_i/100) \times R \times (L_i - L_0)}{L_0}$$

~~V_L = Increase or decrease in the cost of work during the month under consideration due to changes in rates for local labour~~

~~L₀ = The consumer price index for industrial workers for the State on 28 days preceding the scheduled date of opening of technical Bids as published by Labour Bureau, Ministry of Labour, Government of India~~

~~L_i = The consumer price index for industrial workers for the State for the month under consideration as published by the Labour Bureau, Ministry of Labour, Government of India.~~

~~P_i = Percentage of labor component of the work.~~

Adjustment for cement component.

~~(ii) — Prices adjustment for increase or decrease in the cost of cement procured by the contractor~~

$$V_c = \frac{0.85 \times (P_c/100) \times R \times (C_i - C_0)}{C_0}$$

~~V_c = Increase or decrease in the cost of work during the month under consideration due to changes in rates for cement.~~

~~C₀ = The all India wholesale price index for Ordinary Portland Cement on 28 days preceding the scheduled date of opening of technical bid as published by the Office of the Economic Adviser, Department for Promotion of Industry and Internal Trade, Ministry of Commerce & Industry.~~

~~G_i = The all India average wholesale price index for Ordinary Portland Cement for the month under consideration as published by **Office of the Economic Adviser, Department for Promotion of Industry and Internal Trade, Ministry of Commerce & Industry.**~~

P_c = Percentage of cement component of the work

Adjustment for steel component

(iii) ~~Price adjustment for increase or decrease in the cost of steel procured by the contractor shall be paid in accordance with the following formula~~

$$V_s = 0.85 \times (P_s/100) \times R \times (S_i - S_0)/S_0$$

~~V_s = Increase or decrease in the cost of work during the month under consideration due to changes in the rates for steel~~

~~S_0 = The all India wholesale price index for steel (**Mild Steel – Long Products Rebars**) on 28 days preceding the date of opening of Bids as published by the **Office of the Economic Adviser, Department for Promotion of Industry and Internal Trade, Ministry of Commerce & Industry.**~~

~~S_i = The all India average wholesale price index for steel (**Mild Steel – Long Products Rebars**) for the month under consideration as published by **Office of the Economic Adviser, Department for Promotion of Industry and Internal Trade, Ministry of Commerce & Industry.**~~

P_s = Percentage of steel component of the work

~~Note : For the application of this clause, the index of **Mild Steel- Long products Rebars** has been chosen to represent the steel group.~~

Adjustments of bitumen component

(iv) ~~Price adjustment for increase in the cost of bitumen shall be paid in accordance with the following formula~~

$$V_b = 0.85 \times (P_b/100) \times R \times (B_i - B_0)/B_0$$

~~V_b = Increase or decrease in the cost of work during the month under consideration due to changes in rates for bitumen.~~

~~B_0 = The official retail price of bitumen at the IOC depot at the nearest centre on the day 28 days prior to the scheduled date of opening of technical bid.~~

~~B_i = The official retail price of bitumen of IOC depot at the nearest centre:~~

- ~~• For the first 15 days of the month under consideration, the price declared on the 1st day of that month~~
- ~~• For the remaining days of the month under consideration, the rate declared on the 16th day of that month.~~

~~P_b = Percentage of bitumen component of the work~~
~~**Adjustment of POL (fuel and lubricant)**~~
~~**component**~~

~~(v) — Price adjustment for increase or decrease in cost of POL (fuel and lubricant) shall be paid in accordance with the following formula~~

$$V_f = 0.85 \times (P_f/100) \times R \times (F_i - F_0)/F_0$$

~~V_f = Increase or decrease in the cost of work during the month under consideration due to changes in rates for fuel and lubricants.~~

~~F₀ = The official retail price of High Speed Diesel (HSD) at the existing consumer pumps of IOC at the nearest centre on the day 28 prior to the date of opening of Bids.~~

~~F_i = The official retail price of HSD at the existing consumer pumps of IOC at the nearest centre for the 15th day of the month of the under consideration.~~

~~P_f = Percentage of fuel and lubricants component of the work~~

~~Note: For the application of this clause, the price of High-Speed diesel Oil has been chosen to represent the fuel and lubricants group.~~

Adjustment for Construction Machinery

~~(vi) — Price adjustment for increase or decrease in the cost of plant and Machinery spare procured by the Contractor shall be paid in accordance with the following formula~~

$$V_p = 0.85 \times (P_p/100) \times R \times (P_i - P_0)/P_0$$

~~V_p = Increase or decrease in the cost of work during the month under consideration due to changes in rates for plant and machinery spares~~

~~P₀ = The all India wholesale price index for **manufacturer of machinery for mining, quarrying and Construction** for the month under consideration as published **Office of the Economic Adviser, Department for Promotion of Industry and Internal Trade, Ministry of Commerce & Industry.**~~

~~P_i = The all India average wholesale price index for **manufacturer of machinery for mining, quarrying and Construction** for the month under consideration as published **Office of the Economic Adviser, Department for Promotion of Industry and Internal Trade, Ministry of Commerce & Industry.**~~

~~P_p = Percentage of plant and machinery spares component of the work.~~

~~Note: For the application of this clause, index of Heavy Machinery and parts has been chosen to represent the Plant and Machinery Spares group~~

Adjustment of other materials Component

- (vii) ~~Price adjustment for increase or decrease in cost of local materials other than cement, steel, bitumen and POL procured by the contractor shall be paid in accordance with the following formula~~

$$V_m = 0.85 \times (P_m/100) \times R \times (M_i - M_0)/M_0$$

~~V_m = Increase or decrease in the cost of work during the month under consideration due to change in rates for local materials other than cement, steel, bitumen and POL.~~

~~M_0 = The All Indian wholesale price index (all commodities) on 28 days preceding the scheduled date of opening of technical Bids, as published by the **Office of the Economic Adviser, Department for Promotion of Industry and Internal Trade, Ministry of Commerce & Industry.**~~

~~M_i = The All India wholesale price index (all commodities) for the month under consideration as published by the **Office of the Economic Adviser, Department for Promotion of Industry and Internal Trade, Ministry of Commerce & Industry.**~~

~~P_m = Percentage of local material components (other than cement, steel, bitumen and POL) of the work.~~

~~The following percentage will govern the price adjustment for the entire contract:~~

1. Labour - P_l%
2. Cement - P_c%
3. Steel - P_s%
4. Bitumen - P_b%
5. POL - P_f%
6. Plant & Machinery Spares P_p%
7. Other Materials - P_m%
Total	<u>100 %</u>

25. The proportion of payments retained (retention money) shall be 6% {CL. 48} from each bill subject to a maximum of 5% of final contract price.
26. Amount of Liquidated damages for delay in completion of works For Whole of work {CL.49} (1/2000)th of the Initial contract price, rounded off to the nearest Thousand, per day. For sectional Completion (wherever specified In item 6 of Contract data) (1/2000)th of initial contract price for #5 km Section, rounded off to the nearest thousand per day.

- | | | |
|-----|---|---|
| 27. | Maximum limit of liquidated damages
For delay in completion work | 10 percent of the Initial {CL. 49}
Contract Price rounded off to
the nearest thousand |
| 28. | Amount of Bonus for early completion | Amount of bonus for early
completion of work shall be given
as per CL.50 of Section-3 |
| 29. | Maximum limit of bonus for early
Completion of work | 5 percent of the Contract {CL. 50}
Price |
| 30. | The amount of the advance payment are: {CL. 51 & 52} | |

#Nature of Advances

Amount (Rs.) Conditions to Be fulfilled

- | | | |
|-----|--|--|
| i | Mobilization 10% of the contract
Price | On submission of unconditional
Bank Guarantee. (to be drawn
before the end of 20% of the
contract period). The contractor
may furnish four bank guarantees
of 2.5 % of each valid for the full
period. |
| ii | Equipment 90% for new and 50% of
depreciated value for old
equipment. Total amount
will be subject to a
maximum of 5% of the
Contract Price | After equipment is brought to site
(provided the Engineer is
satisfied That the equipment is
required for performance of the
contract) and on submission of
unconditional Bank Guarantee for
amount of advance |
| iii | Secured Deleted
Advance for
Non-persish
able material
Brought to site | |

(The advance payment will be paid to the Contractor no later than 28 days after fulfillment of the above conditions).

31. Repayment of advance payment for mobilization and equipment {CL. 51.3}

The advance loan shall be repaid with percentage deduction from the interim payments certified by the Engineer under the Contract. Deduction 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 20 percent of the Contract Price or 6 (six) months from the date of payment of first installment of advance, whichever period concludes earlier, and shall be made at the rate of 20 percent **(collectively for both Mobilization Advance and Equipment Advance)** of the amounts of all Interim Payment Certificate until such time as the loan has been repaid, always provided that the loan shall be completely repaid prior to the expiry of the original time for completion pursuant to Clause 17 and 28.

32. Deleted
33. The securities shall be for the following minimum amounts equivalent {CL. 52}
As a percentage of the Contract Price:
Performance Security for 5 percent of contract price plus Rs. (to be decided after evaluation of the bid) as additional security in terms of ITB Clause 29.5

The standard form of Performance security acceptable to the Employer shall be an unconditional Bank Guarantee of the type as presented in Section 8 of the Bidding Documents.

34. The Schedule of Operating and maintenance Manuals.....N/A. {CL. 58}
35. The date by which “as- built” drawings (in scale as directed) in 2 sets {CL. 58} are required within 28 days of the issue of certificate of completion of the whole or section of the work, as the case may be.
36. The amount to be withheld for failing to supply “as built” drawings {CL. 58} by the Date required is Rs Lakhs.
37. The following events shall also be fundamentals breach of contract: {CL.59.2}
“The Contractor has contravened Sub- clause 7.1 and Clause 9 of GCC”
38. The percentage to apply the value of the work not completed representing {Cl 60} the Employer’s additional cost for completing the Works shall be 20 per cent.

SECTION-5
TECHNICALSPECIFICATION

(Attached Separately)

SECTION - 6
FORM OF BID

FORM OF BID

Description of the Works:

BID

To :

Address :

1. We offer to execute the Works described above and remedy any defects therein in conformity with the conditions of Contract, specification, drawings, Bill of Quantities and Addenda for the sum (s) of

(-----)

2. We undertake, if our Bid is accepted, to commence the Works as soon as is reasonably possible after the receipt of the Engineer's notice to commence, and to complete the whole of the Works in the Contract within the time stated in the document.
3. We agree to abide by this Bid for the period of 120 Days from the date fixed for receiving the same, and it shall remain binding upon it and may be accepted at any time before the expiration of that period.
4. Unless and until a formal Agreement is prepared and executed this Bid, together with your written acceptance thereof, shall constitute a binding contract between us.
5. We understand that you are not bound to accept the lowest or any tender you may receive.

Dated this ----- day of -----20

Signature ----- in the capacity of -----

----- duly authorized to sign bids for and on behalf of -----

(in block capitals or typed)

Address

Witness

Address

Occupation

SECTION - 7

BILL OF QUANTITIES

BILL OF QUANTITIES

Preamble

1. The bill of Quantities shall be read in conjunction with the Instructions to Bidder, Conditions of Contract, Technical Specifications and Drawings.
2. The quantities given in the Bill of Quantities are estimated and provisional, and are given to provide a common basis for bidding. The basis of payment will be the actual quantities of work ordered and carried out, as measured by the Contractor and verified by the Engineer and valued at the rates and prices tendered in the priced Bill of Quantities, where applicable, and otherwise at such rates and prices as the Engineer may fix within the terms of the Contract.
3. The rates and prices tendered in the priced Bill of Quantities shall, except in so far as it is otherwise provided under the Contract, include all constructional plant, layout, supervision, materials, erection, maintenance, insurance, profit, taxes and duties, together with all general risks, liabilities and obligations set out or implied in the Contract.
4. The rates and prices shall be quoted entirely in Indian Currency.
5. A rate or prices shall be entered against each item in the Bill Quantities, whether quantities are stated or not. The cost of Items against which Contractor has failed to enter a rate or price shall be deemed to be covered by other rates and prices entered in the Bill of Quantities (in case of Item rate contract).
6. The whole cost of complying with the provisions of the Contract shall be included in the items provided in the priced Bill of Quantities, and where no Items are provided the cost shall be deemed to be distributed among the rates and prices entered for the related items of Work.
7. General direction and descriptions of work and materials are not necessarily repeated or summarized in the Bill of Quantities. References to the relevant sections of the contract documentation shall be made before entering rates or prices against each item in the Bill of Quantities.
8. The method of completed work of payment shall be in accordance with the specification for Road and Bridge works. For building works specifications for building are to be followed.
9. Errors will be corrected by the Employer for any arithmetic errors pursuant to **Clause 29** of the Instructions to Bidder.
10. Rock is defined as all materials which, in the opinion of the Engineer, required blasting, or the use of metal wedges and sledgehammers, or the use of compressed air drilling for its removal, and which cannot be extracted by ripping with a tractor of at least 150 kw with a single rear mounted heavy duty ripper.

BILL OF QUANTITIES

(A) Percentage Rate Tender (Up to INR 50 Cr.)

Item No	Description of Item (with brief specification and reference to book of specifications)	Quantity	Unit	Rate In figures	Amount
	(Attached Seperately)				

I/We am/are willing to carry out the work at.....% above/below percent(Should be written in figures and words) of the estimated rate mentioned above. Amount of my /our tender works out as under.

Estimated amount put to tender

Estimated amount put to tender

Deduct.....% below

Add.....% Above

Net

Net

In words

In words

(B) For Item Rate Tender (For above INR 50 Cr.):

Item No	Description of Item (with brief specification and reference to book of specifications)	Quantity	Unit	Rate		Amount
				In figures	In Words	
	(Attached Seperately)					

(A) Total Tendered Amount

(B) Rebate on above tendered amount (if any) % (in figure)

..... (in words).....

(C) Net Tendered Amount (A-B) (in figure)

(in words).....

#

1	The Contractor shall exhibit a board with brief details of work as directed by the Engineer-In-Charge for which no extra payment shall be made.
2	The labour cess will be deducted as per prevailing rules i.e. 1% of the work done.
3	GST and Income tax TDS will be deducted at a source while making payments of bills
4	In all R.C.C. Items in Rate Analysis Standard Cement Consumption has been taken as per Govt. G.R. NO.: MIS102010/17/K1 Dated:30/07/2018 as stated in S.O.R. therefore in R.C.C. items where there is a change as per actual mix design the cost of difference of cement consumption have been deducted from the rate of original item at the rate of input rate mentioned in all the tender.

SECTION - 8

SECURITIES AND OTHER FORMS

BID SECURITY (BANK GUARANTEE)

WHEREAS, ----- (name of Bidder) (hereinafter called the "The Bidder") has submitted his bid Dated ----- (Date) for the construction of ----- (Name of Contractor hereinafter called "the Bid")

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 ----- *
for which payment well and truly to be made to the said Employer the Bank itself, his
successors and assigns by these presents.

SEALED with the Common Seal of the said Bank this ----- day of -----20

THE CONDITIONS of these obligations are:

(1) If after Bid opening the Bidder withdraws his bid during the period of Bid validity
specified in the Form of Bid;

Or

(2) If the Bidder has been notified of the acceptance of his bid by the Employer
during the period of Bid Validity:

A Fails or refuses to execute the Form of Agreement in accordance with the
Instructions to Bidders, if required; or

B. Fails or refuse to furnish the Performance Security, in accordance with the
Instructions to Bidders; or

C. does not accept the correction of the Bid Price pursuant to Clause 27
(Correction of Errors)

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 three conditions, specifying the occurred conditions or conditions.

This Guarantee will remain in force up to and including the date ----- **
days after the deadline for submission of Bids as such the 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-----

WITNESS ----- SEAL -----

(Signature, name and address)

* The Bidder 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 16.1(Bid Security) of the Instructions to Bidders.

****45 days** after the **end of the validity period** of the Bid. Date should be
inserted by the Employer before the Bidding documents are issued.

PERFORMANCE SECURITY

TO,

----- (Name of Employer)
----- (Address of Employer)

WHEREAS ----- (name and address of contractor) (hereafter called "the Contractor") has undertaken, in pursuance of Contracts No. ----- dates ----- 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 Contractor shall furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security for compliance with his obligation in accordance with the Contract.

AND WHEREAS we have agreed to give the Contractors such a bank Guarantee:

NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you on behalf of the Contractor, up to a total of ----- (amount of guarantee)* ----- (in words), such sum being payable in types and proportions of currencies in which the Contract prices 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 contractor before presenting is with the demand.

We further agree that no change or addition to or other modification of the terms of the Contract to of the Works to be performed thereunder or of any of the Contract documents which may be made between your and the Contractor shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such charge, addition or modifications.

This guarantee shall be valid until 60 days from the date of expiring of the Defect Liabilities period.

Signature and Seal of the guarantor -----

Name of Bank -----

Address -----

Date -----

*An amount shall be inserted by the Guarantor, representing the percentage the Contract price specified in the Contract denominated in Indian Rupees.

ADDITIONAL PERFORMANCE SECURITY

[Clause 34.1. (A)]

TO,

----- (Name of Employer)

----- (Address of Employer)

WHEREAS ----- (Name and address of contractor) (hereafter called "The Contractor") has undertaken, in pursuance of Contracts No. ----- dates ----- 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 Contractor shall furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security for compliance with his obligation in accordance with the Contract.

AND WHEREAS we have agreed to give the Contractors such a bank Guarantee:

NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you on behalf of the Contractor, up to a total of -----
(amount of guarantee) ----- (in words), such sum being payable in types and proportions of currencies in which the Contract prices 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 contractor before presenting is with the demand

We further agree that no change or addition to or other modification of the terms of the Contract to of the Works to be performed thereunder or of any of the Contract documents which may be made between your and the Contractor shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such charge, addition or modifications.

This guarantee shall be valid until **28 days** from the project completion date.

Signature and Seal of the guarantor -----

Name of Bank -----

Address -----

Date -----

BANK GUARANTEE FOR ADVANCE PAYMENT

TO,

----- (Name of Employer)

----- (Address of Employer)

----- (Name of Contractor)

Gentlemen:

In accordance with the provisions of the Conditions of Contract, sub-clause 51.1 ("Advance Payment") of the above mentioned Contract, -----
----- (name and address of Contractor) (hereinafter called "the Contractor") shall deposit with----- (name of Employer) a bank guarantee his proper and faithful performance under the said Clause of the Contract in an amount of----- (amount of Guarantee)* -
-----in words).

We, the----- (bank of financial institution), as instructed by the Contractor, 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 obligation on our part and without his first claim to the Contractor, in the amount not exceeding ---
----- (amount of guarantee)* ----- (in words)

We further agree that no change or addition to or other modifications of the terms of the Contractor or Works to be performed thereunder or of any of the Contract documents which may be made between ----- (name of Employer) and the Contractor, shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modifications.

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 contractor.

YOUR'S TRULY

Signature and Seal _____

Name of Bank/ Financial Institution _____

Address _____

Date _____

* An amount shall be inserted by that Bank or Financial Institution representing the amount of the Advance Payment, and denominated in Indian Rupees.

Letter of Acceptance
(Letter head paper of the Employer)

_____ (date)

To,
_____ (Name and address of the Contractor)

Dear Sirs,

This is to notify you that your Bid dated _____ for execution of the _____ (Name of the contract and identification number, as given in the Instructions to Bidders) for the Contract Price of Rupees _____ (_____) (amount in words and figures) as corrected and modified in accordance with the Instructions to Bidders* is hereby accepted by our agency.

You are requested to furnish performance security, in the form detailed in para 34.1 of ITB for an amount equivalent to Rs. _____ within **10 days** of the receipt of this letter of acceptance up to beyond **60 days** from the date of expiry of defects Liability period i.e. up to _____ and the Additional Performance Security for an amount equivalent to Rs. _____ shall be valid beyond 28 (twenty-eight) days of Project Completion Date i.e. up to _____ and sign the contract, failing which action as stated in Para 34.3 of ITB will be taken.

Yours Faithfully

Authorized Signature
Name and title of Signatory
Name of Employer

* Delete "Corrected and" or and modified if only one of these actions applies. Delete as corrected and modified in accordance with the Instructions to Bidders, if corrections or modifications _____ have _____ not _____ been _____ affected.

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 security in ITB Clause 34.1 and
signing of the Contract for the construction of _____

_____ at 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)

AGREEMENT FORM

This agreement, made on the _____ day of _____ between _____ (name and address of Employer) (Hereinafter called "the Employer) and _____ (name and address of contractor) hereinafter called "the Contractor" of the other part.

Whereas the Employer is desirous that the Contractor execute

Name and identification number of contract (hereinafter called "the works") and the employer has accepted the Bid by the Contractor for the execution and completion of such works and the remedying of any defects therein, at a cost of Rs.

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS

1. In this Agreement, words and expression shall have the same meanings as are respectively assigned to them in the conditions of contract hereinafter referred to and they shall be deemed to form and be read construed as part of this Agreement.
2. In Consideration of the payment to be made by the Employer to the contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to executive and complete the works and remedy any defects therein in conformity in all aspects with the provisions of the contracts.
3. The employer hereby covenants to pay the Contractor in consideration of the execution and completion of the works and the remedying the defects wherein 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.
4. The Following documents shall be deemed to form and be ready and construed as part of this Agreement viz
 - i) letter of Acceptance
 - ii) Notice to proceed with the works:
 - iii) Contractor's Bid

- iv) Conditions of contract: General and Special
- v) Contract Data
- vi) Additional conditions
- vii) Drawings
- viii) Bill of Quantities and
- ix) Any other documents listed in the Contract
data as forming part of the Contract.

In witness whereof the parties there to have caused this Agreement to be
executed the day and year first before written

The Common seal of_____

Was here unto affixed in the presence of :

Signed, sealed and Delivered by the said_____

In the presence of

Binding signature of Employer_____

Binding Signature of Contractor_____

UNDERTAKING
(For Investment)

I, the undersigned do hereby undertake that our firm M/s
.....would invest a minimum cash up to
25% of the value of the work during implementation of the contract.

(Signed by an Authorized officer of the firm)

Title of officer

Name of firm

DATE

UNDERTAKING
(For Validity)

I, the undersigned do hereby undertake that our firm M/s.....
.....agree to abide by this bid for a period of 120 days for date fixed
for receiving the same and it shall be binding on us and may be accepted at any time
before the expiration of that period.

(Signed by an Authorized officer of the firm)

Title of officer

Name of firm

DATE

SECTION-9
DRAWINGS

SECTION-10

DOCUMENTS TO BE FURNISHED BY BIDDER

Documents Submit By Bidder along with tender documents
(Also Upload along online during Bid Submission)

Sr. No.	Name of Documents.	Reference Clause.	Reference Format Page No.
1	Bid Document Fee/Tender Fee	As per NIT	-
2	Bid Security / EMD	As per Table of IFB Refer clause no. 16 for provision of Bank guarantee	-
3	Registration Certificate of Appropriate Class	As per NIT	-
4	GST Number and Pan card	As per NIT	-
5	Copy of Partnership Deed or Memorandum as well as Articles of Association (if Applicable)	As per NIT	-
6	Power of Attorney (if Applicable)	As per NIT	-
7	Undertaking for Engaging Technical Staff & Machineries	As per NIT	94 (Section 10)
8	Information regarding any litigation in which the applicant is involved	As per NIT	95 (Section 10)
9	Undertaking on statement of compliance of clause 3.2	-	96 (Section 10)
10	Affidavit (Notarized on Rs. 300 Stamp paper)	-	36 (Section 02)
11	Form of Bid	-	74 (Section 06)
12	Undertaking for bid Validity	-	90 (Section 8)
13	The Applicant should give undertaking that would invest a minimum cash up to 25% of the value of the work during implementation of the contract.	As per NIT	37 (Section 02)
14	Provide any other Documents required as per DTP		

UNDERTAKING FOR ENGAGING TECHNICAL STAFF & MACHINERIES

I/We..... Age.....Business (Name of
Firm) Address
.....

Hereby declare, that if our offer for the work of
.....

Would accepted by the competent authority &Awarded to us, I/We will engage & employ the technical staff and
machineries on site of work, required to complete the work successfully within time limit.

Signature of Bidder

Place:-.....

Date:-.....

INFORMATION ON LITIGATION HISTORY

Other Party (ies)	Employer	Cause of Dispute	Amount Involved	Remarks showing Present Status

DATE:

SIGNATURE OF BIDDER

Notes:

1. Describe Company's history of litigation or arbitration from contract executed in the last ten years or currently under execution. Please indicate for each case the year, name of employer, cause of litigation, matter in dispute, disputed amount, and whether the award was for or against the company.
2. Please add any further information that you may consider to be relevant to the evaluation of your application. If you wish to attach other documents, please list below:

UNDERTAKING ON STATEMENT OF COMPLIANCE OF CLAUSE 3.2

I/We.....Age.....

Business (Name of Firm) Address

.....

Hereby declare, that for the work of

..... I/We (Bidder)is neither associated , nor has been associated , directly or indirectly, with the consultant or any other entity that has prepared the design ,specifications ,and other documents for the Project or being proposed as Project Manager for the Contract .A firm that has been engaged by the Employer to provide consulting services for the preparation or supervision of the works ,and any of its affiliates, shall not be eligible to bid.

Signature of Bidder

Place:-.....

Date:-.....

GENERAL TECHNICAL SPECIFICATIONS FOR CIVIL CONSTRUCTION & DAM MAINTENANCE WORKS

SECTION 1: QUALITY ASSURANCE, DOCUMENTATION, AND EMERGENCY WORKS

1.1 Quality Assurance & Contractor Responsibility

- **Absolute Liability:** The contractor bears absolute responsibility for the quality of the executed work. If any work is found to be of substandard quality or not strictly conforming to technical specifications, the contractor remains solely liable.
- **Acceptance of Bills:** By accepting bills, it is deemed that the contractor has completed the work in full compliance with the tender provisions. Any subsequent issues regarding quality or execution remain the contractor's sole responsibility.
- **Unauthorized Execution:** Any work executed without the prior coordination and approval of the designated technical staff will leave the contractor completely responsible for its quality, measurements, and structural integrity.
- **Right to Test:** The Executive Engineer reserves the right to conduct destructive or non-destructive testing on ongoing or completed works. If test results are unsatisfactory, the contractor will be held entirely responsible for all consequences.

1.2 Site Logistics & Documentation

- **Approach Roads:** If the BOQ does not explicitly provide an item for approach roads, the contractor is fully responsible for arranging site access at their own expense.
- **Photographic Evidence:** The contractor must maintain a comprehensive photographic record (before commencement, during construction, and after completion) clearly indicating the time and location via GPS camera. Failure to produce such evidence will result in the contractor bearing full responsibility for any measurement discrepancies.

1.3 Emergency Works Scope

- During emergency conditions (severe flooding, breaches, or immediate threats to dam safety), work execution must be expedited.
- If a specific BOQ item, exact material grade, or equipment model is unavailable, functionally similar alternatives may be utilized to complete the task with prior approval from the Engineer-in-Charge.

SECTION 2: SITE CLEARANCE AND PREPARATION

2.1 Scope of Work

- Clearing and grubbing of the site, removal of trees, bushes, rubbish, and topsoil preparation. Setting out the layout for dam structures, canals, or retaining walls.

2.2 Relevant IS Codes

- **IS 1200 (Part 1):** Method of measurement for earthwork and site clearance.
- **IS 4014:** Code of practice for steel tubular scaffolding (if used for surveys).

2.3 Execution Method

- **Clearing & Grubbing:** All vegetation, brushwood, and stumps shall be uprooted to a depth of at least **500 mm** below ground level. The resulting pits shall be backfilled with compacted earth.

- **Setting Out:** The contractor shall establish temporary benchmarks using a Total Station/Auto Level, tied to the GTS (Great Trigonometrical Survey) benchmark. Centerlines and grid lines shall be marked with durable pillars/pegs.
- **Disposal:** Cleared organic matter shall be disposed of outside the reservoir submergence area to prevent water contamination. Useful timber belongs to the Department.

2.4 Safety & Environmental Precautions

- **Wildlife/Reptile Safety:** Workers must be provided with gumboots and snake-catchers must be on standby during dense bush clearing.
- **Tree Cutting:** No standing trees with a girth larger than **300 mm** shall be cut without explicit written permission from the Forest Department and Engineer-in-Charge.

SECTION 3: EXCAVATION, EARTHWORK, AND BACKFILLING

3.1 Scope of Work

- Excavation for dam foundations, toe walls, spillways, and trenches; shoring and strutting; backfilling with selected earth. (*Note: Earthwork testing is explicitly excluded as per requirements*).

3.2 Relevant IS Codes

- **IS 3764:** Safety code for excavation work.
- **IS 1200 (Part 1):** Earthwork measurement.

3.3 Classification of Excavation & Machinery

- **All kinds of Soil (Manual/Machinery):** Excavated using JCBs or manually with pickaxes. Includes murum, clay, and gravel.
- **Soft/Disintegrated Rock:** Excavated using JCB/Hitachi with rock-breaker attachments.
- **Hard Rock (Blasting Prohibited):** Excavated using chiseling, wedging, or hydraulic rock breakers. Blasting is strictly prohibited near existing masonry/earthen dam structures to prevent micro-fissures.

3.4 Execution & Backfilling

- **Profile Accuracy:** Excavation must strictly follow the designed slope and depth. Any over-excavation in rock/soil shall be filled with lean concrete (M10/M15) at the contractor's cost.
- **Backfilling:** Selected excavated earth (free from roots and boulders >75mm) shall be laid in layers not exceeding **200 mm**. Each layer shall be watered and thoroughly compacted using mechanical plate compactors or rollers.

3.5 Safety Precautions

- **Trench Safety:** Trenches deeper than **1.5 meters** must be shored and strutted to prevent cave-ins.
- **Barricading:** Deep excavation edges must be barricaded with high-visibility hazard tape and warning lights for night safety.

SECTION 4: STEEL REINFORCEMENT WORK

4.1 Scope of Work

- Procurement, cutting, bending, tying, and placing of TMT steel reinforcement for concrete structures.

4.2 Relevant IS Codes

- **IS 1786:** High-strength deformed steel bars and wires for concrete reinforcement.
- **IS 2502:** Code of practice for bending and fixing of bars.

4.3 Materials

- **Steel Grade:** Thermo-Mechanically Treated (TMT) bars of Grade **Fe 500** or **Fe 500D** from primary producers (e.g., SAIL, TATA, RINL, JSW).
- **Binding Wire:** Annealed Galvanized Iron (GI) binding wire of **16 or 18 SWG**.

4.4 Execution Method

- **Bar Bending Schedule (BBS):** The contractor must prepare and submit a BBS for approval before cutting steel to minimize wastage.
- **Bending:** Bars must be cold-bent using mechanical benders. Heating of reinforcement bars is strictly prohibited.
- **Tying and Cover:** Intersections shall be tightly bound with double loops of binding wire. Concrete cover blocks of the *same concrete grade* as the structural member must be used (e.g., 50mm for foundations, 40mm for columns).

4.5 Safety Precautions

- **Handling:** Workers must wear heavy-duty cut-resistant gloves.
- **Protruding Bars:** Vertical starter bars must be capped with protective mushroom caps to prevent impalement hazards.

SECTION 5: STONE AND BRICK MASONRY WORK

5.1 Scope of Work

Construction of Uncoursed Rubble (UCR) masonry, Coursed Rubble (CR) masonry, and Brick masonry for retaining walls, headworks, breast walls, and architectural finishing.

5.2 Relevant IS Codes

- **IS 1597 (Part 1):** Construction of stone masonry (Rubble).
- **IS 2212:** Code of practice for brickworks.
- **IS 2250:** Preparation and use of masonry mortar.

5.3 Materials & Proportions

- **Stone:** Hard, dense, durable basalt, granite, or quartzite. Minimum compressive strength: **15 MPa**.
- **Bricks:** Class designation 7.5 or 10.0, water absorption <20%.
- **Mortar:** Mechanically mixed in a 1:4 or 1:6 ratio (Cement:Sand). Hand mixing is permitted only for very minor works on a watertight platform.

5.4 Execution Method

- **Stone Masonry:** Hearting (inner core) shall be packed tightly with stone spalls and mortar. Hollow spaces are strictly prohibited.
- **Bond Stones:** One through bond stone (or RCC precast header) must be provided for every **0.5 Sq.m** of the face area.

- **Brickwork:** Bricks must be thoroughly soaked in water for 2 hours before laying. The 'frog' must point upwards.
- **Curing:** Masonry work must be kept continuously wet for a minimum of **10 days**.

5.5 Safety Precautions

- **Scaffolding:** For heights above 2 meters, rigid steel scaffolding with proper toe boards and guard rails must be used. Bamboo scaffolding is prohibited for heavy stone masonry.

SECTION 6: DEWATERING OPERATIONS

6.1 Scope of Work

- Pumping out accumulated surface water, monsoon runoff, and continuous sub-soil seepage from foundation trenches, dam galleries, and emergency breaches.

6.2 Execution and Calibration Methods

- **Routine Trench Dewatering:** Standard mud pumps (2-5 HP). Usually factored into excavation rates unless specified otherwise.
- **HP/Hr Basis (Heavy/Emergency Dewatering):**
 1. **Equipment:** Diesel or electric-driven heavy-duty centrifugal/submersible pumps (10 HP to 100+ HP).
 2. **Calibration & Logbooks:** The HP rating of the pump must be physically verified via the manufacturer's nameplate. A dedicated logbook must be maintained, recording exact start/stop times, signed daily by the Department's supervisor.
 3. **Standby Requirement:** **100% standby pumping capacity** is mandatory during monsoon or critical emergency works to prevent flooding during mechanical breakdowns.

6.3 Safety & Environmental Precautions

- **Electrical Safety:** All submersible pumps and electric panels must be heavily grounded (earthed). Cables running through water must be double-insulated and unjointed.
- **Discharge Management:** Discharged water must be routed through silt traps before entering natural streams to prevent downstream siltation.

SECTION 7: MANPOWER DEPLOYMENT (DAY BASIS)

7.1 Scope of Work

- Providing specified manpower for routine dam maintenance, emergency repair, supervision, and jungle clearance on a day-basis (8-hour shift).

7.2 Classifications & Calibration of Work

- **Unskilled (Beldar):** Manual earthwork, material shifting, cleaning.
- **Semi-skilled:** Assisting technicians, handling light machinery.
- **Skilled:** Certified Masons, Carpenters, Welders, Plumbers, Electricians.
- **Supervisor (Mukadam):** Managing labor, maintaining daily progress and muster rolls.

7.3 Statutory Compliance & Execution

- **Attendance:** Payment is strictly based on physical muster rolls verified twice a day by the Engineer-in-Charge.
- **Wages:** The agency must comply strictly with the Minimum Wages Act, EPF, and ESIC regulations.

7.4 Safety Precautions

- **PPE Kits:** All deployed manpower must be equipped with ISI-marked safety helmets, reflective jackets, and safety shoes.
- **Working Hours:** Work beyond standard 8 hours (in emergency situations) must be compensated with proper rest breaks and overtime.

SECTION 8: HIRING OF MACHINERY (TIME BASIS)

8.1 Scope of Work

- Deployment of heavy earthmoving and transport machinery (Excavators, JCBs, Tractors) for emergency flood relief, canal desilting, site clearance, and dam maintenance on an hourly/daily basis.

8.2 Machinery Categories & Calibration

- **Excavators (Hitachi/Volvo/Komatsu):** Crawler-mounted, bucket capacity 0.9 to 1.2 Cum.
- **Backhoe Loaders (JCB/Case):** Standard configuration.
- **Tractors:** 45-55 HP with hydraulic tipping trolley or dozer blade.
- **Logbooks:** Each machine must have an individual logbook tracking engine hours (using the machine's internal hour-meter). The meter must be calibrated and checked at the start of the contract.

8.3 Terms of Operation

- **Inclusive Rates:** The hourly hire rate includes the machine, licensed operator, helper, diesel (HSD), lubricants, and transit to the site.
- **Breakdown Clause:** Any mechanical breakdown exceeding **1 hour** will be deducted from payable hours. In emergency works, a machine down for >24 hours must be replaced immediately by the contractor.

8.4 Safety Precautions

- **Machine Safety:** All machinery must have functional reverse horns, flashing beacons, and rearview mirrors.
- **Operators:** Must hold valid heavy-vehicle commercial licenses and undergo site-specific safety briefings (especially regarding working near steep dam slopes).
- **Environmental:** Immediate clean-up of hydraulic fluid or diesel spills is mandatory using spill kits.

PART B: SAMPLE REGISTERS / LOGBOOKS

- **1. Cement Receipt & Consumption Register (Godown Register)**

Date	Challan No. / Supplier	Opening Balance (Bags)	Qty Received (Bags)	Qty Consumed (Bags)	Closing Balance (Bags)	Location / Item of Work	Sign (Agency)	Sign (JE/AE)

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- **2. Dewatering Operation Logbook (HP/Hr Basis)**

Date	Location / Trench	Pump Capacity (HP)	Start Time	Stop Time	Total Hours	Total HP/Hrs	Remarks / Reason	Sign (Agency)	Sign (JE/AE)

- **3. Machinery Hiring Logbook (Time Basis)**

Date	Machine Type & No.	Operator Name	Start Time	Stop Time	Breakdown (Hours)	Net Working Hrs	Work Description	Sign (Agency)	Sign (JE/AE)

- **4. Manpower Deployment / Muster Roll**

Date	Name of Worker	Category (Skilled/ Unskilled)	In Time	Out Time	Total Hours	Overtime (If any)	Signature / Thumb of Worker	Sign (JE/AE)

- **5. Steel Material Receipt & Consumption Register**

Date	Challan / Bill No.	Bar Dia (mm)	Qty Received (MT)	Qty Consumed (MT)	Balance Qty (MT)	Location of Use	Sign (Agency)	Sign (JE/AE)

COMPREHENSIVE QUALITY CONTROL & TESTING MATRIX

Bifurcated Schedule with Material Test and Cube Test Integration including BIS Acceptance Criteria

• PART A: RAW MATERIAL TESTING REQUIREMENT

MATERIAL / COMPONENT	TYPE OF TEST REQUIRED	RELEVANT IS CODE	MANDATORY SAMPLING FREQUENCY	ACCEPTED CRITERIA & LIMITS
<ul style="list-style-type: none">• Cement• (For Paved Drain, M-15 Concrete, Bedding Mortar, & Joint Pointing)	<ul style="list-style-type: none">• Fineness Test (Blaine's Air Permeability)• Soundness Test (Le-Chatelier & Autoclave)• Setting Time Check (Initial & Final)• Compressive Strength (Mortar Cubes)	<ul style="list-style-type: none">• IS 4031 (Part 2)• IS 4031 (Part 3)• IS 4031 (Part 5)• IS 4031 (Part 6)	<ul style="list-style-type: none">• Minimum 1 full test series representing every raw batch/consignment or for every 50 Tonnes of cement arriving at the batching yard.	<ul style="list-style-type: none">• Min 225 m²/kg (OPC) / 300 m²/kg (PPC)• Le-Chatelier: Max 10 mm• Autoclave: Max 0.8%• Initial: ≥ 30 mins Final: ≤ 600 mins• 43 Grade: Min 23, 33, 43 N/mm²• (3, 7, 28 days)
<ul style="list-style-type: none">• Fine Aggregate• (River Sand / Screened Stone Sand)	<ul style="list-style-type: none">• Silt and Clay Content Check• Sieve Analysis & Fineness Modulus	<ul style="list-style-type: none">• IS 2386 (Part 2)• IS 2386 (Part 1)	<ul style="list-style-type: none">• 1 sieve and silt check for every 50 m³ of sand supplied, or for each delivery truck entering the yard.	<ul style="list-style-type: none">• Strictly Max 5% by volume• Must conform to Grading Zone II or Zone III (IS 383)

<ul style="list-style-type: none"> • Coarse Aggregate (Crushed Angular Hard Stone 20mm & 40mm MSA) 	<ul style="list-style-type: none"> • Sieve Analysis • Shape Parameters (Flakiness & Elongation) • Mechanical Strength Resistance (Impact/Crush) • Physical Water Absorption 	<ul style="list-style-type: none"> • IS 2386 (Part 1) • IS 2386 (Part 1) • IS 2386 (Part 4) • IS 2386 (Part 3) 	<ul style="list-style-type: none"> • 1 complete physical parameter test series for every 100 m³ of material stacked or delivered on site. 	<ul style="list-style-type: none"> • Must conform to graded limits of IS 383. • Combined Index: Max 30% to 35% • Strength: Max 30% for structural faces. • Water Absorption: Max 2.0% limit by weight.
<ul style="list-style-type: none"> • Reinforcement Steel Bars • (TMT/CRS Grade Fe 500 D) 	<ul style="list-style-type: none"> • Physical & Dimensions Audit (Mass/ Meter) • Mechanical Strength (0.2% Proof, UTS, Elongation) • Ductility Parameters (Cold Bend/Re- bend) 	<ul style="list-style-type: none"> • IS 1786 • IS 1786 / IS 1608 • IS 1786 	<ul style="list-style-type: none"> • Below 100 Tonnes: 1 sample series per 25 Tonnes. • Above 100 Tonnes: 1 sample series per 40 Tonnes. 	<ul style="list-style-type: none"> • Dia ≤ 10mm: ±7% 12-16mm: ±5% ≥ 20mm: ±3% • Yield: ≥ 500 N/mm² UTS: ≥ 565 N/mm² • Elongation: ≥ 16.0% • No visible surface cracks on mandrel test.
<ul style="list-style-type: none"> • Rubble Stones • (For 230 mm Thick Pucca Rubble Pitching) 	<ul style="list-style-type: none"> • Laboratory Water Absorption Testing • Unconfined Compressive Strength Determination 	<ul style="list-style-type: none"> • IS 1124 • IS 1121 (Part 1) 	<ul style="list-style-type: none"> • Minimum 1 testing block series (3 specimens) for every 50 m³ to 100 m³ stacked on slopes. 	<ul style="list-style-type: none"> • Water Absorption: Max 2.0% limit by weight. • Strength: ≥ 15.0 to 30.0 N/mm². • Must be free from weather decay/ clay coats.

• **PART B: STRUCTURAL CUBE TESTING REQUIREMENT**

STRUCTURAL SPECIMEN / MIX	TYPE OF TEST REQUIRED	RELEVANT IS CODE	MANDATORY SAMPLING FREQUENCY	ACCEPTED CRITERIA & LIMITS
Cement Concrete Cubes (For M-10 Paved Drain & M-15 Walls/Coping) Specimen Size: 150x150x150mm	<ul style="list-style-type: none"> • Workability Verification (Slump Cone Test) • 7-Day Destructive Crushing Test • 28-Day Destructive Compressive Strength Test 	<ul style="list-style-type: none"> • IS 1199 • IS 516 • IS 516 	1 sample = 3 cubes for 28-day testing. Daily volume: <ul style="list-style-type: none"> • 1-5 cum = 1 Sample • 6-15 cum = 2 Samples • 16-30 cum = 3 Samples • 31-50 cum = 4 Samples • >51 cum = 4 + 1 per addtl 50 cum 	<ul style="list-style-type: none"> • Slump: 25-50 mm (M-10) / 50-75 mm (M-15) • 7-Day: $\geq 70\%$ characteristic strength • 28-Day: M-10 ≥ 10 N/mm² M-15 ≥ 15 N/mm²
Cement Mortar Cubes (For Rubble Pitching 1:5 Bedding & 1:3 Jointing) Specimen Size: 50x50x50 mm	<ul style="list-style-type: none"> • 7-Day Compressive Strength Test • 28-Day Compressive Strength Test 	<ul style="list-style-type: none"> • IS 2250 • IS 2250 	At least 1 complete sample series (3 mortar cubes) for every 10 m ³ of mortar mixed and laid, or per day's run.	<ul style="list-style-type: none"> • 7-Day: $\geq 70\%$ of 28-day designated strength. • Must satisfy IS 2250 design criteria limits for masonry matrix integrity.

• **PART C: PIPES, EARTHWORK & SPECIALTY MATERIALS TESTING**

MATERIAL / COMPONENT	TYPE OF TEST REQUIRED	RELEVANT IS CODE	MANDATORY SAMPLING FREQUENCY	ACCEPTED CRITERIA & LIMITS
<ul style="list-style-type: none"> • Precast RCC Pipes • (NP-3 Class for 450, 600, 900mm dia) 	<ul style="list-style-type: none"> • Dimensional Check (Diameter, Wall, Length) • Three-Edge Bearing Test (Crushing Strength) • Hydrostatic Pressure Test (Permeability) 	<ul style="list-style-type: none"> • IS 458 • IS 783 • (Laying) 	<ul style="list-style-type: none"> • Minimum 1 sample pipe randomly selected per lot (50 to 100 pipes depending on diameter). 	<ul style="list-style-type: none"> • Strict conformance to IS 458 tolerances. • Must withstand NP-3 ultimate crushing load. • Zero leakage/sweating during hydrostatic test.
<ul style="list-style-type: none"> • Selected Soil & Murrum (For Embankments & Backfilling) 	<ul style="list-style-type: none"> • Standard Proctor Compaction Test • Field Dry Density (FDD) Test 	<ul style="list-style-type: none"> • IS 2720 	<ul style="list-style-type: none"> • 1 Proctor test per distinct soil source. • 1 FDD check per 500-1000 m² of compacted layer. 	<ul style="list-style-type: none"> • Soil compacted at Optimum Moisture Content. • FDD ≥ 95% of laboratory Max Dry Density.
<ul style="list-style-type: none"> • Filter Gravel & Sand/Gravel • (For Drainage Systems) 	<ul style="list-style-type: none"> • Particle Size Distribution (Sieve Analysis) • Flakiness Index • Silt & Clay Content 	<ul style="list-style-type: none"> • Filter Guidelines • IS 383 	<ul style="list-style-type: none"> • 1 comprehensive gradation test for every 100 m³ of mixture delivered. 	<ul style="list-style-type: none"> • Must meet exact target gradation curves. • Gravel must be hard, durable, and clean.
<ul style="list-style-type: none"> • Mechanized Gabion Wire Mesh 	<ul style="list-style-type: none"> • Wire Diameter & Mesh Size Verification • Zinc Galvanizing Mass Coating Test • Wire Tensile Strength 	<ul style="list-style-type: none"> • IS 16014 	<ul style="list-style-type: none"> • 1 sample cut-out tested per manufacturer consignment or per 500 assembled boxes. 	<ul style="list-style-type: none"> • Diameter: 3.0 mm Mesh size: 10 x 12 cm. • Mechanically woven, double-twisted, galvanized (no PVC).

<ul style="list-style-type: none"> • Jute Bags • (100 kg capacity) 	<ul style="list-style-type: none"> • Visual Inspection & Capacity Check • Tensile Strength of Fabric 	<ul style="list-style-type: none"> • IS 2873 	<ul style="list-style-type: none"> • Visual inspection of every bundle. Tensile testing at 1 sample per consignment. 	<ul style="list-style-type: none"> • Minimum 100 kg safe handling capacity. • Free from rotted fibers, cuts, or holes.
<ul style="list-style-type: none"> • Structural Iron Signboards (1.80m high) 	<ul style="list-style-type: none"> • Dimensional Check of Angles and Plates • Primer and Radium Paint Coat Inspection 	<ul style="list-style-type: none"> • IS 800 	<ul style="list-style-type: none"> • Dimensional and visual inspection of 100% of fabricated boards prior to embedding. 	<ul style="list-style-type: none"> • Plate thickness strictly 3mm (no negative tolerance). • Angle posts strictly 40mm x 40mm x 6mm.

• **DETAILED TECHNICAL SPECIFICATIONS**

Item No.1

Dismantling the existing stone masonry including sorting out and stacking the useful material and removing the debris and making good the damages etc. complete as directed. In Cement Mortar.

1.Scope of Work & Relevant IS Codes

- Operations must comply fully with the rigid protocols of IS 4130 (Code of Safety for Demolition of Buildings) and IS 1200 (Part 18): Method of Measurement of Building and Civil Engineering Works - Demolition and Dismantling.
- The scope comprehensively encompasses the controlled layer-by-layer demolition of stone masonry, safe separation and mechanical/manual brushing of old mortar from reusable stones, neat stacking of salvaged stones in standardized dimensional piles, loading, transit, and unloading of unusable debris to designated dumping yards outside the right-of-way, and repairing or making good any collateral damage to adjacent retained structures.

2.Mode of Measurement & Permissible Tolerances

- Unit of Measurement: Calculated, certified, and recorded exclusively by volume in Cubic Meters (Cum), rounded to the nearest threshold of 0.01 meter as per IS 1200.
- Basis of Assessment: Quantities shall be deduced directly from the net pre-demolition physical outline dimensions of the masonry block taken on-site. No allowance or financial measurements will be credited for over-break, unauthorized over-dismantling, or mechanical loosening of adjoining structures.

3.Construction Methodology & Workmanship

- Dismantling must be executed line-by-line starting from the highest section downwards to eliminate the risk of structural collapse. Heavy impact hammering that shatters individual sound stones is prohibited.
- All extracted stones shall be carefully sorted. Those declared useful must be cleaned of encrusted mortar matrix and stacked neatly in blocks not exceeding 1.0 meter in height. Unusable material and mortar muck must be cleared from the working footprint immediately.

4.Comprehensive Rate Breakdown & Exclusions

- The unit rate represents complete and absolute compensation for all labor, scaffolding, staging, protective barricades, tarpaulins for dust suppression, pneumatic/manual tools, clearing and sorting charges, and logistical transport handling across all leads and lifts.
- No Extra Payment Shall be Made For: Dust mitigation measures, cleaning mortar from stones, scaffolding erection, sorting or stacking operations, or making good localized cracks in retained walls

Item No.2

Dismantling the existing brick masonry including sorting out and stacking the useful material and removing the debris and making good the damages etc. complete as directed. In Cement Mortar.

1. Scope of Work & Relevant IS Codes

- Governed by IS 4130 for structural safety and IS 1200 (Part 18) for engineering measurement parameters.
- Scope involves the careful demolition of brick walls, partitions, or linings, optimization of intact brick salvage, cleaning of adhering cement mortar, dimensional stacking of whole and half bricks, and immediate haulage of brickbats and powdery residue out of the canal boundary.

2. Mode of Measurement & Permissible Tolerances

- Unit of Measurement: Measured by volume in Cubic Meters (Cum), accurate to 0.01 meter.
- Basis of Assessment: Volume deduced from solid pre-demolition field measurements. Deductions are strictly applied for all pre-existing voids, conduits, or openings exceeding 0.1 m² in cross-sectional area. No measurement will be credited for extra thickness removed beyond the approved line.

3. Construction Methodology & Workmanship

- Brick masonry must be dismantled course by course using chisels, crowbars, or light pneumatic chippers. Broad side impacts that shatter bricks into unusable bats must be avoided.
- Whole salvaged bricks must be brushed clean of mortar and stacked in uniform arrays of 200 or 500 bricks to facilitate verification. All broken brickbats must be gathered and deposited at designated spoil banks.

4. Comprehensive Rate Breakdown & Exclusions

- The contract unit rate covers all operational assets including skilled and un-skilled labor, machinery, scaffolding, staging, safety lines, tool wear-and-tear, and all disposal logistics.
- No Extra Payment Shall be Made For: Mortar chipping, sorting, arranging bricks in standard stacks, or repairing adjacent surfaces damaged due to contractor operations.

Item No.3

Dismantling the existing foundation concrete including sorting out the dismantled stuff and stacking the useful material, removing the debris and making good the damages etc. complete as and where directed. Cement Concrete.

1. Scope of Work & Relevant IS Codes

- Complies with IS 4130 and IS 1200 (Part 18).
- Encompasses the systematic breaking, heavy excavation extraction, and removal of

plain cement concrete (PCC) foundation blocks, beds, or leveling layers located within subsoil trenches, including handling of dense concrete masses.

2. Mode of Measurement & Permissible Tolerances

- Unit of Measurement: Volumetrically in Cubic Meters (Cum), with field dimensions rounded to 0.01 meter.
- Basis of Assessment: Derived exclusively from the theoretical dimensional outline of the concrete blocks. Extra excavation volume or backfilling required outside the block profile will not be measured or paid.

3. Construction Methodology & Workmanship

- Concrete must be fractured using mechanical pavement breakers, wedges, and sledgehammers. Controlled chemical splitting may be used only with prior technical clearance. Blasting is strictly prohibited.
- Care must be taken to avoid loosening or undermining the surrounding soil foundation profile. Broken concrete masses must be hoisted vertically out of trenches, sorted for hardcore potential, and stacked or discarded as directed.

4. Comprehensive Rate Breakdown & Exclusions

- The contract rate covers all heavy machinery hours, breaker attachments, labor, vertical hoisting up from deep trenches, stacking of reusable ballast, and transport leads.
- No Extra Payment Shall be Made For: Shoring or strutting trench walls, handling ground-water or surface runoff seepage, or mechanical equipment mobilization.

Item No.4

Dismantling the R.C.C. work and disposing off the stuff including stacking of the useful materials etc. complete as directed. Light Reinforcement (Main bar upto 16 mm. dia.).

1. Scope of Work & Relevant IS Codes

- Adheres to IS 4130 for structural safety and IS 1200 (Part 18).
- The scope includes the systematic demolition of structural Reinforced Cement Concrete elements where the primary longitudinal reinforcement steel bars have a diameter of 16 mm or less. Includes concrete matrix fracturing, mechanical cutting of reinforcement steel, and material segregation.

2.Mode of Measurement & Permissible Tolerances

- Unit of Measurement: Recorded strictly by volume in Cubic Meters (Cum), to the nearest 0.01 meter.
- Basis of Assessment: Volume computed from the gross theoretical concrete outline shown in drawings. No deductions or additions shall be made for the volume occupied by the embedded steel reinforcement bars or conduits.

3.Construction Methodology & Workmanship

- Prior to initiating demolition, heavy-duty structural props, scaffolding, and centering frames must be installed to support any connected or adjacent structural elements.
- Concrete cover must be carefully broken using pneumatic chippers to expose the steel cage. Reinforcement bars (up to 16 mm) must be systematically severed using oxy-acetylene torches or heavy mechanical shear cutters. Extracted steel must be straightened, untangled, and bundled.

4.Comprehensive Rate Breakdown & Exclusions

- The unit rate represents complete compensation for heavy safety staging, mechanical breakers, oxy-acetylene gases, cutting equipment, steel sorting, and all transit leads and lifts.
- No Extra Payment Shall be Made For: Rigging, temporary structural props for live-load management, steel gas-cutting consumables, or segregation of scrap metal from rubble.

Item No.5

Dismantling the R.C.C. work and disposing off the stuff including stacking of the useful materials etc. complete as directed. Light Reinforcement (Main bar above 16 mm. dia.).

1.Scope of Work & Relevant IS Codes

- Conforms to IS 4130 and IS 1200 (Part 18).
- Covers the demolition of heavy structural RCC elements containing longitudinal main reinforcement bars exceeding 16 mm in diameter. Demolition requires high-capacity mechanical fracturing and managed steel extraction.

2.Mode of Measurement & Permissible Tolerances

- Unit of Measurement: Measured linearly in Running Meters (Rmt), rounded to 0.01 meter.

- Basis of Assessment: Direct linear length measurement of the structural element along its centerline before demolition. No extra length variations are credited for overlapping or anchorage zones unless detailed in approved drawings.

3. Construction Methodology & Workmanship

- Due to high-gauge steel tension, concrete must be fractured using high-capacity hydraulic breakers or excavator attachments to fully expose the structural nodes.
- Cutting must be executed incrementally under supervised conditions to prevent sudden snapping or spring-back of large diameter bars. Heavy structural steel must be cut into standard linear sections, weighed or counted, and stacked. Dense concrete blocks must be crushed or hauled away.

4. Comprehensive Rate Breakdown & Exclusions

- The contract unit rate covers heavy-duty mechanical equipment deployment, specialized labor, high-consumption oxy-acetylene sets, safety perimeters, and all logistics across all distances and heights.
- No Extra Payment Shall be Made For: Machinery mobilization, specialized cutting tools, heavy-duty staging, or handling high-mass reinforced structures.

Item No.6

Providing and laying burnt brick lining in CM 1:3 laying to correct slope after necessary trimming the earthwork, filling the joints with mortar curing etc. complete. Including 10 mm thick bedding with CM 1:3 below bricks. 23.0 cm thick.

1. Scope of Work & Relevant IS Codes

- Must conform fully to IS 1077 (Common Burnt Clay Building Bricks), IS 2212 (Code of Practice for Brickwork), and IS 383 (Coarse and Fine Aggregates).
- The scope details the structural installation of a 23.0 cm thick burnt brick lining. This encompasses precision manual trimming of canal sub-grade slopes to exact hydraulic lines and grades, preparation and laying of a uniform 10 mm thick cement mortar backing/bedding layer (1:3 mix ratio), meticulous laying of soaked bricks, flush joint filling, and post-lay water curing.

2. Mode of Measurement & Permissible Tolerances

- Unit of Measurement: Net theoretical structural surface area calculated and certified in Square Meters (sqm), rounded to 0.01 meter.
- Basis of Assessment & Tolerances: Based strictly on the dimensions specified in approved design drawings. Linear plan variations are restricted within +12 mm. Total thickness variation must remain within +12 mm / -6

- mm. Extra concrete or mortar thickness introduced due to uneven earthwork excavation will not be measured.

3. Construction Methodology & Workmanship

- The underlying earth sub-grade must be compacted and manually profile-trimmed to the designated gradient. Bricks must be fully immersed in clean water for a minimum of 2 hours prior to laying to prevent moisture absorption from the mortar.
- The 10 mm thick 1:3 cement mortar bedding must be spread evenly. Bricks shall be laid with frog facing upwards, pressed firmly into the bed, and perfectly aligned using a string line and level. All joints must be completely filled with mortar to a thickness not exceeding 10 mm and flush pointed. The completed lining must be cured continuously with water for a minimum hydration window of 7 to 10 days.

4. Comprehensive Rate Breakdown & Exclusions

- The unit rate represents complete compensation for supply, handling, and storage of cement, sand, and bricks; earthwork sub-grade manual trimming; mixing and laying the 10 mm bedding mortar; joint pointing; and execution of the complete water curing loop.
- No Extra Payment Shall be Made For: Earthwork slope trimming, profile frames/templates, curing water procurement and delivery, scaffolding on inclined banks, or raw material testing charges.

Item No.7

Clearing the canal land width including removing the trees up to 0.50 m. girth, bushes shrubs etc. including depositing the materials outside the canal land width as directed etc. complete.

1. Scope of Work & Relevant IS Codes

- Governed strictly by IS 1200 (Part 27): Method of Measurement - Earthwork (Clearing and Grubbing).
- The scope covers the comprehensive clearing of the right-of-way within the designated canal boundaries. Includes slashing, uprooting, and removing all surface vegetation, thick wild growth, bushes, shrubs, and minor trees having a base girth not exceeding 0.50 meter, followed by transport and disposal outside the canal footprint.

2. Mode of Measurement & Permissible Tolerances

- Unit of Measurement: Planar surface area calculated and recorded in Hectares (Hact.), rounded to 0.01 hectare precision.
- Basis of Assessment: Strictly restricted to the spatial boundaries demarcated by the Technical Officer. Clearing operations executed outside the authorized construction limit for contractor convenience will not be measured.

3. Construction Methodology & Workmanship

- All organic ground cover, thorny brush, and wild hedges must be cut down and completely uprooted using manual labor or mechanical root cutters. Minor trees under 0.50 m girth must be felled and their root systems grubbed out to a minimum depth of 300 mm below ground level to prevent regrowth.
- All generated vegetative spoil, roots, and wood must be gathered, loaded, and deposited outside the canal land width in organized areas, ensuring no obstruction to local drainage or construction pathways.

4. Comprehensive Rate Breakdown & Exclusions

- The rate per Hectare covers all manual tools, machinery hours (dozers/cutters), labor safety gear, uprooting operations, and transport handling across all leads and lifts.
- No Extra Payment Shall be Made For: Backfilling and tamping minor localized pits left by root extraction, repeated clearing of re-growth during the contract period, or transport of organic debris.

Item No.8

Cutting down the trees of different girths, (at 45 cm above G.L.) including removing & grubbing roots below ground level within the canal boundary including stacking the wood outside the canal boundary as directed etc. complete. Girth above 0.50 & upto 1.00 m.

1. Scope of Work & Relevant IS Codes

- Complies with **IS 1200 (Part 27)** specifications for tree removal and grubbing.
- The scope mandates the safe directional felling of established trees measuring between 0.50 m and 1.00 m in girth. Includes trimming the main trunk at a maximum height of 45 cm above natural ground level, complete excavation and grubbing of the subterranean rootball, backfilling and compacting the resulting void, sectioning the timber, and stacking it outside the canal boundaries.

2. Mode of Measurement & Permissible Tolerances

- **Unit of Measurement:** Quantified and certified strictly by count in Numbers (Nos.).
- **Basis of Assessment:** Girth classification must be measured using a calibrated flexible tape at a standard height of 1.0 meter above the existing natural ground level prior to felling. No reclassification will be permitted based on ground-level stump flares or rootball diameter.

3. Construction Methodology & Workmanship

- Controlled directional felling must be enforced using guy-ropes and precise trunk

cutting to prevent damage to adjacent canal banks or structures. The stump must be severed cleanly.

- The entire primary root network must be excavated, extracted, and cleared from the subgrade. The large void left by the rootball must be backfilled with approved earth in layers not exceeding 150 mm, watered, and thoroughly rammed. Timber and branches must be sectioned, sorted, and neatly stacked outside the operational zone.

4. Comprehensive Rate Breakdown & Exclusions

- The unit rate represents complete compensation for labor, chainsaws, ropes, excavators for root extraction, backfill earth, compaction ramming, log sectioning, and all horizontal transit leads.
- **No Extra Payment Shall be Made For:** Consumables for cutting tools, supply of backfill earth, mechanical rammer operations, or logging logistics.

Item No.9

Cutting down the trees of different girths, (at 45 cm above G.L.) including removing & grubbing roots below ground level within the canal boundary including stacking the wood outside the canal boundary as directed etc. complete. Girth above 1.00 & upto 1.50 m.

1. Scope of Work & Relevant IS Codes

- Governed by IS 1200 (Part 27).
- Applies to the extraction of medium-to-large trees with a measured base girth exceeding 1.00 m but strictly not exceeding 1.50 m. Mandates precision felling at 45 cm above ground level, deep mechanical root grubbing, void compaction, and timber relocation.

2. Mode of Measurement & Permissible Tolerances

- Unit of Measurement: Quantified in Numbers (Nos.).
- Basis of Assessment: Girth is measured at 1.00 meter above natural ground level. Irregular trunk growths or burls at the measurement line shall be bypassed to record true structural girth.

3. Construction Methodology & Workmanship

- Due to the dense and expanded lateral root network, heavy mechanical excavators must be deployed to loosen and lift the core rootball. Structural integrity of adjacent embankments must be maintained during excavation.
- The tree must be sectioned into transportable log lengths immediately after felling.

The excavated root crater must be backfilled with selected structural murrum or soil and mechanically compacted to match the surrounding density. Wood must be stacked according to size.

4. Comprehensive Rate Breakdown & Exclusions

- Rate covers all mechanical excavator hours, heavy logging chainsaws, labor, safety perimeter signage, crater backfilling, soil compaction, and transport handling to the stacking zone.
- No Extra Payment Shall be Made For: Special safety rigging, pedestrian/traffic control, compaction testing of the backfilled void, or timber logging machinery.

Item No.10

Cutting down the trees of different girths, (at 45 cm above G.L.) including removing & grubbing roots below ground level within the canal boundary including stacking the wood outside the canal boundary as directed etc. complete. Girth above 1.50 & upto 2.00 m.

1. Scope of Work & Relevant IS Codes

- Governed strictly by IS 1200 (Part 27) structural guidelines.
- Applies to the removal of mature, massive trees featuring a girth between 1.50 m and 2.00 m. Requires highly controlled staged tier-felling, deep-earth root extraction, extensive backfilling, and heavy timber management.

2. Mode of Measurement & Permissible Tolerances

- Unit of Measurement: Quantified by count in Numbers (Nos.).
- Basis of Assessment: Circumference measured at exactly 1.00 meter above natural ground level. Multi-stem trees forking below the 1.00-meter line shall be treated as individual trees only if approved by the Technical Officer; otherwise, they are recorded as a single combined girth.

3. Construction Methodology & Workmanship

- Trees of this mass must be limbed and sectioned sequentially from the top down (tier-felling) using mobile cranes or advanced rigging to prevent heavy ground impact that could fracture canal linings.
- The extensive taproot and lateral root structures must be excavated and severed. The large resulting excavation crater must be systematically backfilled with selected earth in 150 mm watered layers and aggressively compacted with mechanical rammers. Logs must be sorted and stacked.

4. Comprehensive Rate Breakdown & Exclusions

- The unit rate represents absolute compensation for crane assistance, high-capacity excavators, heavy-duty sawing equipment, labor, crater backfill and mechanical compaction, and logging transport to the designated stacking site.
- No Extra Payment Shall be Made For: Staged rigging assets, large-scale compaction water, or specialized heavy transit machinery.

Item No.11

Cutting down the trees of different girths, (at 45 cm above G.L.) including removing & grubbing roots below ground level within the canal boundary including stacking the wood outside the canal boundary as directed etc. complete. Girth above 2.00 & upto 3.00 m.

1. Scope of Work & Relevant IS Codes

- Execution must fully align with IS 1200 (Part 27).
- Encompasses the complex felling of very large trees (2.00m to 3.00m girth), deep mechanical root grubbing, comprehensive structural void backfilling, and timber clearance.

2. Mode of Measurement & Permissible Tolerances

- Unit of Measurement: Quantified in Numbers (Nos.).
- Basis of Assessment: Girth measured using a flexible tape at exactly 1.00 meter above the natural ground line.

3. Construction Methodology & Workmanship

- To safeguard adjacent infrastructure, tier-felling techniques must be deployed. The canopy and primary limbs must be sequentially sectioned and lowered prior to felling the main trunk.
- The massive root ball must be excavated using heavy excavators. The resulting crater must be systematically backfilled with approved structural material, watered, and mechanically compacted to prevent post-execution settlement.

4. Comprehensive Rate Breakdown & Exclusions

- The unit rate represents complete compensation for crane/staged felling operations, heavy hydraulic machinery, labor, crater restoration, and heavy logistical transit for stacking wood outside the canal boundary.
- No Extra Payment Shall be Made For: Specialized safety rigging, large-volume

backfill compaction, or timber logging machinery.

Item No.12

Earth work in embankment using selected soil, soft & hard murrum excavated from approved borrow area / village tanks etc. Including conveying, spreading in uniform layers, breaking clods and dressing to the designed canal section etc. with lead upto 50 m and all lifts. (By MANUALLY For MAINTENANCE & REPAIRING WORKS) Lift 0 to 1.50 m depth. Up to 50 cusec.

1. Scope of Work & Relevant IS Codes

- Governed strictly by IS 4701 (Code of Practice for Earthwork on Canals) and IS 1200 (Part 1): Method of Measurement of Earthwork.
- Involves manual excavation from approved borrow pits or village tanks, conveyance up to a 50-meter lead, manual spreading in uniform horizontal layers, breaking of large clods, and precise dressing to the designed canal cross-section for maintenance and repair works.

2. Mode of Measurement & Permissible Tolerances

- Unit of Measurement: Computed and certified by volume in Cubic Meters (Cum), accurate to 0.01 meter.
- Basis of Assessment & Tolerances: Derived from cross-sectional profiles taken pre- and post-execution. Tolerances for finished canal bank dressing are restricted to ± 50 mm from the design profile. Over-filling beyond the designated profile lines will not be measured or paid.

3. Construction Methodology & Workmanship

- Borrow soil must be cleared of organic matter, roots, and debris. Excavated soil must be spread manually in uniform horizontal layers not exceeding 200 mm in loose thickness.
- All soil clods larger than 50 mm must be manually broken down using wooden mallets before the next layer is applied. The completed embankment face must be manually dressed to the required hydraulic slopes and design lines.

4. Comprehensive Rate Breakdown & Exclusions

- The rate includes all manual labor, tools, stripping topsoil at the borrow source, clod breaking, bank dressing, and manual conveyance leads up to 50 meters and vertical lifts up to 1.50 meters.

- No Extra Payment Shall be Made For: Clearing borrow pits, breaking stubborn clods, or repairing rain-cut erosion on dressed slopes prior to final certification.

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Item No.13

Earth work in embankment using selected soil, soft & hard murrum excavated from approved borrow area / village tanks etc. Including conveying, spreading in uniform layers, breaking clods and dressing to the designed canal section etc. with lead upto 500m and all lifts (for canals having capacity up to 300 Cusec) (By Machinery).

1.Scope of Work & Relevant IS Codes

- Adhering to IS 4701 and IS 1200 (Part 1) parameters for mechanized earthworks.
- Encompasses heavy mechanical excavation, loading, and transit of selected soil or murrum from approved borrow areas up to a 500-meter horizontal lead, followed by mechanical spreading in uniform layers and dressing for canals up to 300 Cusec capacity.

2.Mode of Measurement & Permissible Tolerances

- Unit of Measurement: Measured volumetrically in Cubic Meters (Cum).
- Basis of Assessment: Quantities are calculated from initial and final cross-sectional surveys. Settling allowances must be accounted for by the contractor during placement; final certified measurements are based strictly on the consolidated design bank profile lines.

3.Construction Methodology & Workmanship

- Heavy excavators and dumpers shall be utilized to extract and transport approved soil matrices. Dozers or motor graders must be deployed to spread the earth in uniform horizontal layers.
- Moisture content must be monitored to ensure optimal compaction capability. Large clods must be crushed using machine tracks or disc harrows. The canal inner and outer slopes must be dressed using grader blades or excavator buckets to achieve smooth hydraulic lines.

4.Comprehensive Rate Breakdown & Exclusions

- The unit rate completely covers all machinery operational costs, fuel, operators, transport transit leads up to 500 meters, mechanical spreading, layer leveling, and precision section dressing.

- No Extra Payment Shall be Made For: Constructing temporary access ramps for machinery, borrow pit royalties, or machine idling due to site constraints.

Item No.14

Providing and laying sand filter layer of specified gradation in uniform layers of specified thickness in horizontal, inclined and in canal banks as per drawing including watering upto saturation and compaction as directed.

1. Scope of Work & Relevant IS Codes

- Governed by IS 383 for aggregate/sand grading verification and IS 1200 (Part 3): Method of Measurement of Woodwork and Concrete / Filter Layers.
- Involves the procurement, transport, and uniform placement of a technically graded sand filter layer on horizontal, inclined, or canal bank surfaces to prevent fine soil piping, including controlled watering up to saturation and manual/mechanical compaction.

2. Mode of Measurement & Permissible Tolerances

- Unit of Measurement: Certified by volume in Cubic Meters (Cum), accurate to 0.01 meter.
- Basis of Assessment & Tolerances: Thickness variation is strictly restricted to *+10 mm / -0 mm* to ensure the minimum design filtration boundary is never compromised. Over-thickness beyond drawings will not be measured.

3. Construction Methodology & Workmanship

- The sand must be clean, washed river sand free from clay, organic matter, or silt concentrations exceeding 5% by volume. The subgrade must be prepared and cleared of loose mud before sand application.
- Sand must be spread uniformly across horizontal and inclined slopes to the specified thickness. It must be saturated with clean water to settle the grains and thoroughly tamped or compacted using plate compactors to prevent sliding or displacement on slopes.

4. Comprehensive Rate Breakdown & Exclusions

- The contract unit rate includes material supply, loading, transport, unloading, spreading on flat/inclined surfaces, saturation water costs, compaction tamping, and layout validation.
- No Extra Payment Shall be Made For: Sand screening/washing to meet grading zones, water procurement and distribution, or re-dressing slipped filter layers on steep slopes.

Item No.15

Providing temporary motorable service road during construction including dewatering & maintaining the same etc. complete.

1.Scope of Work

- Involves the planning, clearing, minor earth grading, compaction, continuous maintenance, and ultimate removal/ restoration of a temporary motorable service road to facilitate heavy machinery and material transport along the canal construction zone.

2.Mode of Measurement & Permissible Tolerances

- Unit of Measurement: Measured linearly in Kilometers (Km.), rounded to the nearest 0.01 km.
- Basis of Assessment: Measured along the approved centerline of the established road track. Any route deviations executed for contractor convenience without prior technical approval will be excluded from measurement.

3.Construction Methodology & Workmanship

- The road alignment must be stripped of thick vegetation, leveled, and compacted to withstand heavy construction traffic and axle loads. Cross-drainage pipes or localized dewatering must be provided to prevent water ponding or muddy ruts.
- The surface must be continuously maintained, graded, and filled with murrum/soil to ensure unhindered motorable access throughout the contract period. Upon project completion, the road track must be removed and the ground restored to its original profile.

4.Comprehensive Rate Breakdown & Exclusions

- The rate covers clearing, grading, murrum fill if required, continuous dewatering, periodic track dressing, and post-construction site restoration.
- No Extra Payment Shall be Made For: Pumping out standing rainwater from the track, machinery wear-and- tear, or post-project landscape restoration.

Item No.16

Providing and fixing in position 1.80 m high above finished ground level sign boards of standard size

0.45 m x 0.30m with M.S. angle 40mm x 40mm x 6mm with 3mm thick iron plate in 1:5:10 proportion concrete block size 40cm x 40cm x 75 cm including radium paint on both side etc. complete.

1.Scope of Work & Relevant IS Codes

- Conforms to IS 800 (Code of Practice for General Construction in Steel) and IS 456 (Plain and Reinforced Concrete).
- Involves the fabrication, painting, assembly, and installation of dual-sided, radium-painted iron signboards mounted on structural MS angles embedded in a rigid concrete foundation block.

2. Mode of Measurement & Permissible Tolerances

- Unit of Measurement: Quantified and certified in Numbers (No.).
- Variations & Tolerances: Structural dimensions of the plate, angles, and foundation size must strictly match the specified limits. No negative tolerance is permitted for the 3mm iron plate thickness.

3. Construction Methodology & Workmanship

- The 0.45 m x 0.30 m, 3mm thick iron plate must be securely welded to a 40mm x 40mm x 6mm MS angle post. The structural post must extend to allow a clear height of 1.80 m above the finished ground level.
- The base of the post must be embedded into an excavated pit and secured by casting a 40cm x 40cm x 75cm foundation block using 1:5:10 nominal mix concrete. Both sides of the sign plate must be coated with high-grade anti-corrosive primer and finished with high-visibility radium lettering and paint.

4. Comprehensive Rate Breakdown & Exclusions

- The unit rate covers all steel fabrication, welding, priming, double-sided radium painting, pit excavation, supply and batching of 1:5:10 concrete, and installation labor.
- No Extra Payment Shall be Made For: Welding consumables, excavation tools, concrete curing, or transport of finished boards to site locations.

Item No.17

Compaction of selected soil/hard murrum/soft murrum in even thickness of 15 to 20 cms including watering, temping with suitable hand rammer etc. complete as directed.

1. Scope of Work & Relevant IS Codes

- Governed by IS 2720 (Methods of Test for Soils) for moisture-density relations.
- Involves standardizing the density of laid soil or murrum embankments via systematic water adjustment, layer leveling, and thorough tamping/ramming of horizontal layers having a loose thickness of 15 to 20 cm.

2. Mode of Measurement & Permissible Tolerances

- Unit of Measurement: Measured and certified by volume in Cubic Meters (Cum).
- Basis of Assessment: Final quantities are calculated from the net consolidated cross-sectional volume. No allowance is provided for soil volume shrinkage during compaction.

3. Construction Methodology & Workmanship

- Soil/murrum layers must be spread evenly to a thickness between 15 and 20 cm. The moisture content of the soil must be evaluated and adjusted uniformly by

controlled watering to approach its Optimal Moisture Content (OMC).

- Each layer must be thoroughly compacted using cast-iron hand rammers, plate compactors, or mechanical rammers. Tamping must proceed systematically until the soil layer is consolidated and shows no further compression under the rammer weight. Each compacted layer must be approved before subsequent layers are spread.

4. Comprehensive Rate Breakdown & Exclusions

- The rate covers water procurement and distribution, manual/mechanical ramming equipment, layer thickness maintenance, and consolidation labor.
- No Extra Payment Shall be Made For: Water supply expenses, re-compaction of areas failing density tests, or manual re-leveling of layers.

Item No.18

Clearing the silt from the canal/drain bed by a digging the same to the required bed level and gradient including depositing the excavated earth regularly in spoil bank for utilizing the same preparing the banks after breaking clods as and where directed for all leads and lifts. For Canals Below 20 Cusec. & 0 to 1.5 m lift.

1. Scope of Work & Relevant IS Codes

- Conforms to canal maintenance protocols and IS 1200 (Part 1) guidelines.
- Includes the manual or light mechanical excavation of accumulated bed silt from small canals (below 20 Cusec capacity), restoring original design gradients, transporting the silt to designated spoil banks, breaking clods, and using the earth to re-profile the canal banks within a vertical lift of 1.5 meters.

2. Mode of Measurement & Permissible Tolerances

- Unit of Measurement: Cubic Meters (Cum), derived from pre- and post-desilting level surveys at 15/30 meter intervals.
- Basis of Assessment & Tolerances: Based strictly on the net theoretical volume required to restore the original bed level. Over-digging below the original canal bed level is strictly prohibited and will not be measured.

3. Construction Methodology & Workmanship

- Silt must be excavated carefully without scoring or damaging underlying concrete/brick linings or compacted bed profiles. The excavated material must be placed regularly along the designated spoil banks.
- Silt clods deposited on embankments must be broken down and dressed to integrate smoothly into the existing bank profile, avoiding loose soil piles that could wash back into the canal prism during rain events.

4. Comprehensive Rate Breakdown & Exclusions

- The unit rate covers silt excavation, vertical lifting up to 1.5 m, horizontal transport to spoil banks, clod breaking, bank dressing, and alignment maintenance.
- No Extra Payment Shall be Made For: Bypass pumping or dewatering of minor trapped water pools, careful excavation along existing linings, or dressing washed-out banks.

Item No.19

Clearing the silt from the canal/drain bed by a digging the same to the required bed level and gradient including depositing the excavated earth regularly in spoil bank for utilizing the same preparing the banks after breaking clods as and where directed for all leads and lifts. For Every additional lift of 1.5 m or part thereof. For Canals Below 20 Cusec.

1. Scope of Work

- This is an incremental vertical lift specification augmenting Item 18, intended to cover the extra manual or mechanical effort required to hoist wet excavated silt over deeply cut sections or high embankments for each additional 1.5-meter vertical increment (or part thereof) beyond the initial 1.5 m stage.

2. Mode of Measurement & Permissible Tolerances

- Unit of Measurement: Volumetrically in Cubic Meters (Cum).
- Basis of Assessment: Only the distinct volume of silt lifted beyond the initial 1.5-meter vertical threshold shall qualify for this additive rate, measured in conjunction with the primary bed excavation surveys.

3. Construction Methodology & Workmanship

- Requires staged manual lifting via intermediary temporary staging platforms, or the deployment of specialized long-reach mechanical excavators to safely transport saturated silt up steep canal slopes without spillage back into the watercourse. Spoil handling must follow Item 18.

4. Comprehensive Rate Breakdown & Exclusions

- The unit rate represents full compensation for the extra labor and mechanical handling required for the incremental vertical hoist, including temporary platform maintenance and containment of sloughing mud.
- No Extra Payment Shall be Made For: Constructing or shifting manual lifting platforms, or machinery fuel adjustments for high-lift operations.

Item No.20

Clearing the silt from the canal/drain bed by a digging the same to the required bed level and gradient including depositing the excavated earth regularly in spoil bank for utilizing the same preparing the banks after breaking clods as and

where directed for all leads and lifts. For Canals Between 21 to 250 Cusec. & 0 to 1.5 m lift.

1. Scope of Work & Relevant IS Codes

- Governed by canal design maintenance parameters and IS 1200 (Part 1).
- Large-scale desilting operations for medium-capacity canals (21 to 250 Cusec). Encompasses mechanical or manual silt extraction, bed gradient restoration, transport to spoil banks, clod breaking, and embankment profiling within a 1.5m vertical lift.

2. Mode of Measurement & Permissible Tolerances

- Unit of Measurement: Cubic Meters (Cum).
- Basis of Assessment & Tolerances: Governed by pre-work and post-work cross-sectional surveys taken at 30- meter intervals. Tolerances for final bed gradients are restricted to ± 20 mm from design bed levels to ensure uninterrupted uniform hydraulic flow.

3. Construction Methodology & Workmanship

- Heavy machinery (hydraulic excavators or draglines) must operate from the embankment crest or within the prism under dry conditions. Silt must be scooped out uniformly without disturbing the underlying design grade.
- The extracted material must be deposited uniformly along the designated spoil banks, broken down, and dressed to the required slopes. Silt must not be left in irregular piles that restrict access or wash back into the channel during rain.

4. Comprehensive Rate Breakdown & Exclusions

- The unit rate represents complete compensation for heavy machinery mobilization, fuel, labor, silt extraction, vertical lift up to 1.5 m, transport leads, clod breaking, and bank profiling.
- No Extra Payment Shall be Made For: Constructing machinery access tracks, dewatering channel pools, or re- excavating silt that washes back due to improper bank stabilization.

Item No.21

Clearing the silt from the canal/drain bed by a digging the same to the required bed level and gradient including depositing the excavated earth regularly in spoil bank for utilizing the same preparing the banks after breaking clods as and where directed for all leads and lifts. For Every additional lift of 1.5 m or part there of. For Canals Between 21 to 250 Cusec.

1. Scope of Work

- This specification represents an incremental vertical lift enhancement augmenting Item 20, specifically structured to cover the additional mechanical or manual

handling configuration required to hoist wet, heavy excavated bed silt over deep channel cut sections or heightened embankments.

- Applies sequentially to each additional 1.5-meter vertical increment (or part thereof) encountered beyond the initial 1.5-meter baseline stage on medium-capacity canals (capacities ranging from 21 to 250 Cusec).

2. Mode of Measurement & Permissible Tolerances

- Unit of Measurement: Volumetrically calculated and certified exclusively in Cubic Meters (Cum).
- Basis of Assessment: Restricted solely to the distinct, verified volume of silt hoisted above the initial 1.5-meter vertical threshold. Quantities must be deduced in direct conjunction with primary bed excavation cross-sectional profiles.

3. Construction Methodology & Workmanship

- Operations require the deployment of long-reach hydraulic excavators or staged manual handling structures via stable intermediary platforms to safely hoist saturated material up steep embankments without structural spillage back into the canal prism.
- Extracted silt must be deposited systematically along designated spoil banks, ensuring clods are broken down and dressed uniformly to integrate cleanly with the existing bank profiles.

4. Comprehensive Rate Breakdown & Exclusions

- The contract unit rate represents total and absolute compensation for the extra labor, specialized machinery handling, fuel, and temporary containment platform configurations required for the incremental vertical hoist.
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- No Extra Payment Shall be Made For: Assembling or moving temporary manual lifting scaffolding, or equipment adjustments dictated by handling highly fluid, sloughing mud.

Item No.22

Removing and destroying the thick "Ghabajaria", etc. from the Canal / Drain bed under the water pool ind. cutting carrying it away as directed and burning the same etc. complete. Below 20 Cusec.

1. Scope of Work & Relevant IS Codes

- Operations must be executed in accordance with state canal maintenance manual

guidelines for aquatic weed management and organic clearance protocols.

- Scope covers the underwater cutting, uprooting, complete extraction, and systematic removal of dense, thick "Ghabajaria" and allied aquatic weed matrices from the submerged beds of small canals (capacities below 20 Cusec), including carrying the green mass away and burning it cleanly outside the right-of-way.

2. Mode of Measurement & Permissible Tolerances

- **Unit of Measurement:** Linear length measured along the centerline of the canal bed in Kilometers (Km.), rounded to the nearest 0.01 km.
- **Basis of Assessment:** Calculated strictly along the actual chainage of the canal bed successfully cleared as authorized by the Technical Officer. No extra linear credit is permitted for variations in weed density or varying pool depths.

3. Construction Methodology & Workmanship

- Operations must be carried out manually or via light aquatic weeding equipment under water pool conditions. The weed mass must be sliced or severed at the root core to optimize eradication.
- All extracted green matter must be bundled, hauled immediately clear of the canal embankments to prevent organic washback, dried sufficiently in designated safe fields, and completely incinerated to ashes as directed.

4. Comprehensive Rate Breakdown & Exclusions

- The unit rate represents absolute compensation for underwater cutting tools, safety ropes, wading gear, labor, transport handling across all leads and lifts, drying, and burning fuel arrangements.
- **No Extra Payment Shall be Made For:** Repeated clearing of rapid weed regrowth during the course of the contract, or transport logistics for moving wet organic mass.

Item No.23

Removing and destroying the thick "Ghabajaria", etc. from the Canal / Drain bed under the water pool ind. cutting carrying it away as directed and burning the same etc. complete. Between 21 to 250 Cusec.

1. Scope of Work & Relevant IS Codes

- Adheres to irrigation department technical maintenance frameworks for medium-capacity channel systems.
- Encompasses large-scale underwater extraction, cutting, and removal of extensive, deep-rooted "Ghabajaria" weed fields within the submerged beds of medium canals (21 to 250 Cusec capacity), accompanied by mandatory safe haulage, drying, and burning protocols.

2. Mode of Measurement & Permissible Tolerances

- **Unit of Measurement:** Measured linearly along the channel centerline in Kilometers (Km.), accurate to 0.01 km.
- **Basis of Assessment:** Based strictly on the physical longitudinal span cleared. Overlapping zones or double-clearance of sections due to poor execution will be excluded from measurement.

3. Construction Methodology & Workmanship

- Due to larger channel volumes and deeper water pools, specialized machinery (such as excavator attachments or draglines) or organized diving labor teams must be deployed. Weeds must be systematically cleared without scoring or damaging the underlying natural or lined channel prism.
- Saturated organic matter must be removed from the channel bed, spread out to dry in designated spoil areas without blocking service roads, and safely burned under strict fire control protocols.

4. Comprehensive Rate Breakdown & Exclusions

- The contract rate provides complete payment for all heavy or light machinery deployments, fuel, operators, specialized labor wading assets, haulage transit across all leads/lifts, and complete incineration processing.
- **No Extra Payment Shall be Made For:** Providing controlled fire suppression barriers, handling stagnant water pools, or machinery idling due to water depth variations.

Item No.24

Clearing the silt/debris from the pipe culvert/syphon/ syphon well. Underground pipe drain/box drain for Drain/Canal by digging the same including depositing the excavated earth/debris etc. for all leads and lift. For pipe culvert/ Syphon. (i) Upto 900 mm dia. Pipe.

1. Scope of Work & Relevant IS Codes

- Guided by IS 1200 (Part 1) and standard cross-drainage infrastructure maintenance protocols.
- Encompasses the structural desilting, internal digging, clearing, and complete

flushing of accumulated silt, packed debris, and obstructions from within pipe culverts, syphons, syphon wells, and underground pipe or box drains up to a diameter of 900 mm, including extraction and regulated spoil deposition outside the structure limits.

2. Mode of Measurement & Permissible Tolerances

- **Unit of Measurement:** Measured linearly along the barrel length of the pipe/structure in Meters (meter), accurate to 0.01 meter.
- **Basis of Assessment:** Deduced from the actual physical internal length of the pipe culvert or syphon cleared. No measurement is credited for external digging or clearing adjacent to the headwalls unless explicitly scheduled.

3. Construction Methodology & Workmanship

- Silt extraction inside the restricted structure barrel must be carefully executed using specialized manual long-handled scrapers, rodding configurations, or high-pressure water jetting structural equipment. High impact tools that risk cracking or displacing the concrete pipe joints are strictly prohibited.
- Extracted choked materials and muck must be pulled clear of the structure, hoisted vertically out of syphon wells, and safely deposited away from inlet/outlet wings to avoid re-silting during rain events.

4. Comprehensive Rate Breakdown & Exclusions

- The contract unit rate covers all manual desilting labor under confined space conditions, structural rodding equipment, high-pressure jetting machine hours, vertical hoisting, and disposal transit across all leads and lifts.
- **No Extra Payment Shall be Made For:** Pumping out trapped structural water inside the barrel, handling offensive sludge, or cleaning adjacent headwall surfaces.

Item No.25

Excavation in all sorts of soil .By machinery including preparing etc.comp. (where qty can not be measured).Hydraulic Excavator 200 (0.9 CM).

1. Scope of Work & Relevant IS Codes

- Governed by IS 1200 (Part 1) and general conditions of contract for hourly machine deployment.
- Encompasses providing a high-capacity Hydraulic Excavator 200 (equipped with a minimum 0.9 Cubic Meter bucket capacity) for executing localized or continuous excavation operations in all sorts of soil strata (including sand, clay, and soft murrum) where geometric physical quantities cannot be measured conventionally due to irregular site situations or shifting water tables.

2. Mode of Measurement & Permissible Tolerances

- **Unit of Measurement:** Quantified and recorded strictly by time in Hours (Hour).

- **Basis of Assessment:** Certified based on the net operational logbook hours recorded on-site. Hours are tracked to the nearest 0.5-hour threshold. Deductions are strictly enforced for mechanical breakdown periods, operator rest intervals, and refueling halts.

3. Construction Methodology & Workmanship

- The machinery must be maintained in peak structural and mechanical operating condition. Excavation must match the lines, levels, and slopes directed by the Engineer-in-Charge.
- The operator must possess standard valid commercial licensing and execute digging efficiently without undermining stable canal structures or cutting below designated grade templates.

4. Comprehensive Rate Breakdown & Exclusions

- The hourly rate represents absolute compensation for the machinery asset, high-consumption diesel fuel, lubricants, scheduled maintenance, certified operator wages, and field mobilization.
- **No Extra Payment Shall be Made For:** Transporting/towing the excavator to and from the project circle site, machinery idling due to contractor logistics, or minor field repairs.

Item No.26

Excavation in all sorts of soil .By machinery including preparing etc.comp. (where qty can not be measured).JCB Hd Exc. Ex-j 5205 (0.9 CM) - Chain

1. Scope of Work

- Encompasses the deployment of a heavy-duty chain/track-mounted JCB HD Excavator (Model Ex-j 5205 with a 0.9 Cubic Meter bucket rating) for systematic bulk excavation across all soil profiles in complex, unmeasurable, or marshy site settings requiring high track flotation stability.

2. Mode of Measurement & Permissible Tolerances

- **Unit of Measurement:** Calculated and certified in Hours (Hour).
- **Basis of Assessment:** Based exclusively on functional operational hours counters verified daily by the site supervisor. Machine transit times within the work site are excluded from productive operational metrics.

3. Construction Methodology & Workmanship

- The chain-mounted tracked excavator must be maneuvered carefully over canal beds and embankments to prevent gouging or destroying existing stable subgrades.
- Earthwork execution must proceed systematically as directed, loading materials directly into dumpers or shifting spoils out of the immediate channel perimeter.

4. Comprehensive Rate Breakdown & Exclusions

- The contract unit rate covers total compensation for the tracked asset hire, complete fuel demands, grease/lubricants, experienced operator charges, and on-site maintenance support.
- **No Extra Payment Shall be Made For:** Track shoe replacements, flat-bed low-boy trailer mobilization expenses, or non-work periods during inclement weather.

Item No.27

Excavation in all sorts of soil .By machinery including preparing etc.comp. (where qty can not be measured).Hyundai Hydraulic Excavator R 210 LC 7V (0.9 CM) Chain.

1.Scope of Work

- Covers the deployment of a heavy track-mounted Hyundai Hydraulic Excavator (Model R 210 LC 7V, 0.9 Cubic Meter bucket capacity) to execute deep trenching, structural clearance, or general earthwork in all types of soils where volume verification cannot be standardized.

2.Mode of Measurement & Permissible Tolerances

- **Unit of Measurement:** Documented and paid in Hours (Hour).
- **Basis of Assessment:** Derived from official logbook counters synchronized with machine hour-meters. Idle machine hours or warming-up durations will not be credited.

3.Construction Methodology & Workmanship

- The excavator must be deployed strategically to maximize output per hour. Operations must align with structural safety margins, ensuring track stability on sloping canal banks.
- Digging parameters must strictly follow real-time instructions from the Technical Officer to achieve the desired grades.

4. Comprehensive Rate Breakdown & Exclusions

- The rate includes the tracked heavy machine operational costs, premium fuel consumption, specialized lubricants, operator wages, and safety accessories.
- **No Extra Payment Shall be Made For:** Heavy machinery transit permits, mobilization to site, or down-time due to mechanical failures.

Item No.28

Excavation in all sorts of soil .By machinery including preparing etc.comp. (where qty can not be measured).Hyundai Long Reach Hydraulic Excavator R210 LC7LR (0.52 CM) Chain.

1.Scope of Work

- Mandates the specialized deployment of a chain-mounted Hyundai Long Reach Hydraulic Excavator (Model R210 LC7LR with an extended boom and a 0.52 Cubic Meter bucket).
- Intended for executing deep canal desilting, wide channel profile cleaning, or far-reach embankment excavations from the crest level where standard boom configurations cannot access, and where structural volumes cannot be quantified.

2.Mode of Measurement & Permissible Tolerances

- **Unit of Measurement:** Tracked and recorded in Hours (Hour).
- **Basis of Assessment:** Logbook hours certified daily by the Technical Officer. Machine setup and positioning times exceeding 15 minutes are subject to deduction if non-productive.

3.Construction Methodology & Workmanship

- Due to the extended leverage of the long-reach boom, the machine must be operated under rigid safety bounds to prevent tipping. Excavation must be smooth to avoid scoring deep pockets into the canal subgrade.
- Spoils must be systematically placed onto remote spoil banks within the long-reach operating arc.

4.Comprehensive Rate Breakdown & Exclusions

- The premium hourly rate includes the specialized long-reach machinery asset, high-demand fuel, hydraulic oils, skilled long-reach operator wages, and field maintenance logistics.
- No Extra Payment Shall be Made For: Boom structural checks, counterbalance weights adjustments, or specialized transport logistics.

Item No.29

Excavation in all sorts of soil .By machinery including preparing etc.comp. (where qty can not be measured).Tata Hitachi Hyd, Excavator Ex -70 (0.3 CM) Chain.

1.Scope of Work

- Details the deployment of a compact, chain-mounted Tata Hitachi Hydraulic Excavator (Model Ex-70 with a 0.3 Cubic Meter bucket capacity) for minor channel excavation, narrow foundation trenching, or selective clearing in restricted spaces where larger excavators cannot maneuver and volume assessment is impractical.

2. Mode of Measurement & Permissible Tolerances

- Unit of Measurement: Quantified and paid in Hours (Hour).
- Basis of Assessment: Based directly on certified on-site logbooks matching the integrated mechanical hour-meter.

3. Construction Methodology & Workmanship

- The compact tracked machine must utilize its agility to trim narrow channel sections or execute foundation tasks without destabilizing adjacent soils.
- Work must be executed precisely according to the required dimensions given on-site.

4. Comprehensive Rate Breakdown & Exclusions

- The rate completely covers the excavator hire, fuel, lubricants, operator wages, and standard field maintenance loops.
- No Extra Payment Shall be Made For: Moving the equipment between localized work nodes, or idle hours caused by field coordination gaps.

Item No.30

Excavation in all sorts of soil .By machinery including preparing etc.comp. (where qty can not be measured).J.C.B. - 2D X (0.18 CM) Wheel.

1. Scope of Work

- Encompasses providing a highly mobile, wheel-mounted J.C.B. - 2D X backhoe loader (featuring a 0.18 Cubic Meter backhoe bucket capacity) for nimble, small-scale excavation, trench backfilling, or rapid material shifting across scattered sites where volume measurement is not feasible.

2. Mode of Measurement & Permissible Tolerances

- Unit of Measurement: Measured by time in Hours (Hour).
- Basis of Assessment: Certified through field logbook entries. Deductions apply to any non-operational periods exceeding 15 minutes.

3. Construction Methodology & Workmanship

- The wheeled machine must be driven safely along service roads and canal banks. Outriggers/stabilizers must be fully extended and securely blocked on firm ground before starting any backhoe excavation to prevent chassis shifting.
- Excavation must conform neatly to the directed layout parameters.

4. Comprehensive Rate Breakdown & Exclusions

- The hourly rate covers the wheeled vehicle asset, fuel, tire wear-and-tear allowances, operator wages, and localized mobilization.
- No Extra Payment Shall be Made For: Driving the machine between different canal

zones, or repairing tire punctures sustained on-site.

Item No.31

Excavation in all sorts of soil .By machinery including preparing etc.comp. (where qty can not be measured).Tractor with Trailer.

1.Scope of Work

- Encompasses providing a standard industrial utility Tractor coupled with a matching high-capacity tipping Trailer to support excavation activities by transporting loose soil, debris, or materials across all soil conditions where load volumes cannot be measured conventionally.

2.Mode of Measurement & Permissible Tolerances

- Unit of Measurement: Paid by time in Hours (Hour).
- Basis of Assessment: Based on active working hours spent hauling or staging as logged by the site representative. Standing idle time during primary excavator breakdowns will be deducted.

3.Construction Methodology & Workmanship

- The tractor-trailer unit must be positioned efficiently for loading by excavators. Haulage must follow approved service routes at safe speeds to prevent spillage along canal banks.
- Unloading must be executed via the hydraulic tipping system at designated spoil zones or bank fill locations.

4.Comprehensive Rate Breakdown & Exclusions

- The contract rate covers tractor-trailer hire, fuel, driver wages, tire maintenance, and trailer tipping mechanism operations.
- No Extra Payment Shall be Made For: Tarpaulins for load covering, or clearing dirt tracked onto public roads.

Item No 32.

Providing and laying empty cement bags with good selected earth including stitching and laying as and where required. (Polywoven bag of 50 kg Capacity).

1.Scope of Work & Relevant IS Codes

- Complies with relevant IS specifications for polywoven bags and civil earthwork reinforcement applications.
- Scope involves providing new or sound, durable empty polywoven cement-style bags (minimum 50 kg mass capacity), procuring and filling them with approved, selected clod-free soil, securely stitching the bag openings, and systematically laying them for canal bank stabilization, leak control, or coffer damming as directed.

2. Mode of Measurement & Permissible Tolerances

- Unit of Measurement: Certified by direct physical count in Numbers (No.).
- Basis of Assessment: Based on the total number of fully filled, stitched, and properly placed bags verified in position. No payment will be allowed for torn, leaking, or loosely packed bags.

3. Construction Methodology & Workmanship

- Bags must be filled uniformly with selected structural earth to approximately 3/4 of their capacity to allow flexibility during structural placement. The openings must be securely closed using heavy-duty nylon twine with double-stitched knots.
- The bags must be laid in interlocking courses (similar to brick masonry bond templates) with staggered joints, and firmly tamped down into place to form a stable, cohesive barrier.

4. Comprehensive Rate Breakdown & Exclusion

- The unit rate represents complete compensation for providing the polywoven bags, sourcing selected earth, filling, manual or machine stitching, transport handling, and interlocking installation on-site.
- No Extra Payment Shall be Made For: Sourcing or testing the fill soil, stitching consumables, or re-laying bags displaced by high water flow due to poor initial arrangement.

Item No.33

Providing and laying jute bags filled with good selected earth including stitching and laying as and where required. (Jute bag of 100 kg Capacity).

1. Scope of Work & Relevant IS Codes

- Governed strictly by IS 2873 (Specification for Jute Bags) and canal emergency maintenance protocols.
- Encompasses providing heavy-duty, high-strength industrial jute/gunny bags (minimum 100 kg capacity), filling them with approved selected soil matrices, heavy perimeter stitching, transport, and stable structural stacking for erosive bank repair or heavy coffer dam construction.

2. Mode of Measurement & Permissible Tolerances

- Unit of Measurement: Quantified strictly by count in Numbers (No.).
- Basis of Assessment: Based on the net count of functional bags laid and certified on-site.

3. Construction Methodology & Workmanship

- Jute bags must be free from rotted fibers or holes. Bags must be filled with selected

cohesive soil, ensuring large stones are removed to prevent tearing. The bag mouth must be tightly rolled and double-stitched with jute twine.

- Filled bags must be laid in stable, wide-base sloping stepped configurations on the canal banks, ensuring close nesting to eliminate gaps that could cause piping failure.

4. Comprehensive Rate Breakdown & Exclusions

- The rate covers supplying the 100 kg jute bags, selected earth handling, filling labor, twine, transit logistics across all leads, and systematic stacking.
- No Extra Payment Shall be Made For: Earth borrow royalties, or replacement of bags that decay due to prolonged contractor delays.

Item No.34

Providing and laying empty cement bag filled with cement and sand in proportion 1:20 incl. stitching and laying as and where directed.

1. Scope of Work & Relevant IS Codes

- Adheres to IS 383 for sand grading and standard cement mortar structural guidelines.
- Involves providing empty polywoven or jute bags, dry batching and thorough mixing of ordinary Portland cement and clean sand in a dry volumetric proportion of 1:20, filling the bags with this dry mix, stitching, and laying them in specific water-contact configurations to create a self-hardening structural barrier.

2. Mode of Measurement & Permissible Tolerance

- Unit of Measurement: Certified by count in Numbers (No.).
- Basis of Assessment: Strictly based on the number of bags filled with the correct 1:20 proportion and securely installed in position.

3. Construction Methodology & Workmanship

- Cement and sand must be dry-mixed thoroughly on a clean platform in a 1:20 ratio before filling. Bags must be packed uniformly, tightly stitched, and immediately placed in the designated structure zones.
- When laid under water or exposed to external wetting, the dry cement-sand mix will absorb water, triggering hydration and curing to form a semi-rigid, erosion-resistant mass. Bags must be tightly packed against each other during placement.

4. Comprehensive Rate Breakdown & Exclusions

- The unit rate covers the supply of bags, cement, sand, mixing labor, filling, stitching, and structural placement across all heights and depths.
- No Extra Payment Shall be Made For: Platform setups, cement storage protection, or water curing operations.

Item No.35

Clearing of Canals for jungle cutting Removing and destroying the thick "Ghabajaria" , " Panfuti " etc. from the Canal/Drain bed under the water pool alongwith rolls incl. cutting carrying it away as directed and burning the same etc. complete. (By Manually)Below 20 Cusec.

1.Scope of Work & Relevant IS Codes

- Complies with IS 1200 (Part 27) clearing parameters executed under manual constraints.
- Encompasses the complete manual cutting, uprooting, and destruction of thick jungle growth, wild hedges, and submerged aquatic weeds like "Ghabajaria" and "Panfuti" along with their dense root rolls from the beds and banks of small canals (below 20 Cusec), followed by systematic drying and burning.

2.Mode of Measurement & Permissible Tolerances

- Unit of Measurement: Linear length measured along the canal centerline in Kilometers (Km.), accurate to 0.01 km.
- Basis of Assessment: Certified along the true physical chainage cleared. Sectional widths must cover the entire canal prism from outer bank to outer bank.

3.Construction Methodology & Workmanship

- Work must be executed strictly through manual labor using sickles, scythes, and axes. Submerged weeds ("Ghabajaria"/"Panfuti") must be pulled out along with their root rolls to minimize rapid regrowth.
- The cleared organic mass must be hauled clear of the canal embankments, piled neatly to dry, and burned completely under controlled conditions.

4.Comprehensive Rate Breakdown & Exclusions

- The rate includes all manual labor wages, cutting tools, personal safety boots/gloves for weeding teams, disposal handling across all leads, drying, and burning operations.
- No Extra Payment Shall be Made For: Repeated weeding passes, or clearing debris washed back from neighboring fields.

Item No.36

Clearing the canal Banks outer and inner Slopes by Jungle Cutting ,removing Vegetation, Ghabajaria,Trees,etc. along with burning it's and carrying away as and where required and as directed etc. completed by machineries.

1.Scope of Work & Relevant IS Codes

- Governed by IS 1200 (Part 27) mechanized earthwork and clearing protocols.
- Encompasses the comprehensive mechanized clearing of inner and outer slopes of canal banks. This includes cutting down thick jungle growth, removing wild

vegetation, "Ghabajaria", and trees via mechanical means, followed by haulage and controlled burning of the cleared material.

2. Mode of Measurement & Permissible Tolerances

- Unit of Measurement: Planar surface area calculated along the sloping face of the banks in Square Meters (sqm), rounded to 0.01 meter.
- Basis of Assessment: Derived from physical site measurements of length multiplied by the true sloping width of the cleared banks. Operations outside designated construction boundaries will not be measured.

3. Construction Methodology & Workmanship

- Heavy machinery, such as tractor-mounted cutters, dozer blades, or excavator buckets, must be operated carefully along the slopes to clear vegetation without gouging, destabilizing, or altering the designed hydraulic section of the canal banks.
- All cleared wood, brush, and organic muck must be collected mechanically, moved outside the canal zone, allowed to dry, and completely incinerated.

4. Comprehensive Rate Breakdown & Exclusions

- The contract rate covers all machinery hours, fuel, operators, specialized clearing attachments, logistical transport across all leads/lifts, and burning costs.
- No Extra Payment Shall be Made For: Repairing surface scars or machine tracks left on the slopes, or fuel surcharges.

Item No.37

Trimming of the canal section manually for preparing subgrade for laying cement concrete lining in all sorts of soil and murrum including watering and compacting bed etc. complete.

1. Scope of Work & Relevant IS Codes

- Conforms to IS 4701 (Code of Practice for Earthwork on Canals) and IS 3873 (Code of Practice for Laying Cement Concrete Lining on Canals).
- Scope encompasses the precision manual profile trimming and dressing of the canal bed and side slopes in all sorts of soil and murrum. This prepares a true hydraulic subgrade prior to laying cement concrete lining, including controlled watering and surface compaction.

2. Mode of Measurement & Permissible Tolerances

- Unit of Measurement: Surface area prepared and certified in Square Meters (sqm), accurate to 0.01 meter.
- Basis of Assessment: Based strictly on the theoretical design inner lining surface area shown in the drawings.
- Permissible Tolerances: The finished subgrade profile must be within ± 10 mm

of the true design alignment. Over-trimming filled with extra concrete lining will be at the contractor's expense.

3. Construction Methodology & Workmanship

- The subgrade must be trimmed manually using sharp cutting spades and profile templates/wooden frames to achieve the exact design cross-section. All loose soil must be removed.
- The trimmed surface must be lightly sprinkled with water to attain optimum moisture and thoroughly compacted using hand rammers or plate compactors to form a firm, unyielding bed that won't absorb water from the concrete lining.

4. Comprehensive Rate Breakdown & Exclusions

- The unit rate represents complete compensation for manual trimming labor, profile template assembly, disposal of excess trimmed soil within 50 m, watering costs, and compaction tools.
- No Extra Payment Shall be Made For: Profile verification engineering, water procurement, or filling over-trimmed pockets with mortar.

Item No.38

Providing coarse sand layer in bed and side slopes including excavation, light compaction, tar paper etc. complete.

1. Scope of Work & Relevant IS Codes

- Governed by IS 383 for sand grading specifications and IS 1200 (Part 3) for filter/bedding layer dimensions.
- Scope covers the procurement, transport, and laying of a coarse sand bedding layer on canal beds and side slopes. This includes minor preparatory excavation, uniform sand spreading, light compaction, and covering with tar paper as specified.

2. Mode of Measurement & Permissible Tolerance

- Unit of Measurement: Volumetrically certified in Cubic Meters (Cum), accurate to 0.01 meter.
- Basis of Assessment: Computed from the design thickness multiplied by the approved surface area.
- Permissible Tolerances: Layer thickness variation must be within +10 mm / -0 mm.

3. Construction Methodology & Workmanship

- Sourced sand must be coarse, clean, and free from organic or clay impurities. The canal subgrade must be excavated lightly to accommodate the layer thickness. Sand must be spread uniformly using wooden screed boards.
- The sand layer must be lightly sprinkled with water and consolidated using hand

rammers. A layer of approved tar paper must then be unrolled smoothly over the compacted sand with minimum 100 mm overlaps to prevent concrete paste infiltration.

4. Comprehensive Rate Breakdown & Exclusions

- The rate includes coarse sand material supply, subgrade excavation, spreading labor, watering, tamping, and providing and laying the tar paper layer.
- No Extra Payment Shall be Made For: Sand screening, or replacing torn tar paper during reinforcement layout.

Item No.39

Excavation for foundation trenches in all sorts of soil sand clay, hard clay, soft murrum including shoring, strutting and depositing the excavated stuff, refilling the remaining excavated trenches upto G.L. as and where directed within a lead of 50 m. etc. complete as directed. (For Special situation up to 10 cum)Upto 1.50 m depth

1. Scope of Work & Relevant IS Codes

- Governed strictly by IS 3764 (Excavation Work - Code of Safety) and IS 1200 (Part 1).
- Encompasses foundation trench excavation for small structures in all sorts of soil (sand, clay, hard clay, soft murrum) under restricted "Special Situations" (total volume up to 10 Cubic Meters) down to a depth of 1.50 m. Includes providing safety shoring, timber strutting, stacking excavated material, and backfilling up to ground level within a 50 m lead.

2. Mode of Measurement & Permissible Tolerances

- Unit of Measurement: Volumetrically measured in Cubic Meters (Cum), accurate to 0.01 meter.
- Basis of Assessment: Calculated from the exact net width and length of the structural concrete foundation block footprint multiplied by the verified depth. Additional workspace excavation volumes will not be paid.

3. Construction Methodology & Workmanship

- Excavation must be performed carefully to avoid disturbing adjacent stable structures. In loose soils, protective timber shoring and strutting must be installed immediately to prevent cave-ins.
- The trench bed must be leveled and rammed. After foundation casting, selected excavated earth must be filled back into the trench flanks in 150 mm layers, watered, and thoroughly compacted up to original ground level.

4. Comprehensive Rate Breakdown & Exclusions

- The rate covers all manual excavation labor in restricted spaces, providing and

removing safety shoring/ strutting materials, stacking, backfilling, and ramming within a 50 m lead.

- No Extra Payment Shall be Made For: Handling surface water runoff, or equipment mobilization for these minor 10 Cum slots.

Item No.40

Excavation for foundation trenches in all sorts of soil sand clay, hard clay, soft murrum including shoring, strutting and depositing the excavated stuff, refilling the remaining excavated trenches upto G.L. as and where directed within a lead of 50 m. etc. complete as directed. (For Special situation up to 10 cum) 1.50 m to 3.00 m depth

1. Scope of Work & Relevant IS Codes

- Conforms to IS 3764 for deep excavations and IS 1200 (Part 1).
- Covers deep foundation trench excavation in all sorts of soil/murrum under specialized restricted scopes (volumes ≤ 10 Cum) for depths starting from 1.50 m down to 3.00 m. Includes heavy safety shoring, structural timber strutting, vertical lift handling, staging, stacking, and post-structure backfilling within a 50 m lead.

2. Mode of Measurement & Permissible Tolerances

- Unit of Measurement: Volumetrically certified in Cubic Meters (Cum).
- Basis of Assessment: Measured strictly based on the vertical geometric projection of the designated foundation design bed profile between the 1.50 m and 3.00 m depth zones.

3. Construction Methodology & Workmanship

- Due to the increased depth (≤ 3.00 m), robust structural shoring frameworks must be configured to withstand lateral subsoil pressures. Excavated earth must be safely thrown back at least 1.5 meters away from the trench edge to prevent collapse.
- The base must be finished to a perfectly level grade. Backfilling around completed structures must be performed symmetrically in watered, thoroughly compacted 150 mm layers up to ground level.

4. Comprehensive Rate Breakdown & Exclusions

- Template unit rate provides absolute compensation for deep excavation labor, vertical multi-stage lift hoisting, heavy shoring/strutting materials, safety frameworks, stacked material management, backfilling, and compaction within a 50 m radius.

- No Extra Payment Shall be Made For: Pumping out localized groundwater seepage, or shoring materials left in place.

Item No.41

Excavation for foundation in all sorts of soil including yellow sandy gravelly soils, soft & hard murrum etc. in dry condition including depositing the excavated stuff in uniform layers in banks or as and where directed etc. complete for lead up to 500m and all lift. (BY MACHINERY) Excluding dewatering.

1. Scope of Work & Relevant IS Codes:

- Governed strictly by IS 1200 (Part 1) (Method of Measurement of Building and Civil Engineering Works: Earthwork).
- Encompasses mechanized bulk excavation for structural foundations utilizing hydraulic excavators or backhoes in all standard soil strata conditions, including dry sand, silt, clay, yellow sandy gravelly matrices, and soft or hard murrum profiles.
- Includes systematic sorting, handling, transit haulage up to a 500-meter horizontal radius across all vertical operational lifts, and uniform deposition of acceptable soil strata in layers along canal embankments or designated spoil sites.

2. Mode of Measurement & Permissible Tolerances:

- Unit of Measurement: Volumetrically measured and certified exclusively in Cubic Meters (Cum).
- Basis of Assessment: Computed strictly based on the net structural footprint design profile multiplied by the authorized engineering depth.
- Excavation quantities resulting from unauthorized slimes, side collapses, over-cutting, or contractor convenience benches are strictly excluded from certification and payment.

3. Construction Methodology & Workmanship:

- Heavy machinery must be deployed strategically to achieve precise grade levels, structural templates, and side slopes without fracturing or undermining adjacent virgin ground profiles.
- Excavated soil intended for bank reinforcement must be laid out in uniform, consecutive layers, breaking down large structural clods and dressing them

to integrate with existing canal lines.

- The bottom bed of the excavation must be finished clean, leveled, and compacted to receive foundation concrete.

4. Comprehensive Rate Breakdown & Exclusions:

- The contract unit rate constitutes complete and absolute compensation for all heavy machinery hire, diesel fuel, lubricants, operators, banksmen, hauling logistics up to 500 meters, and systematic layer-dressing.
- No Extra Payment Shall be Made For: Localized pumping or structural dewatering (explicitly excluded), machinery shifting between site points, or clearing temporary paths for dumpers.

Item No.42

Excavation for foundation in soft rock including depositing the excavated material as directed within a lead of 100 m and stacking the material nearly in uniform stacks etc. complete. (Manually) Upto 1.50 m depth.

1. Scope of Work & Relevant IS Codes:

- Conforms explicitly to IS 3764 (Excavation work - Code of Safety) and IS 1200 (Part 1) guidelines.
- Covers manual excavation using hand tools (crowbars, picks, wedges, and sledgehammers) in strata classified as soft rock (decomposed rock, highly weathered strata, hard murrum, or cemented gravel) for structural foundations down to a maximum vertical depth of 1.50 meters.
- Includes manual multi-stage hoisting, carriage up to 100 meters horizontal lead, and regular, neat stacking of useful excavated rock chunks separately from unusable spoils.

2. Mode of Measurement & Permissible Tolerances:

- Unit of Measurement: Quantified volumetrically and paid in Cubic Meters (Cum).
- Basis of Assessment: Computed by multiplying the true design length and width of the concrete foundation footprint by the verified excavated depth up to 1.50 m limit.

3. Construction Methodology & Workmanship:

- Operations must proceed manually without blasting. Fractured rock

fragments must be split systematically to prevent destabilizing surrounding structural footings.

- Reusable stone pieces must be sorted out on-site and piled into clean, uniform geometric stacks for future masonry or pitching works.
- The bottom of the trench must be dressed horizontally, cleared of loose debris, and thoroughly rammed to form an unyielding subgrade.

4. Comprehensive Rate Breakdown & Exclusions:

- The unit rate covers all manual labor wages, safety gear, excavation tools, sorting/salvaging costs, multi-stage vertical lifts up to 1.50 m, and 100 m transport stacking.
- No Extra Payment Shall be Made For: Handling sloughed surface materials, or restoring over-excavated zones.

Item No.43

Excavation for foundation in soft rock including depositing the excavated material as directed within a lead of 100 m and stacking the material nearly in uniform stacks etc. complete. (Manually) 1.50 m to 3.00 m depth.

1. Scope of Work & Relevant IS Codes:

- Adheres to IS 3764 (Safety Code) and IS 1200 (Part 1) vertical increment guidelines.
- Covers deep manual foundation cutting within soft rock profiles, specifically governing the vertical stage increment starting from 1.50 meters down to a maximum depth of 3.00 meters.
- Includes temporary scaffolding configurations, double-stage manual hoisting, manual carriage up to 100 meters, and segregated geometric stacking of salvaged materials.

2. Mode of Measurement & Permissible Tolerances:

- Unit of Measurement: Certified volumetrically in Cubic Meters (Cum).
- Basis of Assessment: Restricted solely to the design volumetric block boundaries lying strictly between the 1.50 m and 3.00 m depth planes.

3. Construction Methodology & Workmanship:

- Due to increased depths, manual operations must utilize secure intermediate lifting platforms or structural tripod pulleys.

- Excavated rock material must be placed at least 1.5 meters away from the trench rim to eliminate structural overload and collapse hazards.
- Sides must be trimmed vertically or at safe structural angles using specialized hand wedges to ensure stable working conditions.

4. Comprehensive Rate Breakdown & Exclusions:

- The contract rate represents total compensation for specialized deep-working manual labor, intermediate platform setups, tools, sorting, 100 m haulage, and neat stacking.
- No Extra Payment Shall be Made For: Re-handling material fallen due to wind or rain, or structural timber shoring.

Item No.44

Excavation for foundation in Soft Rock including depositing the excavated stuff as and where directed etc. complete for lead upto 500m and all lift. (Machinery) Excluding dewatering.

1. Scope of Work & Relevant IS Codes:

- Governed by IS 1200 (Part 1) and mechanical production frameworks.
- Encompasses deploying heavy hydraulic excavators equipped with rock buckets or heavy-duty ripper tynes to break and extract soft rock matrices for structural foundations.
- Includes mechanized loading, transit transportation up to a 500-meter lead across all vertical lifts, and orderly disposal/stockpiling as authorized by the Engineer-in-Charge.

2. Mode of Measurement & Permissible Tolerances:

- Unit of Measurement: Measured and certified in Cubic Meters (Cum).
- Basis of Assessment: Derived from cross-sectional measurements of the design foundation envelope.

3. Construction Methodology & Workmanship:

- The mechanical excavator must break the soft rock strata efficiently along pre-marked structural grids.
- Care must be exercised to prevent over-shattering or scoring beneath the theoretical base foundation level.
- Excavated material must be cleanly removed via dumpers or tractors and piled in designated containment yards without blocking right-of-way

service corridors.

4. Comprehensive Rate Breakdown & Exclusions:

- The rate incorporates all machinery asset usage, fuel, ripper wear allowances, operator wages, transport logistics within 500 m, and stockpiling labor.
- No Extra Payment Shall be Made For: Pumping out trapped ground/surface water (dewatering excluded), or machinery breakdown idle times.

Item No.45

Excavation of foundation in Hard Rock upto 3 m depth including blasting and chiselling in necessary sorting out and stacking separately the usable rubble, depositing the excavated stuff as and where directed, back filling the trenches with suitable excavated stuff etc. complete for lead of 50 m and all lifts. (Manually).

1. Scope of Work & Relevant IS Codes:

- Complies with IS 4081 (Safety Code for Blasting and Related Drilling Operations) and IS 1200 (Part 1).
- Encompasses controlled manual drilling, explosive charging, blasting, or intensive manual mechanical chiseling/wedging where blasting is prohibited due to proximity to existing structures, down to a depth of 3.00 meters.
- Includes segregation and manual stacking of all reusable hard rock rubble blocks, disposal of unusable rock debris within 50 meters, and post-structure backfilling of trench flanks using approved fragments.

2. Mode of Measurement & Permissible Tolerances:

- Unit of Measurement: Volumetrically assessed in Cubic Meters (Cum).
- Basis of Assessment: Calculated strictly from the core dimensions of the structural foundation masonry block footprint. Over-shattered volumes outside design boundaries are non-payable.

3. Construction Methodology & Workmanship:

- Blasting must be handled by licensed blasters using authorized magazines, adhering to rigorous safety warnings. Where blasting is restricted, hard rock must be broken meticulously using pneumatic breakers, hand drills, steel wedges, and sledgehammers.
- Useful hard stone rubble must be cleaned of dirt and stacked in neat blocks

for masonry works.

- Following concrete or masonry completion, the surrounding trench voids must be filled back with granular rock stuff, watered, and firmly consolidated.

4. Comprehensive Rate Breakdown & Exclusions:

- The unit rate represents absolute compensation for drilling gear, explosives, blasting caps, specialized chiseling labor, sorting, 50 m hauling, stacking, backfilling, and ramming.
- No Extra Payment Shall be Made For: Blasting license fees, safety warning flags/guards, or importing backfill earth.

Item No.46

Excavation for foundation in Hard Rock including blasting and chiseling if necessary sorting out and stacking separately the usable rubble, depositing the excavated stuff as and directed including backfilling trenches with suitable excavated stuff etc. complete for lead upto 500 m. and all lifts. (Machinery) Excluding dewatering.

1. Scope of Work & Relevant IS Codes:

- Guided by IS 1200 (Part 1), IS 4081, and structural safety standards.
- Encompasses heavy mechanized excavation in hard rock strata using heavy-duty crawler excavators equipped with hydraulic rock breakers (breakers/hammers) or via mechanized drilling and blasting operations.
- Includes mechanical loading, haulage up to 500 meters, systematic sorting out of competent rubble stones for separate stacking, and automated or manual backfilling of structural voids.

2. Mode of Measurement & Permissible Tolerances:

- Unit of Measurement: Measured in Cubic Meters (Cum).
- Basis of Assessment: Restrained entirely to the geometric lines shown on structural foundation templates.

3. Construction Methodology & Workmanship:

- Heavy hydraulic breakers must execute systematic chipping along structural boundaries.
- Muck piles must be sorted mechanically or manually to salvage durable stones.
- Backfilling in trenches must proceed in layers around finished masonry,

with mechanical compaction to maximize density.

4. Comprehensive Rate Breakdown & Exclusions:

- Covers all breaker/excavator hours, compressor operations, drilling accessories, blasting supplies, dumper haulage up to 500 m, sorting labor, and mechanical backfilling.
- No Extra Payment Shall be Made For: Pumping water (dewatering excluded), or replacement of worn breaker chisels.

Item No.47

Dewatering during excavation of canals, drains, foundation trenches etc. by using pumps of suitable capacity either diesel or electric driven including cost of labour, pipes etc. for delivery distance beyond 100 m. (By Machinery).

1. Scope of Work & Relevant IS Codes:

- Adheres to IS 9759 (Guidelines for Dewatering During Construction).
- Encompasses structural dewatering operations to draw down localized water tables or drain subsoil water seepage, surface runoff influx, and canal pooling inside active excavation pits, trenches, or canal beds using high-capacity mechanical pumps (diesel or electric).
- Includes setting up sumps, flexible/rigid delivery pipe networks, and conducting structural discharge beyond a 100-meter delivery threshold away from the construction perimeter to prevent fluid recycling.

2. Mode of Measurement & Permissible Tolerances:

- Unit of Measurement: Rated and paid in Horsepower-Hour (HP/Hr).
- Basis of Assessment: Derived by multiplying the certified brake horsepower rating of the deployed pump unit by the net functional runtime hours recorded in synchronized site logbooks.

3. Construction Methodology & Workmanship:

- Pumps must be positioned on stable, level intermediate platforms above mud lines. Suction ends must be housed within perforated sump baskets filled with gravel filters to avoid pulling slurry or erosion of trench beds.
- Discharge lines must be continuous, leak-proof, and routed clear of service tracks and active subgrades to a delivery point exceeding 100 meters.

4. Comprehensive Rate Breakdown & Exclusions:

- The rate covers pump hire charges, electric power tariffs or diesel fuel

consumption, suction/delivery pipe configurations, foot valves, attendants, and maintenance overheads.

- No Extra Payment Shall be Made For: Excavating the temporary sump pits, or pump idling due to operator absence.

Item No.48

Backfilling the foundation trenches around the structures etc with selected excavated stuff including watering, ramming, compacting etc. complete. (By Machinery).

1. Scope of Work & Relevant IS Codes:

- Governed by IS 4701 (Earthwork on Canals — Code of Practice) and IS 1200 (Part 1).
- Encompasses the mechanized backfilling of excavated pockets, flanks, and voids surrounding completed concrete or masonry foundations using approved, selected soil matrices derived from on-site excavation stock.
- Includes mechanical spreading, optimum moisture adjustment via watering, and thorough compaction utilizing mechanical rammers, plate vibrators, or compactors.

2. Mode of Measurement & Permissible Tolerances:

- Unit of Measurement: Certified volumetrically in Cubic Meters (Cum).
- Basis of Assessment: Computed from the net volume of the structural void space refilled (total excavation volume minus the structural masonry/concrete displacement volume).

3. Construction Methodology & Workmanship:

- Backfilling must be executed symmetrically in uniform horizontal layers not exceeding 150 mm to 200 mm loose thickness to prevent lateral stress on green masonry structures.
- Each layer must be watered to achieve Optimum Moisture Content (OMC) and compressed using mechanical plate compactors or power rammers until standard proctor density matches technical targets.

4. Comprehensive Rate Breakdown & Exclusions:

- The rate represents full compensation for mechanical loaders/dozers, water tankers, power rammers, labor, and water procurement.

- No Extra Payment Shall be Made For: Filling voids caused by contractor's excessive excavation beyond design parameters.

Item No.49

Backfilling with the selected earth, from outside borrow pits including spreading in uniform layers of specified thickness, dressing, breaking clods, removing roots, watering at optimum moisture content , rolling with suitable type of roller for all lifts and leads upto 1 km . etc. complete. (By Manually).

1. Scope of Work & Relevant IS Codes:

- Conforms to IS 4701 and IS 1200 (Part 1) logistics frameworks.
- Applies to manual execution where acceptable on-site material is unavailable, requiring manual procurement of selected soil from external, approved borrow pits up to a 1 km transit lead.
- Covers manual excavation at borrow source, loading, lead transport up to 1 km, manual layout spreading in designated uniform layers, clod breaking, organic root eradication, watering to OMC, and systematic rolling.

2. Mode of Measurement & Permissible Tolerances:

- Unit of Measurement: Volumetrically measured in Cubic Meters (Cum) based on compacted finished sections.
- Basis of Assessment: Deduced from physical cross-sectional profiles of the refilled and dressed structural/canal zone.

3. Construction Methodology & Workmanship:

- Imported soil must be non-expansive, cohesive, and cleared of stones, roots, and organic debris.
- Soil must be manually spread in thin, even layers (15 cm to 20 cm). Water must be sprinkled uniformly across each layer.
- Compaction must be driven across the layers using targeted manual or towed rollers until a dense, seamless mass free of shear planes is achieved.

4. Comprehensive Rate Breakdown & Exclusions:

- The unit rate incorporates borrow area excavation costs, royalty clearances, manual loading, transport up to 1 km, clod/root cleaning, water charges, manual spreading, and rolling machinery.
- No Extra Payment Shall be Made For: Sorting unfit soil at the borrow site, or

repairing erosion due to rains.

Item No.50

Earthwork/Back filling with selected earth including watering ramming,Compaction with pneumatic tamping with all lead and all lift etc complete.

1. Scope of Work & Relevant IS Codes:

- Governed by IS 2720 (Methods of Test for Soils) and standard compaction criteria.
- Encompasses high-density compaction of structural earthwork layers using compressed-air-driven pneumatic rammers/tampers in confined spaces, bridge abutments, pipe collars, or deep narrow trenches where heavy rollers cannot access.
- Includes precision moisturizing, manual/mechanical dressing of layers, and continuous pneumatic impact processing across all leads and lifts.

2. Mode of Measurement & Permissible Tolerances:

- Unit of Measurement: Measured and certified in Cubic Meters (Cum).
- Basis of Assessment: Based on the solid geometric volume of backfill consolidated using the pneumatic equipment.

3. Construction Methodology & Workmanship:

- Selected earth must be laid out in maximum 100 mm to 150 mm thick horizontal runs.
- Water must be thoroughly mixed to maintain uniform moisture levels.
- The air compressor must power pneumatic tamper tools systematically across the surface area, ensuring overlapping impact footprints until the ground is hard-packed and yields zero indentation under active hammering.

4. Comprehensive Rate Breakdown & Exclusions:

- The rate completely covers air compressor machine hours, pneumatic tamping tools, air hoses, fuel, operators, watering arrangements, and labor across all heights/depths.
- No Extra Payment Shall be Made For: Air line extensions, or clearing clogged pneumatic valves.

Item No.51

Providing & Laying in position "NOMINAL MIX" cement concrete using cement, sand and crushed aggregate by mass and machine mix for C.C./R.C.C work incl. necessary formworks centering, scaffolding, compaction by vibrator, curing as directed with all lead & lift etc complete Without Dewatering and excluding cost of steel reinforcement. C. C. Nominal Mix, M-10 and MSA-40 mm.

1. Scope of Work & Relevant IS Codes:

- Adheres strictly to IS 456 (Code of Practice for Plain and Reinforced Concrete) and IS 383 (Coarse and Fine Aggregates Specification).
- Involves manufacturing via mechanical mixers of an M-10 grade nominal mix concrete utilizing a Maximum Size of Aggregate (MSA) of 40 mm.
- Covers formwork, scaffolding, batching, mixing, pouring, mechanical needle/plate vibration, and curing across all leads and lifts.

2. Mode of Measurement & Permissible Tolerances:

- Unit of Measurement: Quantified and paid in Cubic Meters (Cum).
- Basis of Assessment: Derived from strict volumetric dimensions of finished plain concrete beds as shown in design blueprints.

3. Construction Methodology & Workmanship:

- Aggregates and sand must be dry-batched by mass into a mechanical mixer. Water-cement ratios must be kept minimal to achieve the structural strength of 10 MPa.
- Formwork must be oil-dressed and leak-proof. Concrete must be deposited in layers within 30 minutes of hydration and thoroughly compacted via mechanical vibrators.
- The finished surface must be kept continuously wet under ponding curing for a minimum of 14 days.

4. Comprehensive Rate Breakdown & Exclusions:

- The rate covers cement, 40 mm crushed aggregates, sand, mixer machine operations, mechanical vibrators, formwork shuttering plates, scaffolding, and curing labor.
- No Extra Payment Shall be Made For: Structural dewatering, testing concrete cubes, or steel reinforcement (paid separately).

Item No.52

Providing & Laying in position "NOMINAL MIX" cement concrete using cement, sand and crushed aggregate by mass and machine mix for C.C./R.C.C work incl. necessary formworks centering, scaffolding, compaction by vibrator, curing as directed with all lead & lift etc complete Without Dewatering and excluding cost of steel reinforcement. C. C. Nominal Mix, M-10 and MSA-80 mm.

1. Scope of Work & Relevant IS Codes:

- Governed by IS 456, IS 383, and mass concrete placement specifications.
- Encompasses mass concrete works using an M-10 grade mix with large plum-type 80 mm Maximum Size Aggregate (MSA) intended primarily for thick base foundations or massive gravity retaining walls.
- Includes formworks, machine mixing, mass pouring, mechanical consolidation, and curing across all leads and lifts.

2. Mode of Measurement & Permissible Tolerances:

- Unit of Measurement: Certified in Cubic Meters (Cum).
- Basis of Assessment: Based on solid volumetric measurements of the approved mass concrete blocks.

3. Construction Methodology & Workmanship:

- Due to large 80 mm aggregate size, mechanical drum mixers must be operated carefully. Concrete must be handled to avoid segregation of heavy stones.
- Compaction requires heavy-duty high-amplitude immersion vibrators to consolidate the mass around the formwork profiles.

4. Comprehensive Rate Breakdown & Exclusions:

- The rate represents full compensation for all materials (cement, sand, 80 mm aggregates), machine mixing, shuttering arrays, specialized mass vibrators, and continuous curing protocols.
- No Extra Payment Shall be Made For: Honeycomb patch patching, or water curing infrastructure setups.

5. Item No.53

Providing & Laying in position "NOMINAL MIX" cement concrete using cement, sand and crushed aggregate by mass and machine mix for C.C./R.C.C work incl. necessary formworks centering, scaffolding, compaction by vibrator, curing as directed with all lead & lift etc complete Without Dewatering and excluding cost of steel reinforcement. C. C. Nominal Mix, M-15 and MSA-20 mm.

1. Scope of Work & Relevant IS Codes:

- Conforms to IS 456 and IS 383 structural concrete standards.
- Covers providing and laying M-15 structural grade plain or reinforced concrete utilizing fine 20 mm Maximum Size Aggregate (MSA), intended for thin structural walls, copings, or beams.
- Includes precise shuttering/centering, staging, structural scaffolding, mixing, vibration, and curing.

2. Mode of Measurement & Permissible Tolerances:

- Unit of Measurement: Volumetrically evaluated in Cubic Meters (Cum).
- Basis of Assessment: Limited strictly to design cross-sections.

3. Construction Methodology & Workmanship:

- Materials must be mixed mechanically to achieve an unyielding 15 MPa characteristic compressive strength.
- The 20 mm aggregate mix must flow cleanly into narrow formwork sections without creating rock pockets or voids.
- Mechanical needle vibrators must be manipulated through the wet pour to ensure total encapsulation of structural profiles.

4. Comprehensive Rate Breakdown & Exclusions:

- The rate includes cement, sand, 20 mm aggregates, mechanical mixer operations, standard formwork, centering props, scaffolding, vibration, and curing.
- No Extra Payment Shall be Made For: Steel reinforcement integration, or dewatering wet pits.

Item No.54

Providing & Laying in position "NOMINAL MIX" cement concrete using cement, sand and crushed aggregate by mass and machine mix for C.C./R.C.C work incl. necessary formworks centering, scaffolding, compaction by vibrator, curing as directed with all lead & lift etc complete Without Dewatering and excluding cost of steel reinforcement. C. C. Nominal Mix, M-15 and MSA-40 mm.

1. Scope of Work & Relevant IS Codes:

- Adheres to IS 456 and IS 383 criteria.
- Governs structural concrete works using M-15 grade nominal mix

combined with intermediate 40 mm Maximum Size Aggregate (MSA), applied for medium-weight foundation rafts, canal drop structures, and aprons.

- Includes all formworks, scaffolding, mechanical mixing, pouring, vibration, and curing over all leads and lifts.

2. Mode of Measurement & Permissible Tolerances:

- Unit of Measurement: Volumetrically certified in Cubic Meters (Cum).
- Basis of Assessment: Determined via nominal design dimensions.

3. Construction Methodology & Workmanship:

- Volumetric batching must be tightly controlled using standard gauge boxes.
- Concrete must be placed systematically in continuous horizontal layers, avoiding drops exceeding 1.5 meters to prevent internal component separation.
- Compaction must be driven across the layers using targeted mechanical vibrators.

4. Comprehensive Rate Breakdown & Exclusions:

- The rate represents full payment for cement, sand, 40 mm aggregates, machinery operations, formwork assembly/removal, and curing labor.
- No Extra Payment Shall be Made For: Core drilling tests, or structural dewatering.

Item No.55

Providing & Laying in position "NOMINAL MIX" cement concrete using cement, sand and crushed aggregate by mass and machine mix for C.C./R.C.C work incl. necessary formworks centering, scaffolding, compaction by vibrator, curing as directed with all lead & lift etc complete Without Dewatering and excluding cost of steel reinforcement. C. C. Nominal Mix, M-15 and MSA-80 mm.

1. Scope of Work & Relevant IS Codes:

- Governed by IS 456, IS 383, and mass concrete placement frameworks.
- Applies to heavy foundation structural blocks using M-15 grade nominal mix with 80 mm Maximum Size Aggregate (MSA) for heavy gravity weir components or core walls.
- Includes centering, scaffolding, machine mixing, mass vibration, and structural water curing.

2. Mode of Measurement & Permissible Tolerances:

- Unit of Measurement: Volumetrically evaluated in Cubic Meters (Cum).
- Basis of Assessment: Restricted to certified physical bulk placements.

3. Construction Methodology & Workmanship:

- The 80 mm aggregate mass must be mixed inside heavy mechanical mixers to guarantee uniform mortar coating over all large rock surfaces.
- Concrete must be laid in thick beds and immediately consolidated via high-powered heavy immersion vibrators to eliminate air matrices.

4. Comprehensive Rate Breakdown & Exclusions:

- The contract rate covers all cement, sand, 80 mm stones, mixer plant operations, mass formworks, heavy vibrators, and standard curing loops.
- No Extra Payment Shall be Made For: Structural dewatering, or filling cracks due to shrinkage.

Item No.56

Providing & Laying in position "NOMINAL MIX" cement concrete using cement, sand and crushed aggregate by mass and machine mix for C.C./R.C.C work incl. necessary formworks centering, scaffolding, compaction by vibrator, curing as directed with all lead & lift etc complete Without Dewatering and excluding cost of steel reinforcement. C. C. Nominal Mix, M-20 and MSA-20 mm.

1. Scope of Work & Relevant IS Codes:

- Conforms strictly to IS 456, IS 383, and structural safety standards.
- Encompasses high-strength structural concrete operations using M-20 nominal mix grade paired with fine 20 mm Maximum Size Aggregate (MSA), applied for load-bearing components, conduits, or structural deck slabs.
- Includes precise structural formwork, scaffolding, machine mixing, vibrating, and mandatory curing regimes.

2. Mode of Measurement & Permissible Tolerances:

- Unit of Measurement: Certified volumetrically in Cubic Meters (Cum).
- Basis of Assessment: Determined strictly by structural design templates.

3. Construction Methodology & Workmanship:

- Proportions must follow exact mass criteria to ensure a 20 MPa characteristic strength.
- The 20 mm mix must be placed within oil-coated steel formwork lines and

worked intensely with mechanical needle vibrators to guarantee smooth finishes free of surface blemishes.

4. Comprehensive Rate Breakdown & Exclusions:

- The unit rate covers premium cement, sand, 20 mm aggregates, machine mixers, steel shuttering, scaffolding arrays, immersion vibrators, and continuous wet curing.
- No Extra Payment Shall be Made For: Reinforcement steel bars, or dewatering.

Item No.57

Providing & Laying in position "NOMINAL MIX" cement concrete using cement, sand and crushed aggregate by mass and machine mix for C.C./R.C.C work incl. necessary formworks centering, scaffolding, compaction by vibrator, curing as directed with all lead & lift etc complete Without Dewatering and excluding cost of steel reinforcement. C. C. Nominal Mix, M-20 and MSA-40 mm.

1. Scope of Work & Relevant IS Codes:

- Adheres to IS 456 and IS 383 structural standards.
- Encompasses deployment of an M-20 grade nominal mix concrete using an intermediate 40 mm Maximum Size Aggregate (MSA) for structural slabs, headwalls, and main foundation blocks.
- Includes formwork, scaffolding, mechanical mixing, layout pouring, compaction, and curing.

2. Mode of Measurement & Permissible Tolerances:

- Unit of Measurement: Volumetrically certified in Cubic Meters (Cum).
- Basis of Assessment: Limited to theoretical design cross-sections.

3. Construction Methodology & Workmanship:

- Mixing must be executed in mechanical power mixers until a uniform color and consistency are achieved.
- Concrete must be poured in continuous sequences and consolidated using mechanical vibrators to eliminate voids around corners.
- The structure must be kept wet with burlap wraps or water ponds for 14 days minimum.

4. Comprehensive Rate Breakdown & Exclusions:

- The rate represents full payment for cement, sand, 40 mm aggregates, mechanical equipment operations, formwork, scaffolding, and curing labor.
- No Extra Payment Shall be Made For: Dewatering, or structural steel reinforcement.

Item No.58

Providing and fixing in position (different diameter) I.S.,NP-3 class reinforced pipe with caulking the joints with cement mortar 1:1 proportion,using jute string soaked in cement slurry, finishing joints and laying pipes to the designed grade and levels, curing etc. complete for all leads and lifts. NP-3 class 450 mm dia pipe.

1. Scope of Work & Relevant IS Codes:

- Governed by IS 783 (Code of Practice for Laying of Concrete Pipes) and IS 458 (Specification for Precast Concrete Pipes).
- Encompasses sourcing, transporting, and lowering high-strength NP-3 Class (Heavy-duty Road Crossings) Precast Reinforced Concrete Pipes of 450 mm internal diameter into prepared trenches to true alignments and gradients.
- Includes caulking structural joints with a 1:1 cement mortar mix, using jute strings soaked in rich cement slurry, structural joint finishing, and water curing.

2. Mode of Measurement & Permissible Tolerances:

- Unit of Measurement: Measured and certified linearly in Meters (meter) along the centerline barrel length.
- Basis of Assessment: Based on the actual net physical internal length of the pipe conduit line successfully laid and jointed.

3. Construction Methodology & Workmanship:

- Pipes must be lowered carefully using specialized ropes or pulley tripods to avoid cracking the collars.
- The pipe sections must be laid with sockets facing upstream. The joint recesses must be packed tight with cement-slurry-soaked jute strings and completely sealed with a 1:1 cement mortar collar finished at a smooth 45° bevel.

- The alignment must be checked using levels to ensure smooth hydraulic transit.

4. Comprehensive Rate Breakdown & Exclusions:

- The unit rate covers supplying 450 mm NP-3 pipes, lowering labor, cement, sand, caulking jute, slurry processing, joint finishing, and curing across all leads and lifts.
- No Extra Payment Shall be Made For: Primary trench excavation, or granular bedding material below the pipe.

Item No.59

Providing and fixing in position (different diameter) I.S.,NP-3 class reinforced pipe with caulking the joints with cement mortar 1:1 proportion,using jute string soaked in cement slurry, finishing joints and laying pipes to the designed grade and levels, curing etc. complete for all leads and lifts. NP-3 class 600 mm dia pipe.

1. Scope of Work & Relevant IS Codes:

- Conforms to IS 783 and IS 458 structural safety codes.
- Covers provision, transit, and structural installation of heavy-duty NP-3 Class precast reinforced concrete barrel pipes of 600 mm internal diameter across irrigation canals, service road culverts, or cross-drainage structures.
- Includes alignment settings, collar jointing using 1:1 cement mortar, jute twine dampening, joint finishing, and curing loops.

2. Mode of Measurement & Permissible Tolerances:

- Unit of Measurement: Quantified linearly along the pipe centerline in Meters (meter).
- Basis of Assessment: Restricted to active length verified in position.

3. Construction Methodology & Workmanship:

- Due to increased weight of 600 mm units, mechanical crane hoists or heavy tripod setups must be deployed to maneuver sections.
- Collar joints must be caulked from the inside and outside to prevent structural leakage.
- Joint assemblies must be kept continuously wet under moist gunny wraps for at least 7 days.

4. Comprehensive Rate Breakdown & Exclusions:

- The rate covers supplying 600 mm NP-3 pipes, mechanical

handling/lowering assets, labor, cement, sand, caulking jute consumables, and finishing.

- No Extra Payment Shall be Made For: Dewatering trapped structural water, or trench backfilling.

Item No.60

Providing and fixing in position (different diameter) I.S.,NP-3 class reinforced pipe with caulking the joints with cement mortar 1:1 proportion,using jute string soaked in cement slurry, finishing joints and laying pipes to the designed grade and levels, curing etc. complete for all leads and lifts. NP-3 class 900 mm dia pipe.

1. Scope of Work & Relevant IS Codes:

- Adheres strictly to IS 783 and IS 458 engineering codes.
- Encompasses sourcing, logistics, alignment, and installation of large-diameter 900 mm internal diameter NP-3 Class precast reinforced concrete culvert pipes designed to withstand heavy vehicular wheel impacts over cross-drainage paths.
- Includes handling heavy sections, collar packing with 1:1 cement mortar, structural jute string application, joint finishing, and curing.

2. Mode of Measurement & Permissible Tolerances:

- Unit of Measurement: Linearly measured and certified in Meters (meter).
- Basis of Assessment: Based strictly on physical internal length dimensions.

3. Construction Methodology & Workmanship:

- Large 900 mm sections must be nested accurately on prepared bed foundations to prevent post-installation joint slippage or settlement.
- The 1:1 cement mortar must be driven deep into internal joints, and external collars must be built up evenly to form a completely watertight seal.

4. Comprehensive Rate Breakdown & Exclusions:

- The contract rate provides full payment for the 900 mm NP-3 pipe assets, crane/hoist machinery hours, specialized labor, cement, sand, caulking twine, and curing operations.
- No Extra Payment Shall be Made For: Structural concrete cradles or bedding layers unless separate BOQ items exist.

Item No.61

Providing and laying uncoursed rubble masonry in ordinary portland cement mortar 1:5 proportion in foundation including curing etc. complete for all leads and lifts.

1. Scope of Work & Relevant IS Codes:
 - Governed by IS 1597 (Part 1) (Code of Practice for Construction of Stone Masonry).
 - Encompasses providing hard, durable stone rubble and laying it in foundation trenches using a 1:5 Cement Mortar mix.
 - Includes preparation of mortar, dressing of stones, laying, jointing, and curing for specified periods across all leads and lifts.
2. Mode of Measurement & Permissible Tolerances:
 - Unit of Measurement: Volumetrically measured in Cubic Meters (Cum).
 - Basis of Assessment: Computed based on the net masonry dimensions specified in the approved structural drawings.
3. Construction Methodology & Workmanship:
 - Stones must be wetted before use to prevent water absorption from the mortar.
 - Larger stones must be used for the foundation base. The masonry must be laid in true plumb and level.
 - Interstices between larger stones must be filled with mortar and stone spalls to ensure a dense, unyielding mass.
4. Comprehensive Rate Breakdown & Exclusions:
 - The rate includes the cost of rubble stone, cement, sand, water, mixing, laying labor, and curing.
 - No Extra Payment Shall be Made For: Temporary dewatering during masonry work or sorting rejected stones.

Item No.62

Providing and laying uncoursed rubble masonry in ordinary portland cement mortar 1:5 proportion in super structure including scaffolding, racking out joints, curing etc. complete for all leads and lifts.

1. Scope of Work & Relevant IS Codes:
 - Conforms to IS 1597 (Part 1) for superstructure masonry works.
 - Covers UCR masonry above the plinth/ground level using 1:5 Cement Mortar, necessitating scaffolding, face dressing, and joint racking for pointing.
2. Mode of Measurement & Permissible Tolerances:
 - Unit of Measurement: Measured in Cubic Meters (Cum).

- Basis of Assessment: Based on the net dimensions of the superstructure profile built to true lines and levels.
3. Construction Methodology & Workmanship:
- Scaffolding must be robust to support workers and materials without relying on the green masonry.
 - Face stones must be carefully selected and hammer-dressed for a uniform appearance.
 - Joints on the exposed face must be raked out to a depth of 20mm while the mortar is green to facilitate subsequent pointing or plastering.
4. Comprehensive Rate Breakdown & Exclusions:
- The unit rate covers materials, scaffolding setup, skilled masonry labor, joint racking, and standard curing regimes.
 - No Extra Payment Shall be Made For: Hoisting materials to upper lifts or specialized architectural face dressing.

Item No.63

Providing and laying burnt brick masonry in foundation ordinary portland cement mortar 1:5 proportion including, curing etc. complete for all leads and lifts. (Conventional Bricks)

1. Scope of Work & Relevant IS Codes:
- Adheres to IS 2212 (Code of Practice for Brickworks) and IS 1077 (Common Burnt Clay Building Bricks).
 - Involves laying conventional burnt clay bricks in foundation structural profiles using a 1:5 Cement Mortar mix.
2. Mode of Measurement & Permissible Tolerances:
- Unit of Measurement: Volumetrically certified in Cubic Meters (Cum).
 - Basis of Assessment: Computed based on the actual design volume of the foundation brickwork block.
3. Construction Methodology & Workmanship:
- Bricks must be thoroughly soaked in water before use to prevent them from drawing moisture from the cement mortar.
 - Courses must be laid perfectly horizontal with standard English bond practice, breaking vertical joints.
 - Mortar joints should not exceed 10 mm in thickness.
4. Comprehensive Rate Breakdown & Exclusions:
- The contract rate represents total compensation for bricks, mortar materials, mixing, laying in foundation trenches, and continuous wet curing.
 - No Extra Payment Shall be Made For: Wastage of broken bats or minor over-excavation backfilling.

Item No.64

Providing and laying burnt brick masonry for superstructure with ordinary portland cement mortar 1:5 proportion including providing scaffolding racking out joints curing etc. complete for all leads and lifts. (Conventional Bricks)

1. Scope of Work & Relevant IS Codes:
 - Governed by IS 2212 and relevant scaffolding safety standards.
 - Encompasses superstructure brickwork across all lifts utilizing conventional bricks in a 1:5 cement mortar bed, including essential scaffolding and joint raking.
2. Mode of Measurement & Permissible Tolerances:
 - Unit of Measurement: Measured in Cubic Meters (Cum).
 - Basis of Assessment: Deductions will be made for standard openings (doors, windows) as per IS 1200 conventions.
3. Construction Methodology & Workmanship:
 - External walls must be constructed true to plumb and string line.
 - Independent double scaffolding must be erected so that putlog holes do not compromise the finished face work.
 - Joints must be raked clean to 15mm depth for future finishing layers.
4. Comprehensive Rate Breakdown & Exclusions:
 - Includes bricks, mortar, skilled masonry, double scaffolding, hoisting mechanisms, and continuous curing.
 - No Extra Payment Shall be Made For: Closing putlog holes or forming standard reveals.

Item No.65

Providing 230 mm thick pucca rubble pitching in C.M. 1:5 proportion over 10mm bedding of same mortar with the surface pointed with cement mortar of 1:3 proportion etc. complete for all leads and lifts.

1. Scope of Work & Relevant IS Codes:
 - Complies with IS 8237 (Code of Practice for Protection of Slope for Reservoir Earth Dams).
 - Covers providing and laying 230 mm thick solid stone pitching set in a 10 mm thick 1:5 cement mortar bedding, finished with 1:3 cement mortar pointing on exposed faces.
2. Mode of Measurement & Permissible Tolerances:
 - Unit of Measurement: Measured and paid in Square Meters (Sqm).
 - Basis of Assessment: Calculated on the net superficial surface area of the pitched slope.
3. Construction Methodology & Workmanship:

- The earthwork slope must be trimmed and compacted before bedding mortar is laid.
- Stones must be hand-packed tightly into the 1:5 mortar bed, ensuring the broadest face is placed downwards for stability.
- Exposed joints must be raked and flush-pointed with a rich 1:3 cement mortar mix.

4. Comprehensive Rate Breakdown & Exclusions:

- Rate includes stones, mortar for bedding (1:5), mortar for pointing (1:3), surface trimming, and specialized labor.
- No Extra Payment Shall be Made For: Restoring slumped earthwork before pitching.

Item No.66

Providing and laying dry rubble pitching of various thickness to required grade including trimming of earth work, hand packing the interstices with spauls, filling earth in interstices panelling complete for all leads and lifts. 230 MM THICK

1. Scope of Work & Relevant IS Codes:

- Adheres to IS 8237 guidelines for dry slope protection.
- Encompasses laying un-mortared, dry rubble pitching (230 mm thick) along earth profiles, packing voids tightly with stone spalls and earth blindage.

2. Mode of Measurement & Permissible Tolerances:

- Unit of Measurement: Evaluated superficially in Square Meters (Sqm).
- Basis of Assessment: Computed along the inclined planar surface area installed.

3. Construction Methodology & Workmanship:

- The subgrade slope must be dressed perfectly true to the design profile.
- Header stones must be interspersed at regular intervals to anchor the pitching matrix into the slope.
- Interstices must be meticulously wedged with stone spalls driven by light hammers, followed by earth sweeping to blind surface voids.

4. Comprehensive Rate Breakdown & Exclusions:

- The unit rate incorporates stone supply, slope dressing, manual hand-packing, wedging spalls, and earth filling.
- No Extra Payment Shall be Made For: Additional earth for blindage or corrective re-packing due to improper wedging.

Item No.67

Providing and fixing marble plate of 2.54 cm thick including engraving and filling led for letters as directed.

1. Scope of Work & Relevant IS Codes:

- Covers supplying and structurally embedding a 2.54 cm (1 inch) thick polished white marble plaque for structural identification or foundation stones.
- Includes precision engraving of designated text and filling the incisions with molten lead or heavy-duty synthetic enamel.

2. Mode of Measurement & Permissible Tolerances:

- Unit of Measurement: Measured in 100 Square Centimeters (100 sqcm).
- Basis of Assessment: Computed based on the rectangular geometric bounding box of the installed plate.

3. Construction Methodology & Workmanship:

- Marble must be free of cracks, veins, or structural defects.
- Lettering must be stenciled and engraved to a minimum depth of 3 mm.
- The plate must be fixed flush to the masonry/concrete structure using structural adhesives or concealed pins.

4. Comprehensive Rate Breakdown & Exclusions:

- Rate includes the marble slab, engraving craftsmanship, lead/paint filler, and fixing materials.
- No Extra Payment Shall be Made For: Creating recesses in the concrete to accommodate the plate.

Item No.68

Providing and fixing 5mm thick enamelled gauge plate including necessary gradation in white and blue etc. complete. 25 cm wide

1. Scope of Work & Relevant IS Codes:

- Governs the fabrication and installation of metallic canal/reservoir water level gauge plates coated in weather-resistant enamel.
- Includes high-contrast white and blue gradations indicating metric/imperial levels.

2. Mode of Measurement & Permissible Tolerances:

- Unit of Measurement: Measured vertically in Running Meters (Rmt).
- Basis of Assessment: Based on the net installed length of the gauge reading face.

3. Construction Methodology & Workmanship:

- The 5 mm thick mild steel plate must be treated for anti-corrosion before stove-enameling.
- Gradations must be calibrated accurately using standard leveling

instruments during structural fixing.

- The plate must be countersunk bolted to the concrete piers or abutments.

4. Comprehensive Rate Breakdown & Exclusions:

- Covers plate fabrication, enamel coating, precision gradation marking, transport, and structural bolting.
- No Extra Payment Shall be Made For: Cement mortar packing behind the plate for plumb alignment.

Item No.69

Providing and Placing in position mechanically woven double twisted, galvanized without PVC coating "GABIONS" made of mesh size 10 X 12 cm with Mesh wire diameter 3.0 mm, including providing and laying stones with least dimension of 200mm. Dimensions: 1.00mt X 1.00mt X 1.00mt

1. Scope of Work & Relevant IS Codes:

- Adheres strictly to IS 16014 (Mechanically Woven Double-Twisted Wire Mesh Gabions).
- Encompasses supplying flat-packed galvanized mesh boxes, on-site assembly, placement, and hand-packing with 10-40 kg durable stones.

2. Mode of Measurement & Permissible Tolerances:

- Unit of Measurement: Counted and certified in Numbers (Nos).
- Basis of Assessment: Evaluated per fully assembled, filled, and laced 1 cubic meter gabion unit placed in position.

3. Construction Methodology & Workmanship:

- The foundation bed must be leveled. Empty gabions are placed and wired securely to adjacent units along all edges using 2.2 mm lacing wire.
- Stones (200 mm least dimension) must be hand-packed to minimize voids and prevent bulging.
- Internal connecting tension wires (bracing) must be installed at 1/3 and 2/3 fill heights to maintain structural cuboid geometry.

4. Comprehensive Rate Breakdown & Exclusions:

- Includes the galvanized mesh boxes, lacing wire, stones, manual filling labor, lacing tools, and slope dressing.
- No Extra Payment Shall be Made For: Correcting bulged gabion faces due to poor internal packing.

Item No.70

Providing and Placing in position mechanically woven double twisted, galvanized without PVC coating "GABIONS". Dimensions: 1.00 m x 1.00 m x 0.60 m size

1. Scope of Work & Relevant IS Codes:

- Conforms to IS 16014 for shallower erosion control structures.
- Covers the supply and installation of 0.6 m high gabion mattresses utilized for apron protection or shallow bank linings.

2. Mode of Measurement & Permissible Tolerances:

- Unit of Measurement: Measured and certified in Numbers (Nos).
- Basis of Assessment: Evaluated per completed 0.6 Cum volumetric box placed and secured.

3. Construction Methodology & Workmanship:

- Subgrade must be dressed seamlessly to prevent undercutting.
- Boxes must be tensioned, filled with properly graded stones, and sealed with tight lid lacing.

4. Comprehensive Rate Breakdown & Exclusions:

- The contract rate covers gabion mesh, lacing wire, 10-40 kg fill stones, and all structural placement labor.
- No Extra Payment Shall be Made For: Overlapping mesh sheets due to incorrect layout planning.

Item No.71

Quarrying transporting suitable filter materials specified gradation from approved borrow pit area/stockpiles, spreading the materials in specified thickness dressing removing oversize materials roots etc. watering up to saturation rolling... Sand

1. Scope of Work & Relevant IS Codes:

- Governed by IS 383 specifications for structural sands and filter media design criteria.
- Involves quarrying, hauling, and placing graded sand in uniform layers to act as a permeability filter behind retaining walls, pitching, or drainage trenches.

2. Mode of Measurement & Permissible Tolerances:

- Unit of Measurement: Volumetrically certified in Cubic Meters (Cum).
- Basis of Assessment: Based on the net compacted cross-sectional volume shown in design sections.

3. Construction Methodology & Workmanship:

- Sand must be clean, devoid of silts, clays, and organic root matter.
- It must be spread manually or mechanically in required thicknesses, saturated with water, and consolidated using light rollers or tampers to prevent internal settlement.

4. Comprehensive Rate Breakdown & Exclusions:

- Rate includes material cost, transport, screening, spreading, saturation

watering, and compaction.

- No Extra Payment Shall be Made For: Washing sand to meet silt content limits.

Item No.72

Quarrying transporting suitable filter materials... Gravel

1. Scope of Work & Relevant IS Codes:

- Complies with standard hydraulic filter media guidelines.
- Encompasses the procurement and placement of graded gravel beds used in drainage sumps, weep holes, or transition zones.

2. Mode of Measurement & Permissible Tolerances:

- Unit of Measurement: Measured in Cubic Meters (Cum).
- Basis of Assessment: Derived from the compacted volumetric profile on-site.

3. Construction Methodology & Workmanship:

- Gravel must be hard, durable, and naturally rounded or crushed, meeting exact gradation curves.
- Placed meticulously to avoid segregation of finer and coarser particles.

4. Comprehensive Rate Breakdown & Exclusions:

- Incorporates material procurement, sieving/grading, transport, layout dressing, and consolidation.
- No Extra Payment Shall be Made For: Removing oversized boulders rejected during spreading.

Item No.73

Quarrying transporting suitable filter materials... Sand and Gravel Mixture (50:50)

1. Scope of Work & Relevant IS Codes:

- Adheres to custom inverted filter design specifications.
- Covers the homogeneous blending of sand and gravel in a 50:50 ratio by mass/volume prior to placement as a composite drainage blanket.

2. Mode of Measurement & Permissible Tolerances:

- Unit of Measurement: Volumetrically assessed in Cubic Meters (Cum).
- Basis of Assessment: Based on the final compacted volume in position.

3. Construction Methodology & Workmanship:

- Mixing must be executed uniformly before laying to prevent strata formation.
- The mixture must be laid down in specific thicknesses, watered lightly,

and compacted to required densities.

4. Comprehensive Rate Breakdown & Exclusions:

- Covers raw materials, mechanical/manual blending costs, haulage, layer spreading, and rolling.
- No Extra Payment Shall be Made For: Re-mixing segregated patches at the laying site.

Item No.74

Quarrying transporting suitable filter materials... Quarry spalls.

1. Scope of Work & Relevant IS Codes:

- Encompasses the provision of rough, angular quarry stone spalls (rejects/chips) used as a coarse base layer below heavy pitching or inside gabion foundations.

2. Mode of Measurement & Permissible Tolerances:

- Unit of Measurement: Certified in Cubic Meters (Cum).
- Basis of Assessment: Computed based on the compacted volumetric footprint.

3. Construction Methodology & Workmanship:

- Spalls must be spread evenly to form an interlocking bed.
- Voids must be minimized by rearranging prominent fragments and applying heavy vibratory rolling.

4. Comprehensive Rate Breakdown & Exclusions:

- Rate includes quarrying fees, material transport, spreading, and mechanical compaction.
- No Extra Payment Shall be Made For: Breaking exceptionally large stones at the placement site.

Item No.75

Quarrying and transporting suitable rubbles stone spalls of specified size from approved quarries and or stockpile and laying hand placed riprap of specified thickness as per approved drawing using header stones...

1. Scope of Work & Relevant IS Codes:

- Governed by IS 8237 (Slope Protection).
- Involves heavy-duty embankment armor protection utilizing specific sized rough stones laid manually in a continuous interlocking riprap pattern over dressed earth grades.

2. Mode of Measurement & Permissible Tolerances:

- Unit of Measurement: Measured in Square Meters (Sqm).
- Basis of Assessment: Based on the net surface area laid conforming to the

specified thickness.

3. Construction Methodology & Workmanship:

- Slopes must be trimmed perfectly. Riprap must be constructed from the toe upwards.
- Rough header stones must be installed in a 1.5m x 1.5m grid to bind the armor to the subgrade.
- Interstices must be packed forcibly with stone wedges using light hammers to lock the primary stones.

4. Comprehensive Rate Breakdown & Exclusions:

- The rate integrates quarry stone supply, header stones, transport, slope preparation, manual packing, and wedge hammering.
- No Extra Payment Shall be Made For: Replacing dislodged stones during construction.

Item No.76

Providing & Placing in position reinforcement bars including cutting, bending, welding joints where necessary, hooking etc. complete as per drawing for all lead and lifts. TMT / CRS (FE 500 D)

1. Scope of Work & Relevant IS Codes:

- Governed by IS 1786 (High Strength Deformed Steel Bars) and IS 2502 (Code of Practice for Bending and Fixing of Bars).
- Encompasses the procurement, cutting to length, precision bending, tying, and structural placement of FE 500 D grade Thermo-Mechanically Treated (TMT) or Corrosion Resistant Steel (CRS) bars.

2. Mode of Measurement & Permissible Tolerances:

- Unit of Measurement: Certified in Metric Tonnes (MT).
- Basis of Assessment: Computed based on the theoretical linear weight of the bars successfully placed as per the Bar Bending Schedule (BBS).

3. Construction Methodology & Workmanship:

- Bars must be cleaned of rust scales, oil, or mud prior to use.
- Bending must be executed cold via mechanical bending machines to avoid micro-fracturing.
- Steel frameworks must be bound tightly with 16 SWG annealed binding wire and supported on concrete cover blocks.

4. Comprehensive Rate Breakdown & Exclusions:

- The unit rate covers steel procurement, transport, cutting/bending labor, binding wire, cover blocks, welding (if approved), and placing arrays across all lifts.
- No Extra Payment Shall be Made For: Offcut wastage, rolling margin discrepancies, or binding wire weight.

Item No.77

Providing and deploying Unskilled Labor for general maintenance, clearing, earthworks, and shifting assistance on a day basis of 8-hour duty per shift, compliant with statutory minimum wage regulations as and where directed.

1. Scope of Work & Relevant IS Codes:

- Complies with prevailing Statutory Minimum Wage frameworks and regional labor safety guidelines.
- Encompasses providing unskilled manual manpower for daily unscheduled tasks including minor clearing, material shifting, assisting artisans, and ad-hoc site maintenance.

2. Mode of Measurement & Permissible Tolerances:

- Unit of Measurement: Calculated in Man-Days (Day).
- Basis of Assessment: Validated through verified site attendance registers indicating complete 8-hour shifts.

3. Construction Methodology & Workmanship:

- Laborers must be equipped with basic personal protective equipment (PPE) like helmets and boots.
- They will execute tasks exactly as directed by the Site Engineer or Supervisor.

4. Comprehensive Rate Breakdown & Exclusions:

- The day rate fully includes minimum wages, statutory benefits (PF/ESI if applicable), contractor margins, basic hand tools, and PPE provision.
- No Extra Payment Shall be Made For: Overtime unless pre-approved, or idle time due to weather interruptions.

EXECUTIVE ENGINEER

BILL OF QUANTITIES (BOQ)

(B) For Item Rate Tender — FY 2026-27

**Name of Work: Comprehensive Annual Rate Contract For Arvalli Panchayat
Irrigation Division, Modasa.**

Item No.	Description of Item	Qty	Unit	Unit Rate (₹)
1	Dismantling the existing stone masonry including sorting out and stacking the useful material and removing the debris and making good the damages etc. complete as directed. In Cement Mortar	1	Cum	750.90
2	Dismantling the existing brick masonry including sorting out and stacking the useful material and removing the debris and making good the damages etc. complete as directed. In Cement Mortar	1	Cum	750.90
3	Dismantling the existing foundation concrete including sorting out the dismantled stuff and stacking the useful material, removing the debris and making good the damages etc. complete as and where directed. Cement Concrete	1	Cum	1155.20
4	Dismantling the R.C.C. work and disposing off the stuff including stacking of the useful materials etc. complete as directed. Light Reinforcement (Main bar upto 16 mm. dia.)	1	Cum	1732.80
5	Dismantling the R.C.C. work and disposing off the stuff including stacking of the useful materials etc. complete as directed. Light Reinforcement (Main bar above 16 mm. dia.)	1	Rmt	2021.60
6	Providing and laying burnt brick lining in CM 1:3 laying to correct slope after necessary trimming the earthwork, filling the joints with mortar curing etc. complete. Including 10 mm thick bedding with CM 1:3 below bricks. 23.0 cm thick	1	sqm	1170.00
7	Clearing the canal land width including removing the trees up to 0.50 m. girth, bushes shrubs etc. including depositing the materials outside the canal land width as directed etc. complete.	1	Hact.	2888.00
8	Cutting down the trees of different girths,	1	Nos.	722.00

	(at 45 cm above G.L.) including removing & grubbing roots below ground level within the canal boundary including stacking the wood outside the canal boundary as directed etc. complete.Girth above 0.50 & upto 1.00 m			
9	Cutting down the trees of different girths, (at 45 cm above G.L.) including removing & grubbing roots below ground level within the canal boundary including stacking the wood outside the canal boundary as directed etc. complete.Girth above 1.00 & upto 1.50 m	1	Nos.	2090.90
10	Cutting down the trees of different girths, (at 45 cm above G.L.) including removing & grubbing roots below ground level within the canal boundary including stacking the wood outside the canal boundary as directed etc. complete.Girth above 1.50 & upto 2.000 m	1	Nos.	4170.30
11	Cutting down the trees of different girths, (at 45 cm above G.L.) including removing & grubbing roots below ground level within the canal boundary including stacking the wood outside the canal boundary as directed etc. complete.Girth above 2.00 & upto 3.000 m	1	Nos.	8248.10
12	Earth work in embankment using selected soil, soft & hard murrum excavated from approved borrow area / village tanks etc. Including conveying, spreading in uniform layers, breaking clods and dressing to the designed canal section etc. with lead upto 50 m and all lifts. (By MANUALLY For MAINTENANCE & REPAIRING WORKS) Lift 0 to 1.50 m depth. Up to 50 cusec.	1	Cum	231.00
13	Earth work in embankment using selected soil, soft & hard murrum excavated from approved borrow area / village tanks etc. Including conveying, spreading in uniform layers, breaking clods and dressing to the designed canal section etc. with lead upto 500m and all lifts (for canals having capacity up to 300 Cusec) (By Machinery)	1	Cum	110.80
14	Providing and laying sand filter layer of	1	Cum	853.90

	specified gradation in uniform layers of specified thickness in horizontal, inclined and in canal banks as per drawing including watering upto saturation and compaction as directed.			
15	Providing temporary motorable service road during construction including dewatering & maintaining the same etc. complete.	1	Km.	26271.00
16	Providing and fixing in position 1.80 m high above finished ground level sign boards of standard size 0.45 m x 0.30m with M.S. angle 40mm x 40mm x 6mm with 3mm thick iron plate in 1:5:10 proportion concrete block size 40cm x 40cm x 75 cm including radium paint on both side etc. complete.	1	No.	1365.00
17	Compaction of selected soil/hard murrum/soft murrum in even thickness of 15 to 20 cms including watering, temping with suitable hand rammer etc. complete as directed.	1	Cum	57.80
18	Clearing the silt from the canal/drain bed by a digging the same to the required bed level and gradient including depositing the excavated earth regularly in spoil bank for utilizing the same preparing the banks after breaking clods as and where directed for all leads and lifts.For Canals Below 20 Cusec. & 0 to 1.5 m lift.	1	Cum	173.30
19	Clearing the silt from the canal/drain bed by a digging the same to the required bed level and gradient including depositing the excavated earth regularly in spoil bank for utilizing the same preparing the banks after breaking clods as and where directed for all leads and lifts.For Every additional lift of 1.5 m or part there of. For Canals Below 20 Cusec.	1	Cum	14.40
20	Clearing the silt from the canal/drain bed by a digging the same to the required bed level and gradient including depositing the excavated earth regularly in spoil bank for utilizing the same preparing the banks after breaking clods as and where directed for all	1	Cum	202.20

	leads and lifts.For Canals Between 21 to 250 Cusec. & 0 to 1.5 m lift.			
21	Clearing the silt from the canal/drain bed by a digging the same to the required bed level and gradient including depositing the excavated earth regularly in spoil bank for utilizing the same preparing the banks after breaking clods as and where directed for all leads and lifts.For Every additional lift of 1.5 m or part there of. For Canals Between 21 to 250 Cusec.	1	Cum	28.90
22	Removing and destroying the thick "Ghabajaria",etc from the Canal / Drain bed under the water pool ind. cutting carrying it away as directed and burning the same etc. complete.Below 20 Cusec.	1	Km.	42306.00
23	Removing and destroying the thick "Ghabajaria",etc from the Canal / Drain bed under the water pool ind. cutting carrying it away as directed and burning the same etc. complete.Between 21 to 250 Cusec.	1	Km.	54795
24	Clearing the silt/debris from the pipe culvert/syphon/ syphon well. Underground pipe drain/box drain for Drain/Canal by digging the same including depositing the excavated earth/debris etc. for all leads and lift. For pipe culvert/ Syphon. (i) Upto 900 mm dia. Pipe.	1	meter	548.70
25	Excavation in all sorts of soil .By machinery including preparing etc.comp. (where qty can not be measured).Hydraulic Excavator 200 (0.9 CM)	1	Hour	2559.00
26	Excavation in all sorts of soil .By machinery including preparing etc.comp. (where qty can not be measured).JCB Hd Exc. Ex-j 5205 (0.9 CM) - Chain	1	Hour	2693.00
27	Excavation in all sorts of soil .By machinery including preparing etc.comp. (where qty can not be measured).Hyundai Hydraulic Excavator R 210 LC 7V (0.9 CM) Chain	1	Hour	2677.00
28	Excavation in all sorts of soil .By machinery including preparing etc.comp. (where qty can not be measured).Hyundai Long Reach Hydraulic Excavator R210 LC7LR (0.52 CM) Chain	1	Hour	2901.00

29	Excavation in all sorts of soil .By machinery including preparing etc.comp. (where qty can not be measured).Tata Hitachi Hyd, Excavator Ex -70 (0.3 CM) Chain	1	Hour	1416.00
30	Excavation in all sorts of soil .By machinery including preparing etc.comp. (where qty can not be measured).J.C.B. - 2D X (0.18 CM) Wheel	1	Hour	1123.00
31	Excavation in all sorts of soil .By machinery including preparing etc.comp. (where qty can not be measured).Tractor with Trailer	1	Hour	661.00
32	Providing and laying empty cement bags with good selected earth including stitching and laying as and where required. (Polywoven bag of 50 kg Capacity)	1	No.	25.90
33	Providing and laying jute bags filled with good selected earth including stitching and laying as and where required. (Jute bag of 100 kg Capacity)	1	No.	60.30
34	Providing and laying empty cement bag filled with cement and sand in proportion 1:20 incl. stiching and laying as and where directed.	1	No.	37.30
35	Clearing of Canals for jungle cutting Removing and destroying the thick "Ghabajaria" , " Panfuti " etc. from the Canal/Drain bed under the water pool alongwith rolls incl. cutting carrying it away as directed and burning the same etc. complete. (By Manually)Below 20 Cusec.	1	Km.	60149.00
36	Clearing the canal Banks outer and inner Slopes by Jungle Cutting ,removing Vegetation, Ghabajaria,Trees,etc. along with burning it's and carrying away as and where required and as directed etc. completed by machineries.	1	sqm	10.30
37	Trimming of the canal section manually for preparing subgrade for laying cement concrete lining in all sorts of soil and murrum including watering and compacting bed etc. complete.	1	sqm	72.80
38	Providing coarse sand layer in bed and side slopes including excavation, light compaction, tar paper etc. complete.	1	Cum	853.90
39	Excavation for foundation trenches in all	1	Cum	311.90

	sorts of soil sand clay, hard clay, soft murrum including shoring, strutting and depositing the excavated stuff, refilling the remaining excavated trenches upto G.L. as and where directed within a lead of 50 m. etc. complete as directed. (For Special situation up to 10 cum)Upto 1.50 m depth			
40	Excavation for foundation trenches in all sorts of soil sand clay, hard clay, soft murrum including shoring, strutting and depositing the excavated stuff, refilling the remaining excavated trenches upto G.L. as and where directed within a lead of 50 m. etc. complete as directed. (For Special situation up to 10 cum)1.50 m to 3.00 m depth	1	Cum	323.50
41	Excavation for foundation in all sorts of soil including yellow sandy gravelly soils ,soft & hard murrum etc. in dry condition including depositing the excavated stuff in uniform layers in banks or as and where directed etc. complete for lead up to 500m and all lift. (BY MACHINERY)Excluding dewatering.	1	Cum	102.40
42	Excavation for foundation in soft rock including depositing the excavated material as directed within a lead of 100 m and stacking the material nearly in uniform stacks etc. complete. (Manually)Upto 1.50 m depth	1	Cum	808.60
43	Excavation for foundation in soft rock including depositing the excavated material as directed within a lead of 100 m and stacking the material nearly in uniform stacks etc. complete. (Manually)1.50 m to 3.00 m depth	1	Cum	850.80
44	Excavation for foundation in Soft Rock including depositing the excavated stuff as and where directed etc. complete for lead upto 500m and all lift. (Machinery)Excluding dewatering.	1	Cum	218.80
45	Excavation of foundation in Hard Rock upto 3 m depth including blasting and chiselling in necessary sorting out and stacking separately the usable rubble, depositing the excavated stuff as and where directed, back	1	Cum	801.90

	filling the trenches with suitable excavated stuff etc. complete for lead of 50 m and all lifts. (Manually)			
46	Excavation for foundation in Hard Rock including blasting and chiseling if necessary sorting out and stacking separately the usable rubble, depositing the excavated stuff as and directed including backfilling trenches with suitable excavated stuff etc. complete for lead upto 500 m. and all lifts. (Machinery)Excluding dewatering.	1	Cum	359.50
47	Dewatering during excavation of canals, drains, foundation trenches etc. by using pumps of suitable capacity either diesel or electric driven including cost of labour, pipes etc. for delivery distance beyond 100 m. (By Machinery)	1	Hp/hr	53.80
48	Backfilling the foundation trenches around the structures etc with selected excavated stuff including watering, ramming, compacting etc. complete. (By Machinery)	1	Cum	36.90
49	Backfilling with the selected earth, from outside borrow pits including spreading in uniform layers of specified thickness, dressing, breaking clods, removing roots, watering at optimum moisture content , rolling with suitable type of roller for all lifts and leads upto 1 km . etc. complete. (By Manually)	1	Cum	467.10
50	Earthwork/Back filling with selected earth including watering ramming,Compaction with pneumatic temping with all lead and all lift etc complete	1	Cum	144.50
51	Providing & Laying in position "NOMINAL MIX" cement concrete using cement, sand and crushed aggregate by mass and machine mix for C.C./R.C.C work incl. necessary formworks centering, scaffolding, compaction by vibrator, curing as directed with all lead & lift etc complete Without Dewatering and excluding cost of steel reinforcement. C. C. Nominal Mix, M-10 and MSA-40 mm	1	Cum	3346.00
52	Providing & Laying in position "NOMINAL MIX" cement concrete using cement, sand	1	Cum	3047.00

	and crushed aggregate by mass and machine mix for C.C./R.C.C work incl. necessary formworks centering, scaffolding, compaction by vibrator, curing as directed with all lead & lift etc complete Without Dewatering and excluding cost of steel reinforcement. C. C. Nominal Mix, M-10 and MSA-80 mm			
53	Providing & Laying in position "NOMINAL MIX" cement concrete using cement, sand and crushed aggregate by mass and machine mix for C.C./R.C.C work incl. necessary formworks centering, scaffolding, compaction by vibrator, curing as directed with all lead & lift etc complete Without Dewatering and excluding cost of steel reinforcement. C. C. Nominal Mix, M-15 and MSA-20 mm	1	Cum	3935.00
54	Providing & Laying in position "NOMINAL MIX" cement concrete using cement, sand and crushed aggregate by mass and machine mix for C.C./R.C.C work incl. necessary formworks centering, scaffolding, compaction by vibrator, curing as directed with all lead & lift etc complete Without Dewatering and excluding cost of steel reinforcement. C. C. Nominal Mix, M-15 and MSA-40 mm	1	Cum	3754.00
55	Providing & Laying in position "NOMINAL MIX" cement concrete using cement, sand and crushed aggregate by mass and machine mix for C.C./R.C.C work incl. necessary formworks centering, scaffolding, compaction by vibrator, curing as directed with all lead & lift etc complete Without Dewatering and excluding cost of steel reinforcement. C. C. Nominal Mix, M-15 and MSA-80 mm	1	Cum	3243.00
56	Providing & Laying in position "NOMINAL MIX" cement concrete using cement, sand and crushed aggregate by mass and machine mix for C.C./R.C.C work incl. necessary formworks centering, scaffolding, compaction by vibrator, curing as directed with all lead & lift etc complete Without	1	Cum	4296.00

	Dewatering and excluding cost of steel reinforcement. C. C. Nominal Mix, M-20 and MSA-20 mm			
57	Providing & Laying in position "NOMINAL MIX" cement concrete using cement, sand and crushed aggregate by mass and machine mix for C.C./R.C.C work incl. necessary formworks centering, scaffolding, compaction by vibrator, curing as directed with all lead & lift etc complete Without Dewatering and excluding cost of steel reinforcement. C. C. Nominal Mix, M-20 and MSA-40 mm	1	Cum	4054.50
58	Providing and fixing in position (different diameter) I.S.,NP-3 class reinforced pipe with caulking the joints with cement mortar 1:1 proportion,using jute string soaked in cement slurry, finishing joints and laying pipes to the designed grade and levels, curing etc. complete for all leads and lifts. NP-3 class 450 mm dia pipe.	1	Cum	1215.50
59	Providing and fixing in position (different diameter) I.S.,NP-3 class reinforced pipe with caulking the joints with cement mortar 1:1 proportion,using jute string soaked in cement slurry, finishing joints and laying pipes to the designed grade and levels, curing etc. complete for all leads and lifts.NP-3 class 600 mm dia pipe.	1	Cum	2039.60
60	Providing and fixing in position (different diameter) I.S.,NP-3 class reinforced pipe with caulking the joints with cement mortar 1:1 proportion,using jute string soaked in cement slurry, finishing joints and laying pipes to the designed grade and levels, curing etc. complete for all leads and lifts.NP-3 class 900 mm dia pipe.	1	Cum	2857.70
61	Providing and laying uncoursed rubble masonry in ordinary portland cement mortar 1:5 proportion in foundation including curing etc. complete for all leads and lifts.	1	Cum	3555.50
62	Providing and laying uncoursed rubble masonry in ordinary portland cement mortar 1:5 proportion in super structure	1	Cum	3999.40

	including scaffolding, racking out joints, curing etc. complete for all leads and lifts.			
63	Providing and laying burnt brick masonry in foundation ordinary portland cement mortar 1:5 proportion including, curing etc. complete for all leads and lifts. (Conventional Bricks)	1	Cum	5040.10
64	Providing and laying burnt brick masonry for superstructure with ordinary portland cement mortar 1:5 proportion including providing scaffolding racking out joints curing etc. complete for all leads and lifts. (Conventional Bricks)	1	Cum	5371.100
65	Providing 230 mm thick pucca rubble pitching in C.M. 1:5 proportion over 10mm bedding of same mortar with the surface pointed with cement mortar of 1:3 proportion etc. complete for all leads and lifts.	1	Sqm	767.80
66	Providing and laying dry rubble pitching of various thickness to required grade including trimming of earth work, hand packing the interstices with spauls, filling earth in interstices panelling complete for all leads and lifts. 230 MM THICK	1	Sqm	339.80
67	Providing and fixing marble plate of 2.54 cm thick including engraving and filling led for letters as directed.	1	100 sqcm	108.40
68	Providing and fixing 5mm thick enamelled gauge plate including necessary gradation in white and blue etc. complete. 25 cm wide	1	Rmt	528.80
69	Providing and Placing in position mechanically woven double twisted , galvanized without PVC coating "GABIONS" made of mesh size 10 X 12 cm with Mesh wire diameter 3.0 mm, including proving and lying stones with least dimention of 200mm and tying with lacing wire of diameter 2.2mm and arranging the same as instructed or as per drawing at the locations/ structures etc including dressing the slope , minor earth fill with all lead and lift etc complate. 1.00mt X 1.00mt X 1.00mt (stone weight between 10kg to 40kg)	1	Nos.	2822.00
70	Providing and Placing in position	1	Nos.	1849.00

	mechanically woven double twisted , galvenized without PVC coating "GABIONS" made of mesh size 10 X 12 cm with Mesh wire diameter 3.0 mm, including proving and lying stones with least dimention of 200mm and tying with lacing wire of diameter 2.2mm and arranging the same as instructed or as per drawing at the locations/ structures etc including dressing the slope , minor earth fill with all lead and lift etc complate. 1.00 m x 1.00 m x 0.60 m size (stone weight between 10kg to 40kg)			
71	Quarrying transporting suitable filter materials specified gradation from approved borrow pit area/stockpiles, spreading the materials in specified thickness dressing removing oversize materials roots etc. watering up to saturation rolling with suitable type of roller for all lifts etc.complete.Sand	1	Cum	885.1
72	Quarrying transporting suitable filter materials specified gradation from approved borrow pit area/stockpiles, spreading the materials in specified thickness dressing removing oversize materials roots etc. watering up to saturation rolling with suitable type of roller for all lifts etc.complete.Gravel	1	Cum	826.60
73	Quarrying transporting suitable filter materials specified gradation from approved borrow pit area/stockpiles, spreading the materials in specified thickness dressing removing oversize materials roots etc. watering up to saturation rolling with suitable type of roller for all lifts etc.complete.Sand and Gravel Mixture (50:50)	1	Cum	855.90
74	Quarrying transporting suitable filter materials specified gradation from approved borrow pit area/stockpiles, spreading the materials in specified thickness dressing removing oversize materials roots etc. watering up to saturation rolling with suitable type of roller for all lifts etc.complete.Quarry spauls	1	Cum	709.60

75	Quarrying and transporting suitable rubbles stone spauls of specified size from approved quarries and or stockpile and laying hand placed riprap of specified thickness as per approved drawing using header stones (rough through stones) in a grade of 1.5 mx1.5m after trimming and / or dressing the slopes including hand packing the stones using the light hammer driven stone wedges into gaps around stone into for all lifts etc. comp.Quarrying and transporting suitable rubbles stone spauls of specified size from approved quarries and or stockpile and laying hand placed riprap of specified thickness as per approved drawing using header stones (rough through stones) in a grade of 1.5 mx1.5m after trimming and / or dressing the slopes including hand packing the stones using the light hammer driven stone wedges into gaps around stone into for all lifts etc. comp.	1	sqm	568.20
76	Providing & Placing in position reinforcement bars including cutting, bending, welding joints where necessary, hooking etc. complete as per drawing for all lead and lifts.TMT / CRS (FE 500 D)	1	MT	82019.00
77	Providing and deploying Unskilled Labor for general maintenance, clearing, earthworks, and shifting assistance on a day basis of 8-hour duty per shift, compliant with statutory minimum wage regulations as and where directed	1	Day	747.29
	Total =			375159.79

(A)Total Tender Amount

(B) Rebate on above tendered amount (if any) % (in figure) (in words).....

(C)Net Tendered Amount (A-B) (in figure)(in words).....

- 1.The Contractor shall exhibit a board with brief details of work as directed by the Engineer-In-Charge for which no extra payment shall be made.
- 2.The labour cess will be deducted as per prevailing rules i.e. 1% of the work done.
- 3.GST and Income tax TDS will be deducted at a source while making payments of bills
- 4.In all R.C.C. Items in Rate Analysis Standard Cement Consumption has been taken as per Govt. G.R. NO.:MIS102010/17/K1 Dated:30/07/2018 as stated in S.O.R. therefore in R.C.C. items where there is a change as per actual mix design the cost of difference of cement consumption have been deducted from the rate of original item at the rate of input rate mentioned in all the tender.

Excecutive Engineer

Important Condition to be noted by the bidder
ભાવ પત્રક ભરનારે ધ્યાને લેવાની અગત્યની શરતો

1. These tender rates shall be applicable within the jurisdiction of the various Sub-

Divisional offices under the Arvalli Panchayat Irrigation Division, Modasa.

૧. આ ટેન્ડરના ભાવો અરવલ્લી પંચાયત સિયાઈ વિભાગ, મોડાસા હસ્તક આવતી વિવિધ પેટા વિભાગીય કચેરીઓના કાયદેસરનાં લાગુ પડશે.

1. This is an 'Item Rate Tender'; therefore, all interested bidders must quote rates for each item individually. The lowest rates received for each item will be considered for approval.

૨. આ 'આઈટમ રેટ ટેન્ડર' હોવાથી, રસ ધરાવતા તમામ ઇજારદારોએ પ્રત્યેક આઈટમ દીઠ અલગ-અલગ ભાવો ભરવાના રહેશે. દરેક આઈટમમાં જે સૌથી નીચા ભાવો (L1) આવશે, તે ભાવો મંજૂર કરવામાં આવશે.

3. All participating bidders may signify their consent to execute work at the lowest approved (L1) rates. The lowest bidder shall have no exclusive right to claim the entire work.

૩. ટેન્ડર હેઠળની તમામ આઈટમોના સૌથી નીચા આવેલા ભાવો (L1) માટે ટેન્ડરમાં ભાગ લેનાર તમામ ઇજારદારો સંમતિ આપીને મંજૂર થયેલ ભાવે કામ કરી શકશે. સૌથી નીચા ભાવ ભરનાર ઇજારદાર કામ મેળવવા અંગે કોઈ હક્ક-દાવો કરી શકશે નહીં.

4. In the event of an 'Abnormally Low Rate' submitted intentionally or by mistake, if other bidders refuse to consent to such rates, the Executive Engineer may issue a unilateral work order to the lowest bidder. If the lowest bidder fails to perform as per the terms, provisions, and specifications in such cases, the Executive Engineer may initiate appropriate action to forfeit the deposit submitted by the bidder as surety for the rates.

૪. જો કોઈ ઇજારદાર દ્વારા બદેઈરાદા કે ભૂલથી 'અસામાન્ય નીચા ભાવો' ભરવામાં આવે અને અન્ય ઇજારદારો તે ભાવે કામ કરવા સંમતિ ન આપે, તો કાર્યપાલક ઈજનેર તે સૌથી નીચા ભાવ ભરનાર ઇજારદારને એકતરફી વર્ક ઓર્ડર આપી શકશે. આવા અસામાન્ય નીચા ભાવના કીસ્સામાં જો ઇજારદાર ટેન્ડરની શરતો, જોગવાઈઓ અને સ્પેસિફિકેશન મુજબ કામ કરવામાં નીષ્ફળ જશે, તો કાર્યપાલક ઈજનેર લગત ઇજારદાર દ્વારા ભાવોની સ્યોરટી (Surety) માટે ભરવામાં આવેલ ડપોઝિટ જપ્ત કરવાની યોગ્ય કાર્યવાહી હાથ ધરી શકશે.

5. A bidder shall not be entitled to claim any work solely on the basis of being the L1 bidder for any specific item.

૫. કોઈ પણ આઈટમમાં L1 આવવા માત્રથી ઇજારદાર કામ મેળવવા માટે કોઈ કાયદેસરનો હક્ક-દાવો કરી શકશે નહીં.

નહીં.

6.Prior to the assignment of work, the Executive Engineer may review the bidder's previous experience in similar nature of works.

૬. કામગીરી સોપતા પહેલાં કાર્યપાલક ઈજનેર ઇજારદારના સમાન પ્રકારની કામગીરીના અનુભવની સમીક્ષા કરી શકશે.

7.The competent authority may assign work for a duration deemed appropriate, and the Bidder must complete the assigned task within that timeframe as per the tender provisions.

૭. કામગીરી સોપતી વખતે સક્ષમ સત્તાધીકારીને યોગ્ય જણાય તેટલી સમયમર્યાદા માટે કામગીરી સોંપી શકાશે, જે ઇજારદારે ટેન્ડરની જોગવાઈ મુજબ નિયત સમયમાં પૂર્ણ કરવાની રહેશે.

8.The competent authority reserves the right to assign the work to other participating bidders at the approved lowest rates if deemed necessary.

૮.સક્ષમ સત્તાધીકારીને યોગ્ય જણાયેથી, મંજૂર થયેલ ભાવે અન્ય ઇજારદારોને પણ કામગીરી સોંપી શકાશે.

9.The Earnest Money Deposit (EMD) will be converted into a Security Deposit to ensure performance at approved rates and to prevent refusal after approval. This deposit will be released only after the expiration of the tender validity period.

૯. મંજૂર થયેલા ભાવે કામગીરી થાય અને ઇજારદાર કામ કરવાનો ઇનકાર ન કરે તે હેતુથી, ભરેલ ઇ.એમ.ડી. (EMD) ને સિક્યોરિટી ડેપોઝિટમાં રૂપાંતરત કરવામાં આવશે, જે ટેન્ડરની અવધી પૂર્ણ થયા બાદ મુક્ત કરવામાં આવશે.

10.The terms and conditions of the prevailing SBD (Standard Bidding Document) booklet issued by the Government shall apply. The selected bidder must execute the SBD agreement after depositing the required security amount.

૧૦. સરકારશ્રી દ્વારા બહાર પાડવામાં આવેલ પ્રવર્તમાન SBD કરારપત્રની બુકલેટની શરતો અને જોગવાઈઓ આ કામો માટે લાગુ પડશે. જે ઇજારદારને કામ આપવાનું નક્કી થાય, તેમણે નિયમોનુસાર અનામત રકમ

ભરીને SBD કરારપત્ર કરવાનો રહેશે.

11. Notification of approved rates does not constitute a guarantee of work assignment.

Work will be assigned based on actual requirements, and the contractor will be notified separately in writing or orally as per convenience.

૧૧. ભાવો મંજૂર થયાની જાણ કરવા માત્રથી કામ આપવાની કોઈ ખાતરી (બાંહેધરી) આપવામાં આવતી નથી. જરૂરીયાત મુજબ જે-તે સમયે ઇજારદારને અલગથી લેખિત કે મૌખિક જાણ કરીને કામગીરી કરાવવામાં આવશે.

12. If required and approved by the competent authority, the approved rates may be extended for a further period. The bidder must perform the work at the same rates without any price escalation.

૧૨. ખાતાની જરૂરીયાત મુજબ અને સક્ષમ અધીકારીની મંજૂરીથી, મંજૂર થયેલ ભાવો વધુ સમય માટે લંબાવવામાં આવે તો ઇજારદારે કોઈ પણ પ્રકારના ભાવ વધારા વગર કામ કરવાનું રહેશે.

13. Payments for the works performed will be subject to the availability of grants allocated by the Government. No claims for interest or compensation will be accepted due to delays in payment caused by grant shortages.

૧૩. કરવામાં આવેલ કામગીરીનું ચુકવણું સરકારશ્રીમાંથી ફાળવવામાં આવતી ગ્રાન્ટની મર્યાદામાં કરવામાં આવશે. ગ્રાન્ટના અભાવે ચુકવણું મોડું, થાય તો તે માટે વ્યાજ કે વળતરની માંગણી સ્વીકારવામાં આવશે નહીં.

14. The competent authority reserves the absolute right to accept or reject any or all quoted rates without assigning any reason thereof.

૧૪. આવેલા ભાવો મંજૂર કરવા કે રદ કરવાની સત્તા સક્ષમ અધીકારીની અબાધત રહેશે, જે માટે કોઈ કારણ આપવામાં આવશે નહીં.

15. In case of any dispute or ambiguity regarding this tender, the decision of the Executive Engineer shall be final and binding.

૧૫. આ ટેન્ડર બાબતે કોઈ પણ વાદ-વિવાદ કે અસ્પષ્ટતાના કીસ્સામાં કાર્યપાલક ઈજનેરનો નિર્ણય આખરી અને બંધનકર્તા રહેશે.