



GOVERNMENT OF BIHAR

STANDARD BIDDING DOCUMENT

**PROCUREMENT
OF
CIVIL WORKS**

GOVERNMENT OF BIHAR

STANDARD BIDDING DOCUMENT

**PROCUREMENT
OF
CIVIL WORKS**

(FOR ALL WORKS DEPARTMENT)

**STANDARD BIDDING DOCUMENT
PROCUREMENT OF
CIVIL WORKS**

FOR WORKS COSTING MORE THAN 2 CRORES

GOVERNMENT OF BIHAR
NAGAR VIKAS AND HOUSING DEPARTMENT
Executive Officer, Nagar Parishad Mahua.

LOCAL / NATIONAL COMPETITIVE BIDDING
(CIVIL WORKS)

1. NAME OF WORK : Construction of RCC Drain from Kuldip Chowk to Yadav Dwar Via Registry office Bachan Sharma Chowk, Sub Division Office at Nagar Parishad Mahua.
2. PERIOD OF CONSTRUCTION : 12 (Twelve) Month
3. DATE OF ISSUE OF NOTICE INVITING BID : 02.06.2026
4. PERIOD AND PLACE OF SALE OF BID DOCUMENT : FROM – 17.06.2026 TO – 24.06.2026 (Up to 3.00 P.M.)
Only on website www.eproc2.bihar.gov.in
5. TIME, DATE AND PLACE FOR PRE- BID MEETING PLACE : DATE 17.06.2026 TIME 10.00 A.M.
: Office of Executive Officer, Nagar Parishad, Mahua.
6. LAST DATE AND TIME FOR UPLOADING OF BIDS : DATE 24.06.2026 TIME 3.00 P.M.
7. *TIME AND DATE OF OPENING : DATE 24.06.2026 TIME 3.30 P.M.

TECHNICAL BIDS

8. *TIME AND DATE OF OPENING : To be announced later.

FINANCIAL BIDS

9. PLACE OF OPENING OF BIDS : only on www.eproc2.bihar.gov.in
10. LAST DATE OF BID VALIDITY : 120 days
11. OFFICER INVITING BIDS : Executive Officer, Nagar Parishad Mahua.



**INVITATION FOR BID
(IFB)**

बिहार सरकार
नगर विकास विभाग एवं आवास विभाग
कार्यपालक पदाधिकारी का कार्यालय
नगर परिषद् महुआ ।

निविदा आमंत्रण पण सूचना सूचना संख्या- 01/2025-26
(केवल ई-टेंडर पद्धति के अनुसार वेबसाईट www.eproc2.bihar.gov.in पर)

बिहार के राज्यपाल महोदय की ओर से बिहार राज्य के किसी भी कार्य विभाग/निगम/अन्य राज्य सरकार/केन्द्र सरकार/सार्वजनिक क्षेत्र के उपक्रम या राष्ट्रीय या अंतरराष्ट्रीय ख्याति के किसी भी एजेंसी में समुचित श्रेणी में निबंधित संवेदकों से प्रतिशत दर निविदा दो बीड प्रणाली (तकनीकी एवं वित्तीय) अन्तर्गत आमंत्रित किये जाते हैं। यदि संवेदक बिहार राज्य के किसी कार्य विभाग/निगम में पूर्व से निबंधित नहीं है, तब एकरारनामा के पूर्व निम्नलिखित कार्य का स्वीकार पत्र (लेटर ऑफ एक्सेपटेंस) प्राप्त होने के बाद बिहार राज्य के किसी भी कार्य विभाग/ निगम (जिसमें निबंधन की प्रक्रिया लागू हो) में निबंधन कराना अनिवार्य होगा।

1. कार्यों की विवरणी -

गुप संख्या	कार्य का नाम	परिमाण विपत्र की राशि (लाख रु० में)	अग्रधन की राशि (ऑन लाईन मोड या ऑफ लाईन मोड में केवल B.G. के रूप में) (लाख रु० में)	परिमाण-विपत्र का मूल्य (अप्रत्यर्पणीय केवल ऑनलाइन मोड में भुगतान) (रुपये में)	बीड प्रोसेसिंग शुल्क (अप्रत्यर्पणीय केवल ऑनलाइन मोड में भुगतान) (रुपये में)	कार्य पूर्ण करने की अवधि (माह में)
01	02	03	04	05	06	07
01	Construction of RCC Drain from Kuldip Chowk to Yadav Dwar Via Registry office Bachan Sharma Chowk, Sub Division Office at Nagar Parishad Mahua	377.34840	7.547	10000	As Per Eproc2	12 माह

2. विज्ञापन निर्गत करने की तिथि : दिनांक-02.06.2026
3. निविदा कागजात अपलोड करने की प्रारम्भिक की तिथि एवं समय : दिनांक 17.06.2026 को 10.00 बजे पूर्वाह्न से (सिर्फ वेबसाईट www.eproc2.bihar.gov.in)
4. प्री-बीड मीटिंग का समय, स्थान एवं तिथि : दिनांक- 17.06.2026 समय 3.30 बजे अपराह्न बजे, कार्यपालक पदाधिकारी का कार्यालय, नगर परिषद्, महुआ, वैशाली।
5. निविदा अपलोड करने की अंतिम तिथि एवं समय : दिनांक 24.06.2026 समय 3.00 बजे अपराह्न तक। (सिर्फ वेबसाईट www.eproc2.bihar.gov.in पर)
6. तकनीकी बीड खोलने की तिथि एवं समय : दिनांक 24.06.2026 समय 3.30 बजे अपराह्न से। (कंडिका 5 में उल्लेखित अंतिम तिथि से दो कार्य दिवस के पश्चात् की तिथि)।(सिर्फ वेबसाईट www.eproc2.bihar.gov.in पर)
7. वित्तीय बीड खोलने की तिथि एवं : सक्षम पदाधिकारी द्वारा बाद में घोषित की जायेगी।

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समय

(सिर्फ वेबसाईट www.eproc2.bihar.gov.in पर)

8. निविदा खोलने का स्थान : (www.eproc2.bihar.gov.in पर)
9. निविदा की वैधता अवधि : 120 दिन (निविदा प्राप्ति की अंतिम तिथि के बाद)
10. विज्ञापनदाता का पदनाम एवं पता : कार्यपालक पदाधिकारी, नगर परिषद्, महुआ ।
11. ई-टेंडरिंग की प्रक्रिया में भाग लेने हेतु संवेदकों को eproc-2 के साथ निबंधन कराना होगा, वेबसाईट पर आवश्यक निबंधन प्रपत्र उपलब्ध है। इस निबंधन से उन्हें User ID तथा Password मिलेगा। संवेदकों को DSC (Digital Signature Certificates) भी प्राप्त करना होगा। User ID, Password, DSC एवं इन्टरनेट के उपयोग से ही संवेदक ई-निविदा में भाग ले सकेंगे।
12. निविदा केवल ई-निविदा पद्धति के अनुसार वेबसाईट www.eproc2.bihar.gov.in पर निष्पादित किया जाएगा। ई-निविदा प्रक्रिया से संबंधित जानकारी ई-मेल आई०डी०-www.eproc2-bihar-gov-in, Working Hours 8:00 am to 7:00 pm से प्राप्त किया जा सकता है। ई-निविदा प्रक्रिया से संबंधित जानकारी eproc2.0 helpdesk, Address-mjunction services ltd-, R.J. Complex, 2nd Floor, Canara Bank Campus, Khajpura, Ashiana Road, P.S.-Shastri Nagar, Patna-800014 से प्राप्त किया जा सकता है।
13. किसी भी प्रकार का शुद्धि-पत्र को वेबसाईट पर प्रकाशित किया जायेगा। अधोहस्ताक्षरी को बिना पूर्व सूचना के एवं बिना कारण बताए निविदा रद्द करने का अधिकार सुरक्षित रहेगा।

(Post & Designation)

* Applicable only in two bid system.

SECTION 1
INSTRUCTION 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	9	19. Sealing and Marking of Bids	16
2. Source of Funds	9	20. Deadline for Submission of Bids	17
3. Eligible Bidders	9	21. Late Bids	17
4. Qualification of the Bidder	10	E. Bid Opening and Evaluation	17
5. One Bid per Bidder	12	22. Bid Opening	17
6. Cost of Bidding	12	23. Process to be Confidential	18
7. Site Visit	12	24. Clarification of Financial Bids	18
B. Bidding Documents		25. Examination of Bids and Determination of Responsiveness	18
8. Content of Bidding Documents		26. Correction of Errors	18
9. Clarifications of Bidding Documents		27. Evaluation and Comparison of Financial Bids	19
10. Amendment of Bidding Documents		F. Award of Contract	
C. Preparation of Bids		28. Award Criteria	19
11. Language of Bid	14	29. Employer's Right to Accept any Bid and to Reject any or all Bids	19
12. Documents Comprising the Bid	14	30. Notification of Award and Signing of Agreement	19
13. Bid Prices	14	31. Performance Security	20
14. Currencies of Bid and Payment	15	32. Advance Payment and Security	20
15. Bid Validity	15	33. Corrupt or Fraudulent Practices	20
16. Bid Security	15	G. Appendix to ITB	21-22
17. Alternative Proposals by Bidders	16	H. Annexure – I	23
18. Format and Signing of Bid	16	Annexure – II	24

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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.
 - 1.4 This Agreement will be Percentage Rate Agreement.
 2. **Funds**
 - 2.1 The expenditure on this project will be met as decided by the Competent Authority.
 3. **Eligible Bidders**
 - 3.1 This *Invitation for Bids* is open to all 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; Engineer-in-Charge 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 or involved in supervision of 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.
 - 3.3 Bidders shall not be under a declaration of ineligibility for delay, failure or corrupt and fraudulent practices by any of the State Govt. or Central Govt. or Public Undertaking or any Autonomous Body.
 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 indicating miles stones to complete the project on time.
 - 4.2 All bidders shall also furnish the following information in Section 2.
 - (i) Evidence of access to or availability of credit facilities (minimum 10% of estimated cost) certified by the bankers.
 - (ii) Undertaking that bidder would be able to invest a minimum of cost upto 25% of the contract value of work, during implementation of contract.
 - (iii) Proposals, if any, for sub-contracting of elements of work, costing more than 10% of the bid amount. (For all contracts over Rs. 5 crore)
 - (iv) Power of attorney, if any.
 - 4.3 If the Employer has not undertaken prequalification of potential bidders, all bidders shall include the following information and documents with their bids in Section 2:
 - (a) copies of original documents defining the constitution or legal status, place of registration, and principal place of business; written power of attorney of the signatory of the Bid to commit the Bidder;
-
- (b) total monetary value of construction work performed for each of the last five years;
 - (c) experience in works of a similar nature and size for each of the last five years, and details of works underway or contractually committed; and clients who may be contacted for further information on those contracts;

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- (d) major items of construction equipment proposed to carry out the Contract or evidence of arrangement; of possessing them on hire/ lease/ buying as defined therein;
- (e) qualifications and experience of key site management and technical personnel proposed for contract;
- (f) reports on the financial standing of the Bidder, such as profit and loss statements and auditor's reports for the past five years;
- (g) evidence of access to line(s) of credit and availability of other financial resources facilities (10% of contract value), certified by the Bankers (Not more than 3 months old)
- (h) undertaking that the bidder will be able to invest a minimum cash up to 25% of contract value of work, during implementation of work.
- (i) authority to seek references from the Bidder's bankers;
- (j) information regarding any litigation, current or during the last five years, in which the Bidder is involved, the parties concerned and dispute amount;
- (k) proposals for subcontracting components of the Works amounting to more than 10% of the Bid Price (for each, the qualifications and experience of the identified sub-contractor in the relevant field should be annexed);
- (l) the proposed methodology and programme of construction, backed with equipment planning and deployment, duly supported with broad calculations and quality control procedures proposed to be adopted, justifying their capability of execution and completion of the work as per technical specifications within the stipulated period of completion as per milestones

4.4 Bids from Joint ventures are not acceptable.*

4.5 ** (A) To qualify for award of the contract, each bidder in its name should have in the last five years as referred to in Appendix :-

- (a) Achieved in any one year a minimum annual financial turnover (in all classes of civil engineering construction works only) volume of construction work of at least the amount equal to the 50 % (fifty percent) estimated cost of works for which bid has been invited. The turn over will be indexed at the rate of 8% for a year.
- (b) Satisfactorily completed as a prime contractor (or as a nominated subcontractor, where the subcontract involved execution of all main items of work described in the bid document, provided further that all other qualification criteria are satisfied) at least one similar work of value not less than amount indicated in Appendix (*usually not less than 10% (Ten percent) of estimated value of contract*);

* To be deleted for projects costing Rs. 10 crores or more

(Handwritten initials)

- (c) executed in any one year, the minimum quantities of the following items of work as indicated in Appendix.
- Earthwork Excavation (5670.14 M³) - 50% – 2835.07M³
 - Local Sand (1080.0 M³) - 50% – 540.0 M³
 - PCC Work – (1:3:6-360.00 M³) - 50% – 180.00M³
 - Drain work (RCC) - (1:1.5:3-1890.00M³) - 50% – 945.0 M³
 - Reinforcement Work (115769Kg.)- 50% – 57884 Kg.
 - Centering & Shuttering (15900 M²) - 50% – 7950 M³
- (usually, 50% of the expected peak rate of construction)

B. Each bidder should further demonstrate:

- (a) availability (either owned or leased or by procurement against mobilization advances) of the following key and critical equipment for this work:

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 as Appendix

Availability of the testing equipment required for establishing field laboratory to perform mandatory tests e.g. those stated in Appendix to ITB.

The bidders should, however, undertake their own studies and furnish with their bid, a detailed construction planning and methodology supported with layout and necessary drawings and calculations (detailed) as stated in clause 4.3(1) above 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.

NOTE: (To be included for bids valued over Rs 5 Crore)

- (b) availability for this work of personnel with adequate experience as required; as per Annexure-II.
- (c) liquid assets and/or availability of credit facilities of no less than amount indicated in Appendix
- (Credit lines/letter of credit/certificates from Banks for meeting the funds requirement etc.- usually the equivalent of the estimated cash flow for 3 months in peak construction period.)*

C. To qualify for a package of contracts made up of this and other contracts for which bids are invited in the IFB, the bidder must demonstrate having experience and resources sufficient to meet the aggregate of the qualifying criteria for the individual contracts.

- 4.6 Sub-contractors' experience and resources shall not be taken into account in determining the bidder's compliance with the qualifying criteria except to the extent stated in 4.5(A) above.
- 4.7 Bidders who meet the minimum qualification criteria will be qualified only if their available bid capacity is more than the total bid value. The available bid capacity will be calculated as under:

$$\text{Assessed Available Bid capacity} = (A \times N \times 3 - B)$$

① P

Where

- A = Maximum value of civil engineering works 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.
- N = Number of years prescribed for completion of the works for which bids are invited.
- B = Value (updated to the price level of the year indicated in Appendix) of existing commitments and on-going works to be completed during the next 1/2 years (period of completion of the works for which bids are invited)

Note: *The statements showing the value of existing commitments and on-going works as well as the stipulated period of completion remaining for each of the works listed should be countersigned by the Engineer in charge, not below the rank of an Executive Engineer or equivalent.*

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

- made misleading or false representations in the forms, statements and attachments submitted in proof of the qualification requirements; and/or
- have record of poor performance such as abandoning the works, not properly completing the contract, inordinate delays 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 any work or one package or group. 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.

In case of cancellation of tender, cost of bidding document will be charged each time.

7. Site Visit

7.1 The Bidder, at the Bidder's own responsibility and risk must visit and examine the Site of Works and its surroundings 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.

7.2. Tender documents are not transferable.

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- IA	
1	Instructions to Bidders- IA	
2	Qualifications of Bidders – IA	
3	General Conditions of Contracts	I
3.1	NIT – IA	
3.2	PWD – 2 – IB	
3.3	General Rules & Directions – IA	
3.4	Conditions of Contract- IA	
3.5	Clouse of Contract – IA	
4	Contract Data – IA	
5	Special condition of Contract	II
6	Technical Specifications- IIIA	
7	Bill of Quantities- IIIB	III
8	Securities and other forms- IIIA	
9	Drawings (may be seen in the office of E.E.)	IV
10	Documents to be furnished by bidder	V

- 8.2 One copy of each of the volumes I, II, III and IV will be issued to the bidder 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 25 hereof, bids which are not substantially responsive to the requirements of the Bid Documents shall be rejected.

9.1 Pre-bid meeting

- 9.1.1 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 appendix.
- 9.1.2 The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.
- 9.1.3 The bidder is requested to submit any questions in writing or by fax to reach the Employer not later than one week before the meeting.
- 9.1.4 Minutes of the meeting, including the text of the questions raised (without identifying the source of enquiry) and the responses given will be transmitted without delay to all purchasers of the bidding documents. 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 the Employer exclusively through the issue of an Addendum pursuant to Clause 10 and not through the minutes of the pre-bid meeting. All bidders have to collect any addendum on next working day of pre-bid meeting. The bidder shall receive the minutes of the meeting on the next working day of the pre-bid meeting.
- 9.1.5 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 addendum.
- 10.2 Any addendum thus issued shall be part of the bidding documents and shall be collected by all the purchasers of the bidding documents. Prospective bidders shall acknowledge receipt of each addendum in writing or by cable to the Employer. The Employer will assume no responsibility for postal delays.

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

- 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 English / Hindi.

12. Documents Comprising the Bid

- 12.1 The bid to 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) Earnest money 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 4.2 of these instructions
- (v) Undertaking that the bid shall remain valid for the period specified in Clause 15.1
- (vi) An affidavit affirming the information he has furnished in the bidding document is correct to the best of his knowledge and belief.

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 Each part will be separately sealed and marked in accordance with the Sealing and Marketing Instructions in Clause 19.
- 12.3 Following documents, which are not submitted with the bid, will be deemed to be part of the bid.

13. Bid Prices

① ②

- 13.1 The contractor shall bid for the whole work as described in Sub-Clause 1.1 based on the priced Bill of Quantities submitted by the Bidder.
- 13.1.1 The bidder shall adopt the percentage rate method or as specified in the appendix to ITB; only the same option is allowed to all the bidders. Percentage rate method requires the bidder to quote a percentage above/below/ at par of the schedule of rates specified in the appendix to ITB.
- 13.1.2 All duties, taxes, and other levies 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.
- 13.2 The rates and prices quoted by the bidder are subject to adjustment during the performance of the Contract in accordance with the provisions clause 10CA & 10CC clause Conditions of Contract.

OR

- 13.3 The rate should include the cost of all seen and unseen expenditure. No claim, whatsoever, will be entertained due to non-inclusion of any such event necessary for the completion of the item of work.
14. Currencies of Bid and Payment
- 14.1 The units rates and the prices shall be quoted by the bidder entirely in Indian Rupees. All payments shall be made in Indian Rupees.
15. Bid Validity
- 15.1 Bids shall remain valid for a period not less than 120 days after the deadline date for bid submission specified in Clause 20.A bid valid for a shorter period shall be rejected by the Employer as non-responsive. In case of discrepancy in bid validity period between that given in the undertaking pursuant to Clause 12.1 (v) and the Form of Bid submitted by the bidder, the latter shall be deemed to stand corrected in accordance with the former and the bidder has to provide for any additional security that is required.
- 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 additional period. The request and the bidders' responses shall be made in writing or by cable. 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.
16. Earnest Money
- 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 mentioned in the Bihar Financial Rules, and shall be in any of the following forms.
- Indian post office term deposit 1 year/ 2 year/ 3 year; National saving Certificate; Kishan Vikash Patra duly endorsed by the Competent Postal authority in Bihar.
 - Fixed deposit receipt of a Schedule bank, Fixed deposit receipt should be Valid for six months after last date of receipt of tender and shall be pledged in favour of the department.
 - 5-year National Development bond/ State development loan Certificate.
 - Unconditional bank guarantee from any scheduled Indian bank issued within the state in the format given in Vol. III (If issued from any bank outside state will be Converted to any bank within the state before executing the agreement.

* Choose one and delete the other

** Delete if the contract is for more than 18 months period.

- 16.2 Unconditional 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.

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- 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 Earnest money 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 Earnest money of the successful bidder will be discharged when the bidder has signed the Agreement and furnished the required Performance Security.
- 16.6 The Earnest money 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, pursuant to Clause 26; or
 - (c) in the case of a successful Bidder, if the Bidder fails within the specified time limit to
 - (i) sign the Agreement; or
 - (ii) furnish the required Performance Security.
17. Alternative Proposals by Bidder
 - 17.1 Bidders shall submit offers that fully comply with the requirements of the bidding documents, including the conditions of contract (including mobilisation advance or time for completion), basic technical design as indicated in the drawing and specifications. Conditional offer or alternative offers will not be considered further in the process of tender evaluation.
 - 17.2 Conditional tender will be rejected forthwith.
18. Format and Signing of Bid
 - 18.1 The Bidder shall submit one set of the technical bid and two set of financial bids (original & duplicate) comprising of the documents as described in clause 12 of ITB.
 - 18.2 The Bid shall be typed or written in indelible ink and shall be signed by a person or persons duly authorized to sign on behalf of the Bidder, pursuant to Sub-Clause 4.3. All pages of the bid where entries or amendments have been made shall be initialed by the person or persons signing the bid and a certificate of corrections must be given by the employer.
 - 18.3 The Bid shall contain no alterations or additions, except those to comply with instructions issued by the Employer, or as necessary to correct errors made by the bidder, in which case such corrections shall be initialed by the person or persons signing the bid.

D. SUBMISSION OF BIDS

(Only one website: <https://eproc2.bihar.gov.in>)

19. Sealing and Marking of Bids: N/A in e-tendering.
20. Deadline for Submission of the Bids as per NIT.

(Only one website: <https://eproc2.bihar.gov.in>)

 - 20.1 Complete Bids (including Technical and Financial) must be received by the Employer at the address specified above not later than the date indicated in appendix. In the event of the specified date for the submission of bids have declared a holiday for the Employer, the Bids will be received up to the appointed time on the next working day.
 - 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 rights and obligations of the Employer and the bidders previously subject to the original deadline will then be subject to the new deadline.

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21. Late Bids

- 21.1 Any Bid received by the Employer after the deadline prescribed in Clause 20 will be returned unopened to the bidder.

E. BID OPENING AND EVALUATION

22. Bid Opening

- 22.1 The Employer or their authorized representative will open all the Bids received (except those received late), 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 Clause 20 and 22.3. 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. Even in the case of absence of the bidder at the time of opening of bids, department will proceed a head with the opening.
- 22.2 If any of the tenderers or their agents are not present at the time of opening, the employer will open the tender in their absence and prepare a statement and that will be binding on the absent tenderers.
- 22.3 The envelope containing "Technical Bid" shall be opened. The amount, form and validity of the Earnest money 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 remaining technical bid and the sealed financial bid will be returned to the bidder.
- 22.4 (i) Subject to confirmation of the bid security by the issuing Bank, the bids accompanied with valid 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) After receipt of confirmation of the bid security, the bidder will be asked in writing (usually within 10 days of opening of the Technical Bid) to clarify or modify his technical bid, if necessary, with respect to any rectifiable defects.
- (iii) The bidders will respond in not more than 7 days of issue of the clarification letter.
- (iv) Immediately (usually within 3 to 4 days), on receipt of these clarifications the Evaluation Committee will finalize the list of responsive bidders whose financial bids are eligible for consideration.
- 22.5 At the time of opening of "Financial Bid", the names of the bidders found responsive in accordance with Clause 23.4(iv) will be announced. The bids of only these bidders will be opened. The remaining bids will be returned to the bidders unopened. The responsive Bidders' names, the Bid prices, the total amount of each bid, any discounts, Bid Modifications and withdrawals, and such other details as the Employer may consider appropriate, will be announced by the Employer at the opening. Any Bid price or discount, which is not read out and recorded will not be taken into account in Bid Evaluation.
- 22.6 In case bids are invited in more than one package, the order for opening of the "Financial Bid" shall be that in which they appear in the "Invitation For Bid".
- 22.7 The Employer shall prepare minutes of the Bid opening, including the information disclosed to those present in accordance with Sub-Clause 22.5
23. Process to be Confidential
- 23.1 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 a Bidder to influence the Employer's processing of Bids or award decisions may result in the rejection of his Bid.
24. Clarification of Financial Bids

- 24.1 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 sought, offered or permitted except as required to confirm the correction of arithmetic errors discovered by the Employer in the evaluation of the Bids in accordance with Clause 26.
- 24.2 Subject to sub-clause 24.1, no Bidder shall contact the Employer on any matter relating to his bid from the time of the bid opening to the time the contract is awarded. If the Bidder wishes to bring additional information to the notice of the Employer, it should do so in writing.
- 24.3 Any effort by the Bidder to influence the Employer in the Employer's bid evaluation, bid comparison or contract award decisions may result in the rejection of the Bidders' bid.
25. Examination of Bids and Determination of Responsiveness
- 25.1 During detailed evaluation of "Technical Bids", 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 documents. 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.
- 25.2 A substantially responsive "Financial Bid" is one which conforms to all the terms, conditions, and specifications of the 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.
- 25.3 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.
26. Correction of Errors
- 26.1 "Financial Bids" determined to be substantially responsive will be checked by the Employer for any arithmetic errors. Errors will be corrected by the Employer as follows:
- (a) where there is a discrepancy between the rates in figures and in words, the rate in words will govern; and
- (b) where there is a discrepancy between the unit rate and the line-item total resulting from multiplying the unit rate by the quantity, the unit rate as quoted will govern.
- 26.2 The amount stated in the "Financial Bid" will be corrected by the Employer in accordance with the above procedure and the bid amount adjusted with the concurrence of the Bidder in the following manner:
- (a) If the Bid price increases as a result of these corrections, the amount as stated in the bid will be the 'bid price' and the increase will be treated as rebate;
- (b) If the bid price decreases as a result of the corrections, the decreased amount will be treated as the 'bid price'
- Such adjusted bid price shall be considered as binding upon the Bidder. If the Bidder does not accept the corrected amount the Bid will be rejected, and the Earnest money may be forfeited in accordance with Sub-Clause 16.6(b).
27. Evaluation and Comparison of Financial Bids
- 27.1 The Employer will evaluate and compare only the Bids determined to be substantially responsive in accordance with Sub-Clause 25.2.

- 27.2 In evaluating the Bids, the Employer will determine for each Bid the evaluated Bid Price by adjusting the Bid Price as follows:
- (a) making any correction for errors pursuant to Clause 26; or
 - (b) making an appropriate adjustment for any other acceptable variations, deviations.
- 27.3 The Employer reserves the right to accept or reject any variation or deviation. Variations 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 into account in Bid evaluation.
- 27.4 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 price analyses for any or all items of the Bill of Quantities, to demonstrate the internal consistency of those prices with the construction methods and schedule proposed. After evaluation of the price analyses, the Employer may require that the amount of the performance security set forth in Clause 31 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.
- 27.5 A bid, in the opinion of employee 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.

F. AWARD OF CONTRACT

28. Award Criteria

- 28.1 Subject to Clause 29, 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 evaluated the lowest in any of the packages opened earlier than the one under 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 evaluated bid price.

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

Notwithstanding Clause 28, 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 Bidders or any obligation to inform the affected Bidder or Bidders of the ground for the Employer's action.

30. Notification of Award and Signing of Agreement

- 30.1 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 *General Conditions 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").
- 30.2 The notification of award will constitute the formation of the Contract, subject only to the furnishing of the performance security in accordance with the provisions of Clause 31.



- 30.3 The Agreement will incorporate all agreements between the Employer and the successful Bidder. It will be signed by the Employer and the successful Bidder, after the performance security is furnished.

31. Performance Security

- 31.1 Within 10 (ten) days of receipt of the Letter of Acceptance, the successful Bidder shall deliver to the Employer a Performance Security in any of the forms given below for an amount equivalent 2% of the Contract price including earnest money plus additional security for unbalanced Bids in accordance with the Clause 29.5 of ITB and the provisions of Bihar Financial Rules.
- 31.2 If the performance security is provided by the successful Bidder in the form of an Bank Guarantee or fixed deposit receipts in the name of Employer, it shall be issued either (a) at the Bidder's option, by a Nationalized/ Scheduled Indian bank within state or (b) acceptable to the Employer.
- 31.3 Failure of the successful Bidder to comply with the requirements of Sub-Clause 31.1 shall constitute sufficient grounds for cancellation of the award and forfeiture of the Bid Security.

32. Advance Payment and Security

- 32.1 The Employer will provide an Advance Payment on the Contract Price as stipulated in the General Conditions of Contract, subject to maximum amount, as stated in the Contract Data.

33. Corrupt or Fraudulent Practices

- 33.1 The Employer will reject a proposal for award if it determines that the Bidder recommended for award has engaged in corrupt or fraudulent practices in competing 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 RCD and any other agencies, if it at any time determines that the firm has engaged in corrupt or fraudulent practices in competing for the contractor, or in execution.
- 33.2 Furthermore, Bidders shall be aware of the provision stated in Sub-Clause and Sub-Clause 14 of the General Conditions of Contract.

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G. APPENDIX to ITB

Clause Reference with respect to Section-I.

1. Name of the employer: - Executive Officer, Nagar Parishad Mahua. [Cl. 1.1]
2. The last five years means for this tender
2025-26
2024-25
2023-24
2022-23
2021-22
3. The required annual financial turn over amount is Rs. 188.68 Lac (Rupees One Crore Eighty Eight Lac Sixty eight Thousand only) [Cl. 4.5A(a)]
4. Value of work is (Satisfactory completed at least one similar work of value not less than 10% of estimated value of contract Rs in Lakhs) Rs. 37.73 Lac (Rupees Thirty seven Lac Seventy three Housand Only) (in words) [Cl. 4.5A(b)]
5. Quantities of work are: - as attached [Cl. 4.5A(c)]
6. The cost of electric work is Rs. -Nil
7. The cost of water supply/ sanitary works is Rs. Nil (in words)
8. Liquid assets and/or availability of credit facilities is Rs. 49.82 Lac (Rupees Forty Nine Lac Eighty Two Housand Only) (in words) [Cl. 4.5B(c)]
9. Price level of the financial year Base 2025-26 [Cl.4.7]
10. The pre-bid meeting will take place on Date-17.06.2026 at 11 hours at the Office of the Executive Officer, Nagar Parishad, Mahua. [Cl. 9.1.2]
11. The technical bid will be opened at only on www.eproc2.bihar.gov.in on 24.06.2026 at 3.30 P.M.
12. Address of the Employer -Executive Officer, Nagar Parishad, Mahua. [Cl. 4.5(a)]
13. Construction of RCC Drain from Kuldip Chowk to Yadav Dwar Via Registry office Bachan Sharma Chowk, Sub Division Office at Nagar Parishad Mahua. [cl. 19.2(b)]
14. Bids are to be submitted only as Percentage Rate Method/
15. Schedule of rate applicable for Percentage Rate Method is Attached

16. The bid should be submitted latest by 24.06.2026 till 3.00 P.M (date and time) [Cl. 20.1(a)]
17. The bid will be opened at Website www.eproc2.bihar.gov.in at 3.30 P.M on date 24.06.2026 (time and date) [Cl. 23.1]
18. The Bank Draft in favour of Executive Officer, Nagar Parishad Mahua. [Cl. 34.1]
19. Escalation factors (for the cost of works executed and financial figure to a common base value for works completed)

Year before	Multiply factor
One	1.08
Two	1.17
Three	1.26
Four	1.36
Five	1.47



List of Key Plant & Equipment to be deployed on ROAD Work
[Reference Cl. 4.5 (B) (a)]

Type of Equipment/Maximum age No. Required	Nos.	Max. Age (years)
Concrete mixes machine	2	8
Needle Vibrator & Plate Vibrator	4	8
Water Tank	3	8
Excavator	1	8
Shuttering Plate	5000 Sqt.	

- * To be decided by the concern department before floating the tender.
- ** On the basis of nature of Construction work list of key plant & Equipment's will be decided.
- ***Life of machine minus two years or 5 years as on whichever is more.



ANNEXURE – II

List of Key Personnel to be deployed on Contract Work

[Reference Cl. 4.5(B) (b)]

Sl. No.	Personnel*	Qualification	Contract Package Size						
			Rs. 5-30 Lacs	Rs. 30 Lacs to 70 Lacs	Rs. 70 Lacs to 2 Crores	Rs. 2-10 Crores	Rs. 10-30 Crores	Rs. 31-50 Crores	More than 50 Crores
1.	Project Manager	B.E. Civil + 10 Years Exp. (5 years as Manager) or retired E.E.					✓ 1 No.	1 No.	1 No.
2.	Site Engineer	B.E. Civil + 07 Years Exp. (3 years in Road Construction) or retired A.E.			1 No.	1 No.	1 No.	2 Nos.	4 Nos.
3.	Plant Engineer	B.E. Mech./ Civil + 05 Years Exp. or Dip. Mech + 07 Years Exp. or Retired J.E.					1 No.	1 No.	2 Nos.
4.	Quantity Surveyor	B.E. Civil + 05 Years Exp. or Dip. Civil + 07 Years Exp.						1 No.	2 Nos.
5.	Soil & Material Engineer	B.E. Civil + 07 Years Exp.						1 No.	2 Nos.
6.	Survey Engineer	B.E. Civil + 03 Years Exp. or Dip. Civil + 05 Years Exp.						1 No.	2 Nos.
7.	Site Supervisor	Fresh Graduate in Civil or Diploma Civil + 03 Years Exp. or retired I.T.I Holder.		1 No.	1 No.	1 Nos.	2 Nos.	3 Nos.	4 Nos.
	Total			1	2	2	5	10	17

* The designation and no. of the personnel has to be decided by the department concerned as per the requirement

SECTION 2
QUALIFICATION INFORMATION
(to be filled in by Bidder)

QUALIFICATION INFORMATION

The information to be filled in by the Bidder in the following pages will be used for purposes of post qualification as provided for in Clause 4 of the Instructions 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 construction work performed in the last five years**
(In Rs. Million)

2021	-	2022
2022	-	2023
2023	-	2024
2024	-	2025
2025	-	2026

1.3.1 Work performed 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 satisfied (in the same name) on works of a similar nature over the last five years.**

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

* Attach certificate(s) from the Engineer(s)-in-Charge

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

β Attach certificate from Chartered Accountant.

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 satisfied (in the same name and style) in the last five years : **

Year	Name of the work	Name of the Employer*	Quantity of work performed (cum) @ Remarks						Remarks* (indicate contract Ref)
			Cement Concrete (including RCC & PCC)	Masonry	Earth works	WBM	WMM	Bituminous Work	
2021-2022									
2022-2023									
2023-2024									
2024-2025									
2025-2026									

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 of Contract (Rs Cr)	Stipulated Period of Completion	Value of works* remaining to be	Anticipated date of completion
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						completed (Rs Cr)	
1	2	3	4	5	6	7	8

* Attach certificate(s) from the Engineer(s)-in-Charge

@ The item of work for which data is requested should tally with that specified in ITB clause 4.5A (c)

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

Delete, if prequalification has been carried out.

(B) Works for which bids already submitted:

Description n of works	Place & State	Name & Address of Employer	Estimated value of works (Rs Cr)	Stipulated period of completion	Date when decision is expected	Remarks, if any
1	2	3	4	5	6	7

1.5 Availability of key items of Contractor's Equipment essential for carrying out the Works [Ref. Clause 4.5(B)(a)]. The Bidder should list all the information requested below. Refer also to Sub Clause 4.3 (d) of the Instruction to Bidders.

Description of works	Requirement		Availability proposals			Remarks (from whom to be purchased)
	No.	Capacity	Owned/Leased to be procured	Nos./Capacity	Age/ Condition	
1	2	3	4	5	6	7

2 P

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1.12 Statement of compliance under the requirements of Sub Clause 3.2 of the instructions to Bidders. (Name of Consultant engaged for project preparation 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 & 4.3(1)]

1.14 Programme

1.15 Quality Assurance Programme

2. Additional Requirements

2.1 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
- *** (iii) Update of original prequalification application
- *** (iv) Copy of original prequalification application
- *** (v) Copy of prequalification letter

- * Delete, if prequalification has been carried out.
- ** Fill the Name of Consultant.
- *** Delete, if prequalification has not been carried out.

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

(CLAUSE 4.2 (i) 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 to the above contract during the contract period.

(Signature)

Name of Bank

Senior Bank Manager

Address of the Bank

RP

AFFIDAVIT

1. I, the undersigned, do hereby certify that all the statements made in the required attachments are true and correct and if found fake/forged, the undersigned will be liable for infliction upon the FIR and lawful punishment as well as blacklisting.
2. The undersigned also hereby certifies that neither our firm M/s _____ has been blacklisted nor has aband any work in any government department, 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 authorizes and request(s) any bank, person, firm or corporation for furnish pertinent information deemed necessary and requested by the Department to verify this statement or regarding my (our) competence and general reputation.
4. The undersigned understand and agrees that further qualifying information may be required, and agrees to furnish any such information at the request of the Department project implementing agency.
5. The undersigned also hereby certifies that our firm M/s is not able to disqualify under the provisions made in Clause 3.3 & 4.8 of ITB under section (1) of SBD.
6. I, the undersigned do hereby undertake that our firm M/s Would invest a minimum cash upto 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

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 Authorised Officer of the Firm)

Title of Officer

Name of Firm

DATE

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SECTION 3
GENERAL CONDITIONS OF CONTRACT

SECTION – 3.1

P.W.D.-1

GOVERNMENT OF BIHAR
OFFICE OF NAGAR PARISHAD, MAHUA

NOTICE INVITING TENDER NO.-..... SBD /2026-27

The **OFFICE OF NAGAR PARISHAD, MAHUA** on behalf of Governor of Bihar invites percentage rate bids from the eligible and approved contractor registered with any State Government or Central Govt. or any PSU or an Agency of National or international repute for the following

Group No	Name of work	Estimated cost in Rs./ Lakh	Earnest money in Rs. In Lakh	Time allowed for completion	Place of sale and submission of tender
1	3	4	5	6	9
1	Construction of RCC Drain from Kuldip Chowk to Yadav Dwar Via Registry office Bachan Sharma Chowk, Sub Division Office at Nagar Parishad Mahua	377.34840	7.547	12 Months	Through website www.eproc2.bihar.gov.in

The bidders who download the bidding documents from the internet site <https://eproc2.bihar.gov.in/EPSV2Web> would have to pay the cost of bid documents and submit it in a separate envelope marked cost of bidding document downloaded from internet.

Criteria of eligibility for issue of tender document

- Issue of Tender to any Contractor registered with Central Government/ any State Government or any PSU or an agency of international or national repute may be permitted without the registration. However, registration with the concerned works department will be essential after issue of L.O.A. (Letter of Acceptance)
 Following documents duly attested by gazettes officer and photocopies are required at the time of submission of bid (In case of other State PWD/CPWD/ any PSU eligible contractors or Agencies of National/International repute following documents (from a to c) have to be submitted after letter of acceptance).
 - Registration paper (renewed) of appropriate class and deptt.
 - Latest sales tax clearance/ sales tax registration in State of Bihar.
 - Latest labour license (renewed) in State of Bihar.

- (d) Power of attorney/ partnership deed/ MoU of private limited company.
- (e) Bank Draft for B.O.Q cost.
- (f) Tools & plants ownership/lease certificate required in aforesaid work duly verified from Divisional Engineer/other State Govt. Deptt. As PWD/CPWD Contractor will provide definite proof from appropriate authority for tools & Plant and Undertaking to install it on works site after getting letter of acceptance.

Note : Latest sales tax clearance may be submitted after LOA but before execution of agreement.

2. Agreement shall be drawn with the successful tenderer on prescribed SBD PWD Form-2 which is available as Govt. of Bihar Publication, Tenderer shall quote his rates as overall percentage above/ below the rate of B.O.Q. and conditions of the said form which will form part of the agreement.
3. The amount of Estimated Cost or B.O.Q. amount of the work may vary.
4. The Earnest money will be applicable on sanctioned cost of B.O.Q as per NIT.
5. The Time allowed for carrying out the work will be upto 12 Months .
6. The site for the work is available as per approved schedule by the Department.
7. Details about cost of BOQ & Earnest money may be seen in IFB (Notice for Publication).
8. Tender will be received only through website:
<https://eproc2.bihar.gov.in/EPKV2Web>.
9. The contractor shall be required to deposit an amount equal to 2% of the tender value of the work as performance guarantee including earnest money in the form as mentioned in Bihar Financial Rules. For works costing more than one Crore, bank guarantee is acceptable. The Contractor shall have to deposit additional performance guarantee for quoted rate below than schedule rate as per ITB (Clause 31.1)
10. The description of the work is as follows:

Construction of RCC Drain from Kuldip Chowk to Yadav Dwar Via Registry office Bachan Sharma Chowk, Sub Division Office at Nagar Parishad Mahua.

Copies of other drawings and documents pertaining to the works will be open for inspection by the tenderers at the office of the above-mentioned officer.

Tenderer are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their tenders as to the nature of the ground and sub soil (so far as is practicable), the form and nature of the site, the means of access to the site the accommodation they may require and in general shall themselves obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect their tender. A tenderer shall be deemed to have full knowledge of the site whether he inspects it or not and no extra charges consequent on any misunderstanding or otherwise shall be allowed. The tenderer shall be responsible for arranging and maintaining at his own cost all materials, tools & plants, water, electricity access, facilities for workers and all other services required for executing the work unless otherwise specifically provided for in the contract documents. Submission of a tender by a tenderer implies that he has read this notice and all other contract documents and has made himself aware of the scope and specifications of the work to be done and of conditions and rates at which stores, tools

and plant, etc. will be issued to him by the Govt. and local conditions and other factors having a bearing on the execution of the work.

11. Canvassing whether directly or indirectly, in connection with tenders is strictly prohibited and the tenders submitted by the contractors who resort to canvassing will be liable to rejection.
12. The competent authority on behalf of Governor of Bihar reserves to himself the right of accepting the whole or any part of the tender and the tenderer shall be bound to perform the same at the rate quoted.
13. The contractor shall not be permitted to tender for works in the **Executive Officer, Nagar Parishad Mahua** (responsible for award and execution of contracts) in which his near relative is posted as Divisional Accountant or as an officer in any capacity between the grades of Superintending Engineer and assistant Engineer (both inclusive). He shall also intimate the names of persons who are working with him in any capacity or are subsequently employed by him and who are near relatives to any gazetted officer in the UD&HD. Any breach of this condition by the contractor would render him liable to be removed from the approved list of contractors of this Department.
14. No Engineer of Gazetted rank or other Gazetted officer employed in Engineering or administrative duties in an Engineering Department of the Government of Bihar is allowed to work as a contractor for a period of two years after his retirement from Government service, without the previous permission of the Government of Bihar in writing. The contract is liable to be cancelled if either the contractor or any of his employee is found any time to be such a person who had not obtained the permission of the Government of Bihar as aforesaid before submission of the tender or engagement in the contractor's service.
15. The tender for the works shall remain open for acceptance for a period of 120 days from the date of opening of tenders. If any tenderer withdraws his tender before the said period or issue of letter of acceptance, whichever is earlier, or makes any modifications in the terms and conditions of the tender which are not acceptable to the department, then the Government shall, without prejudice to any other right or remedy, be at liberty to forfeit 100% of the said earnest money as aforesaid.
16. The Department has right to cancel or postponed any work without giving any notice or clarification
17. The Department may add or delete any of the condition required for execution of any work.
18. One percent (1%) of Bill amount is deducted as Cess for the Bihar Bhawan & other Sannimarn Karmkar Kalyan Board.
19. This Notice Inviting tender shall form a part of the contract document. The successful tenderer/contractor, the competent Authority, shall issue the letter of acceptance and will sign the contract within 15 days after submitting the performance guarantee:
 - a. The notice inviting tender, all the documents including additional conditions specifications and drawings, if any, forming the tender as issued at the time of invitation of tender and acceptance thereof together with any correspondence leading thereto.
 - b. Standard PWD Form F-2/3.
22. The bidder/Tenderer shall be bearing all cost associated with preparation and submission of his bid, and the employer will in no case be responsible and liable for that cost including commission on bank guarantee etc. In case of cancellation of tender cost of bidding document will be charged each time.
23. Any condition or directions imposed by UD&HD Govt. of Bihar will be treated as automatically transferred to the agency/contractor.



**EXECUTIVE OFFICER
NAGAR PARISHAD
MAHUA**

SECTION 3.2 P.W.D. - 2

GOVERNMENT OF BIHAR

URBAN DEVELOPMENT & HOUSING DEPARTMENT

STATE - BIHAR ZONE: TIRHUT

CIRCLE - URBAN DEVELOPMENT CIRCLE, MUZAFFARPUR

DEPARTMENT - URBAN DEVELOPMENT & HOUSING DEPARTMENT

**DIVISION - URBAN DEVELOPMENT DIVISION, MUZAFFARPUR-VAISHALI,
HAJIPUR**

Percentage Rate Tender for Works

**TENDER FOR THE WORK OF: - Construction of RCC Drain from Kuldip Chowk to
Yadav Dwar Via Registry office Bachan Sharma
Chowk, Sub Division Office at Nagar Parishad
Mahua.**

- (i) To be submitted by 03.00 PM on 24.06.2026 only on website:
<https://eproc2.bihar.gov.in>
- (ii) To be opened at 03:30 PM on 24.06.2026 only on website:
<https://eproc2.bihar.gov.in>

TENDER

I/We have read and examined the notice inviting tender, schedule, A, B, C, D, E, & F. Specifications applicable, Drawings & Designs, General Rules and Directions, Conditions of Contract, clauses of contract, Special conditions, Schedule of Rate & other documents and Rules referred to in the conditions of contract and all other contents in the tender document for the work.

I/We hereby tender for the execution of the work specified for the Governor of Bihar within the time specified in Schedule 'F', viz., schedule of quantities and in accordance in all respects with the specifications, designs, drawings and instructions in writing referred to in Rule- 1 of General Rules and Directions and in Clause 11 of the Conditions of contract and with such materials as are provide for, by, and in respect in accordance with, such conditions so far as applicable.

We agree to keep the tender open for one hundred twenty (120) days from the due date of submission thereof and not to make any modifications in its terms and conditions.

A sum of Rs 9.965 lakhs have been deposited Bank guarantee or of a scheduled bank online mode as earnest money. If I/we, fail to furnish the prescribed performance guarantee within prescribed period, I/we agree that the said Governor of Bihar or is successors in office shall without prejudice to any other right of remedy, be at liberty to forfeit the said earnest money absolutely. Further, if/we fail to commence work as specified, I/we agree that Governor of Bihar or his successors in office shall without prejudice to any other right or remedy available in law, be at liberty to forfeit the said earnest money and the performance guarantee absolutely, otherwise the said earnest money shall be retained by him towards security deposit to execute all the works referred to in the tender documents upon the terms and conditions contained or referred to therein and to carry out such deviations as may be ordered, up to maximum of the percentage mentioned in Schedule 'F' and those in excess of that limit at the

Q Q

rates to be determined in accordance with the provision contained in Clause 12.2 and 12.3 of the tender form.

I/we hereby declare that I/We shall treat the tender documents drawings and other records connected with the work as secret/confidential documents and shall not communicate information/derived there from to any person other than a person to whom I/We am/are authorized to communicate the same or use the information in any manner prejudicial to the safety of the State.

Dated Signature of Contractor

Postal Address

Witness:

Address:

Occupation:

Two handwritten signatures in dark ink. The signature on the left is a stylized, cursive 'P' followed by a horizontal line. The signature on the right is a cursive 'R'.

ACCEPTANCE

The above tender (as modified by you as provided in the letters mentioned hereunder) is accepted by me for and on behalf of the Governor of Bihar for a sum of Rs..... (Rupees.....)

The letters referred to below shall form part of this contract Agreement: -

- a)
- b)
- c)

For & on behalf of the Governor of Bihar,

Signature.....

Dated





GOVERNMENT OF BIHAR
ALL WORKS DEPARTMENT

General Rules &
Directions

1. All work proposed for execution by contract will be notified in a form of invitation to tender pasted in public places and signed by the officer inviting tender or by publication in Newspapers and the internet as the case may be.

This form will state the work to be carried out, as well as the date for submitting and opening tenders and the time allowed for carrying out the work, also the amount of earnest money to be deposited with the tender, and the amount of the security deposit to be deposited by the successful tenderer and the percentage, if any, to be deducted from bills. Copies of the specifications, designs and drawings and any other documents required in connection with the work signed for the purpose of identification by the officer inviting tender shall also be open for inspection by the contractor at the office of officer inviting tender during office hours.

2. In the event of the tender being submitted by a firm, it must be signed separately either by one or all the partners or person duly authorized by the partners, it must be signed on behalf of the firm by a person holding the requisite authorizations, such authorizations to be produced with the tender, and it must disclose that the firm is duly registered under the Indian Partnership Act, 1952.
3. Receipts for payment on account of work done, when executed by a firm, must also be signed by one or all the partners or a duly authorized signatory of the firm.

Applicable for
Percentage Rate
Tender only
(PWD- 2)

4. In case of Percentage Rate Tenders, tenderer shall fill up the usual printed form, stating at what percentage below/above (in figures as well as in words) the total estimated cost given in Schedule of Quantities at Schedule- A, he will be willing to execute the work Tenders, which propose any alteration in the work specified in the said form of invitation tender, or in the time allowed for carrying out the work, or which contain any other conditions of any sort, will be liable to rejection. No single tender shall include more than one work but contractors who wish to tender for two or more works shall submit separate tender for each. Tender shall have the name and number of the works to which they refer, written on the envelope.

If for any special reasons, the contract provides for the payments for work done to be made at a specified percentage below or above the rates entered in the sanctioned estimate of the work (or the Scheduled of Rates), it should be stated in clear terms in the contract that the deductions or additions, as the case may be of the percentage, will be calculated on the gross, and not the net amounts of the

bills for work done and in fixing the percentage it should be borne in mind that the calculations will be made.

5. The officer inviting tender or his duly authorized assistant, will open tenders in the presence of any intending contractors who may be present at the time, and will enter the amount of the several tenders in a comparative statement in a suitable form. In the event of a tender being accepted, a receipt for the earnest money forwarded therewith shall thereupon be given to the contractor who shall thereupon for the purpose of identification sign copies of the specifications and other documents mentioned in Rule-I. In the event of a tender being rejected, the earnest money forwarded with such unaccepted tender shall thereupon be returned to the contractor remitting the same, without any interest.
6. The officer inviting tenders shall have the right of rejecting all or any of the tenders and will not be bound to accept the lowest or any other tender.
7. The receipt of an accountant or clerk for any money paid by the contractor will not be considered as an acknowledgment or payment to the officer inviting tender and the contractors shall be responsible for seeing that he procures a receipt signed by the office inviting tender or a duly authorized person.

8. The memorandum of work tendered for and the schedule of materials to be supplied by the department and their issue-rates, shall be filled and completed in the office of the officer inviting tender before the tender form is issued. If a form is issued to an intending tenderer without having been so filled in and incomplete, he shall request the officer to have this done before he completes and delivers his tender.
9. For works of sensitive nature the tenderers shall sign a declaration under the Official Secrets Act 1923, for maintaining secrecy of the tender documents drawing or other records connected with the work given to them. The unsuccessful tenderers shall return all the drawing given to them.

Applicable for
Percentage
Rate Tender
only (PWD- 2)

10. In case of Percentage Rate Tenders only percentage quoted shall be considered. Any tender containing item rates is liable to be rejected. Percentage quoted by the contractor in percentage rate tender shall be accurately filled in figures and words, so that there is no discrepancy. However if the contractor has worked out the amount of the tender and if any discrepancy is found in the percentage quoted in words and figures, the percentage which corresponds with the amount worked out by the contractor shall, unless otherwise proved, be taken as correct. If the amount of the tender is not worked out by the contractor or it does not correspond with the percentage written either in figures or in words then the percentage quoted by the contractor in words shall be taken as correct. Where the percentage quoted by the contractor in figures and in words tally but the amount is not worked out correctly, the percentage quoted by the contractor will, unless otherwise proved, be taken as correct and not the amount.

11. In the case of any tender where unit rates of any item/items appear unrealistic, such tender will be considered as unbalanced and in case the tenderer is unable to provide satisfactory explanation such a tender is liable to be disqualified and rejected.

Applicable for
Percentage
Rate Tender
only (PWD- 2)

12. In Percentage Rate Tender, the tenderer shall quote percentage below/above (in figures as well as in words) at which he will be willing to execute the work. He shall also work out the total amount of his offer and the same should be written in figures as well as in words in such a way that no interpolation is possible. In case of figures, the word 'Rs' should be written before the figure of rupees and word P after the decimal figures, e.g. 'Rs 2.15 P' and in case of words, the word 'Rupees' should precede and the word 'paise' should be written at the end.

The Quoted rate less than $x\%$ below the BOQ cost will be unworkable and bid will be rejected where $x = 10\%$;

13. (i) The contractor whose tender is accepted, will be required to furnish performance guarantee of 2 (two percent) including earnest money of the tendered amount within specified period. This guarantee shall be in the form of Govt. Securities or fixed deposit receipt of any scheduled bank, guarantee bonds of any scheduled bank or State Bank of India or Bank guarantee from any schedule bank in the State for works of more than one crore.
- (ii) The contractor whose tender is accepted, will also be required to furnish by way of Security Deposit for the fulfillment of his contract, an amount equal to 8 % of the tendered value of the work. The security deposit will be collected by deductions from the running bills of the contractor at the rates mentioned above
14. On acceptance of the tender, the name of the accredited representative(s) of the contractor who would be responsible for taking instructions from the Engineer-in-Charge shall be communicated in writing to the Engineer-in-Charge.
15. Sales-tax, purchase tax, turnover tax, service tax, entry tax royalty or any other tax on material in respect of this contract shall be payable by the Contractor and Government will not entertain any claim whatsoever in respect of the same.
16. The contractor shall give a list of both gazetted and non-gazetted P.W.D. employees related to him posted in the division, if any.
17. The tender for the work shall not be witnessed by a contractor or contractors who himself/themselves has/have tendered or who may and has/have tendered for the

same work. Failure to observe this condition would render, tenders of the contractors tendering, as well as witnessing the tender, liable to summary rejection.

18. The tender for composite work includes in addition to building work all other works such as sanitary and water supply installations drainage installation, electrical work, horticulture work, roads and paths etc. The tenderer apart from being a registered contractor (B&R) of appropriate class, must associate himself with agencies of appropriate class which are eligible to tender for sanitary and water supply drainage, electrical and horticulture works in the composite tender.
19. The contractor shall submit list of works which are in hand (progress) in the following form: -

Name of work	Name and Particular of Division. where work is	Value of work	Position of work in progress	Remarks

20. The contractor shall comply with the provisions of the Apprentices Act 1961, and the rules and orders issued thereunder from time to time. If he fails to do so, his failure will be a breach of the contract and the Superintending Engineer/Executive Engineer may in his discretion without prejudice to any other right or remedy available in law cancel the contract. The contractor shall also be liable for any pecuniary liability arising on account of any violation by him of the provisions of the said Act.

CP

CONDITIONS OF CONTRACT

Definitions :

1. The contract means the document forming the tender and acceptances thereof and the formal agreement executed between the competent authority on behalf of the Governor of Bihar and the Contractor, together with the documents referred to therein including these conditions, the specifications, designs, drawings and instructions issued from time-to-time form one contract and shall be complementary to one another.
2. In the contract, the following expressions shall, unless the context otherwise requires have the meanings, hereby respectively assigned to them: -
 - i) The expression works or work shall, unless there be something either in the subject or context repugnant to such construction, be construed and taken to mean the works by or by virtue of the contract contracted to be executed whether temporary or permanent, and whether original, altered, substituted or additional.
 - ii) The site shall mean the land/or other places on, into or through which work is to be executed under the contract or any adjacent land, path or street through which work is to be executed under the contract or any adjacent land, path or street which may be allotted or used for the purpose of carrying out the contract.
 - iii) The Contractor shall mean the individual, firm or company, whether incorporate or not, undertaking the works and shall include the legal personal representative of such individual or the persons composing such firm or company, or the successors of such firm or company and the permitted assignees of such individual, firm of company.
 - iv) The Engineer-in-Charge means the Engineer officer who shall supervise and be in-charge of the work and who shall sign the contract on behalf of the Governor of Bihar as mentioned in Schedule 'F' hereunder.
 - v) Government or Government of Bihar shall mean the Governor of Bihar.
 - vi) Excepted Risk are risks due to riots (other than those on account of contractor employees), war (whether declared or not) invasion, act of foreign enemies, hostilities, civil war, rebellion revolution, insurrection, any act of Government, damages from aircraft, acts of God, such as earthquake, lightening and unprecedented floods, and other causes over which the contractor has no control and accepted as such by the Accepting Authority Provided that the contractor is also to show that he has taken all due precautions to avoid / un minimise any adverse after / damage from the above or causes solely due to use or occupation by Government of the part of the works in respect of which a certificate of completion has been issued or a caused solely due to Government's faulty design of works.
 - vii) Bill of quantity means the price and completed Bill of Quantities forming part of the Bid.
 - viii) The Defect liability certificate is the certificate issued by Engineer-in-Charge after defect liability period has ended and upon correction of defects by the contractor.
 - ix) The defect liability period will be decided by the department for different nature of works from date of completion of the work and must be mentioned in the agreement.

It will be decided by the department for different nature of work from time to time as mentioned in contract Data.
 - x) The intended completion date is the time intended to complete the work by the contractor.
 - xi) 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 date.
 - xii) A sub-contractor is a person or corporate body who has a contract with the contractor to carry out a part of the construction work in the contract, which includes work on the site.

- xiii) Temporary works are works designed, constructed, installed and removed by the contractor that are needed for construction or installation of the works.
- xiv) Market Rate shall be the rate as decided by the competent authority on the basis of the cost of materials and labour at the site where the work is to be executed plus the percentage mentioned in Schedule 'F' to cover, all overheads and profits.
- xv) Schedule(s) referred to in these conditions shall mean the relevant schedule(s) annexed to the tender papers or the standard Schedule of Government mentioned in Schedule 'F' hereunder, with the amendments thereto issued up to date of receipt of the tender.
- xvi) Department means any department of Government of Bihar, which invite tenders on behalf of Governor of Bihar as specified in schedule 'F'.
- xvii) Specifications means the specifications followed by relevant department of the Government of India / State Government.
- xviii) Tender value means the value of the entire work as stipulated in the letter award.
- xix) Approved means approval in writing by competent authority of the Department.
- xx) Chief Engineer means concerned Chief Engineer, Sinchai Srijan, UD&HD, Siwan or any other Chief Engineer duly notified in future by the Department. Chief Engineer shall be Technical or Administrative head of the work.
- xxi) Drawing means the drawings referred to in the specifications, any modification of such drawings approved in writing by the superintending Engineer and such other drawings as may from time to time be furnished or approved in writing by the concerned superintending Engineer.
- xxii) Superintending Engineer (S.E.) means the concerned S.E. who is the technical and administrative head of the circle in which this work on part of work lies and in future any other Superintending Engineer to be duly notified by the department.
- xxiii) Executive Engineer means the Engineer officer who is the technical and administrative head of the division in which the work lies and in future any other Executive Engineer to be duly notified by the department.

Scope and
Performance

- 3. Where the context so requires, words imparting the singular only also include the plural and vice versa. Any reference to masculine gender shall whenever required include feminine gender and vice versa.
- 4. Heading and Marginal notes to these General Conditions of Contract shall not be deemed to form part thereof or be taken into consideration in the interpretation or construction thereof or of the contract.
- 5. The contractor shall be furnished, free of cost one certified copy of the contract documents except standard specifications, Schedule of Rates and such other printed and published documents, together with all drawings as may be forming part of the tender papers. None of these documents shall be used for any purpose other than that of this contract.

Works to be
carried out :

- 6. The work to be carried out under the Contract shall, except as otherwise provided these conditions, include all labour, materials, tools, plants, equipment and transport which may be required in preparation of and for and in the full and entire execution and completion of the works. The descriptions given in the Schedule of Quantities (Schedule - A) shall unless otherwise stated, be held to include wastage

on materials, carriage and cartage, carrying and return of empties, hoisting, setting, fitting and fixing in position and all other labours necessary in and for the full and entire execution and completion of the work as aforesaid in accordance with good practice and recognized principles.

Discrepancies
and Adjustment
of Errors

7. The contractor shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of his tender for the works and of the rates and prices quoted in the Schedule of Quantities, which rates and prices shall, except as otherwise provided, cover all his obligations under the Contract and all matters and things necessary for the proper completion and maintenance of the works.

8. The several documents forming the contract are to be taken as mutually explanatory of one another, detailed drawings being followed in preference to small scale drawing and figured dimensions in preference to scale and special conditions in preference to General Conditions.

8.1 In the case of discrepancy between the schedule of Quantities, the Specifications and/or the Drawings, the following order of preference shall be observed: -

- i) Description of Schedule of Quantities.
- ii) Particular Specification and Special Condition, if any
- iii) Drawings.
- iv) MORT & H specification.
- v) Indian Standard Specifications of B.I.S.

8.2 If there are varying or conflicting provisions made in any one document forming part of the contract, the Accepting Authority shall be the deciding authority with regard to the intention of the document and his decision shall be final and binding on the contractor.

8.3 Any error in description, quantity or rate in Schedule of Quantities or any omission therefrom shall not vitiate the Contract or release the Contractor from the execution of the whole or any part of the works comprised therein according to drawings and specifications or from any of his obligations under the contract.

Signing of
Contract

9. The successful tenderer/contractor, after submitting the performance guarantee i.e. within 7 days of receipt of letter of acceptance shall attend the office of the Engineer-in-Charge for authentication signing and completion of the contractor document and execute the agreement consisting of: -

- i) the notice inviting tender, all the documents including drawings, if any, forming the tender as issued at the time of invitation of tender and acceptance thereof together with any correspondence leading thereto.
- ii) Standard P.W.D. Form as mentioned in Schedule 'F' consisting of:

Various standard clauses with corrections up to the date stipulated in Schedule 'F' along with annexure thereto.

CLAUSE OF CONTRACT

CLAUSE 1

Performance Guarantee

- (i) The contractor shall submit an irrevocable PERFORMANCE GUARANTEE of 2% (Two percent) of the tendered amount including earnest money in the shape as mentioned in the Bihar Financial Rules or Bank Guarantee (for work costing more than one crore) or any other deposits mentioned for his proper performance of the contract agreement, (not withstanding and/or without prejudice to any other provisions in the contract) within period specified in scheduled 'F' from the date of issue of letter of acceptance. This period can be further extended by the Engineer-in-Charge up to a maximum period as specified in schedule 'F' on written request of the contractor stating the reason for delays in procuring the Bank Guarantee, to the satisfaction of the Engineer-in-Charge. This Bank Guarantee shall be in favour of Executive Officer, Nagar Parishad Mahua.
- (ii) The performance Guarantee shall be initially valid up to 28 days beyond the defect liability.
- (iii) The Engineer-in-Charge shall not make a claim under the Performance guarantee except for amounts to which the Governor of Bihar is entitled under the contract (notwithstanding and/or without prejudice to any other provisions in the contract agreement) in the event of:
 - (a) Failure by the contractor to extend the validity of the Performance Guarantee as described herein above, in which event the Engineer-in-Charge may claim the full amount of the Performance guarantee.
 - (b) Failure by the contractor to pay Governor of Bihar any amount due, either as agreed by the contractor or determined under any of the Clauses/Conditions of the agreement, within 30 days of the service of notice to this effect by Engineer-in-Charge.
 - (c) Failure by the contractor to rectify any defects as defined in the defect liability clause in the schedule - F of contract data to the satisfaction of the Engineer in charge.
- (iv) In the event of the contract being determined or rescinded under provisions of any of the clause/condition of the agreement, the performance guarantee shall stand forfeited in full and shall be absolutely at the disposal of the Governor of Bihar.

CLAUSE 1 A

Recovery of Security Deposit

The person/persons whose tender(s) may be accepted (hereinafter called the contractor) shall permit Government at the time of making any payment to him for work done under the contract to deduct a sum at 8 % (eight percent) from the gross amount of each running bill till full amount of security deposit 10% (ten percent) of agreement value or value of work (whichever is higher) is reached. If value of work exceeds the agreement value, security deposit (10%) will be recovered for the exceeded work.

All compensations or the other sums of money payable by the contractor under the terms of this contract may be deducted from, or paid by the sale of a sufficient part of his security deposit or from the interest arising there from, or from any sums which may be due to or may become due to the contractor by Government on any account whatsoever and in the event of his Security Deposit being reduced by reason of any such deductions or sale as aforesaid, the contractor shall within 10 days make good in cash or fixed deposit receipt tendered by the State Bank of India or by Scheduled Banks or Government Securities (if deposited for more than 12 months) endorsed in favour of the Engineer-in-Charge, any sum or sums which may have been deducted from, or raised by sale of his security deposit or any part thereof. The security deposit shall be collected from the running bills of the contractor at the rates mentioned above and the earnest money at the time of tenders will be treated a part of the Security Deposit.

P C

CLAUSE 2

Compensation
for Delay
(Liquidated
Damage)

If the contractor fails to maintain the required progress in terms of clause 5 or to complete the work and clear the site on or before the contract or extended date of completion, he shall, without prejudice to any other right or remedy available under the law to the Government on account of such breach, pay as agreed compensation the amount calculated at the rates stipulated below as the Superintending Engineer (whose decision in writing shall be final and binding) may decide on the amount of tendered value of the work for every completed day/month (as applicable) that the progress remains below that specified in Clause 5 or that the work remains incomplete.

This will also apply to items or group of items for which a separate period of completion has been specified.

i) Compensation
for delay of work

@ 2 % per month of delay to be computed on per
Day basis

Provided always that the total amount of compensation for delay to be paid under this condition shall not exceed 10% of the Tendered Value of work or to the Tendered Value of the item or group of items of work for which a separate period of completion is originally given.

The amount of compensation may be adjusted or set-off against any sum payable to the Contractor under this or any other contract with the Government. In case, the contractor does not achieve a particular milestone mentioned in schedule- F, or the rescheduled milestone(s) in terms of Clause 5.4, the amount shown against that milestone shall be withheld, to be adjusted against the compensation levied at the final grant of extension of time. Withholding of this amount on failure to achieve a milestone, shall be automatic without any notice to the contractor. However, if the contractor catches up with the progress of work on the subsequent milestone(s), the withheld amount shall be released. In case the contractor fails to make up for the delay in subsequent milestone(s), amount mentioned against each milestone missed subsequently also shall be withheld. However, no interest, whatsoever, shall be payable on such withheld amount.

CLAUSE 2A

Incentive
for early
completion

In case, the contractor completes the work ahead of scheduled completion time, a bonus @ 1% (one percent) of the tendered value per month computed on per day basis, shall be payable the contractor, subject to a maximum limit of 5% (five percent) of the tendered value. The amount of bonus, if payable, shall be paid along with final bill after completion of work. Provided always that provision of the Clause 2A shall be applicable only when so provided in 'Schedule F'.

CLAUSE 3

When Contract
can be
Determined /
Rescined

Subject to the other provisions contained in this clause the Engineer-In-Charge may, without prejudice to his any other rights or remedy against the contractor in respect of any delay inferior workmanship, any claims for damages and/or any other provisions of this contract or otherwise, and whether the date of completion has or has not elapsed, by notice in writing absolutely determine the contract in any of the following cases :

- i) If the contractor having been given by the Engineer-in-Charge a notice in writing to rectify, reconstruct or replace any defective work or that the work is being performed in an inefficient or otherwise improper or unworkman like manner shall omit to comply with the requirement of such notice for a period of seven days thereafter.
- ii) If the contractor being a company shall pass a resolution or the court shall make an order that the company shall be wind up or if a receiver or a manager on behalf of a creditor shall be appointed or if circumstances shall arise which entitle the court or the creditor to appoint a receiver or a manager or which entitle the court to make a winding up order.
- iii) if the contractor has, without reasonable cause, suspended the progress of the work or has failed to proceed with the work with due diligence so that in the

opinion of the Engineer-in-Charge (which shall be final and binding) he will be unable to secure completion of the work by the date of completion and continues to do so after a notice in writing of seven days from the Engineer-in-Charge.

- iv) If the contractor fails to complete the work within the stipulated date or items of work with individual date of completion, if any stipulated, on or before such date(s) of completion and does not complete them within the period specified in a notice given in writing in that behalf by the Engineer-in-Charge.
- v) If the contractor persistently neglects to carry out his obligations under the contract and/or commits default in complying with any of the terms and conditions of the contract and does not remedy it or take effective steps to remedy it within 7 days after a notice in writing is given to him in that behalf by the Engineer-in-Charge.
- vi) If the contractor commits any acts mentioned in Clause 21 hereof:
- vii) If the work is not started by the contractor within 1/8th of the stipulated time subject to the maximum of 15 days.

When the contractor has made himself liable for action under any of the cases aforesaid, the Engineer-in-Charge on behalf of the Governor of Bihar shall have powers:

- a) To determine or rescind the contract as aforesaid (of which termination or rescission notice in writing to the contractor under the hand of Engineer-in-Charge shall be conclusive evidence). Upon such determination or rescission, the Earnest Money Deposit, Security Deposit already recovered and Performance Guarantee under the contract shall be liable to be forfeited and shall be absolutely at the disposal of the Government.
- b) After giving notice to the contractor to measure up the work of the contractor and to take such whole, or the balance or part thereof as shall be un-executed out of his hands and to give it to another contractor to complete the work. The contractor, whose contract is determined or rescinded as above, shall not be allowed to participate in the tendering process for the balance work.

In the event of above course(s) being adopted by the Engineer-in-Charge, the contractor shall have no claim to compensation for any loss sustained by him by reasons of his having purchased or procured any materials or entered into any engagements or made any advances on account or with a view to the execution of the work or the performance of the contract. And in case action is taken under any of the provision aforesaid the contractor shall not be entitled to recover or be paid any sum for any work thereof or actually performed under this contract unless and until the Engineer-in-Charge has certified in writing the performance of such work and the value payable in respect thereof and he shall only be entitled to be paid the value so certified.

CLAUSE 3A

In case, the work cannot be started due to reasons not within the control of the contractor as decided by Chief Engineer within 1/4th of the stipulated time for completion of work, either party may close the contract. In such eventuality, the Earnest Money deposit and the Performance Guarantee of the contractor shall be refunded, but no payment on account of interest, loss of profit or damages etc. shall be payable at all. the reasons shall be examined by the Superintending Engineer and his decision shall be final and binding.

CLAUSE 4

Contractor liable to
pay compensation
even if action not
taken under

In any case in which any of the powers conferred upon the Engineer-in-Charge by Clause- 3 thereof, shall have become exercisable and the same are not exercised the non-exercise thereof shall not constitute a waiver of any of the conditions hereof and such powers shall notwithstanding be exercisable in the event of any future case of default by the contractor and the liability of the contractor for compensation shall remain unaffected. In the event of the Engineer-in-Charge putting in force all or any of the powers vested in him under the preceding clause he may, if he so desires after giving a notice in writing to the contractor, take possession of (or at the sole discretion of the Engineer-in-Charge which shall be final and binding on the contractor) use as on hire (the amount of the hire money being also in the final determination of the Engineer-in-Charge) all or any tools, plant, materials and stores, in or upon the works, or the site thereof belonging to the contractor, or procured by the contractor and intended to be used for the execution of the work. or any part thereof, paying or allowing for the same in account at the contract rates or, in the case of these not being applicable, at current market rates to be certified by the Engineer-in-Charge, whose certificate thereof shall be final, and binding on the contractor, clerk of the works, foreman or other authorized agent to remove such tools, plant, materials, or stores from the premises (within a time to be specified in such notice) in the event of the contractor failing to comply with any such requisition, the Engineer-in-Charge may remove them at the contractor's expense or sell them by auction or private sale on account of the contractor and his risk in all respects and the certificate of the Engineer-in-Charge as to the expenses of any such removal and the amount of the proceeds and expenses of any such sale shall be final and conclusive against the contractor.

CLAUSE 5

Time and
Extension for
Delay

The time allowed for execution of the Works as specified in the Schedule 'F' or the extended time in accordance with these conditions shall be the essence of the Contract. The execution of the works shall commence from such time period as mentioned in letter of acceptance or from the date of handing over of the site whichever is later. If the Contractor commits default in commencing the execution of the work as aforesaid, Government shall without prejudice to any other right or remedy available in law, be at liberty to forfeit the security deposit absolutely.

- 5.1 As soon as possible after the contract is concluded the Contractor shall submit a Time & Progress Chart for each milestone and get it approved by the Department. The Chart shall be prepared in direct relation to the time stated in the Contract documents for completion of items of the work. It shall indicate the forecast of the dates of commencement and completion of various trades or sections of the work and may be amended as necessary by agreement between the Engineer-in-Charge and Contractor within the limitations of time imposed in the contract documents, and further to ensure good progress during the execution of the work, the contractor shall in all cases in which the time allowed for any work, exceeds one month (save for special jobs for which a separate Programme has been agreed upon) complete the work as per milestone given in schedule 'F'.
- 5.2 If the work(s) be delayed by.
 - i) force majeure, or
 - ii) Serious loss or damage by fire, or
 - iii) Civil commotion, local.
 - iv) delay on the part of other contractors or tradesmen engaged by Engineer-in-Charge in executing work not forming part of the Contract, or
 - v) non-availability of stores, which are the responsibility of Government to supply or
 - vi) non-availability or break down of tools and Plant to be supplied or supplied by Government or
 - vii) any other cause which, in the absolute discretion of the authority mentioned in Schedule 'F' is beyond the Contractor's control.

then upon the happening of any such event causing delay, the Contractor shall immediately give notice thereof in writing to the Engineer-in-Charge but shall nevertheless use constantly his best endeavors to prevent or make good the delay and

shall do all that may be reasonably required to the satisfaction of the Engineer-in-Charge to proceed with the works.

- 5.3 Request for the rescheduling of Milestones and extension of time, to be eligible for consideration, shall be made by the contractor in writing within fourteen days of the happening of the hindering event causing delay on the prescribed form. The Contractor may also, if practicable, indicate in such a request the period for which extension is desired.
- 5.4 In any such case the authority mentioned in Schedule 'F' may give a fair and reasonable extension of time and reschedule the milestones for completion of work. Such extension shall be communicated to the Contractor by the Engineer-in-Charge in writing, within 3 months of the date of receipt of such request. Non application by the contractor for extension of time shall not be a bar for giving a fair and reasonable extension by the Engineer-in-Charge and this shall be binding on the contractor.
- 5.5 The basic centerlines, reference points and benchmarks will be fixed by the department. The contractor shall be established at his own cost at suitable points, additional reference lines and bench marks as may be necessary and instructed by the engineer-in-charge. The contractor shall remain responsible for the sufficiency and accuracy of all the bench marks and reference lines.

CLAUSE 5A

The Engineer may require the contractor to attend a progress review meeting during execution of work.

The Engineer shall record the minutes of the meeting and provide a copy to the Contractor for compliance. These minutes will be a part of evidence in case of any request for extension of time or impunities action against the contractor.

CLAUSE 6

Measurement of Work Done

Engineer-in-Charge shall, except as otherwise provided, ascertain and determine measurement and the value in accordance with the contract of work done.

All measurement of all items having financial value shall be entered in Measurement Book and/or level field book so that a complete record is obtained of all works perform under the contract.

All measurements and levels shall be taken jointly by the Engineer-in-Charge or his authorized representative and by the contractor or his authorized representative at bast once in a month during the progress of the work and such measurements shall be signed and dated by the Engineer-in-Charge and the contractor or their representatives in token their acceptance. If the contractor objects to any of the measurements recorded, a note shall be made to that effect with reason and signed by both the parties.

If for any reason the contractor or his authorized representative is not available and the work of recording measurements is suspended by the Engineer-in-Charge or his representative, the Engineer-in-Charge and the Department shall not entertain any claim from contractor for any loss or damages on this account. If the contractor or his authorized representative does not remain present at the time of such measurements after the contractor or his authorized representative has been given a notice in writing three (3) days in advance or fails to countersign or to record objection within a week from the date of the measurement, then such measurements recorded in his absence by the Engineer-in-Charge or his representative shall be deemed to be accepted by the Contractor.

The contractor shall, without extra charge, provide all assistance with every appliance labour and other things necessary for measurements and recording levels.

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Except where any general or detailed description of the work expressly shows to the contrary, measurements shall be taken in accordance with the procedure set forth in the specifications notwithstanding any provision in the relevant Standard Method of measurement or any general or local custom. In the case of items which are not covered by specifications, measurements shall be taken in accordance with the relevant standard method of measurement issued by the Bureau of India Standards and if for any item no such standard is available then a mutually agreed method as approved by the department shall be followed.

The contractor shall give not less than seven days' notice to the Engineer-in-Charge or his authorized representative in charge of the work before covering up or otherwise placing beyond the reach of measurement any work in order that the same may be measured and correct dimension thereof be taken before the same is covered up or placed beyond the reach of measurement and shall not cover up and place beyond reach of measurement any work without consent in writing of the Engineer-in-Charge or his authorized representative in charge of the work who shall within the aforesaid period of seven days inspect the work, and if any work shall be covered up or placed beyond the reach of measurements without such notice having been given or the Engineer-in-Charge's consent being obtained in writing the same shall be uncovered at the contractor's expense, or in default thereof no payment or allowance shall be made for such work or the materials with which the same was executed.

Engineer-in-Charge or his authorized representative may cause either themselves or through another officer of the department to check the measurements recorded jointly or otherwise as aforesaid and all provisions stipulated herein above shall be applicable to such checking of measurements or levels.

It is also a term of this contract that recording of measurements of any item of work in the measurement book and/or its payment in the interim, on account or final bill shall not be considered as conclusive evidence as to the sufficiency of any work or material to which it relates nor shall it relieve the contractor from liabilities from any over measurement defects noticed till completion of the defects liability period.

CLAUSE 7

Payment on
Intermediate
Certificate to be
Regarded as
Advances

No payment shall be made for work for less than the estimated work of Rs. 2.5 lacs till the whole of the work shall have been completed and certificate of completion given. For works estimated to cost over Rs. 2.5 lacs the interim or running account bill shall be submitted by the contractor for the work executed on the basis of such recorded measurements on the format of the Department in triplicate on or before the date of every month fixed for the same by the Engineer-in-Charge. The contractor shall not be entitled to be paid any such interim payment if the gross work done together with net payment/ adjustment of advances for material collected, if any, since the last such payment is less than the amount specified in Schedule 'F', in which case the interim bill shall be prepared on the appointed date of the month after the requisite progress is achieved. The Engineer-in-Charge shall arrange to have the bill verified by taking or causing to be taken, where necessary, the requisite measurements of the work. In the event of the failure of the contractor to submit the bills, Engineer-in-Charge shall prepare or cause to be prepared such bills in which event no claims whatsoever due to delays on payment including that of interest shall be payable to the contractor. Payment on account of amount admissible shall be made by the Engineer-in-Charge certifying the sum to which the contractor is considered entitled by way of interim payment at such rates as decided by the Engineer-in-Charge. The amount admissible shall be paid by 10th working day after the day of presentation of the bill by the Contractor to the Engineer-in-Charge or his Assistant Engineer together with the account of the material issued by the department, or dismantled materials, if any. In the case of works outside the headquarters of the Engineer-in-Charge the period of ten working days will be extended to fifteen working days.

All such interim payments shall be regarded as payment by way of advances against final payment only and shall not preclude the requiring of bad, unsound and imperfect or unskilled work to be rejected, removed, taken away and reconstructed or re-erected. Any certificate given by the Engineer-in-Charge relating to the work done or materials delivered forming part of such payment may be modified or corrected by any subsequent such certificate(s) or by the final certificate and shall not by itself be conclusive evidence that any work or materials to which it relates is/are in accordance with the contract and specifications. Any such interim payment, or any part thereof

shall not in any respect conclude, determine or affect in any way powers of the Engineer-in-Charge under the contract or any of such payments be treated as final settlement and adjustment of accounts or in any way vary or affect the contract.

Pending consideration of extension of date of completion interim payments shall continue to be made as herein provided as per clause - 2, without prejudice to the right of the department to take action under the terms of this contract for delay in the completion of work, if the extension of date of completion is not granted by the competent authority.

CLAUSE 8

Completion
Certificate and
Completion Plans

Within ten days of the completion of the work, the contractor shall give notice of such completion to the Engineer-in-Charge and within fifteen days of the receipt of such notice the Engineer-in-Charge shall inspect the work and if there is no defect in the work shall furnish the contractor with a final certificate of completion, otherwise a provisional certificate of physical completion indicating defects (a) to be rectified by the contractor and/or (b) for which payment will be made at reduced rates, shall be issued. But no final certificate of completion shall be issued, nor shall the work be considered to be complete until the contractor shall have removed from the premises on which the work shall be executed all scaffolding, surplus materials, rubbish and all huts and sanitary arrangements required for his/their work people on the site in connection with the execution of the works as shall have been erected or constructed by the contractor(s) and cleaned off the dirt from all wood work, doors, windows, walls, floor or other parts of the building, in, upon, or about which the work is to be executed or of which he may have had possession for the purpose of execution thereof, and not until the work shall have been measured by the Engineer-in-Charge. If the contractor shall fail to comply with the requirements of this clause as to removal of scaffolding, surplus materials and rubbish and all huts and sanitary arrangements as aforesaid and cleaning off dirt on or before the date fixed for the completion of work, the Engineer-in-Charge may at the expense of the contractor remove such scaffolding surplus materials and rubbish etc. and dispose of the same as he thinks fit and clean off such dirt as aforesaid, and the contractor shall have no claim in respect of scaffolding or surplus materials as aforesaid except for any sum actually realized by the sale thereof.

CLAUSE 8A

Contractor to
Keep Site Clean

When the annual repairs and maintenance of works are carried out, the splashes and droppings from white washing, color washing, painting etc. on walls, floor, windows etc. shall be removed and the surface cleaned simultaneously with the completion of these items of work in the individual rooms, quarters or premises etc. where the work is done without waiting for the actual completion of all the other items of work in the contract. In case the contractor fails to comply with the requirements of this clause, the Engineer-in-Charge shall have the right to get this work done at the cost of the contractor either departmentally or through any other agency. Before taking such action, the Engineer-in-Charge shall give ten days' notice in writing to the contractor.

CLAUSE 8 B

Completion Plans
to be Submitted
by the Contractor

The contractor shall submit completion plan as required vide General Specifications for Electrical works (Part-I internal) 1972 and (Part-II External) 1974 as applicable within thirty days of the completion of the work.

In case, the contractor fails to submit the completion plan as aforesaid, he shall be liable to pay a sum equivalent to 2.5% of the value of the work subject to a ceiling of Rs. 15,000 (Rs. Fifteen thousand only) as may be fixed by the Superintending Engineer concerned and in this respect the decision of the Superintending Engineer shall be final and binding on the contractor.

CLAUSE 9

Payment of Final
Bill

The final bill shall be submitted by the contractor in the same manner as specified in interim bills within three months of physical completion of the work or within one month of the date of the final certificate of completion furnished by the Engineer-in-

Charge whichever is earlier. No further claims shall be made by the contractor after submission of the final bill and these shall be deemed to have been waived and extinguished. Payments of those items of the bill in respect of which there is no dispute and of items in dispute, for quantities and rates as approved by Engineer-in-Charge, will, as far as possible be made within the period specified herein under, the period being reckoned from the date of receipt of the bill by the Engineer-in-Charge or his authorized Assistant Engineer, complete with account of materials issued by the Department and dismantled materials.

i) If the Tendered value of work is up to Rs. 1 crore: 2 months

ii) If the Tendered value of work exceeds Rs. 1 crore: 4 months

CLAUSE 9 A

Payment of
Contractor's Bills
to Banks

Payments due to the contractor may, if so desired by him, be made to his bank instead of direct to him provided that the contractor furnishes to the Engineer-in-Charge (1) an authorization in the form of a legally valid document such as a power of attorney conferring authority on the bank to receive payments and (2) his own acceptance of the correctness of the amount made out as being due to him by Government or his signature on the bill or other claim preferred against Government before settlement by the Engineer-in-Charge of the account or claim by payment to the bank. While the receipt given by such banks shall constitute a full and sufficient discharge for the payment, the contractor shall wherever possible present his bills duly receipted and discharges through his bankers.

Nothing herein contained shall operate to create in favour of the bank any rights or equities vis-a-vis the Governor of Bihar.

CLAUSE 10

Materials supplied
by Government

Materials which Government will supply in rare case are shown in schedule 'B' which also stipulates quantum, place of issue and rate(s) to be charged in respect thereof. The contractor shall be bound to procure them from the Engineer-in-Charge.

As soon as the work is awarded, the contractor shall finalize the programme for the completion of work as per clause 5 of this contract and shall give his estimates of materials required on the basis of drawings/or schedule of quantities of the work. The Contractor shall give in writing his requirement to the Engineer-in-Charge which shall be issued to him keeping in view the progress of work as assessed by the Engineer-in-Charge, in accordance with the agreed phased programme of work indicating monthly requirements of various materials. The contractor shall place his indent in writing for issue of such materials at least 7 days in advance of his requirement.

Such materials shall be supplied for the purpose of the contract only and the value of the materials so supplied at the rates specified in the aforesaid schedule shall be set off or deducted, as and when materials are consumed in items of work (including normal wastage) for which payment is being made to the contractor, from any sum then due or which may therefore become due to the contractor under the contract or otherwise or from the security deposit. At the time of submission of bills the contractor shall certify that balance of materials supplied is available at site in original good condition.

The contractor shall submit along with every running bill (on account or interim bill) material wise reconciliation statements supported by complete calculations reconciling total issue, total consumption and certified balance (diameter/section-wise in the case of steel) and resulting variations and reasons therefore. Engineer-in-Charge shall (whose decision shall be final and binding on the contractor) be within his rights to follow the procedure of recovery in clause 42 at any stage of the work if reconciliation is not found to be satisfactory.

The contractor shall bear the cost of getting the material issued, loading, transporting to site, unloading, storing under cover as required, cutting assembling and joining the several parts together as directed by the engineer-in-charge. Notwithstanding anything to the contrary contained in any other clause of the contract and (or the PWD Code) all stores/materials so supplied to the contractor or procured with the assistance of the Government shall remain the absolute property of Government and the contractor shall be the trustee of the stores/materials, and the said stores/materials

shall not be removed/disposed of from the site of the work on any account and shall be at all times open to inspection by the Engineer-in-Charge or his authorized agent. Any such stores/materials remaining unused shall be returned to the Engineer-in-Charge in as good a condition in which they were originally supplied at a require, but in case it is decided not to take back the stores/materials the contractor shall have no claim for compensation on any account of such stores/materials so supplied to him as aforesaid and not used by him or for any wastage in or damage to in such stores/materials.

On being required to return the stores/materials, the contractor shall hand over the stores/materials on being paid or credited such price as the Engineer-in-Charge shall determine, having due regard to the condition of the stores/materials. The price allowed for credit to the contractor, however, shall be at the prevailing market rate not exceeding the amount charged to him, excluding the storage charge, if any. The decision of the Engineer-in-Charge shall be final and conclusive. In the event of breach of the aforesaid condition, the contractor shall in addition to the throwing himself open to account for contravention of the terms of the licenses or permit and/or for criminal breach of trust, be liable to Government for all advantages or profits resulting or which in the usual course would have resulted to him by reason or such breach. Provided that the contractor shall in no case be entitled to any compensation or damages on account of any delay in supply or non-supply thereof all or any such materials and stores provided further that the contractor shall be bound to execute the entire work if the materials are supplied by the Government within the original scheduled time for completion of the work plus 50% thereof or schedule time plus 6 months whichever is more if the time of completion of work exceeds 12 months but if a part of the materials only has been supplied within the aforesaid period then the contractor shall be bound to do so much of the work as may be possible with the materials and stores supplied in the aforesaid period. For the completion of the rest of the work, the contractor shall be entitled to such extension of time as may be determined by the Engineer-in-Charge whose decision in this regard shall be final and binding on the contractor.

The contractor shall see that only the required quantities of materials are got issued. Any such material remaining unused and in perfectly good/original condition at the time of completion or determination of the contract shall be returned to the Engineer-in-Charge at the stores from which it was issued or at a place directed by him by a notice in writing. The contractor shall not be entitled for loading, transporting, unloading and stacking of such unused material except for the extra lead, if any involved, beyond the original place of issue. Quantities issued in excess of requirement with respect to work done and not returned back to the department, recovery will be made of double of issue rate.

CLAUSE 10 A

Materials to be
provided by the
Contractor

The contractor shall, at his own expense, provide all materials, required for the works other than those, which are stipulated, to be supplied by the Government.

The contractor shall, at his own expense and without delay, supply to the Engineer-in-Charge samples of materials to be used on the work and shall get these approved in advance. All such materials to be provided by the Contractor shall be in conformity with the specifications laid down or referred to in the contract. The contractor shall, if requested by the Engineer-in-Charge furnish proof, to the satisfaction of the Engineer-in-Charge that the materials so comply. The Engineer-in-Charge shall within fifteen days of supply of samples or within such further period as he may require intimate to the Contractor in writing whether sample are approved by him or not. If samples are not approved, the Contractor shall forthwith arrange to supply to the Engineer-in-Charge for his approval fresh samples complying with the specifications laid down in the contract. When materials are required to be tested in accordance with specifications, approval of the Engineer-in-Charge shall be issued after the test results are received.

The Contractor shall at his risk and cost submit the samples of materials to be tested or analysed and shall not make use of or incorporate in the work any materials represented by the samples until the required tests or analysis have been made and materials finally accepted by the Engineer-in-Charge. The Contractor shall not be eligible for any claim or compensation either arising out of any delay in the work or due to any corrective measures required to be taken on account of and as a result of testing of materials.

The contractor shall, at his risk and cost, make all arrangements and shall provide all facilities as the Engineer-in-Charge may require for collecting, and preparing the required number of samples for such tests at such time and to such place or places as may be directed by the Engineer-in-Charge and bear all charges and cost of testing unless specifically provided for otherwise elsewhere in the contract or specifications. The Engineer-in-Charge or his authorized representative shall at all time have access to the works and to all workshops and places where work is being prepared or from where materials, manufactured articles or machinery are being obtained for the works and the contractor shall afford every facility and every assistance in obtaining the right to such access.

The Engineer-in-Charge shall have full powers to require the removal from the premises of all materials which in his opinion are not in accordance with the specifications and in case of default the Engineer-in-Charge shall be at liberty to employ at the expense of the contractor, other persons to remove the same without being answerable or accountable for any loss for damage that may happen or arise to such materials. The Engineer-in-Charge shall also have full powers to require other proper materials to be substituted thereof and in case of default the Engineer-in-Charge may cause the same to be supplied and all costs which may attend such removal and substitution shall be borne by the Contractor.

CLAUSE 10 B

Secured Advance
on Non-perishable
Materials

- i) The contractor, on signing an indenture in the form to be specified by the Engineer-in-Charge, shall be entitled to be paid during the progress of the execution of the work up to 75% of the assessed value of any materials which are in the opinion of the Superintending Engineer nonperishable, non-fragile and noncombustible and are in accordance with the contract and on the site in connection therewith and are adequately stored and/or protected against damage by weather or other causes but which have not at the time of advance been incorporated in the works. When materials on account of which advance has been made under this sub-clause are incorporated in the work the amount of such advance shall be recovered/deducted from the next payment made under any or the clause or clauses of this contract.
- ii) Mobilization advances not exceeding 10% of the tendered value may be given, if requested by the contractor in writing within one month of the order to commence the work. In such a case the contractor shall execute a Bank Guarantee/ Bond from a Scheduled Nationalised Bank as specified by the Engineer-in-Charge for the full amount of such advance before it is released. Such advance shall be in two or more installments to be determined by the Engineer-In-charge at his absolute discretion. The first installment of such advance before shall be released by the Engineer-in-Charge to the contractor on a request made by the contractor to the Engineer-in-Charge in this behalf. The second and subsequent installment shall be released by the Engineer-in-Charge only after the contractor furnishes a proof of the satisfactory utilisation of the earlier installment to the entire satisfaction of the Engineer-In-Charge.

Plant & Machinery
& Shuttering
Material Advance

- iii) An advance for plant machinery required for the work and brought to site by the Contractor may be given if requested by the contractor in writing within one month of bringing such plant and machinery to site. Such advance shall be given on such plant and machinery which in the opinion of the Engineer-in-Charge will add to the expeditious execution of work and improve the quality of work. The amount of advance shall be restricted to 5% of the tender value. In the case of new plant and equipment to be purchased for the work the advance shall be restricted to 85% of the price of such new plant and equipment paid by the contractor for which the contractor shall produce evidence satisfactory to the Engineer-in-Charge and approval from Engineer-in-Charge. In the case of second hand and used plants and equipment, the amount of such advance shall be limited to 50% of the depreciated value of plant and equipment as may be decided by the Engineer-in-Charge. The contractor shall, if so required by the Engineer-in-Charge, submit the statement value of such old plant and equipment duly approved by a Registered Valuer recognized by the Central Board of Direct Taxes

under the Income-Tax Act, 1961. No such advance shall be paid on any plant and equipment of perishable nature and on the plant and equipment of a value less than Rs. 50,000/- Seventy five percent of such amount of advance shall be paid after the plant & equipment is brought to site and balance twenty five percent on successfully commissioning the same only after approval from Engineer-in-Charge.

Leasing of equipment shall be considered at par with purchase of equipment and shall be covered by tripartite agreement with the following:

1. Leasing company which gives certificate of agreeing to lease equipment to the contractor.
2. Engineer in Charge, and
3. The contractor.

This advance shall further be subject to the condition that such plant and equipment (a) are considered by the Engineer-in-Charge to be necessary for the works; (b) and are in and are maintained in working order; (c) hypothecated to the Government as specified by the Engineer-in-Charge before the payment of advance is released. The contractor shall not be permitted to remove from the site such hypothecated plant and equipment without the prior written permission of the Engineer-in-Charge. The contractor shall be responsible for maintaining such plant and equipment in good working order during the entire period of hypothecation falling which such advance shall be entirely recovered in lump sum. For this purpose, steel scaffolding and from work shall be treated as plant and equipment.

The contractor shall insure the Plant and Machinery for which mobilization advance is sought and given, for a sum sufficient to provide for their replacement at site. Any amounts not recovered from the insurer will be borne by the contractor.

Interest &
Recovery

- iv) The mobilization advances and plant and machinery advance in (ii)&(iii) above bear simple interest and should be equal to the prevailing rate of interest charged by the bank as mentioned in contract date schedule 'F' and shall be calculated from the date of payment to the date of recovery, both days inclusive, on the outstanding amount of advance. Recovery of such sums advanced shall be made by the deduction from the contractor's bills commencing after first ten per cent of the gross value of the work is executed and paid, on pro-rata percentage basis to the gross value of the work billed beyond 10% in such a way that the entire advance is recovered by the time eighty per cent of the gross value of the contract is executed and paid, together with interest due on the entire outstanding amount up to the date of the installment.
- v) If the circumstances are considered reasonable by the Engineer-in-Charge, the period mentioned in (ii) and (iii) for request by the contractor in writing for grant of mobilization advance and plant and equipment advance may be extended in the discretion of the Chief Engineer.
- vi) The said bank guarantee for advances shall initially be made for the full amount and valid for the contract period, and be kept renewed from time to time to cover the balance amount and likely period of complete recovery together with interest.
- vii) Any materials including tools plants equipment's brought to the site shall not be removed from the sites without the written permission of the Engineer-in-charge.

CLAUSE 10 C

Payment on
Account of
Increase in
Prices/Wages
due to Statutory
Order(s)

If after submission of the tender the price of any material incorporated in the works (not being a material supplied from the Engineer-in-Charge's stores in accordance with clause 10 thereof) and/or wages of labour increases as a direct result of the coming into force of any fresh law, or statutory rule or order (but not due to any changes in sales tax) and such increase in the price and/or wages prevailing at the time of the last

stipulated date for receipt of the tenders including extensions if any for the work, and the contractor thereupon necessarily and properly pays in respect of that material (incorporated in the works) such increased price and/or in respect of labour engaged on the execution of the work such increased wages, then the amount of the contract shall accordingly be varied and provided further that any such increase shall not be payable if such increase has become operative after the stipulated date of completion of the work in question.

If after submission of the tender, the price of any material incorporated in the works (not being a material supplied from the Engineer-in-Charge's stores in accordance with clause 10 thereof) and/or wages of labour is decreased as a direct result of the coming into force of any law or statutory rules or order (but not due to any changes in sales tax) and such decrease in the prices and/or wages prevailing at the time of receipt of the tender for the work. The government shall in respect of materials incorporated in the works (not being materials supplied from the Engineer-in-Charge's stores in accordance with Clause-10 hereof) and/or labour engaged on the execution of the work after the date of coming into force of such law statutory rule or order be entitled to deduct from the dues of the contractor such amount as shall be equivalent to the difference between the prices of the materials and/or wages as prevailed at the time of the last stipulated date for receipt of tenders including extensions if any for the work and the price of materials and/or wages of labour on the coming into force of such law, statutory rule or order.

The contractor shall, for purpose of this condition, keep such books of account and other documents as are necessary to show the amount of any increase claimed or reduction available and shall allow inspection of the same by a duly authorized representative of the Government, and further shall, at the request of the Engineer-in-Charge may require any documents so kept and such other information as the Engineer-in-Charge may require.

The contractor shall, within a reasonable time of his becoming aware of any alteration in the price of any such material and/or wages of labour, give notice thereof to the Engineer-in-Charge stating that the same is given pursuant to this condition together with all information relating thereto which he may be in position to supply.

CLAUSE 10 CA

Payment on
Account of
Increase/decrease
in Prices of
construction
materials after
receipt of tender.

If after submission of the tender, the price of cement or steel reinforcement bars / bitumen incorporated in the works (not being a material supplied from the Engineer-in-Charge's stores in accordance with Clause 10 thereof) increase(s) beyond the price(s) prevailing at the time of the last stipulated date for receipt of tenders (including extensions, if any) for the work, then the amount of the contract shall accordingly be varied and provided further that any such increase shall not be payable if such increase has become operative after the stipulated date of completion of work in question.

If after submission of the tender, the prices of cement and/or steel reinforcement bars / bitumen incorporated in the works (not being a material stipulated from the Engineer-in-Charge's stores in accordance with the Clause 10 thereof) is decreased, Government shall in respect of these materials incorporated in the works (not being materials supplied from the Engineer-in-Charge's stores in accordance with Clause 10 thereof) be entitled to deduct from the dues of the contractor such amount as shall be equivalent to the difference between the prices of Cement and/or Steel reinforcement bars/ bitumen as prevailed at the time of last stipulated date for receipt of tenders including extensions if any for the work and the prices of these materials on the coming into force of such base price of cement and/or steel reinforcement bars/ bitumen issued under authority of Schedule of Rate Committee.

The increase/decrease in prices shall be determined by the All India Wholesale Price Indices for Cement and Steel (bars and rods) as published by Economic Advisor to Government of India, Ministry of Commerce and Industry and base price for cement and/or steel reinforcement bars / bitumen as issued under authority of Schedule of Rate Committee as valid on the last stipulated date of receipt of tender, including extension if any and for the period under consideration.

The amount of the contract shall accordingly be varied for cement or steel reinforcement bars / bitumen and will be worked out as per the formula given below: -

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Adjustment for cement component

- (i) Price adjustment for increase or decrease in the cost of cement procured by the contractor shall be paid in accordance with the following formula:

$$V_0 = 0.85 \times P_c / 100 \times R \times (C_1 - C_0) / C_0$$

V_0 = increase or decrease in the cost of work during the month under consideration due to changes in rates for cement.

R = Value of the work.

C_0 = The all-India wholesale price index for cement on 28 days preceding the date of opening of Bids as published by the Ministry of Industrial Development, Government of India, New Delhi.

C_1 = The all-India average wholesale price index for cement for the month under consideration as published by Ministry of Industrial Development, Government of India, New Delhi.

P_c = Percentage of cement component of the work.

Adjustment for Steel component

- (ii) Price adjustment for increase or decrease in the cost of steel procured by the Contractor shall be paid in accordance with the following formula:

$$V_s = 0.85 \times P_s / 100 \times R \times (S_1 - S_0) / S_0$$

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 (Bars and Rods) on 25 days preceding the date of opening of Bids as published by the Ministry of Industrial Development, Government of India New Delhi.

S_1 = The all-India average wholesale price index for steel (Bars and Rods) for the month under consideration as published by Ministry of Industrial Development, New Delhi.

P_s = Percentage of Steel component of the work.

Note: For the application of this clause, index of Bars and Rods has been chosen to represent steel group.

Adjustment of bitumen component

- (iii) Price adjustment for increase or decrease in the cost of bitumen shall be paid in accordance with the following formula:

$$V_b = 0.85 \times P_b / 100 \times R \times (B_1 - B_0) / B_0$$

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 office retail price of bitumen at the IOC depot at nearest center on the day 28 days prior to date of opening of Bids.

B_1 = The official retail price of bitumen of IOC depot at nearest center for the 15th day of the month under consideration.

P_b = Percentage of bitumen component of the work.

CLAUSE 10 CC

Payment due to increase / Decrease in Prices / Wages after receipt of tender (Time of completion more than 18 months)

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.

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- (b) Following expressions and meanings are assigned 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.

- 1.4 To the extent that full compensation for any rise or fall in costs to the contractor is not covered by the provisions of this or other clauses in the contract, the unit rates and prices included in the contract shall be deemed to include amounts to cover the contingency of such other rise or fall in costs.

The formula (e) for adjustment of prices is:

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:

$$V_L = 0.85 \times P_1 / 100 \times R \times (L_1 - L_0) / L_0$$

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

L_0 = the consumer price index for industrial workers for the State on 28 days preceding the date of opening of Bids as published by Labour Bureau, Ministry of Labour, Government of India.

L_1 = The consumer price index for industrial workers for the State for the under consideration as published by Labour Bureau, Ministry of Labour, Government of India.

P_1 = Percentage of labour component of the work.

Adjustment for cement component

- (ii) Price adjustment for increase or decrease in the cost of cement procured by the contractor shall be paid in accordance with the following formula:

$$V_0 = 0.85 \times P_0 / 100 \times R \times (C_1 - C_0) / C_0$$

V_0 = increase or decrease in the cost of work during the month under consideration due to changes in rates for cement.

C_0 = The all-India wholesale price index for cement on 28 days preceding the date of opening of Bids as published by the Ministry of Industrial Development, Government of India, New Delhi.

C_1 = The all-India average wholesale price index for cement for the month under consideration as published by Ministry of Industrial Development, Government of India, New Delhi.

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:

$$V_s = 0.85 \times P_s / 100 \times R \times (S_1 - S_0) / S_0$$

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 (Bars and Rods) on 25 days preceding the date of opening of Bids as published by the Ministry of Industrial Development, Government of India New Delhi.

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S_1 = The all-India average wholesale price index for steel (Bars and Rods) for the month under consideration as published by Ministry of Industrial Development, New Delhi.

P_1 = Percentage of labour component of the work.

Note: For the application of this clause, index of Bars and Rods has been chosen to represent steel group.

Adjustment of bitumen component

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

$$V_b = 0.85 \times P_b / 100 \times R \times (B_1 - B_0) / B_0$$

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 office retail price of bitumen at the IOC depot at nearest center on the day 28 days prior to date of opening of Bids.

B_1 = The official retail price of bitumen of IOC depot at nearest center for the 15th day of the month under consideration.

P_1 = Percentage of bitumen component of the work.

Adjustment of POL (fuel and lubricant) component

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

$$V_f = 0.85 \times P_f / 100 \times R \times (F_1 - F_0) / F_0$$

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

F_0 = The official retail price of High-Speed Diesel (HSD) at the existing consumer pumps of IOC at nearest center on the day 28 days prior to the date of opening of Bids.

F_1 = The official retail price of HSD at the existing consumer pumps of IOC at nearest center for the 15th day of month of the under consideration.

P_1 = 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 fuel and lubricants group.

Adjustment for Plant and Machinery Spares component

(vi) Price adjustment for increase or decrease in the cost of plant and machinery spares procured by the Contractor shall be paid in accordance with the following formula:

$$V_p = 0.85 \times P_p / 100 \times R \times (P_1 - P_0) / P_0$$

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.

P_0 = The all-India wholesale price index for heavy machinery and parts on 28 days preceding the date of opening of Bids as published by the Ministry of Industrial Development Government of India, New Delhi.

P_1 = The all-India average wholesale price index for heavy machinery and parts for the month under consideration as published by Ministry of Industrial Development, Government of India, New Delhi.

P_1 = 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 another materials component

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- (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:

$$V_m = 0.85 \times P_m / 100 \times R \times (M_1 - M_0) / M_0$$

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

M_0 = The all-India wholesale price index (all commodities) on 28 days preceding the date of opening of Bids, as published by the Ministry of Industrial Development, Government of India, New Delhi.

M_1 = The all-India wholesale price index (all commodities) for the month under consideration as published by Ministry of Industrial Development, Government of India, New Delhi.

P_1 = Percentage of local material component (other than cement, steel, bitumen and POL) of the work.

The following percentages will govern the price adjustment for the entire contract:

1.	Labour - P_1	---%
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		100%

- (viii) In contract where clause 10CA is applicable, this clause 10CC will not be applicable and in contract where this clause 10CC is applicable previous clause 10CA will not be applicable.

CLAUSE 10 D

Dismantled
Material Govt.
Property

The contractor shall treat all materials obtained during dismantling of a structure, excavation of the site for a work, etc. as Government's property and such materials shall be disposed of to the best advantage of Government according to the PWD copal provision.

CLAUSE 11

Work to be
Executed in
Accordance with
Specifications,
Drawings, Orders
etc.

The contractor shall execute the whole and every part of the work in the most substantial and workmanlike manner both as regards materials and otherwise in every respect in strict accordance with the specifications. The contractor shall also conform exactly, fully and faithfully to the design, drawings and instructions in writing in respect of the work signed by the Engineer-in-Charge and the contractor shall be furnished free of charge one copy of the contract documents together with specification, designs, drawings and instruction as are not included in the standard specifications of Public Works Department specified in Schedule 'F' or in any Bureau of Indian Standard or any other, published standard or code or, Schedule of Rates or any other printed publication referred to elsewhere in the contract.

The contractor shall comply with the provisions of the contract and with the care and diligence execute and maintain the works and provide all labour and materials, tools and plants including for measurements and supervision of all works, structural plans and other things of temporary or permanent nature required for such execution and maintenance in so far as the necessity for providing these, is specified or is reasonably inferred from the contract. The Contractor shall take full responsibility for adequacy, suitability and safety of all the works and methods of construction.

CLAUSE 12

LP

Deviations/
Variations Extent
and Pricing

The Engineer-in-Charge (As per codal provision) shall have power (i) to make alternation in, omissions from, additions to, or substitutions for the original specifications, drawings, designs and instructions that may appear to him to be necessary or advisable during the progress of the work, and (ii) to omit a part of the works in case of non-availability of a portion of the site or for any other reasons and the contractor shall be bound to carry out the works in accordance with any instructions given to him in writing signed by the Engineer-in-Charge after approval from competent authority and such alterations omissions, additions or substitutions shall form part of the contract as if originally provided therein and any altered, additional or substituted work which the contractor may be directed to do in the manner specified above as part of the works, shall be carried out by the contractor on the same conditions in all respects including price on which he agreed to do the main work except as hereafter provided.

12.1 The time for completion of the works shall, in the event of any deviations resulting in additional cost over the tendered value sum being ordered, be extended, if requested by the contractor, as follows:

- i) In the proportion which the additional cost of the altered, additional or substituted work, bears to the original tendered value plus.
- ii) 25% of the time calculated in (i) above or such further additional time as may be considered reasonable by the Engineer-in-Charge after approval from competent authority

Deviation,
Extra items
and Pricing

12.2 In the case of extra item(s) the contractor may within fifteen days of receipt of order or occurrence of the item(s) claim rates, supported by proper analysis, for the work and the Engineer-in-Charge after approval from competent authority shall within one month of the receipt of the claims supported by analysis, after giving consideration to the analysis of the rates submitted by the contractor, determine the rates as per power delegated in PWD Code and on the basis of the market rates and the contractor shall be paid in accordance with the rates so determined.

Deviation,
Substituted
Items, Pricing

In the case of substituted items, the rate for the agreement item (to be substituted) and substituted item shall also be determined in the manner as mentioned in the aforesaid para.

- (a) If the market rate for the substituted item so determined is more than the market rate of the agreement item (to be substituted) the rate payable to the contractor for the substituted item shall be the rate for the agreement item (to be substituted) so increased to the extent of the difference between the market rates of substituted item and the agreement item (to be substituted).
- (b) If the market rate for the substituted item so determined is less than the market rate of the agreement item (to be substituted) the rate payable to the contractor for the substituted item shall be the rate for the agreement item (to be substituted) so decreased to the extent of the difference between the market rates of substituted item and the agreement item (to be substituted).

Deviation,
Deviated
Quantities,
Pricing

In the case of contract items, substituted items, contract cum substituted items, which exceed the limits laid down in Schedule F, the contractor may within fifteen days of receipt of order or occurrence of the excess, claim revision of the rates, supported by proper analysis, for the work in excess of the above mentioned limits, provided that if the rates so claimed are in excess of the rates specified in the schedule of quantities the Engineer-in-Charge shall within one month of receipt of the claims supported by analysis, after giving consideration to the analysis of the rates submitted by the contractor, determine the rates as per power delegated in PWD Code and on the basis of the market rates and the contractor shall be paid in accordance with the rates so determined.

12.3 The provisions of the preceding paragraph shall also apply to the decrease in the rates of items for the work in excess of the limits laid down in Schedule 'F' and the Engineer-in-Charge shall after giving notice to the contractor within one month of occurrence of the excess and after taking into consideration any reply received from him within fifteen days of receipt of the notice, revise the rates as per power delegated in PWD Code for the work in question within one month of expiry of the said period of fifteen days having regard to the market rates or current schedule of rate.

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- 12.4 The contractor shall send to the Engineer-in-Charge once every three months an up to date account giving complete details of all claims for additional payments to which the contractor may consider himself entitled and of all additional work ordered by the Engineer-in-Charge after approval from competent authority which he has executed during the preceding quarter failing which the contractor shall be deemed to have waived his right. However, the Superintending Engineer is authorized for consideration of such claims on merits.
- 12.5 For the purpose of operation of Schedule 'F' the following works shall be treated as works relating to foundation:
- i) For buildings, compound walls plinth level or 1.2 meters (4 feet) above ground level whichever is lower excluding items of flooring and D.P.G. but including base concrete below the floors.
 - ii) For abutments, piers, retaining walls of culverts and bridges, walls of water reservoirs the bed of floor level.
 - iii) For retaining walls where floor level is not determinate 1.2 meters above the average ground level or bed level.
 - iv) For Roads all items of excavation and filling including treatment of sub-base.
- 12.6 Any operation incidental to or necessary has to be in contemplation of tenderer while filing tender, or necessary for proper execution of the item included in the Schedule of quantities or in the schedule of rates mentioned above, whether or not, specifically indicated in the description of the item and the relevant specifications, shall be deemed to be included in the rates quoted by the tenderer or the rate given in the said schedule of rates, as the case may be. Nothing extra shall be admissible for such operations.

CLAUSE 13

Foreclosure of
Contract due to
Abandonment or
Reduction in
Scope of Work

If at any time after acceptance of the tender Government shall decide to abandon or reduce the scope of the works for any reason whatsoever and hence not require the whole or any part of the works to be carried out, the Engineer-in-Charge shall give notice in writing to that effect to the contractor and the contractor shall act accordingly in the matter. The contractor shall have no claim to any payment of compensation or otherwise whatsoever, on account of any profit or advantage which he might have derived from the execution of the works in full but which he did not derive in consequence of the foreclosure of the whole or part of the works.

The contractor shall be paid at contract rates for works executed at site only.

CLAUSE 14

Cancellation of
contract in full or
part

If the contractor:

- i) at any time makes default in proceeding with the works or any part of the work with due diligence and continues to do so after a notice in writing of 7 days from the Engineer-in-Charge; or
- ii) Commits default to comply with any of the terms and conditions of the contract and does not remedy it or take effective steps to remedy it within 7 days after a notice in writing is given to him in that behalf by the Engineer-in-Charge; or
- iii) Fails to complete the works or items of work with individual dates of completion, on or before the date(s) of completion, and does not complete them within the period specified in a notice given in writing in that behalf by the Engineer-in-Charge; or
- iv) Shall offer or give or agree to give to any person in Government service or to any other person on his behalf any gift or consideration of any kind as an inducement or reward for doing or forbearing to do or for having done or forborne to do any act in relation to the obtaining or execution of this or any other contract for Government; or
- v) Shall enter into a contract with Government in connection with which commission has been paid or agreed to be paid by him or to his knowledge, unless the particulars of any such commission and the terms of payment

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thereof have been previously disclosed in writing to the Accepting Authority/Engineer-in-Charge; or

- vi) Shall obtain a contract with Government as a result of wrong tendering or other non-Bonafide methods of competitive tendering; or
- vii) Being an individual, or if a firm, any partner thereof shall at any time be adjudged insolvent or have a receiving order or order for administration of his estate made against him or shall take any proceedings for liquidation or composition (other than a voluntary liquidation for the purpose of amalgamation or reconstruction) under any Insolvency Act for the time being in force or make any conveyance or assignment of his effects or composition or arrangement for the benefit of his creditors or purport so to do, or if any application be made under any Insolvency Act for the time being in force for the sequestration of his estate or if a trust deed be executed by him for benefit of his creditors; or
- viii) Being a company, shall pass a resolution or the Court shall make an order for the winding up of the company, or a receiver or manager on behalf of the debenture holders or otherwise shall be appointed or circumstances shall arise which entitle the Court or debenture holders to appoint a receiver or manager; or
- ix) Shall suffer an execution being levied on his goods and allow it to be continued for a period of 21 days; or
- x) Assigns, transfers, sublets (engagement of labour on a piece-work basis or of labour with materials not to be incorporated in the work, shall not be deemed to be subletting) or otherwise parts with or attempts to assign, transfer sublet or otherwise parts with the entire works or any portion thereof without the prior written approval of the Competent Authority;

The Competent Authority may, without prejudice to any other right or remedy which shall have accrued or shall accrue hereafter to Government, by a notice in writing to cancel the contract as a whole or only such items of work in default from the Contract.

The Engineer-in-Charge shall on such cancellation by the Competent Authority have powers to:

- (a) Take possession of the site and any materials, constructional plant, implements stores, etc., thereon; and/or
- (b) Carry out the incomplete work by any means at the risk and cost of the contractor.

On cancellation of the contract in full or in part, the Engineer-in-Charge shall determine what amount, if any, is recoverable from the contractor for completion of the works or part of the works or in case the works or part of the works is not to be completed, the loss of damage suffered by Government. In determining the amount, credit shall be given to the contractor for the value of the work executed by him up to the time of cancellation, the value of contractor's materials taken over and incorporated in the work and use of plant and machinery belonging to the contractor.

Any excess expenditure incurred or to be incurred by Government in completing the works or part of the works or the excess loss or damages suffered or which may be suffered by Government as aforesaid after allowing such credit shall without prejudice to any other right or remedy available to Government in law be recovered from any moneys due to the contractor on any account, and if such moneys are not sufficient the contractor shall be called upon in writing and shall be liable to pay the same within 31 days.

If the contractor fails to pay the required sum within the aforesaid period of 30 days the Engineer-in-Charge shall have the right to sell any or all of the contractors unused materials, constructional plant, implements, temporary buildings, etc. and apply the proceeds of sale thereof towards the satisfaction of any sums due from the contractor under the contract and if thereafter there be any balance is outstanding from the contractor, it shall be recovered in accordance with the provisions of the contract.

out in all respects in accordance with the instructions and requirements of the Engineer-in-Charge.

CLAUSE 29

With-holding and
lien in respect of
sums due from
contractor

- i) Whenever any claim or claims for payment of a sum of money arises out of or under the contract or against the contractor, the Engineer-in-Charge or the Government shall be entitled to withhold and also have a lien to retain such sum or sums in whole or in part from the security, if any deposited by the contractor and for the purpose aforesaid, the Engineer-in-Charge or the Government shall be entitled to withhold the security deposit, if any, furnished as the case may be and also have a lien over the same pending finalization or adjudication of any such claim. In the event of the security being insufficient to cover the claimed amount or amounts or if no security has been taken from the contractor, the Engineer-in-Charge or the Government shall be entitled to withhold and have a lien to retain to the extent of payable or which may at any time thereafter become payable to the contractor under the same contract or any other contract with the Engineer-in-Charge of the Government or any contracting person through the Engineer-in-Charge of the Government or any contraction person through the Engineer-in-Charge pending finalization of adjudication of any such claim.

It is an agreed term of the contract that the sum of money or moneys so withheld or retained under the lien referred to above by the Engineer-in-Charge or Government will be kept withheld or retained as such by the Engineer-in-Charge or Government till the claim arising out of or under the contract is determined by the arbitrator (if the contract is governed by the arbitration clause) or by the competent court, as the case may be and that the contractor will have no claim for interest or damages whatsoever on any account in respect of such withholding or retention under the lien referred to above and duly notified as such to the contractor. For the purpose of this clause, where the contractor is a partnership firm or a limited company, the Engineer-in-Charge or the Government shall be entitled to withhold and also have a lien to retain towards such claimed amount or amounts in whole or in part from any sum found payable to any partner/limited company as the case may be, whether in his individual capacity or otherwise.

- ii) Government shall have the right to cause an audit and technical examination of the works and the final bills of the contractor including all supporting vouchers, abstract etc., to be made after payment of the final bill and if as a result of such audit and technical examination any sum is found to have been overpaid in respect of any work done by the contractor under the contract or any work claimed to have been done by him under the contract and found not to have been executed, the contractor shall be liable to refund the amount of over-payment and it shall be lawful for Government to recover the same from him in the manner prescribed in sub-clause (i) of this clause or in any other manner legally permissible; and if is found that the contractor was paid less than what was due to him under the contract in respect of any work executed by him under it, the amount of such under payment shall be duly paid by Government to the contractor, without any interest thereon whatsoever.

CLAUSE 29 A

Lien in respect of
claims in other
Contracts

Any sum of money due and payable to the contractor (including the security deposit returnable to him) under the contract may be withheld or retained by way of lien by the Engineer-in-Charge or the Government or any other contracting person or persons through Engineer-in-Charge against any claim of the Engineer-in-Charge or Government or such other person or persons in respect of payment of a sum of money arising out of or under any other contract made by the contractor with the Engineer-in-Charge or the Government or with such other person or persons.

It is an agreed term of the contract that the sum of money so withheld or retained under this clause by the Engineer-in-Charge or the Government will be kept withheld or retained as such by the Engineer-in-Charge or the Government till his claim arising out of the same contract or any other contract is either mutually settled or determined by the arbitration clause or by the competent court, as the case may be and that the contractor shall have no claim for interest or damages whatsoever on this account or

on any other ground in respect of any sum of money withheld or retained under this clause and duly notified as such to the contractor.

CLAUSE 30

Unfiltered
water
supply

The contractor(s) shall make his/their own arrangements for water required for the work and nothing extra will be paid for the same. This will be subject to the following conditions.

- i) That the water used by the contractor(s) shall be fit for construction purposes to the satisfaction of the Engineer-in-Charge.
- ii) The Engineer-in-Charge shall make alternative arrangements for supply of water at the risk and cost of contractor? (s) if the arrangements made by the contractor(s) for procurement of water are in the opinion of the Engineer-in-Charge, unsatisfactory.

CLAUSE 31 Notwithstanding anything contained to the contrary in this contract, where any materials for the execution of the contract are procured with the assistance of Government either by issue from Government stocks or purchase made under orders or permits or licences issued by Government the contractor shall hold the said materials economically and solely for the purpose of the contract and not dispose of them without the written permission of the Government and return, if required by the Engineer in Charge, all surplus or unserviceable materials that may be left with him after the completion of the contract or at its termination for any reason whatsoever on being paid or credited such price as the Engineer in Charge shall determine having due regard to the condition of the materials. The price allowed to the contractor however shall not exceed the amount charged to him excluding the element of storage charges. The decision of the Engineer in Charge shall be final and conclusive. In the event of breach of the aforesaid condition the contractor shall in addition to throwing himself open to action for contravention of the term of the licence or permit and/or for criminal breach of trust, be liable to Government for all moneys, advantages or profits resulting or which in the usual course would have resulted to him by reason of such breach.

Return of
surplus
material

CLAUSE 32

Hire of Plant &
Machinery

- i) The contractor shall arrange at his own expense all tools, plant machinery and equipment (hereinafter referred to as T & P) required for execution of the work except for the Plant & Machinery listed in Schedule 'C' and stipulated for issue to the contractor. If the contractor requires any item of T & P on hire from the T & P available will, if such item is available, hire it to the contractor at rates to be agreed upon between him and the Engineer-in-Charge. In such a case all the conditions hereunder for issue of T & P shall also be applicable to such T & P as is agreed to be issued.
- ii) Plant and Machinery when supplied on hire charges shown in Schedule 'C' shall be made over and taken back at the departmental equipment yard/shed shown in Schedule 'C' and the contractor shall bear the cost of carriage from the place of issue to the site of work and back. The contractor shall be responsible to return the plant and machinery in the condition in which it was handed over to him, and he shall be responsible for all damage caused to the said plant and machinery at the site of work or elsewhere in operation and otherwise during transit including damage to or loss of plant and for all losses due to his failure to return the same soon after the completion of the work for which it was issued. The Divisional Engineer shall be the sole judge to determine the liability of the contractor and its extent in this regard and his decision shall be final and binding on the contractor.
- iii) The plant and machinery as stipulated above will be issued as and when available and if required by the contractor. The contractor shall arrange his programme of work according to the availability of the plant and machinery and no claim, whatsoever, will be entertained from him for any delay in supply by the Department.
- iv) The hire charges shall be recovered at the prescribed rates from and inclusive of the date the plant and machinery made over up to and inclusive of the date of the return in good order even though the same may not have been working for any cause except major breakdown due to no fault of the contractor or faulty use

Any sums in excess of the amounts due to Government and unsold materials, constructional plant, etc., shall be returned to the contractor, provided always that if cost or anticipated cost of completion by Government of the works or part of the works is less than the amount which the contractor would have been paid had he completed the works or part of the works, such benefit shall not accrue to the contractor.

CLAUSE 15

Suspension of
Work

i) The contractor shall, on receipt of the order in writing of the Engineer-in-Charge (whose decision shall be final and binding on the contractor) suspend the progress of the works or any part thereof for such time and in such manner as the Engineer-in-Charge may consider necessary so as not to cause any damage or injury to the work already done or endanger the safety thereof, for any of the following reasons :

- a) on account of any default on the part of the contractor or;
- b) for proper execution of the works or part thereof for reasons other than the default of the contractor; or
- c) for safety of the works or part thereof.

The contractor shall, during such suspension, properly protect and secure the works to the extent necessary and carry out the instructions given in that behalf by the Engineer-in-Charge.

ii) If the suspension is ordered for reasons (b) and (c) in sub-para (i) above, the contractor shall be entitled to an extension of time equal to the period of every such suspension PLUS 25%, for completion of the item or group of items of work for which a separate period of completion is specified in the contract and of which the suspended work forms a part, and;

CLAUSE 16

Action in case
Work not done
as per
Specifications

All works under or in course of execution or executed in pursuance of the contract shall at all times be open and accessible to the inspection and supervision of the Engineer-in-Charge, his authorized subordinates in charge of the work and all the superior officers, officer of the Quality Control Organization of the Department and of the Cabinet (Technical) Vigilance, and the contractor shall, at all times, during the usual working hours and at all other times at which reasonable notice of the visit of such officers has been given to the contractor, either himself be present to receive orders and instructions or have a responsible agent duly accredited in writing, present for that purpose. Orders given to the Contractor's agent shall be considered to have the same force as if they had been given to the contractor himself.

If it shall appear to the Engineer-in-Charge or his higher authority or his authorized subordinates in charge of the work or to the Cabinet (Technical) Vigilance or his subordinate officers, that any work has been executed with unsound, imperfect, or unskillful workmanship, or with materials or article provides by him for the execution of the work which are unsound or of a quality inferior to that contracted or otherwise not in accordance with the contract the contractor shall, on demand in writing which shall be made within the period specified in schedule - F of contract data from the Engineer-in-Charge specifying the work, materials or articles complained of notwithstanding that the same may have been passed, certified and paid for forthwith rectify, or remove and reconstruct the work so specified in whole or in part, as the case may require or as the case may be, remove the materials or articles so specified and provide other proper and suitable materials or articles at his own charge and cost. In the event of the contractor failing to do so within a period specified by the Engineer-in-Charge in his demand aforesaid, then the contractor shall be liable to pay compensation at the same rate as under clause 2 of the contract (for non-completion of the work in time) for this default.

In such case the Engineer-in-Charge may not accept the item of work at the rates applicable under the contract but may accept such items at reduced rates as the competent authority may consider reasonable during the preparation of on account bills or final bill if the item is so acceptable without detriment to the safety and utility of the item and the structure and incidental items rectified, or removed and re-executed at the risk and cost of contractor. Decision of the Engineer-in-Charge to be conveyed in writing in respect of the same will be final and binding on the contractor.

CLAUSE 17

Contractor Liable
for Damages,
defects during
maintenance
period

If the contractor or his working people or servants shall break, deface, injure or destroy any part of building in which they may be working, or any building, road, road curb, fence, enclosure, water pipe, cables, drains, electric or telephone post or wired, trees, grass or grassland, or cultivated ground contiguous to the premises on which the work or any part is being executed, or if any damage shall happen to the work while in progress, from any cause whatever or if any defect, shrinkage or other faults appear in the work within defect liability period after a certificate final or otherwise of its completion shall have been given by the Engineer-in-Charge as aforesaid arising out of defect or improper materials or workmanship the contractor shall upon receipt of a notice in writing on that behalf make the same good at his own expense or in default the Engineer-in-Charge cause the same to be made good by other workmen and deduct the expense from any sums that may be due or at any time thereafter may become due to the contractor, or from his security deposit except for the portion pertaining to asphaltic work which is governed by sub-para (iii) of clause 35 or the proceeds of sale thereof or of a sufficient option thereof. The security deposit of the contractor shall not be refunded before the expiry of defected liability period after the issue of the certificate final or otherwise, of completion of work, or till the final bill has been prepared and passed whichever is later.

In case of Maintenance and Operation works of Electrical & Mechanical services, the security deposit deducted from contractors shall be refunded within one month from the date of final payment or within one month from the date of completion of the maintenance contract whichever is earlier.

CLAUSE 18

Contractor to
Supply Tools &
Plants etc.

The contractor shall provide at his own cost all materials (except such special materials, if any, as may in accordance with the contract be supplied from the Engineer-in-Charge's stores), plant, tools, appliances, implements, ladders, cordage, tackle, scaffolding and temporary works required for the proper execution of the work, whether original, altered or substituted and whether included in the

specification or other document forming part of the contract or referred to in these conditions or not, or which may be necessary for the purpose of satisfying or complying with the requirements of the Engineer-in-Charge as to any matter as to which under these conditions he is entitled to be satisfied, or which he is entitled to require together with carriage therefore to and from the work. The contractor shall also supply without charge the requisite number of persons with the means and materials, necessary for the purpose of setting out works, and counting, weighing and assisting the measurement for examination at any time and from time to time of the work or materials. Failing his so doing the same may be provided by the Engineer-in-Charge at case to the contractor, under this contract or otherwise and/or from his security deposit or the proceeds of sale thereof, or of a sufficient portion thereof.

CLAUSE 18 A

Recovery of
Compensation
paid to Workman

In every case in which by virtue of the provisions sub-section (1) of Section 12, of the Workmen's Compensations Act, 1923, Government is obliged to pay compensation to a workman employed by the contractor, in execution of the works, Government will recover from the contractor the amount of the compensation so paid; and without prejudice to the right of the Government under sub-section (2) of section 12, of the said Act, Government shall be at liberty to recover such amount or any part thereof by deducting it from the security deposit or from any sum due by Government to the contractor whether under this contract or otherwise. Government shall not be bound to contest any claim made against it under sub-section (1) Section 12, of the said Act, except on the written request of the contractor and upon his giving to Government full security for all costs for which Government might become liable in consequence of contesting such claim.

CLUASE 18 B

Ensuring Payment
and Amenities to
Workers if
Contractor fails

In every case in which by virtue of the provisions of the Contract Labour (Regulation and Abolition) Act, 1970, and of the Contract Labour (Regulation and Abolition) Central Rules, 1971, Government is obliged to pay any amounts of wages to a workman employed by the contractor in execution of the works, or to incur any expenditure in

providing welfare and health amenities required to be provided under the above said Act and the rules under Clause 19H or under the P.W.D. Contractor's Labour Regulations, or under the Rules framed by Government from time to time for the protection of health and sanitary arrangements for workers employed by P.W.D. Contractors, Government will recover from the contractor the amount of wages so paid or the amount of expenditure so incurred; and without prejudice to the rights of the Government under sub-section (2) of Section 20, and sub-section (4) of Section 21, of the Contract Labour (Regulation and Abolition) Act, 1970, Government shall be at liberty to recover such amount or any part thereof by deducting it from the security deposit or from any sum due by Government to the contractor whether under this contract or otherwise Government shall not be bound to contest any claim made against it under sub-section (1) of Section 20, sub-section (4) of Section 21, of the said Act, except on the written request of the contractor and upon his giving to the Government full security for all costs for which Government might become liable in contesting such claim.

CLAUSE 19

Labour Laws to be complied by the Contractor

The contractor shall obtain a valid licence under the State Labour Act, and the Contract Labour (Regulation and Abolition) Central rules 1971, before the commencement of the work, and continue to have a valid license until the completion of the work. The contractor shall also abide by the provisions of the Child Labour (Prohibition and Regulation) Act, 1986.

The contractor shall also comply with the provisions of the building and other Construction Workers (Regulation of Employment & Conditions of Service) Act, 1996 and the building and other Construction Workers Welfare Cess Act, 1996.

Any failure to fulfill these requirements shall attract the penal provisions of the contract arising out of the resultant non-execution of the work.

CLAUSE 19 A

No labour below the prescribed age shall be employed on the work.

CLAUSE 19 B

Payment of Wages

Payment of wages:

- i) The contractor shall pay to labour employed by him either directly or through sub-contractors, wages not less than fair wages as defined in P.W.D. Contractor's Labour Regulations or as per the provisions of the Contract Labour (Regulation and Abolition) Act 1970 and the contract Labour (Regulation and Abolition) Central Rules, 1971, wherever applicable.
- ii) The contractor shall, notwithstanding the provisions of any contract to the contrary, cause to be paid fair wage to labour indirectly engaged on the work including any labour engaged by his sub-contractors in connection with the said work, as if the labour had been immediately employed by him.
- iii) In respect of all labour directly or indirectly employed in the works for performance of the contractor's part of this contract, the contractor shall comply with or cause to be complied with the Public Works Department contractor's Labour Regulations made by Government from time to time in regard to payment of wages, wage period, deductions from wages recovery of wages not paid and deductions unauthorizedly made, maintenance of wage books or wage slips, publication of scale of wages and other terms of employment, inspection and submission of periodical returns and all other matters of the like nature or as per the provisions of the Contract Labour (Regulation and Abolition) Act, 1970, and the Contract Labour (Regulation And Abolition) Central Rules, 1971, wherever applicable.
- iv) a) The Engineer-in-Charge concerned shall have the right to deduct from the moneys due to the contractor any sum required or estimated to be required for making good the loss suffered by a worker or workers by reason of nonfulfillment of the conditions of the contract for the benefit of the workers, non-payment of wages or of deductions

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made from his or their wages which are not justified by their terms of the contract or non-observance of the Regulations.

- b) Under the provision of Minimum Wages (Central) Rules 1950, the contractor is bound to allow to the labours directly or indirectly employed in the works one day rest for 6 days continuous work and pay wages at same rate as for duty. In the event of default, the Engineer-in-Charge shall have the right to deduct the sum or sums not paid on account of wages for weekly holidays to any labours and pay the same to the persons entitled thereto from any money due to the contractor by the Engineer-in-Charge concerned.
- v) The contractor shall comply with the provisions of the Payment of Wages Act, 1936, Minimum Wages Act, 1948, Employees Liability Act, 1938, Workmen's Compensation Act, 1923, Industrial Disputes Act, 1947, Maternity Act, 1970, or the modifications thereof or any other laws relating thereto and the rules made thereunder from time to time.
- vi) The contractor shall indemnify and keep indemnified Government against payments to be made under and for the observance of the laws aforesaid and the P.W.D. Contractor's Labour Regulations without prejudice to his right to claim indemnity from his sub-contractors.
- vii) The laws aforesaid shall be deemed to be a part of this contract and any breach thereof shall be deemed to be a breach of this contract.
- viii) Whatever is the minimum wage for the time being, or if the wage payable higher than such wage, such wage shall be paid by the contractor to the workmen directly without the intervention of Jamadar and that Jamadar shall not be entitled to deduct or recover any amount from the minimum wage payable to the workmen as and by way of commission or otherwise.
- ix) The contractor shall ensure that no amount by way of commission or otherwise is deducted or recovered by the Jamadar from the wage of workmen.

CLAUSE 19 C

In respect of all labour directly or indirectly employed in the work for the performance of the contractor's part of this contract, the contractor shall at his own expense arrange for the safety provisions as per P.W.D. Safety Code framed from time to time and shall at his own expense provide for all facilities in connection therewith. In case the contractor fails to make arrangement and provide necessary facilities as aforesaid he shall be liable to pay a penalty of Rs. 200/- for each default and in addition the Engineer-in-Charge shall be at liberty to make arrangement and provide facilities as aforesaid and recover the costs incurred in that behalf from the contractor.

CLAUSE 20

Minimum wages
Act to be
complied with.

The contractor shall at least pay and comply with all the provisions of the Minimum wages Act s and rules framed there under other labour laws related to contract labour.

CLAUSE 21

Work not to be
sublet. Action in
case of
insolvency

The contract shall not be assigned or sublet without the written approval of the Engineer-in-Charge. And if the contractor shall assign or sublet his contract, or attempt to do so, or become insolvent or commence any insolvency proceedings or make any composition with his creditors or attempt to do so, or if any bribe, gratuity, gift, loan, perquisite, reward or advantage pecuniary or otherwise, shall either directly or indirectly, be given, promised or offered by the contractor, or any of his servants or agent to any public officer or person in the employ of Government in any way relating to his office or employment, or if any such officer or person shall become in any way directly or indirectly interested in the contract, the Engineer-in-Charge on behalf of the Governor of Bihar shall have power to adopt the courses specified in Clause 3 hereof in the interest of Government and in the event of such course being adopted the consequences specified in the said Clause 3 shall ensue.

Compensation	<p>CLAUSE 22</p> <p>All sums payable by way of compensation under any of these conditions shall be considered as reasonable compensation to be applied to the use of Government without reference to the actual loss or damage sustained and whether or not any damage shall have been sustained.</p>
Changes in firm's Constitution to be intimated	<p>CLAUSE 23</p> <p>Where the contractor is a partnership firm, the previous approval in writing of the Engineer-in-Charge shall be obtained before any change is made in the constitution of the firm. Where the contractor is an individual or a Hindu undivided family business concern such approval as aforesaid shall likewise be obtained before the contractor enters into any partnership agreement where under the partnership firm would have the right to carry out the works hereby undertaken by the contractor. If previous approval as aforesaid is not obtained, the contract shall be deemed to have been assigned in contravention of Clause 21 thereof and the same action may be taken, and the same consequences shall ensue as provided in the said Clause 21.</p>
Approval of Engineer Incharge	<p>CLAUSE 24</p> <p>All works to be executed under the contract shall be executed under the direction and subject to the approval in all respects of the Engineer-in-Charge who shall be entitled to direct at what point or points and in what manner they are to be commenced, and from time to time carried on.</p>
Settlement of Disputes & Arbitration	<p>CLAUSE 25</p> <p>The Settlement of disputes and arbitration shall be DONE in accordance with the provisions made in Bihar Public Works Contracts Disputes Arbitrations Tribunal Act, 2008.</p>
Contractor to indemnify Govt. against Patent Rights	<p>CLAUSE 26</p> <p>The contractor shall fully indemnify and deep indemnified the Governor of Bihar against any action, claim or proceeding relating to infringement or use of any patent or design or any alleged patent or design rights and shall pay any royalties which may be payable in respect of any article or part thereof included in the contract. In the event of any claims made under the action brought against Government in respect of any such matter as aforesaid the contractor shall be immediately notified thereof and the contractor shall be at liberty, at his own expense, to settle any dispute or to conduct any litigation that may arise therefrom, provided that the contractor shall not be liable to indemnify the Governor of Bihar if the infringement of the patent or design or any alleged patent or design right is the direct result of an order passed by the Engineer-in-Charge in this behalf.</p>
Lumpsum Provisions in Tender	<p>CLAUSE 27</p> <p>When the estimate on which a tender is made includes lump sum in respect of parts of the work, the contractor shall be entitled to payment in respect of the items of work involved or the part of the work in question at the same rates as are payable under this contract for such items, or if the part of the work in question is not, in the opinion of the Engineer-in-Charge capable of measurement, The Engineer-in-Charge may at his discretion pay the lump-sum amount entered in the estimate, and the certificate in writing of the Engineer-in-Charge shall be final and conclusive against the contractor with regard to any sum or sums payable to him under the provisions of the clause.</p>
Action where no Specifications are specified	<p>CLAUSE 28</p> <p>In the case of any class of work for which there is no such specifications as referred to in Clause 11, such work shall be carried out in accordance with the Bureau of Indian Standards Specifications, Indian Road Congress for road works and Indian Building Congress for building works or any central government agency. In case there are no such specifications in Bureau of Indian Standards, the work shall be carried out as per manufacturers specifications. If not available then as per Department Specifications. In case there are no such specifications as required above, the work shall be carried</p>

requiring more than three working days continuously (excluding intervening holidays and Sundays) for bringing the plant in order. The contractor shall immediately intimate in writing to the Engineer in Charge when any plant or machinery gets out of order requiring major repairs as aforesaid. The Engineer in Charge shall record the date and time of receipt of such intimation in the log sheet of the plant or machinery. Based on this if the breakdown occurs before lunch period or major breakdown will be computed considering half a day's breakdown on the day of complaint. If the breakdown occurs in the post lunch period of major breakdown will be computed starting from the next working day. In case of any dispute under this clause the decision of the Superintending Engineer shall be final and binding on the contractor.

- v) The hire charges shown above are for each day of 8 hours (inclusive of the one-hour lunch break) or part thereof.
- vi) Hire charges will include service of operating staff as required and also supply of lubricating oil and stores for cleaning purposes. Power fuel of approved type, firewood, kerosene oil etc. for running the plant and machinery and also the full time chowkidar for guarding the plant and machinery against any loss or damage shall be arranged by the contractor who shall be fully responsible for the safeguard and security of plant and machinery. The contractor shall on or before the supply of plant and machinery sign an agreement indemnifying the Department against any loss or damage caused to the plant and machinery either during transit or at site of work.
- vii) Ordinarily, no plant and machinery shall work for more than 8 hours a day inclusive of one hour lunch break. In case of an urgent work however, the Engineer in Charge may, at his discretion, allow the plant and machinery to be worked for more than normal period or 8 hours a day. In that case the hourly hire charges for overtime to charge (1/8) th of the daily charges) subject to a minimum of half day's normal charges on any particular day. For working out hire charges for over time a period of half an hour and above will be charged as one hour and a period of less than half an hour will be ignored.
- viii) The contractor shall release the plant and machinery every seventh day for periodical servicing and/or wash out which may take about three to four hours or more. Hire charges for full day shall be recovered from the contractor for the day of servicing/Wash out irrespective of the period employed in servicing.
- ix) The plant and machinery once issued to the contractor shall not be returned by him on account of lack of arrangements of labour and materials, etc. on his part, the same will be returned only when they are required for major repairs or when in the opinion of the Engineer in Charge the work or a portion of work for which the same was issued is completed.
- x) Log Book for recording the hours of daily work for each of the plant and machinery supplied to the contractor will be maintained by the Department and will be countersigned by the contractor or his authorized agent daily. In case the contractor contests the correctness of the entries and/or fails to sign the Log Book the decision of the Engineer in Charge shall be final and binding on him. Hire charges will be calculated according to the entries in the Log Book and will be binding on the contractor. Recovery on account of hire charges for road rollers shall be made for the minimum number of days worked out on the assumption that a roller can consolidate per day and maximum quantity of materials or area surfacing as noted against each in the annexed statement (see attached annexure).
- xi) In the case of concrete mixers, the contractors shall arrange to get the hopper cleaned and the drum washed at the close of the work each day or each occasion.
 - a) In case rollers for consolidation are employed by the contractor himself, log book for such rollers shall be maintained in the same manner as is done in case of departmental rollers, maximum quantity of any item to be consolidated for each roller day shall also be same as in Annexure to Clause 34(x). For less use of rollers recovery for the less roller days shall be made at the stipulated issue rate.

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- xii) The contractor shall be responsible to return the plant and machinery in the condition in which it was handed over to him and he shall be responsible for all damage caused to the said plant and machinery at the site of work or elsewhere in operation or otherwise or during transit including damage to or loss of parts, and for all losses due to him failure to return the same soon after the completion of the work for which it was issued. The Divisional Engineer shall be the sole judge to determine the liability of the contractor and its extent in this regard and his decision shall be final and binding on the contractor.
- xiii) The contractor will be exempted for levy of any hire charges for the number of days he is called upon in writing by the Engineer in Charge to suspend execution of the work provided Government plant and machinery in question have, in fact remained idle with the contractor because of the suspension.
- xiv) In the event of the contractor not requiring any item of plant and machinery issued by Government though not stipulated for issue in Schedule 'C' any time after taking delivery at the place of issue, he may return it after two days written notice or at any time without notice if he agrees to pay hire charges for two additional days without in any way affecting the right of the Engineer in-Charge to use the said plant and machinery during the said period of two days as he likes including hiring out to a third party.

CLAUSE 33

Contractors Superintendence, Supervision, Technical Staff & Employees

Employment of
Technical Staff and
employees

- i) The contractor shall provide all necessary superintendence during execution of the work and as along thereafter as may be necessary for proper fulfilling of the obligations under the contract.

The contractor along with bidding of the tender, intimate in writing to the Engineer-in-Charge the name, qualifications, experience, age, address and other particulars along with certificates, of the technical representative to be in charge of the work. If there is any change then the new incumbents' qualifications and experience shall not be lower than specified in Schedule in I.T.B. (Annexure - 2). The Engineer-in-Charge shall within 15 days of issue of letter of acceptance intimate in writing his approval or otherwise it is deemed to be approved. Any such approval may at any time be withdrawn and in case of such withdrawal the contractor shall appoint another such representative according to the provisions of this clause. Decision of the tender accepting authority / Superintending Engineer shall be final and binding on the contractor in this respect. Technical staff shall be available at site within fifteen days of start of work.

If the contractor (or any partner in case of firm/company) himself has such qualifications, it will not be necessary for the said contractor to appoint such a principal technical representative but the contractor shall designate and appoint a responsible agent to represent him and to be present at the work whenever the contractor is not in a position to be so present. All the provisions applicable to the principal technical representative under the Clause will also be applicable in such a case to contractor or his responsible agent. The principal technical representative and/or the contractor or his responsible authorised agent shall be actually available at site at least two working days every week, these days shall be determined in advance and also during recording of measurement of works and whenever so required by the Engineer-in-Charge by a notice as aforesaid and shall also note down instructions conveyed by the Engineer-in-Charge or his designated representative in the site order book and in token of acceptance of measurements. There shall be no objection if the representative/agent looks after more than one work and not more than three works in the same station provided these details are disclosed to the Engineer-in-Charge and he shall be satisfied that the provisions and the purpose of the clause are fulfilled satisfactorily.

If the Engineer-in-Charge, whose decision in this respect is final and binding on the contractor, is convinced that no such technical representative or agent is effectively appointed or is effectively attending or fulfilling the provision of this clause, a recovery shall be effected from the contractor as specified in Schedule 'F' and the decision of the Engineer-in-Charge as recorded in the site order book

20

and measurement recorded in Measurement Books shall be final and binding on the contractor. Further if the contractor fails to appoint a suitable technical representative or responsible agent and if such appointed persons are not effectively present or do not discharge their responsibilities satisfactorily, the Engineer-in-Charge shall have full powers to suspend the execution of the work until such date as a suitable agent is appointed and the contractor shall submit a certificate of employment of the technical representative/responsible agent along with every on account bill/fixed bill and shall produce evidence if at any time so required by the Engineer-in-Charge.

- ii) The contractor shall provide and employ on the site only such technical assistants as are skilled and experienced in their respective fields and such foremen and supervisory staff as are competent to give proper supervision to the work.

The contractor shall provide and employ skilled, semiskilled and unskilled labour as is necessary for proper and timely execution of the work.

The Engineer in Charge shall be at liberty to object to and require the contractor to remove from the works any person who in his opinion misconducts himself, or is incompetent or negligent in the performance of his duties or whose employment is otherwise considered by the Engineer in Charge to be undesirable. Such person shall not be employed again at works site without the written permission of the Engineer in Charge and the persons so removed shall be replaced as soon as possible by competent substitutes.

CLAUSE 34

Levy/Taxes
payable by
Contractor

- i) GST or any other tax on materials in respect of this contract shall be payable by the contractor according to law in effect.
- ii) The contractor shall deposit royalty and obtain necessary permit for supply of the red earth, moorum, sand chips bajri, stone, kankar, etc. from local authorities.
- iii) If pursuant to or under any law, notification or order any royalty, cess or the hike becomes payable to the Government of India and does not at any time become payable by the contractor to the State Government/ Local authorities in respect of any material used by the contractor in the works then in such a case, it shall be lawful to the Government of India and it will have the right and be entitled to recover the amount paid in the circumstances as aforesaid from the dues of the contractor.

CLAUSE 35

Conditions for
reimbursement of
levy/taxes if levied
after receipt of
tenders

- i) All tendered rates shall be inclusive of all taxes and levies payable under respective statutes. However, pursuant to the Constitution (46th Amendment) Act. 1982, if any further tax or levy is imposed by Statute, after the last stipulated date for the receipt of tender including extensions if any and the contractor thereupon necessarily and properly pays such taxes/levies the contractor shall be reimbursed the amount so paid, provided such payments, if any, is not, in the opinion of the Chief Engineer (whose decision shall be final and binding on the contractor) attributable to delay in execution of work within the control of the contractor.
- ii) The contractor shall keep necessary books of accounts and other documents for the purpose of this condition as may be necessary and shall allow inspection of the same by a duly authorized representative of the Government and/or the Engineer-in-Charge and further shall furnish such other information/document as the Engineer-in-Charge may require from time to time.
- iii) The contractor shall, within a period of 30 days of the imposition of any such further tax or levy, pursuant to the Constitution (Forty Sixth Amendment) Act 1982, give a written notice thereof to the Engineer-in-Charge that the same is given pursuant to this condition, together with all necessary information relating thereto.

CLAUSE 36



Imprisonment of Contractor

If the contractor is imprisoned, becomes insolvent compound with his creditors, has a receiving order made against him or carries on business under a receiver for the benefit of the creditors or any of them, or being a partnership firm becomes dissolved, or being a company or corporations goes into liquidation or commences to be wound up not being a voluntary winding up for the purpose only of amalgamation or reconstitution the department shall be at liberty.

- (a) To give such liquidator, receiver, or other person in whom the contract may become vested, the option of carrying out the contract or a portion thereof to be determined by the department, subject to his providing an appropriate guarantee for the performance of such contractor.
- (b) To terminate the contract, forthwith by notice in writing to the contractor, the liquidator, the receiver or person in whom the contract may become vested and take further action as provided in the relevant clauses of the contract.

CLAUSE 37

Termination of Contract on death of contractor

Without prejudice to any of the rights or remedies under this contract if the contractor dies, the Divisional Officer on behalf of the Governor of Bihar shall have the option of terminating the contract without compensation to the contractor after the affidavit of his/ their legal heir/heirs that they are not going to be in this profession in future.

CLAUSE 38

If relation working in PWD then the contractor not allowed to tender

The contractor shall not be permitted to tender for works in the P.W.D. Division (responsible for award and execution of contracts) in which his near relative is posted as Divisional Accountant or as an officer in any capacity between the grades of the Superintending Engineer and Assistant Engineer (both inclusive). He shall also intimate the names of persons who are working with him in any capacity or are subsequently employed by him and who are near relatives to any Gazetted Officer in the P.W.D. or in the concerned department. Any breach of this condition by the contractors of this Department shall lead to blacklisting. If the contractor is registered in any other department, he shall be debarred from tendering in P.W.D. for any breach of this condition.

NOTE: By the term "near relatives" is meant wife, husband, parents and grandparents, children and grandchildren, brothers and sisters, uncles, aunts and cousins and their corresponding in law.

CLAUSE 39

No-Gazetted-Engineer to work as Contractor within two years of retirement

No engineer of gazetted rank or other gazetted officer employed in engineering or administrative duties in an engineering department of the Government of Bihar shall work as a contractor or employee of a contractor for a period of two years after his retirement from government service without the previous permission of State Government in writing. This contract is liable to be cancelled if either the contractor or any of his employees is found at any time to be such a person who had not obtained said permission prior to engagement in the contractor's service, as the case may be.

CLAUSE 40

Return of material and recovery for excess material issued

i) After completion of the work and also at any intermediate stage in the event of non-reconciliation of materials issued, consumed and in balance (see Clause 10) theoretical quantity of materials issued by the Government for use in the work shall be calculated on the basis and method given hereunder.

- a) Quantity of cement & bitumen shall be calculated on the basis of quantity of cement & bitumen required for different items of work as shown in the Schedule of Rates mentioned in-Schedule 'F'. In case any item is executed for which standard constants for the consumption of cement or bitumen are not available in the above-mentioned schedule/statement or cannot be derived from the same shall be calculated on the basis of standard formula to be laid down by the Engineer in Charge.
- b) Theoretical quantity of steel reinforcement of structural steel sections shall be taken as the quantity required as per design or as authorized by Engineer in Charge, including authorized lap joints, chairs etc., plus 3% wastage due to cutting into pieces, such theoretical quantity being determined and compared with the actual issues each diameter wise, section wise and category wise separately.

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c) For any other material as per actual requirements.

ii) Over the theoretical quantities of materials so computed a variation shall be allowed as specified in Schedule 'F'. The difference in the net quantities of material actually issued to the contractor and the theoretical quantities including such authorized variation, if not returned by the contractor or if not fully reconciled to the satisfaction of the Engineer in Charge within fifteen days of the issue of written notice by the Engineer in Charge to this effect shall be recovered at the rates specified in Schedule 'F' without prejudice to the provision of the relevant conditions regarding return of materials governing the contract. Decision of Engineer in Charge in regard to theoretical quantities of materials, which should have been actually used as per the Annexure of the standard schedule of rates and recovery at rates specified in Schedule 'F', shall be final & binding on the contractor

For not scheduled items, the decision of the Superintending Engineer regarding theoretical quantities of materials, which should have been actually used, shall be final and binding on the contractor.

iii) The said action under this clause is without prejudice to the right of the Government to take action against the contractor under any other conditions of contract for not doing the work according to the prescribed specifications.

CLAUSE 41

Release of
Security deposit

On completion of the whole of the work, half of the total amount of security shall be repaid to the contractor after six months of completion. However, the balance half of the total amount of security will be returned after completion of defect liability period and after the Engineer has certified that all defects notified by him to the contractor before the end of this period have been corrected and also after recovery of any dues.

CLAUSE 42

Responsibility of
Technical Staff and
employees

Technical officers / staff deployed by the Contractor at any construction site will also be responsible for inferior quality / poor performance of any work and his name will be circulated to all works division of the P.W.D. to debar from any other site, if his name is being proposed by other contractor.

CLAUSE 43

Contractor's
Risks

All risks of loss of or damage 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.

CLAUSE 44

Insurance

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 damage of property (except the Works, Plant, Materials and Equipment) in connection with the Contract; and
- (d) personal injury or death.

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.

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.

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

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

CLAUSE 45

Cash Flow
Estimate to be
Submitted

The Contractor shall, within the time stated in special Conditions of contract after the date of the Letter of Acceptance, provide to the Engineer for his information a detailed cash flow estimate, in quarterly periods, of all payments to which the Contractor will be entitled under the Contract and the Contractor shall subsequently supply revised cash flow estimates at quarterly intervals, if required to do so by the Engineer. in charge

CLAUSE 46

Safety, Security
and Protection of
the Environment

The Contractor shall, throughout the execution and completion of the Works and the remedying of any defects therein:

- (a) have full regard for the safety of all persons entitled to be upon the Site and keep the Site (so far as the same is under his control) and the Works (so far as the same are not completed or occupied by the Employer) in an orderly state appropriate to the avoidance of danger to such persons,
- (b) Provide and maintain at his own cost all lights, guards, fencing, warning signs and watchmen and where necessary or required by the Engineer or by any duly constituted authority, for the protection of the Works or for the safety and convenience of the public or others, and
- (c) take all reasonable steps to protect the environment on and off the Site and to avoid damage or nuisance to persons or to property of the public or others resulting from pollution, noise or other causes arising as a consequence of his methods of operation.

CLAUSE 47

Cost of
Samples

All samples shall be supplied by the Contractor at his own cost if the supply thereof is clearly intended by or provided for in the Contract.

CLAUSE 48

Cost of Tests

The cost of making any test shall be borne by the Contractor if such test is :

- (a) clearly intended by or provided for in the Contract, or
- (b) particularized in the Contract (in case only of a test under load or of a test to ascertain whether the design of any finished or partially finished work is appropriate for the purposes which it was intended to fulfill) in sufficient detail to enable the Contractor to price or allow for the same in his Tender.

CLAUSE 49

Cost of Tests not
Provided for

If any test required by the Engineer which is:

- (a) not so intended by or provided for,
- (b) (in the cases above mentioned) not so particularized, or
- (c) (though so intended or provided for) required by the Engineer to be carried out at any place other than the Site or the place of manufacture, fabrication or preparation of the materials or Plant tested,

shows the materials, Plant or workmanship not to be in accordance with the provisions of the Contract to the satisfaction of the Engineer, then the cost of such test shall be borne by the Contractor, but in any other case department will bear the cost.

CLAUSE 50

Commencement
of Works

The contractor shall commence the Works as soon as is reasonably possible after the receipt by him of a notice to this effect from the Engineer, which notice shall be issued within the time stated in the Appendix to Tender after the date of the Letter of Acceptance. Thereafter, the Contractor shall proceed with the Works with due expedition and without delay.

CLAUSE 51

Substantial
Completion of
Parts

If any part of the Permanent Works has been substantially completed and has satisfactorily passed any Test on Completion prescribed by the Contract, the Engineer may issue a Taking-Over Certificate in respect of that part of the Permanent Works

20

before completion of the Works and, upon the issue of such Certificate, the Contractor shall be deemed to have undertaken to complete with due expedition any outstanding work in that part of the Permanent Works during the Defects Liability Period.

CLAUSE 52

Force Majeure

Force Majeure

Neither party shall be liable to the other for any loss or damage occasioned by or arising out of acts of GOD such as Unprecedented flood, Volcanic eruption, Earthquake or other convulsion of nature and other acts such as general/ partial strikes by a section of government employees/ invasion, the act of foreign countries/ hostilities or war like operations before or after declaration of war, rebellion/ military or usurped power which prevent performance of the contract and which could not have been foreseen or avoided by a prudent person.

CLAUSE 53

Recovery

Force Majeure

Any amount found recoverable from the contractor shall be recovered as public demand under the Bihar Public Demand Act. without prejudice to any other mode of recovery.

NOTE:

In case of difference or ambiguity in Hindi and English version, the English version will prevail.



SECTION 4
CONTRACT DATA
(PROFORMA OF SCHEDULES)

PROFORMA OF SCHEDULES

(Operative Schedules to be supplied separately to each intending tenderer)

SCHEDULE 'A'

Schedule of quantities

Sl. No.	Description of Item(with brief specification and reference to book of specification)	BILL OF QUANTITY				Amount	
		Quantity	Unit	Rate			
				In figure	In words		
1	2	3	4	5	6	7	
		As per attached B.O.Q Volume-III B Section - 7					

SCHEDULE 'B'

Schedule of materials to be issued to the contractor.

S. No.	Description of item	Quantity	Rates in figures & words at which the material will be charged to the contractor	Place of Issue
1	2	3	4	5
			-Nil-	

SCHEDULE 'C'

Tools and plants to be hired to the contractor

Sl. No.	Description	Hire charge per day	Place of Issue
1	2	6	7
		-Nil-	

SCHEDULE 'D'

Extra schedule for specific requirements/ document for the work, if any. NIL

SCHEDULE 'E'

Schedule of component of Cement, Steel, other Materials, Labour etc. for price escalation is as follows which will govern the price adjustment.

SCHEDULE 'F'

Reference to General Condition of Contract.

Name of work :- Construction of RCC Drain from Kuldip Chowk to Yadav Dwar Via Registry office Bachan Sharma Chowk, Sub Division Office at Nagar Parishad Mahuahua.

cost of work : Rs 4,98,21,580.00

- i) Earnest money: Rs. 2% upto 10 Crores & 1 percent of the amount above 10 crores
- ii) Performance Guarantee: 2% of tendered value including earnest money.
- iii) Security Deposit : 8% of tendered value.
- iv) Defect Liability period: 3 (Three) Years
- v) Rate of Interest : 15% Simple Annual Interest.

GENERAL RULES AND : Officer inviting tender Executive Officer, Nagar Parishad Mahua.

DIRECTIONS Maximum percentage for quantity of items of work to be executed beyond which rates are to be determined in accordance with Clauses 12.2 & 12.3

See below Definitions:

2(v)	Engineer-in-Charge	Executive Engineer, Nagar Vikas Pramandal, Muzaffar-Vaishali, Hajipur.
2(x)	Percentage on cost of materials and labour to cover all overheads and profits.	O.H 12% + C.P 10%
2(xi)	Standard Schedule of Rates	RCD & BCD Govt. of Bihar
2(xii)	Department & Employer	Road construction Dept, Government of Bihar

Clause 1

- i) Time allowed for submission of performance Guarantee from the date of issue of letter of acceptance, in days 7 days
- ii) Maximum allowable extension beyond the period provided in) above in days Nil

Clause 2

Authority for fixing compensation under clause 2. SE.

Clause 2A

Whether Clause 2A shall be applicable No

Clause 5

Number of days from the date of issue of notice to start. 07 days

Mile stone(s) as per table given below:

Table of Mile Stone(s)

Sl. No.	Description of Milestone (Physical)	Time allowed in days (from date of start)	Amount to be with-held in case of non-achievement of milestone
1.			
2.			
3			
.			

AND

Sl. No.	Financial Progress	Time allowed (from date of start)	Amount to be with-held in case of non-achievement of milestone
1.	1/8 TH (of whole work)	1/4 TH (of whole work)	In the event of not achieving the necessary progress as assessed from the running payments, 1% of the tendered value of work will be withheld for failure of each milestone.
2.	3/8 TH (of whole work)	1/2 TH (of whole work)	
3.	3/4 TH (of whole work)	3/4 TH (of whole work)	
4.	Full	Full	

Time allowed for execution of work

12 (Twelve) Month

Authority to give fair and reasonable extension of time for completion of work.

Departmental Technical Committee

Clause 7

Gross work to be done together with net payment/ adjustment of advances for material collected, if any, since the last such payment for being eligible to interim payment

NO Limit

Clause 10CC

Not Applicable

Clause 11

Specifications to be followed for execution of work

Specification attached with Tender document and prevailing in Department

Clause 12

Deviation, variation
Extent and pricing.

As per P.W.D. Code
clause 182A, 292XII,
293XVII & 294XVI

Clause 16

Competent Authority for
deciding reduced rates.

Superintending Engineer

The following document also forms part of the contract.



- i. Letter of acceptance
- ii. Notice to proceed with the work
- iii. Contractor's Bid
- iv. Condition of Contract: General and Special
- v. Contract Data
- vi. Additional condition
- vii. Drawings (To be supplied by Executive Engineer)
- viii. Bill of Quantities
- ix. Invitation for Bid (IFB)
- x. Notice inviting Tender (NIT)
- xi. Instruction to Bidders (ITB)
- xii. technical specification
- xiii. The letter exchanged between employer and the contractor after receipt of Tender but before award of the contract.
- xiv. Any addenda or modification to above.
- xv. Any other documents listed in the Contract Data as forming part of the contract.

The law, which applies to the contract, :The Law of Union of India
Is

The court of jurisdiction : Patna High Court

The Language of contract document:English

The limit of sub – contracting:RCD Letter No. 8131dated 24.07.2012

The currency of the contract is :Indian Rupees



SECTION 5
SPECIAL CONDITION OF CONTRACT
(Condition of Particular Application)

SECTION -5

SPECIAL CONDITIONS OF CONTRACT

1. PAYMENT OF WORKS:

Payment of earthwork will be DONE in commensurate with the work of structures. At times, the quantity of earthwork executed may exceed, but payment will invariably be made for proportionate work. As such, it is advisable to prioritize the work of structures. To ensure proper compaction of subgrade, canal lining will, preferably, be DONE after one monsoon of the completion of earthwork.

2. PAYMENT OF DEWATERING:

Although dewatering provided for in the estimate, but it may sometimes be unavoidable to dewater foundation of structures during course of execution. In such cases, payment of dewatering will be limited to 3- 5% of the cost of structure for which dewatering is to be carried out. This will include cost of all pumping, sump wells, bailing out, diversion channels, labour, machinery and any other works to dewater the foundation area during the entire period of execution of work. However, in such cases, Superintending Engineer will decide a rate for hourly pumping cost based on actual observation and effective hours of work. Log book for operation of pumps will be maintained and verified by the Executive Engineer and Superintending Engineer. Payment for dewatering will be made in proportionate way in accordance with the progress of foundation work as per actual on the basis of verified log book. It will not exceed 3-5% of the cost of structure for which dewatering is to be carried out.

3. PAYMENT OF ROYALTIES:

Royalty will be deducted as per latest circular from Mining Dept./ UD & HD, Govt. of Bihar.

4. EVENTS OF ITEM OF WORK

The tender specification has been drawn to facilitate the tenderers to quote firm rate for full completion of the work and that the rates quoted must contain the costs of all the events (or all related parts of that item) in each item of work direct as well as indirect including all incidental events not shown or specified but reasonably implied or necessary for the completion of the item of work. It is understood that if the tenderer has any doubt, he shall get it clarified before submitting his tender. Therefore, there should be no scope for any doubt or ambiguity regarding non-inclusion of any event in the items of work in the rate quoted by the contractor. No claim, whatsoever, will be entertained due to non-inclusion of any such event necessary for the completion of the items of work.

5. CAMP SITE AND REGULATIONS

The type of constructions and the plans and specifications for the building to be erected in the contractor's camp nearby the worksite shall be subjected to the approval of the Engineer-in-charge.

The contractor shall provide, maintain and operate under competent direction, such camps and facilities convenient to the work as necessary for the housing,

feeding and accommodation of their employees at his own cost. The location, construction and maintenance of such camps shall be subject to the approval and guidance by the Engineer-in-charge but the department shall not bear any cost whatsoever under any circumstances.

Proper and adequate sanitation and water supply arrangement shall have to be made by the contractor himself at his own cost. It will also be the responsibility of the contractor to maintain properly the drainage in their camp in order to prevent unhygienic condition.

The contractors shall be responsible for maintaining good order in their camps and at worksites and for these purposes he shall employ such officers, watchmen, or other persons as may be required. All regulations shall be subject to the approval of the Engineer-in-charge.

Contractor will have to make his own arrangement for land for labour sheds, stack yards, store, godowns etc. near work site at his own cost.

6. QUALITY CONTROL TESTING FACILITY

6.1 The Contractor shall be responsible for the quality assurance. All necessary arrangements regarding quality control/tests like concerned labours, materials, equipments, laboratories etc. will be arranged by Contractor on his own cost.

6.2 The Department will also conduct various quality-tests in laboratory of Urban Development & Housing Department, GOB or CSMRS New Delhi at several places or in any other standard laboratory as per direction of E/I.

6.3 All materials to be used in work, such as cement, sand, coarse & fine aggregates, reinforcement, etc. shall comply with and shall pass test, and analysis required by Engineer-in-charge or as specified by the relevant IS code Specifications or such recognised specifications acceptable to the Engineer-in-charge or in the absence of such authorised specifications, such requirements, tests and analysis as may be specified by the Engineer-in-charge shall have to be carried out by departmental officers while the labour for conducting the same & collecting the samples shall be provided by the contractor free of cost at site and field laboratory.

6.4 The contractor shall at his own risk and cost make all arrangements and provide for all such facilities as the Engineer-in-charge directs for collecting, preparing and forwarding required number of samples for test and analysis at such times and at such places as may be directed by the Engineer-in-charge. No extra payment will be made on this account to the contractor.

6.5 The contractor shall, if and when required, submit samples of materials to be tested or analysed and if so directed shall not make use of or consume in the work any materials represented by the samples until the required tests or analysis have been carried out and the materials accepted by the Engineer-in-charge. The contractor shall not be entitled for any claim whatsoever on account of stoppage of work to facilitate the required tests.

6.6 The contractor shall provide at his own cost all labours required for collection of sample of materials, casting test cubes, curing the test cubes, carrying the samples of materials and cube of concrete and mortar from site to the place of laboratory and collecting soil samples for conducting compaction test etc., and

provide at his own cost all labour required for the actual tests in field laboratory as directed by the Engineer-in-charge.

- 6.7 The Engineer in charge shall check the Contractor's work and notify the contractor of any defects that are found for rectification, such checking shall not affect the contractor's responsibility. The E/I may instruct the contractor to uncover and test any work that the E/I considered may have a defect. Every time the notice of defect/defects is given, the contractor shall correct the notified defect/defects within the time specified by E / I 's notice before proceeding further. The contractor will not be entitled for any claim or extension of time on this account.

7. DISCREPANCIES AND ADJUSTMENT OF ERRORS

- 7.1 The contract drawings read together with the contract specifications are intended to show and explain the manner of executing the work and to indicate the type and class of materials to be used.
- 7.2 The contractor shall execute the whole and every part of the work in accordance with the drawings and specifications which form part of the contract and in accordance with such further drawings, details and instructions as may, from time to time, be given by the Engineer-in-charge.
- 7.3 It shall be the responsibility of the contractor to promptly bring to the notice of the Engineer-in-charge any error or discrepancy in the drawings, specifications, and contract documents and obtain his written order thereon. In case of any discrepancy between the description of items in the schedule of quantities and the specifications, the latter shall prevail. In case any feature of the work is not fully described and set forth in the drawings and specification the contractor shall forthwith apply to the Engineer-in-charge for further instructions, drawings or specifications. The decision of the Engineer-in-charge regarding the true intent and meaning of the drawings and specifications shall be final and binding.
- 7.4 Detailed drawing shall be followed and figured dimension should be followed in preference to scaled dimension. However, if any dimension indicated on a drawing differ from that obtained by scaling the drawings, the contractor shall bring the discrepancy to the notice of the Engineer-in-charge, whose decision in the matter shall be final and binding.
- 7.5 An error in description, quantity or price in schedule of quantities and price or any omission, therefore shall not vitiate the contract to relieve the contractor from the execution of the whole or any part of the works comprised therein according to drawing and specifications or from any of his obligations under the contract.
- 7.6 No extra payment shall be admissible to contractor, consequent upon any alleged misunderstanding or miscalculation arising out of any other mistake or factor, not specifically provided for in this contract.

8.DEFECT LIABILITY PERIOD

- 8.1 Notwithstanding any certificate of acceptance issued by the Engineer-in-charge to the contractor for this work, the contractor shall be bound upto defect liability period

for a period of Twenty-Four (24) months after the date of handing over of defect free completion of the entire works under this contract to carry out any repair of damages therein. The contractor shall be bound also to carry out any improvement or adjustment to remove any defect in the work.

Such repairs and maintenance shall be carried out by the contractor without any charge to the government as directed by the Engineer-in-charge. The decision of the Engineer-in-charge, about the defects or damages to be made good shall be final and binding on the contractor.

8.2 In case the contractor fails to make good the defects, the Engineer-in-charge may employ other person to make good such defects, and all expenses consequent thereof and incidental cost shall be borne by the contractor.

8.3 If any defective portions of the work are replaced or repaired, the guarantee/defect liability for such portions of the work shall extend until the expiry of six months from the date of such repair.

8.4 To enable the contractor to attend to the defective part for repair or improvements, creation of the same working conditions, facilities etc. as existed before the start of the work, are necessary. The same shall be DONE at the cost of the contractor.

8.5 MAINTENANCE OF ROAD

Proper maintenance will have to be DONE by the contractor for 5 years after completion of work for which provision has been made.

9. INSTRUCTIONS & NOTICES

9.1 All Instructions, notices and communications shall be deemed to have been duly received by the contractor if delivered to the contractor or his authorised agent or left at, or posted at the address given by the contractor or his authorised agent, and they shall be deemed to have been served, in the case of service by post, on the date when the same should have reached such address in ordinary course of transmission by post and in other cases, on the day on which the same were so delivered or left.

9.2 The contractor shall, when he is not personally present at the site of the work, invariably place and keep at site a qualified agent duly authorised to act on his behalf and to receive on his behalf all orders and instructions from the Engineer-in-charge in relation to such work, including all orders by the Chief Engineer, Superintending Engineer, Executive Engineer or any other authorised officer in writing during the inspection of work. All such orders and instructions given to, and all acts DONE by such agents or the contractor shall be binding on the contractor, as if such orders and instructions were given to him or such acts had been DONE by him and him alone.

10. LAY OUT

10.1 The Contractor shall be responsible for fixing Sign – Boards in good conditions at suitable prominent places of his work site showing Name of work, Name of Contractor, quantity of work, amount of work etc as per direction of Engineer in

charge for which no extra payment will be DONE. These should be maintained in good condition till completion of the work at contractor's cost.

- 10.2 The contractor shall be responsible for the correct layout of all works at his own cost. The contractor shall execute the work true to alignments, grades, levels as shown in the drawings and as directed by the Engineer-in-charge and shall check these alignments, grades, and levels at frequent intervals. The contractor shall provide free of cost all facilities, like labours, and instruments and shall always co-operate with the departmental authorities to check all alignments, grades, levels and dimensions. Such checking shall not absolve the contractor of his own responsibility of maintaining the accuracy of the work under the contract.

11. **LINE AND GRADES**

The contractor shall provide such drill tools; equipment & materials labours and such other assistance as may be required by the department in marking all the lines and grades required in the work. The contractor shall preserve the marks thus provided carefully till they have served their purpose. Work shall be suspended at such points and for such reasonable time as officers of the project require to transfer lines and to mark for points for lines and grades. No compensation will be paid to the contractor for required assistance for setting lines and grades or for loss of time on account of the necessary suspension of work or otherwise on account of the requirement of this clause.

12. **REFERENCE LINES AND BENCH MARKS**

The department will fix the basic centre lines, reference points and benchmarks. The contractor shall establish at his own cost at suitable points; additional reference lines and benchmarks as may be necessary. The contractor shall remain responsible for the sufficiency and accuracy of all the benchmarks and reference line. He shall take precautions to see that the lines, points and benchmarks fixed by the department are not disturbed by his works and he shall make good all such damages.

13 **SETTING OUT WORK**

The contractor shall arrange without any additional charge, requisite number of persons with means and materials necessary for the purpose of setting out the works and counting, weighing and assisting in the measurement or examination at any time and from time to time of the work or materials for the purpose of checking by the Engineer-in-charge or his representative. Failure to do so, the same may be provided by the Engineer-in-charge at expenses of the contractor and the expenses may be deducted from any money due to the contractor under the contract.

14 **SITE ORDER BOOK**

- 14.1 Site order book with machine numbered pages bearing the certificates of the Executive Engineer for containing so many pages shall be maintained by the contractor at the work site and it will have to be produced before the Engineer-

in-charge or other inspecting officers if they so desire, for noting down any observation/instruction concerning the work. This shall be the property of the department and the contractor shall deposit the same with the Engineer-in-charge after completion of the work before the final measurement.

- 14.2 The Engineer-in-charge or the representative authorised by him shall communicate or confirm his instructions to the contractor in respect of the execution of the work in the site order book and the contractor or his authorised representative shall confirm receipt of such instructions by the relevant entries in this book. If required by the contractor he shall be furnished with a certified true copy of such instruction. All instructions or order entered in the site order book shall require the approval of the Superintending order books shall be maintained on the site and shall never be removed from site under any circumstances. Only the certified copies under the signature of the Engineer-in-charge shall be sent to the Superintending Engineer for his approval.
- 14.3 The contractor or their authorised agents shall have no right to write anything in the site order book.
- 14.4 The site order books shall be maintained in the following form:

FORM OF SITE ORDER BOOK

Name of work -

Date or period of completion -

S.No.	Date	Order or orders of the inspecting officers, Engineer- in-charge to the contractor (with dated signature)	Action taken over the order or orders and by whom taken (With dated signature)	Acknowledgement of Contractor	Remarks
01	02	03	04	05	06

- 12.5 The order or instruction noted in the site order book shall be taken into consideration at the time of final measurement and making final payments to the contractor.

15 PROGRESS REPORTS

The contractor shall furnish six prints of photographs at his own cost in respect to progress of the work DONE to the Engineer-in-charge on the 5th day of every month. The photographs shall be approximately 20cm x 20 cm size including a margin of 5 cm for binding and shall indicate various stages of construction date, the name of the contractor and the caption of the views taken.

① ②

The contractor shall also furnish monthly progress reports detailing the status, procurement of raw materials and the progress made in the construction work as per contract agreement and the strength of the organisation employed on the job to the Engineer-in-charge on 5th day of every month.

16

OVER AND UNDER PAYMENT

- (i) Whenever any claim whatsoever for the payment of a sum of money to the Department arises out of or under this contract against the contractor the same may be deducted by the Department from any sum then due or which at any time thereafter becomes due to the contractor under this contract and failing that under any other contract in this department under or other department or from his security deposit, or he shall pay the claim on demand.
- (ii) The department reserves the right to carry out post payment audit and technical examination of the final bill including all supporting vouchers, abstracts etc. The Department further reserves the right of recovery of any over payment from the contractor when detected.
- (iii) If as a result of such audit and technical examination, an over payment is discovered in respect of any work DONE by the contractor or alleged to have been DONE by him under the contract, it shall be recovered by the department from the contractor by any or all of the methods described above and if any under payment is discovered, the amount shall be duly paid to the contractor by the department.

17

SITE CLEARANCE

The work shall not be deemed to be completed unless the contractor at his own cost has removed from the site of work and the premises of his work yard and the Government land allotted, if any, to the contractor for accommodations of his staff and employees, all the scaffolding surplus materials, tools and plants, rubbish, working platforms, soak pit and other structure which may have been erected by him for execution of the work and has DONE leveling and dressing of the areas so as to give as neat and clean look to the satisfaction of the Engineer-in-charge. If the contractor fails to comply with any of the requirements of this clause, the Engineer-in-charge shall at the expenses of the contractor take action to fulfil such requirement and may dispose off the scaffolding, the surplus materials, the tools and plants left over by the contractor and the contractor shall have no claim whatsoever in respect of any such materials except for any sum actually realised by the sale thereof. If the expenses of fulfilling such requirement is more than the amount on the disposal aforesaid the excess amount shall be recoverable from the security deposit or other sums payable to the contractor.

18

MATERIALS

18.1

Any materials brought to site shall not be removed from work site without the written permission of the Engineer-in-charge.

70

- 18.2 It shall be clearly understood that the rates quoted by the tenderer shall include all losses, wastages and wash away of materials, equipment tools, and plants etc. either due to rains or storms or floods or earthquakes in the normal course of works or other causes whatsoever.
- 18.3 The contractor shall provide suitable storage arrangement for cement, mild steel, sheet piles and other materials to the satisfaction of the Engineer-in-charge who shall have the authority at all times to inspect the storage arrangements and the contractor shall provide all facilities for the inspection and checking of materials. The contractor shall at all times maintain proper record showing the details of every indent, receipt and utilisation of materials and these shall remain open all times for inspection by the Engineer-in-charge or his authorised representative.
- 18.4 The storage of cement shall be for not more than 30 days requirement for the work in hand and anticipated during the period at the rate of progress of work. Arrangements for storage shall be such as to ensure that the quality of cement does not deteriorate in any manner whatsoever at the time of the utilisation of cement.
- 18.5 Materials shall be stored by the contractor only at places approved by the Engineer-in-charge. The storage and safe custody of the materials for the work shall be the responsibility of the contractor and the Department shall entertain no claim or compensation.
- 18.6 (a) Supply of cement of specified Indian Standard Brand & quality, will be DONE by contractor after purchasing it from stockiest authorized by the manufacturer.
(a) Supply of steel of specified Indian standard Brand & Quality will be done by contractor after purchasing it from stockyards of Re-rolling company / steel manufacturing company approved by Indian Standard Institution.
19. Carriage of Materials:
Payment against carriage of materials will be limited to actual consumed quantity in work against actual work DONE of related finished item of works. And it will be based on as per actual lead involved in carriage as directed and approved by E/I. If approved actual lead involved varies from the lead mentioned in BOQ then payment will be rectified accordingly based on prevailing schedule of rate (But in case of bricks/ brick bats tiles lead will be limited to eight KM only). No claim will be entertained on behalf of unconsumed materials carried by contractor.
20. MATTERS RELATED TO CONTRACT TO BE TREATED AS CONFIDENTIAL.
The contractor shall consider all documents, correspondences, decisions and orders concerning the contract as confidential and/or restricted in nature and he shall not divulge or allow access to them by any unauthorised person. Any violation of the security of these confidential and restricted documents will attract penal and legal actions against the contractor in accordance with the existing law(s).
21. MEDICAL CARE

Providing medical care to all the employees, authorities and workmen is the sole responsibility of the contractor himself. The department shall not provide any medical facility for the treatment of the contractors or their employees. In nearby hospitals, medical facilities are available. The contractor shall therefore make arrangement for First-Aid at site of work as well as for the emergency medical treatment in any approved permanent hospital for his personnel, authority and worker injured during the execution of the work entirely at his own cost. All cases of accident, injury etc. to the contractor's personnel shall be immediately brought to the notice of the concerned authorities by submitting the full report of the cause of accident, the nature of injury and the name of injured person. The Department shall not be responsible for any medical care.

22. **MEDICAL SUPERVISION**

The contractor shall employ only such person known to be free from contagious diseases. Any employee having such disease shall be removed as and when detected. The contractor shall remove such employee to approved medical hospital or permanently from the site of work or construction camps and colonies, whenever in the opinion of the Engineer-in-charge it is necessary for the protection of the public health or health of such employee.

It shall be the sole responsibility of the contractor to arrange for medical care and supervision of his workmen and staff at his own cost.

23. **OBSERVANCE OF LAWS, LOCAL REGULATIONS AND ATTACHMENTS**

The Contractor shall conform to all laws of the land and the regulations and bye-laws of any local authority and power; water or lighting authorities related with the canal system or structure. He shall before make any variations from the drawings or specifications that may be necessitated for so conforming, give written notice to Engineer-in-charge for instruction thereon.

The Contractor shall give all notice required by the said Acts. Regulation or bye-laws and pay all fees in connection therewith. He shall also ensure that no attachment is made against materials or works related to the contract. The contractor shall protect and indemnify Government against all claims or liabilities arising for or based on the violation of such laws, ordinance, regulations, bye-laws, decree or attachments by him or by his employees.

24. **OTHER CONTRACTORS**

It may be required that several contractors under different contracts work at the same site simultaneously. When two or more contractors are engaged on work in the same vicinity each shall extend all possible and reasonable facilities to other in a spirit of active co-operation and mutual accommodation. The contractor shall not take or cause to be taken any step or action that may cause disruptions, discontentment or disturbances to the works, labour and arrangement of other contractors in the vicinity and in the project localities.

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In case of any difficulty amongst the contractors the Engineer-in-charge shall direct manner in which each contractor shall conduct his work so far as it affects the other and his decision shall be binding upon all the contractors involved.

25. **OTHER WORKMEN**

The Engineer-in-charge shall have full authority to depute workmen on the work site to execute other work not included in this contract. The contractor shall afford every reasonable facility during working hours, to enable such workmen to carry out the other works provided that such works shall be carried out in such manner as not to impede the progress of the work included in the contract.

26. **POWER-SUPPLY**

The Department does not take any responsibility at all in the arrangement to be made for the supply of power by the Bihar State Electricity Board. Contractor at his own cost shall make the arrangement for supply of power.

27. **PREVENTION OF ACCIDENTS**

The Contractor shall at all times exercise reasonable and proper precautions for the safety of the people employed on the work and shall comply with the provisions of the current safety laws on buildings and construction codes of the State Govt. as may be applicable to him. He shall also provide all necessary fencings and lights as required to protect cattle, livestock and the public from accident. All machinery or equipment and other sources of physical hazards shall be guarded in accordance with the regulations or laws of the State Govt. or the Govt. of India. The contractor shall be responsible for all risks to the lives and properties of the people from whatsoever cause, arising in connection with the execution of the works and during their progress although all reasonable and proper precautions may have been taken by the contractor. In case of Government (either alone or jointly with contractor) shall be called upon by the court of law to make good any such loss or losses or damages or to pay compensation including that payable under the provisions of the workmen's Compensation Act, Industrial Dispute Act etc, to any person or persons sustaining damage as aforesaid by reason of any act of negligence or omission on the part of the contractor the amount which the Govt. may be required to pay in respect thereof and the amount of any costs and charges (including legal costs and charges in connection with the legal proceedings) which Government may have to incur in these respects all these shall be recoverable from the contractor. Immediate reports of all accidents shall be submitted by the contractor to competent authorities according to statutory requirements giving such details as may be prescribed for that purpose.

The contractor shall at his own expense arrange for the safety operation as required including the provision in the safety manual published by the Central Water Commission, New Delhi (latest edition).

28. **PROTECTION OF ADJOINING PREMISES**

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The contractor shall protect adjoining structural and decorative items, if any, from damages that could be caused by the execution of these works and make good at his own cost, if any, such damage occurs.

29. **REMOVAL OF CONTRACTOR'S MEN**

The contractor shall on the written direction of the Engineer-in-charge immediately remove from the work site, camps and colonies, any person employed thereon who may in the opinion of the Engineer-in-charge be incompetent or has misconduct himself. Such person shall not be employed again on the work without the written permission of the Engineer-in-charge.

30. **SECURITY MEASURES**

30.1 In view of the strategic importance of the project and installations of security restrictions may be imposed by the Engineer-in-charge as per directions of the Security Authorities and the contractor shall abide by all such restrictions and instructions.

30.2 In case, a system of identity card is introduced, the contractor shall at his own cost provide for his personnel, all such identity card with photos, if necessary, duly signed by the Engineer-in-charge or his duly authorised representatives. The contractor shall keep the Engineer-in-charge informed regarding all visitors and obtain proper permits for their visit to the work. No unauthorised visitors shall be allowed at the work site.

31. **SIGNED DRAWINGS - NO AUTHORITY TO THE CONTRACTOR**

Signed drawing alone shall not be deemed to be an order for work unless it is entered in the agreement or the schedule of drawings under proper attestation of the contractor and the Superintending Engineer or unless it has been sent to the contractor by the Superintending Engineer with a covering letter confirming that the drawing is an authority for working the contract.

32. **SPECIFICATIONS**

In case of any class of work for which there is no specification available, such work shall be carried out in all respect in accordance with the standards and requirements as prescribed by the Superintending Engineer.

33. **TAXES, DUTIES, ROYALTIES, LEVIES etc.**

33.1 If there is any variations statutory or otherwise, in the above taxes (excluding income tax) duties, levies etc or fresh taxes, duties, levies etc are effected by the Central or State Government or Local Bodies; then the difference between those existing on the date of submission of the tender and actually paid by the contractor (based on the bill and payment vouchers to be produced to the Engineer-in-charge) shall be adjusted upwards or downwards for fresh levies, increase or decrease as the case may be.

33.2 **INCOME TAX**

Income tax at the prevailing rate on the gross value of work DONE under this contract by the contractor shall be deducted at source as per statutory provision by the Engineer-in-charge from every bill of the contractor.



- 33.4 **FORM M AND N**
Seigniorage Fee will be deducted according e-challan as per latest circular of mining dept.
34. **USE AND CARE OF WORK SITE**
- 34.1 The contractor will be permitted to use without charge the site and the lands belonging to the Department for execution of work such as workshop and stores and for the related activities at site. The contractor shall not commence any operation on such departmental land except with the prior approval of the Engineer-in-charge. If the lands available in the area are not adequate the contractor may have to make his own arrangements for additional lands. The Department shall not take any responsibility for arranging land for the contractor.
- The contractor shall not demolish, remove or alter the structures, trees or other facilities at the site without prior approval of Engineer-in-charge. The land required for contractor's camps and offices will have to be arranged by the contractor himself.
- 34.2 The Bidders shall have to submit self-attested photocopy of UpToDate VAT clearance, Pan-Card, Labour License and Character Certificate in addition to other required documents.
- 34.3 All rubbish etc shall be burnt or removed from the site as they accumulate. All surfaces and soil drain shall be kept in clean, sound and in workman like conditions. All the areas of the contractor's operation shall be cleared before returning them to the Engineer-in-charge.
- The contractor shall make good; all damages or alterations made in as properly or land handed over to him before these are returned back without prejudice.
35. **WORK UNDER THE CONTRACTOR'S CHARGE**
- The works shall be under the contractor's charge from the date of commencement till twenty-four months after calculated from the date it is handed over to the Engineer-in-charge after completion and the contractor shall be fully responsible for maintenance, protections and making good all damages to the work occurring during course of operation of the contract or due to any reason whatsoever. Taking over the whole or part of the work by the Engineer-in-charge shall not waive or diminish the responsibility of the contractor to maintain, execute all repairs, amendments, reconstructions, rectifications, making good all the defects, imperfections, shrinkable or other faults entirely at the expenses of the contractor.
- 36 **SITES FOR EXECUTION OF WORK:**
- Site for execution of the work will be available as soon as the work is awarded. In case it is not possible for the department to make the entire site available on the award of the work by any unavoidable reason is under process for the part of the site of work the contractor will have to arrange his working Programme accordingly. No claim whatsoever for not giving the entire site on award of work

and for giving the site gradually will be tenable. Failure or delay by the department to hand over the contractor possession of the entire site necessary for the execution of the work shall in no way affect or vitiate the contract or alter the character thereof or entitle the contractor to damage or compensation therefore provided that the department may extend the time for completion of work by such period as it may consider necessary and proper.

37. Contractor shall have to arrange temporary land for the earth required for the construction of the Canal Embankment. The Department will pay to the actual landlord from whose land; the earth will be taken in the construction of canal embankment as per Government Rules after proper verification and measurement by the E/I. The land so arranged should be within lead mentioned in the Bill of Quantity as far as possible.
38. Quantity of earth in cutting shall be used in restoration of Bank and other suitable places as directed by Engineer-in charge.
39. The bidder will have to enclose over all Implementation schedule with the bid. The same will be detailed using CPM and PERT after the agreement by the contractor. The Contractor will have to submit fortnightly progress report (or as and when required) with respect to the O.I.S.
40. Huge quantities of stone chips will be required for the project. As such the contractor will complete the work by carriage of stone chips/metals/boulder from nearest quarry within or outside the state in addition to the Shekhpura quarry as provided in the estimate under the conditions mentioned in Letter no.5390(E) dt 27.8.13 from Engineer-in-Chief cum Special Secretary cum Additional Commissioner, Public Work Department Govt of Bihar (Annexed at--).).
41. Rate of non- schedule item will be subject to adjustment upwards or downwards as per approval from State Level Schedule rate committee.
42. In case of any printing error in either in quantity or amount, the same will be corrected as per sanctioned estimate.
43. All P.C.C. Lining work will be DONE by Batch mix plant / Ready mix plant (R C M) and Concrete Lining Paver.
44. Work has been distributed in packages, so package wise work will be taken up. After completion of more than 70% of the work of a package, next package will be started. Generally, work on only two packages will be taken up at a time. In special condition, Chief Engineer will allow for simultaneous work on three or more packages on the basis of their progress. All the canals may not be closed at a time during the Rabi/Kharif period.

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SECTION 6
TECHNICAL SPECIFICATION
(Along with Basic drawings)

SECTION-6.1

SPECIFICATION OF EARTHWORK

- 1.0 GROUND WORK AND SETTING OUT
- 1.1 The contractor shall nick-out lines along top of cutting and toe of bank. The contractor shall supply labour and materials required for the work. Jungle shall be cut before nicking-out is commenced. The line and levels shall be marked out on the ground accurately in accordance with the drawing or as directed by Engineer-in-charge (E/I) or his authorized agent. Profiles of canal banks, on either side consisting of light bamboos or poles shall be erected at every 30m (100 feet) in

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straight portion and at closer rate (10m) in curves for the convenience of the workmen and they will show the total height including the allowances for settlement, and also the slopes, by stretching coir string so that no additional earth will be required after wards to bring the bank to its proper height. The cost of ground work shall be included in the rate for earth work.

- 1.2 Prior to commencement of work the center line of the canal shall be marked by stones or pegs at 30m interval in straight reach and at closer interval in curves. Top and bottom edges of the excavation and toe of both banks shall be suitably marked.
- 1.3 An earthen profile true to the design section shall be constructed at every 150-meter interval for workmen to follow. The same shall be checked by E/I and recorded in MB. This will form the guide for the workmen to execute the canal according to design section. Earthwork will be started only after cutting of proper earthen profile at 150M interval.
- 1.4 All levels shall be referred to an established bench mark not subject to subsidence or interference. For this purpose, TBM shall be carried over from GTS bench marks or adjacent structures and fixed on a pucca platform/post at every 300m after due check by the E/I. A list of TBM fixed will be kept for record with UD & HD, GOB and also with executing agency.
- 1.5 Before taking up the work the pre-section of existing canal bed and both canal banks shall be taken at 30m interval and recorded in MB. The same shall be checked by E/I and got accepted by executing agency.

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2.0 CLEARING SITE

- 2.1 The site within the canal banks shall be cleared of all jungles, rubbish, fences and other obstruction at such time and to the extent required by the E/I for proper execution out of the work.
- 2.2 The materials so obtained shall become the property of the department and shall be stacked as and were directed by the Engineer-in-charge, separating the useful from the useless portion. The contractor shall not be allowed to sell or dispose off any material that may be found in the excavation. Roots of shrubs and trees must be scrubbed out to a depth of 0.6m (2ft). Unsuitable soil shall be removed from the top of land to come under the bank, stacked separately if so directed by the Engineer-in-charge before such earth is removed.
- 2.3 Rate of earth shall include all preparation including cutting and removing of shrubs, removing of roots.
- 2.4 The site shall be prepared in length of 60m (200ft) in case of manual excavation and 250m (800ft) in case of mechanical excavation and one or two lengths must always be kept ready in advance of the work.

3.0 EARTH WORK BY RAJSTHANI TRACTORS

Earthwork (such as desilting, excavation or filling) will be DONE by Rajashtani Tractors as far as possible for example in main canals, branch canals, sub-branch canals, distributaries and sub-distributaries having bed width over seven (7) feet where ever tractor will be operable. Generally, in these cases contractors will not be allowed to do earthwork by mazdoors. The cost of transport, running, maintenance over hauls etc. shall be borne by the Contractor.

4.0 EXCAVATION

- 4.1 The Earthwork shall be carried out in following manner as per approved drawing or as directed by Engineer-in-Charge (E/I).
- 4.2 The earth obtained from the excavation shall be deposited beyond the top edge of the canal on either side in shape of banks within the profiles as may be directed by E/I or his authorized agent. Any quantity in excess of banks shall be deposited behind profiled banks in a regular section according to profiles which shall be fixed by the contractor under the direction of the E/I or his authorized agent.
- 4.3 The canal bed must be excavated first across whole width and the gradient and side slope shall be in accordance with the approved drawing. No steps for transporting earth should be cut into the side slope of the canal but may be made projecting out of slopes so that the final surface may be obtained by cutting the steps.
- 4.4 No final bill shall be paid unless canal section has been finished off according to the approved drawing or according to instructions of the E/I. If canal bed is found higher in any reach of 30m deduction will be made in the whole length of 30m. Excavation done beyond specified width and depth will not be paid for.
- 4.5 Where excavation has to be done through an existing channel or irregular depression, the cross section of such channel or depression shall be taken at every 30m or at smaller intervals as directed by the E/I and recorded in the measurement book before starting excavation. Such measurement will have to be signed by the contractor and proper deduction shall be made from final measurement of finished canal. Any earthwork done by contractor before such measurement is recorded in MB, will not be paid for.
- 4.6 The rate quoted for excavation shall be applicable in all kinds of soil.
- 4.7 Complete profile of the ground shall be left in the canal at every 60m to a width of 1.5m and no other kind of witness has to be left in the canal. Profiles shall be removed completely only after measurements are taken and checked and the earth

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shall be used in canal banks or as directed by the E/I or his authorized agent. Order of E/I shall be obtained before removal of such profiles.

- 4.8 When earth obtained from excavation of canal is insufficient to form the canal bank further earth may be obtained manually from borrow pits from outside the limit of canal land as directed by E/I. In case of borrow pits on the countryside of the canal embankment; a gap of at least 6m shall be left at regular interval of 25m so that a continuous drain may not be formed. The borrow pits selected on the country side for taking earth shall be cleared off of all trees, shrubs, grass, and vegetable mound.
- 4.9 The rate for earth work includes all preliminary operations and preparing the seat for the banks and nothing extra will be paid for the above preparations.

5.0 PREPARATION OF SEAT FOR THE BANKS

- 5.1 The entire width of the Main banks (i.e. where the canal is either partially or completely in filling) shall first be scraped and then ploughed up to a depth of 100mm. All grass roots and tree roots, rubbish etc. visible before and after ploughing will be removed completely and all clods broken to the satisfaction of the Engineer-in-charge before laying earth for the banks. No such ploughing will be done for the seats of spoil banks. In case, where banks had been formed partially and subsequent raising is taken up after a lapse of time, the top surface of the old bank shall be scraped, loosened and grass and tree roots removed before fresh earth is deposited.
- 5.2 The ride or mound which is in the line of embankment should be loosened or stepped as directed, to provide a close bond between the old and the new work.
- 5.3 Preparation of the seats for the banks should be done in a length of not less than 60m at a time. Two such prepared stretches should always be kept ready in advance.
- 5.4 When the preparation of seats is complete and ready for receiving the deposition of earth for the embankment, it will be inspected and passed by Engineer-in-charge.
- 5.5 The rate of earth work includes all preliminary operations and removing jungles, grass, trees and other observations etc. and preparing the seat for the banks and nothing extra will be paid for the above operations.

6.0 CONSTRUCTION OF BANKS

- 6.1 The banks shall be constructed according to the dimensions given in the drawing and as per profiles set up on the site. Where there is insufficient earth to form the banks, additional earth, shall be obtained from the borrow pits from outside the limit of canal land as directed by the E/I.
- 6.2 The deposition and spreading of earth will have to be done strictly in accordance with the plan as per instruction of the E/I. The banks will be raised uniformly in whole width and in no case the deposition of earth will be made indiscriminately at different levels in the reaches where the banks are in progress. The work shall be rectified at the contractors cost if the deposition of the earth has not been done in accordance with the instruction.
- 6.3 The banks shall be constructed in horizontal layers each 225mm thick. The top surface should always slope (1:80) towards country side to facilitate drainage. All clods must be broken up to a diameter of not more than 50mm in borrow pit itself.
- 6.4 As the bank progresses, the side shall have to be dressed and finished to proper slopes and section according to the approved drawing and direction of the E/I. When the execution of the canal is through light sandy soil, the more clayed soil found on the surface shall be deposited on the side slopes & top of bank to provide a compact earth blanket of at least 300mm thickness, for which no extra payment will be made.
- 6.5 The whole length of embankment must be constructed simultaneously. In case the whole length of embankment is not constructed simultaneously and only a portion

of the bank is constructed during one season the following procedure shall be adopted. The incomplete ends of embankment shall be placed at a slope not steeper than 1 to 5 to permit satisfactory bonding with the portion of the bank which is constructed later. For the sake of conveniences ends may be terraced if necessary.

6.6 DRESSING OF SLOPES

The outside slopes of the embankment shall be neatly dressed to lines as the placing of fill progresses. Compaction shall extend over the full design width of the embankment and materials in earth slopes shall be compacted to ensure proper compaction on the edge.

When the earth is taken from canal bed and carried by head load to fill the embankments, care should be taken not to make cuts in the inner slope of embankment as steps in the side inner slope of the canal but may be made by projecting out of slopes so that the final surface may be obtained by cutting the steps.

Materials used to fill depressions shall be thoroughly compacted and bonded to the original surface. Slopes shall be maintained until final completion and acceptance. Any materials that is lost by rains, weathering or other cause shall be replaced.

7.0 SETTLEMENT ALLOWANCE

7.1 The crest level of the banks shall conform to the design level shown in L/S plus the allowance for settlement as indicated below:

- (a) Uncompacted bank: 3.75cm per 30cm height of bank ($1\frac{1}{2}$ " per foot height of bank) Earth work DONE manually.
- (b) Compacted bank:
 - i) By Mechanical means: 0.625cm per 30cm height of bank ($\frac{1}{4}$ " per foot height of bank).
 - ii) In other cases, suitable and proper decision will be taken by E/I.

7.2 No extra payment will be made for providing extra earth work for settlement allowance.

8.0 BORROW PITS AND SUB-PITS

8.1 Sub pits in borrow pits in countryside only can be excavated only were directed by the E/I and within specified limits. No pits will be allowed to be cut in the bed of canal.

8.2 No village road or other road shall be cut through by borrow pits.

8.3 Before commencing pit excavation, the site of pits shall be cleared by the contractor of all growth, jungles and roots so that the earth taken from the pits may be free from all vegetable mounds and roots. The rate will include this clearing except removing trees over 300mm (12 inch) girth (measured above ground level) or roots of the same.

8.4 MOISTURE CONTROL

As far as practicable, the materials shall be brought to the placement site with proper moisture content from the borrow area. If additional moisture is required, it shall be added by sprinkling water before rolling of a layer. If the moisture content is greater than required, the materials shall be spread and allowed to dry before starting rolling.

The moisture content shall be relatively uniform throughout the layer of materials. No extra payment will be DONE for this.

8.5 All excavation shall be from new pits situated at least 1.5 Meter away from any old pit except when special permission is given by the E/I to excavate from old pit. In the case of excavation from old pits all measurement marks shall be removed and all the surface leveled at the contractor's expense. After the old pits have been inspected by the E/I or his authorized agent, his written permission shall be obtained

before any excavation is commenced. A margin at least 600mm wide is to be left unexcavated in the old pit all around the new ones. Failing this no measurement will be made of any excavation in an old pit or one supposed to be old by the E/I and the contractor shall have no claim for any work DONE in such a case.

- 8.6 No payment will be done on the basis of borrow pit measurements. Payment will be made only on the basis of sectional measurement of compacted earth after deduction of proper voids i.e. allowance for settlement as specified.

9.0 LEAD AND LIFT

- 9.1 LEAD - (a) When rates sanctioned vary with the lead, it is to be understood that "lead" means the distance from the centre of gravity of the borrow pit or excavation to the centre of gravity of bank on which the excavated earth is to be deposited, measured horizontally. The initial lead shall be of 30m, for every 25 m beyond the initial lead of 30m shall be counted as an extra lead. The lead will be calculated on the whole quantity as an extra lead. The lead will be calculated on the whole quantity as if it has been DONE in one operation. Slicing of pits or banks for this purpose will not be permitted.

(b) As far as possible, the right bank shall be formed from the excavation on the right side of the centre line of the canal bed. Similarly, the left bank shall be formed from the excavation on the left side of the centre line of the canal bed. This will minimize lead.

(c) The earth shall be carried on head loads up to a total lead of 150m. The rates quoted will be based on the above. However, in case where lead is more than 150m, the earth may be transported by tractors or trucks for which separate rates shall be admissible based on distance of carriage involved, but within the limit of lead plan approved by concerned Chief Engineer.

- 9.2 LIFT - When rates sanctioned vary with lift, it is to be understood that "lift" means the vertical height between the centre of gravity of borrow pit and centre of gravity of bank. The initial lift shall be 1.5m. Every 1m lift beyond initial 1.5m shall be treated as extra lift. The lift will be calculated on the whole quantity as if it has been DONE in one operation. Slicing of pits or bank for this purpose will not be permitted.

10.0 MEASUREMENT AND PAYMENT OF EARTH WORK

(EXCAVATION / DISILTATION/ FILLING EMBANKMENT)

10.1 MEASUREMENT

- (a) All payment will be made on the basis of sectional measurement by deducting the pre-section taken before execution of work and post-section taken after execution of work, after deducting specified settlement allowance.
- (b) For this purpose, cross section at every 30m or at closer intervals where ever required like curves, shall be taken before start of the work. The cross section will extend upto 16m beyond the proposed outer toe of the banks. The cross section shall be taken in presence of the contractor and entered in M.B. plotted on graph, and get signed by the Contractor in both M.B. and graph in token of acceptance of the pre-construction levels. A certified photo-copy of the same shall be submitted to the concerned Superintending Engineer for safe custody.
- (c) No payment (either interim or final) will be DONE for any portion of work where section of both canal-bed and banks are not completed as per design and drawing (with specified allowance for settlement in case of banks).

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This means that even interim payment will be made only for works completed in all respect as per drawing & specification.

10.2 PAYMENT:

- (A) (i) Where quantity involved in desiltation / cutting of canal bed will be more than quantity involved in completing the design section of banks, payment will be limited to the quantity involved in desiltation / cutting of canal-bed. Here rate of desiltation /cutting will be applied.
- (ii) Where quantity involved in desiltation/ cutting of canal bed will be less than quantity involved in completing the design- section of banks:
- a) Rate of desilting/ cutting will be applied on quantity involved in desiltation/ cutting of canal bed.
- b) Rate of filling will be applied on balance quantity i.e. difference of quantity involved in banks (after deducting specified settlement) and quantity involved in desiltation/ cutting of canal bed, and assessing the quantity excavated from the borrow pits out side the canal.
- (iii) Where desiltation/ cutting of canal bed is not involved. Payment will be made for filling as per sectional measurement of banks, after deducting specified settlement allowance.
- (C) Quantity of payment will be limited to the quantity as per design section of either canal banks or canal bed.
- 10.3 The department will not be responsible for any loss or damage caused to the works during construction. Rain wash, etc due to incomplete works will be to the contractor's account and no claim will be entertained for repairing the banks.
- 10.4 The contractor shall be responsible for all payments to be made to his employees and labours engaged on the work under the workmen's compensation act. The department will not bear such charges.
- 10.5 The quoted rate of earth work shall include: (For which No extra payment will be DONE).
- a) Ground work including making profiles of canal section, at an interval of every 150 meter before starting the work.
- b) Clearing jungles, removing grass, vegetable and organic matter and uprooting trees and stumps up to 300mm (12 inch) girth from the banks and borrow pits.
- c) Preparation of seat of banks by ploughing and removal of vegetable and organic matter.
- d) Excavation of canal bed to proper grade and side slope forming banks and dressing etc, which shall also include settlement allowance as specified.
- e) Provisions of tools and plants required for the work.
- f) Providing labour amenities such as huts, kitchen, water supply latrine etc.
- g) Fixing (including maintaining during whole execution period) of Sign Boards at prominent places at work site showing Name of work, Name of Contractor, Quantity of work, amount of work etc as per direction of E/I.
- h) Benching of slope of canal bank before laying fresh earth on it.
- i) Placing of silt or earth excavated as per approved disposal plan or as directed by E/I.
- 10.6 (a) In case of carriage of earth from longer lead by mechanical means, the payment will be DONE as per lead approved by concerned Chief Engineer.
- If carriage of earth will be DONE from shorter lead than approved; then payment will be reduced accordingly as decided by Engineer-in-charge, but extra payment will not be DONE on account of carriage of earth from longer lead than approved.

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- (b) For filling of canal banks preferably earth will be obtained from near by canal bed, vents of C.D. works, bed of escape channels, foundation pit of canal structures etc. without harming them as directed by Engineer in charge, only then carriage from long lead will be done for balance quantity.
- (c) Approved lead plan may be seen in the office of concerned Executive Engineer.

11.0 DEWATERING

- 11.1 Suitable arrangement for drainage shall be provided to take surface water clear of the excavation during the progress of work. For this, the area shall be drained by providing a pilot drain to nearest valley/C.D. work so as to drain the accumulated/sub-soil water as per direction of E/I. For which no extra payment will be DONE.
- 11.2 Excavation shall be DONE from downstream side to upstream side so that water tends to drain away from the working area.

12. LAND-ACQUISITION (TEMPORARY OR PERMANENT)

It may take the department sometime to get possession of land through normal land acquisition procedure. The department will not be liable for any damage or compensation due to delay in start and suspension of the work on account of delay in getting possession of land or change in alignment.

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SECTION-6.2
TECHNICAL SPECIFICATION OF MATERIALS

1.0 GENERAL

All materials to be used in the work shall be in conformity with the requirement laid in these sections.

If any special material not covered here is required to be used, it shall conform to relevant Indian Standard, or specified by the Engineer-in-Charge.

2.0 100A BRICKS

2.1 First class bricks should be sound, hard, well burnt of uniform deep cherry-red or copper color, free from cracks, flaws, stones or lumps of any kind. These should be good shape, having sharp edges and be capable of withstanding a crushing stress of 100kg/cm². The absorption of well-burnt brick after 6 hours immersion in water should not exceed 1/6th of its weight when dry. These should emit a metallic pitched wringing sound when struck. The size will be 25cm x 12cm x 7cm or as specified in ISI/item of works.

2.2 Brick should be stacked in such a way that each brick is visible and can be inspected. Stacks should be in multiplies of 1,000 nos. All bricks carried to the work site should be got approved by Engineer-in-Charge before these are used in work. Rejected bricks should be removed from the site within shortest period and not later than the period specified by the Engineer-in-Charge.

3.0 100B BRICKS

Second class bricks should be of the same quality as of first-class bricks but may not be of such good shape or sharp edges.

4.00 CEMENT

4.1 Cement shall be ordinary Portland cement minimum of 43 grade conforming to the relevant BIS Code.

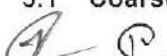
4.2 Cement shall be used in approximately the same chronological order in which it is received from the factory.

4.3 Transportation units and storage bins for bulk cement shall be damp proof and shall be constructed in such a way so that there is no dead storage. Cement delivered in bags shall be transported under complete damp proof covers and stored in damp proof structures with adequate provision for the prevention of absorption of moisture and stacked in manner, permitting inspection and identification of each consignment. Stacking height of bagged cement shall not exceed 3 meters. Cement that has been in storage for more than 4 (four) months shall not be used without special inspection, testing and approval as per I.S. 457:1857.

4.4 Stock of cement shall be periodically tested for quality, during progress of the work and where there is doubt, that stock of cement not confirm to and meet the requirements of the specifications, such stock of cement shall not be used in the work at all.

5 STONE METAL

5.1 Coarse Aggregate



5.1.1 Coarse aggregate shall consist of crushed stones of approved quality. Quarrying and screening to obtain aggregates of required size, grading and transportation to work site shall be the responsibility of the contractor. It should be approximately cubical in shape. The aggregate shall contain requisite fines to allow adequate finishing as per design. Maximum size of aggregate shall not exceed 40mm or as specified in items of work. Grading of mix for the concrete shall be approved by Engineer-in-Charge before the same is used by the contractor. The Contractor shall have to make his own arrangement for quarrying, crushing to size, washing and transport to work site of the aggregate at his own cost Coarse aggregate shall confirm to I.S. 383: 1970. The aggregate shall be properly graded so as to produce a compact concrete.

5.1.2 The approximate range of grading of coarse aggregate shall be as follows:

Table 1

I.S. sieve designation	Percentage passing for single sized aggregate of nominal size					
	63 mm	40 mm	20 mm	16 mm	12 mm	10mm
80 mm	100	-	-	-	-	-
63 mm	85 - 100	100	-	-	-	-
40 mm	0 - 30	85 - 100	100	-	-	-
20 mm	0 - 50	0 - 20	85 - 100	-	-	-
16 mm	0 - 5	-	-	85 - 100	100	-
12.5 mm	-	-	-	-	85 - 100	100
10 mm	0 - 5	0 - 5	0 - 20	0 - 30	0 - 45	85 - 100
4.75 mm	-	-	0 - 5	0 - 10	0 - 10	0 - 20
2.36 mm	-	-	-	-	-	0 - 5

Table 2

IS sieve designation	Percentage passing for graded aggregate of nominal size			
	40 mm	20 mm	16 mm	12.5 mm
80 mm	100	-	-	-
63 mm	100	-	-	-
40 mm	95 - 100	100	-	-
20 mm	30 - 70	95 - 100	100	100
16 mm	-	-	90 - 100	-
12.5 mm	-	-	-	90 - 100
10 mm	10 - 35	25 - 35	30 - 70	40 - 85
4.75 mm	0 - 5	0 - 10	0 - 10	0 - 10
2.36 mm	-	-	-	-

5.1.3 The gradation shall be finally approved by the Engineer-in-Charge. The finer particles and the deleterious materials passing 4.75mm sieve shall not exceed 5% in any case. The over size aggregate shall not exceed 3%.

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5.1.4 Aggregate impact value (i) for concrete in wearing structure 30%; (ii) for other concrete works 45%.

5.1.5 Aggregate abrasion value (i) for concrete in wearing structure 30%; (ii) for other concrete work 50%.

5.2 QUALITY

The coarse aggregate shall consist of hard, dense, durable, uncoated rock fragments and shall be free from injurious amount of soft, friable, thin and laminated pieces, alkalies, organic matter or other deleterious substances. Rounded pebbles, flaky and decayed stones are not to be used.

6 STONE CHIPS

Except for the following grading the specification for stone-chips will be same as that of stone metal. Materials of the size between 4.75mm to 20mm with the following grading size are generally recommended:

20 mm to 10 mm....55 – 65%

10 mm to 4.75 mm....35 – 42%

7 FINE AGGREGATE

7.1 GENERAL

Fine aggregate of sand is the material most of which passes through 4.75mm I.S. sieve. Fine aggregate for concrete mortar shall be natural fine aggregate or coarse sand and from river bed. Sand obtained from crushing of stone may also be used as fine aggregate provided it satisfies the Indian Standard Specification.

7.2 QUALITY

The fine aggregate shall consist of clean, hard, strong, durable, uncoated particles, free from injurious ingredients (dust, mica shells, softer flaky particles, shales, alkalies, organic matter, loam or other deleterious substances). The maximum percentage of deleterious substances in the fine aggregate as delivered for use of work shall not exceed the following values:

Materials passing No. 200 screen

Shale.....1%

Coal.....1%

Clay.....1%

7.3 Total of other deleterious substances (such as alkali, mica coated veins, soft flaky particles and loam, should not be more than 2%. The sum of the percentage of all deleterious substances shall not exceed 5% by weight.

All sand to be used in the construction of the structure shall conform to the specification and limit of grading by I.S.I. in RCC work and other specified works. Sand of F.M. not less than 2.00 only will be used for RCC. Sand of F.M. from 1.8-2.00 will be used in PCC work and F.M. 1.6-1.8 will be used in brick work. The sand shall be screened and washed to remove all foreign and deleterious materials before use in works.

7.4 The fineness modulus shall be computed by adding cumulative percentage of fine aggregate retained on the mix standard screens from nos. 4-100 and dividing the same by 100. The grading of the fine aggregate shall be controlled in such a manner

that the fineness modulus of at least nine out of ten samples of finished fine aggregate delivered to the mixer, fineness modulus of ten samples tested.

8.0 IMPURITIES IN AGGREGATES

8.1 In coarse and fine aggregates, silt or earth or crusher dust should be avoided as these elements tend to rise to the surface of concrete and cause cracking due to shrinkage upon drying and also tend to interfere with bond between aggregate particles. A simple sedimentation test for the presence of approximate amount of those impurities in sand is to be carried out in the field. A clear glass jar is half-filled with sand and the container is completely filled with clean water. The jar is shaken vigorously and the contents allowed settling for an hour. The depth of layer of silt on top of the sand is measured and percentage with reference to the total worked out. It should not exceed 2%. Test for silt content should be made as a daily routine.

8.2 The percentage of even 1% of organic impurities in sand will delay hardening of concrete and will seldom be found in washed sand. A simple colour test for the presence of organic material can be carried out in the field. If sand sample is immersed for 24 hours in a 3% solution of Sod. Hydroxide remains clear or is of light yellow colour the same is satisfactorily free from organic matter. If the solution colour ranges between light yellow to brown, the quality is doubtful. In such case the sand will be sent to laboratory for testing the presence of organic matter. The color test needs to be carried out frequently and on receipt of fresh stock.

9.0 QUALITY OF REINFORCEMENT

Reinforcement shall be any of the following:

- (i) REINFORCEMENT will be Fe grade-500 TMT of make TATA or SAIL or VIZAG only. Mild steel will be used only for 6mm dia. steel of the same make. Quality must be confirming to the relevant BIS Code.
- (ii) Stock of reinforcement bars shall be periodically tested for quality, during the progress of the work and where there is doubt that stock of the bars not conform to and meet the requirements of the specifications, such stocks of bars shall not be used in the work at all.

10.0 WATER

The water used in concrete and mortar shall be reasonably clean and free from objectionable quantities of silt, organic matter, alkalies, salts and other impurities (I.S: 456) and is to be arranged by the contractor at his own cost. The turbidity of the water shall not exceed 1000 parts of suspended solid per million parts of water. Very roughly, water which is suitable for drinking purpose is also suitable for use in concretes, mortar and grout.

11.0 NP₂ AND NP₃ HUME PIPE

The contractor will have to arrange himself hume pipes confirming to ISI 458-2003 for the work.

12.0 BOULDERS



The stone boulder shall consist of varieties like granite, basalt, sand stone, etc confirming to ISI specification.

- 12.1 All stone shall be strong, hard and durable as per ISI specification. The stone shall be free from defects like cracks, flaws, stone holes, vein patches of soft or loose materials etc. The percentage of water absorption shall not exceed 5%. Generally, the stone should not contain crystalline, silicon or other mica impurities etc. The minimum crushing strength of boulder shall not be less than the values given hereunder:
- 12.2 Stone Boulder shall be approximately cubical in shape of size 23-30cm. The specific gravity of stone boulder shall not be less than 2.50. The minimum weight of each stone boulder shall not be less than 40 kg. The stone shall also conform to IS: 1123 and 1127.
- 12.3 For payment purpose 40 cm height of stack shall be measured as 32 cm. The stone boulder shall be properly stacked in rows in stock-yard or at site as per direction of Engineer-in-Charge or his representative. The stack height should not exceed 1200 mm in any case and sufficient space shall be left around the stacks to facilitate inspection and measurement.
- If any intentional void is found in stacks, then required, tests to find out this extra intentional void will be DONE by E/I (at contractor's cost) and payment will be DONE after deducting this very extra void.

12 LOW DENSITY POLYTHYLENE FILM (LDPE FILM)

13.1 Polythene film quality shall conform to IS: 2508-1984 and shall have:

- a.) Seamless of at least 5 meters. The film shall preferably be black in color conforming to following: (i) Pigment used shall be carbon black conforming to IS: 3075 – 1968. (ii) When tested in accordance with IS: 2530 – 1963 (a) The percentage of carbon black in the compound should be 2.5 ± 0.5 by weight, and (b) The dispersion of carbon black in film matrix shall be uniform.
- b.) Nominal thickness of not less than 250 micron (0.25 mm).

13.2 The film should be free from pinholes, particles of foreign matter and in-dispersed raw materials. The weight of LDP film should not be less than 230 gm/m^2 having minimum density of 0.92 gm/cm^3 .

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SECTION – 6.3
SPECIFICATION FOR STRUCTURES

1.0 PREPARATION OF WORK AREAS

- 1.01 All rubbish brushwood and trees etc shall be cleared, deposited as per disposal plan approved by Engineer-in-charge. All roots of trees or stumps shall be grubbed out 600mm below ground level and holes shall be filled with earth and rammed. The cleared and grubbed area shall be maintained free of vegetable growth during the progress of work.
- 1.02 No separate payment is to be made for this item. The tender shall include the charges on this account in his rate for earthwork.

1.03 DISPOSAL

All stumps, roots, bushes, buried logs and other debris within the area required to be cleared and where rubbing is to be DONE shall be burnt or otherwise completely removed from the site, to the satisfaction of the Engineer-in-charge. Disposal in the river bed and streams will not be permitted and no materials shall be piled at the places which in the opinion of the Engineer-in-charge, are liable to be washed away by floods. Timber and fuel obtained in clearing shall be properly stacked at sites as approved by the Engineer-in-charge. Disposal by burning will be allowed only on specific sanction of the Executive Engineer and shall be DONE under constant attendance until fires have awaited completely or have been extinguished to guard against spreading of fire in other areas.

1.04 PAYMENT

No separate payment will be made for the required clearing and rubbing as stipulated above. Clearing and rubbing in the performance of this contract will be considered as incidental to and necessary for the excavation of the foundation trenches and other necessary excavation required for the work.

2.0 LAY OUT

- 2.01 For lay out peg, strings, flags, pillars required for setting out work of carrying line and levels or construction of bench marks as may be required shall be provided by the contractor at his own cost. No extra payment will be made separately to the contractor on this account and charges for lay out as above will be taken to be included in the tendered rates for the items of work specified in the bill of quantity.

3.0 EXCAVATION OF FOUNDATION

- 3.01 Trenches for foundation shall be taken out to full width of lowest course of footing and the exact length and depth as shown in the drawing or as directed by the Engineer-in-charge. A work space up to 1.25m will be provided at the foundation level wherever necessary. The side shall be left to plumb where nature of the soil permits it, but they must be stepped back or shored up carefully where they show tendency to fall in. The excavated material shall be disposed off only in the manner

and at the place approved by the Engineer-in-charge. Any deviation from the mode of disposal approved by the Engineer-in-charge will entitle the department not only to reject the quantity for the purpose of payment but also to recover from the contractor, the expenditure involved in removal of the same.

- 3.02 In case excavation is DONE deeper or wider than shown in the drawing, the contractor shall have to fill up extra depth or width at his own expense with concrete or sand, watered and rammed to the satisfaction of and direction of Engineer-in-charge. Bottom of foundation retrenches shall be dressed level, both longitudinally & transversally, and shall be watered and well rammed. Where stepping is indicated in drawing or is ordered by the Engineer-in-charge it must be squarely trenched out. If any soft place comes to light on inspection of exposed foundation, they shall be dug out or filled with as ordered by the Engineer-in-charge. All superfluous water in trenches shall be removed before putting concrete. The foundation trenches shall be checked and approved in writing by Engineer-in-charge before any concrete or masonry work is commenced.
- 3.03 The excavation for foundation will be DONE with bottom 1.6m depth as vertical in silty soil and in a slope of 1½:1 in sandy soil, and the rest in slope not flatter than 1:1 in silty soil and 2:1 in sandy soil. Should the excavated slope below water table be not found suitable under the existing site conditions this fact shall be brought to the notice of the Engineer-in-charge who on inspection will record the specific slope which he considers stable and the contractor shall be bound to proceed with work as per the recorded instruction of the Engineer-in-charge. A working space up to 1.25m shall be allowed around foundation trenches wherever necessary.
- 3.04 DEWATERING
- 3.04.1 Dewatering is DONE for excavation, inspection, the final preparation of the surface for laying concrete plain or reinforced, for laying masonry and shall include other allied construction activities like diversion of the river, construction of coffer dams for carrying out the works and their maintenance etc.

Dewatering shall include the construction of coffer dams in all working seasons, drainage channels for discharging pumped out water, construction of diversion channels for diverting the flow of River Well points system of dewatering and other system of dewatering shall be used to make the foundations trenches completely dry and the cost shall also include hire charges of pumps, generators, cost of their equipments, energy charges, cost of pump wells, platforms. Placing and shifting of the pumps in different positions required, with all required pipes, foot valves etc. including charges, including the cost of dismantling the whole system of dewatering in all seasons, during the shifting of the well points, sump wells etc.

3.04.2 SYSTEM OF DEWATERING

The arrangements of installation of well points, dewatering pumps, their sequence and procedures of dewatering shall be worked out by the contractor. Care shall be

taken that the dewatering operations do not cause any damage to any existing and already laid masonry and concrete work plain or reinforced. The general arrangements for dewatering proposed to be installed shall have to be got approved by the Engineer-in-charge, before installation of the same is DONE.

To ensure proper placement of foundation concrete, the free water surface of the depressed water table shall not be less than 150mm below the foundation level or as directed by the Engineer-in-charge so that the placement of concrete is DONE in completely dry conditions.

Any method which causes loss of material from underneath the structure previously built up shall be rejected. The pumped-out water shall be carried in pipes or in flumes and shall be discharged into a running creek or at a point at least 1000 feet away from the farthest edge of foundation excavation so that the water does not come back again to the foundation pits in the form of seepage water or back flow.

The cost of dewatering shall include the cost of all labours and materials, the hire charges of pumps, generators and the cost of all other equipments tools, plants, etc and energy charges for the full period of construction including the cost of construction, including the cost of sump wells, platforms, all necessary pipes and foot valves, etc. and the cost of their dismantling, including the cost of systems of dewatering during shifting the position of sump-wells etc. all complete as per direction of the Engineer-in-charge. The cost of dewatering shall also include the cost of construction and maintenance of all drainage channels required for discharging the pumped-out water and also the cost of construction and maintenance of coffer dams and all diversion channels required for diverting the flow of River.

3.04.3 CONTROL OF ENGINEER-IN-CHARGE

The Engineer-in-charge or his authorized agents shall have the power to make frequent inspections of the dewatering arrangements made and order for suitable alterations in the operational pattern either by way of change in the alignment of well points or increasing or decreasing the pumping capacity or expanding or confining the area of working as the situation warrants so that there is no unnecessary or wasteful running of the dewatering equipments.

3.04.4 DEWATERING BY DIESEL PUMP

Diesel pumps of requisite capacity and in requisite numbers shall have to be arranged by the contractor himself and shall have to install them at the site of work so as to handle the dewatering by the contractor. All cost of P.O.L. running and

maintenance etc. shall also be deemed to have been included in the quoted and agreed rate for dewatering.

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3.04.5 COFFER DAM & DIVERSION CHANNELS

The construction of coffer dams and river diversion channels is meant to provide for facilitating construction of works in the river bed and also for providing protection to the completed works at the end of each working season and well before and advent of floods in the river. The flood period generally starts from the 15th June and lasts up to the 15th of October each year. The construction and maintenance of coffer dam and diversion channels shall be for the entire contracted period of construction of said work and maintenance shall include all works like earth work, dressing and turbing slope, protection with sand bags, sal-bullah screens and spurs and other items of river training works. The work shall also include the dismantling of such works, and the extracting and driving of the sheet piles along the new alignments for sal-bullahs, sand bags, bamboos, screens etc. at his own cost and no separate payments shall be made for the construction and maintenance of these coffer dams and diversion channels for diverting the flow of the River, as the costs on these shall be deemed to be included in the rate for the item of Dewatering.

3.04.6 APPROACH ROAD AND CARE OF THE RIVER

The contractor shall be required to construct all the haul road and approach roads etc. required for the work entirely at his own cost and tendered rates must take into account the reflection of the cost of all such haul roads approach roads, etc.

The diversion of the river and construction of all coffer dams, approach roads, haul roads and protection work etc shall be according to a scheduled programme furnished by the contractor and approved by the Engineer-in-charge. Detailed proposals in this connection should be submitted by the contractor well in advance so that the approval of Engineer-in-charge is obtained in-time. The contractor shall be responsible for the execution of these works and their maintenance, repair, protection and removal of the same at his own expenses. He will also be responsible for the damage, if any, to the structures and materials etc. enclosed by the coffer dams, approach roads etc. Any damage to the work or materials etc due to failure of river diversions, approach roads etc. either in part or in full shall have to be borne by the contractor himself and the contractor shall have to make up for the extra losses sustained by the Department on this account.

1.05 MODE OF PAYMENT OF EARTH WORK IN FOUNDATION

For the purpose of measurement prework level will be taken by department in presence of contractor and recorded in M.B and signed by contractor in token of acceptance. For final measurement post work level shall be taken and signed by the contractor in token of acceptance. The quantity of excavation of foundation will be calculated from the level thus arrived at which shall be accepted for payment.

The contractor's rate for this item shall include cutting, filling and removing excavated material. The quantity to be paid for excavation shall be as per actual

section excavated subject to the maximum section as specified above. While taking measurement it shall be presumed that the excavation at the different level and places of structures has been DONE in one operation. Thus, payment is permissible for one operation only. The payment will be made on the approved unit rates.

Silt deposited if any during the period of execution of this work due to flood or canal water etc. shall have to be removed by contractor and no extra payment what so ever shall be made on this account and shall be taken to have been included in the quoted rate for the item of excavation of foundation trenches in the tender document.

3.06 CHANGE IN EXCAVATION

During the progress of work, it may be necessary to vary the slopes or change in dimension of excavation width. The contractor shall be entitled for any additional payment only on recommendation of E/I and after approval of Superintending Engineer.

3.07 PROTECTION IN EXCAVATION

During excavation the contractor may use shoring, protecting arrangements sheet piles etc. for facility of working to dig to steeper slopes than shown in drawing. Such arrangement shall be entirely the responsibility of contractor and no extra payment what so ever shall be made.

4.0 EARTH WORK IN FILLING

The earth work in filling will be of two types as specified below:

- (a) Back fill: Back fill is defined as excavation refill or embankment materials required to be placed under these specifications and which can not be deposited around the structures or in adjacent embankment until after the structures are completed.

Such back fills may consist either pervious or impervious earth. However, the thickness of pervious materials adjacent to the structure in back fill shall not be less than 600mm at any place. The thickness of the backfill with pervious earth greater than 600mm will depend upon the availability of pervious material at site and will be decided by Engineer-in-charge. This will be laid in 225mm layers and compacted so as to give maximum dry density of not less than 95% of optimum moisture content. Payment for bill shall be made for cubical contents of the finished work.

- (b) Fills other than backfills: This shall consist of either previous or impervious materials. Such fills shall be DONE around the structure behind the back fill. The materials for the fills may be received from the foundation excavation or borrow area. Attempts will made to use the materials received from foundation directly in fills as far as practicable. Whenever the materials of the fill are

received from direct disposal of the foundation excavation as laid down in clause 3.0, there will be no payment as the cost is included in item of excavation of foundation trenches. But when the materials are borrowed from outside and not received from direct disposal of the foundation excavation, the cost will pay as per rates accepted in item of filling.

The fill shall be laid in 225mm layers and compacted so as to give maximum density at optimum moisture content. Wherever the maximum dry density is less than 95% the same shall be rejected and reDONE without any extra payment. Payment for this type of fill shall be made for cubical contents of the finished work less the cubical content directly utilized from the item of excavation of foundation trenches. Contractor's rate for this work shall include the cost of supply of fill materials at site, watering rolling, compaction and dressing the same in suitable profile as per specification and direction of Engineer-in-charge.

5.00CEMENT CONCRETE WORK:

5.01General

Concrete shall be composed of cement, sand, coarse aggregate, water and any other admixture as specified, all well mixed and brought to the proper consistency. Test shall be carried out on the concrete at specified intervals during the progress of work and the mixes modified as necessary in order to secure consistency, required strength, workability, density and impermeability together with the maximum practicable economy. The water-cement ratio for the concrete will be regulated to meet the requirements of strength, durability and workability. The concrete will be of uniform consistency and density and of uniform quality throughout in all the parts of the structure. However, the consistency and composition shall be such that the concrete can be worked into all the corner, angles of the forms and that the concrete surrounds completely and fully all the reinforcement and the embedded metal without causing any segregation of the ingredient and free water, taking into account the type and capacity of vibrating equipment used. The control of concrete is based, besides other factors on maintaining a fairly uniform slump at the point of placement and on holding the water cement ratio as closely as practicable to the standards determined for the purpose. Under no condition shall the slump be greater than the required to provide proper placement and compaction of fresh concrete within the forms.

The slump shall be measured in accordance with standard methods prescribed in code I.S. 456-2000 as revised from time to time.

The allowable slump or consistency shall be directed by the Engineer-in-charge. The consistency of concrete shall be varied only by increasing or by decreasing the amount of cement paste in each batch and not by any change of the water cement ratio established for each class of concrete.

5.02CLASSIFICATION



Except in case where it is required to meet the special conditions, all concrete shall confirm to one of the classifications in the table given below which are defined according to the maximum slumps and other approximate details. The mix proportion may have to be modified after detailed laboratory test and field experiments. These mixes may further be modified to suit the work or the nature of material used. The different grades of concrete shall be as per I.S. 456 of 2000. Proportion for nominal mix of concrete shall be as per table given below.

Table 9 proportion for nominal mix concrete

Grade of Concrete	Total quantity of dry aggregates by Mass per 50 kg of cement, to be taken as the sum of the individual masses of final and coarse aggregates, kg.	Proportion of fine aggregate to coarse aggregate (by mass)	Quantity of water per 50kg. of cement, max
(1)	(2)	(3)	(4)
M 5	800	Generally, 1:2 but subject to an upper limit of 1: ½ and a lower limit of 1:2½	60
M 7.5	625		45
M 10	480		34
M 15	330		32
M 20	250		30
<p>Note – The proportion of the fine to coarse aggregates should be adjusted from upper limit to lower limit progressively as the grading of fine aggregates becomes finer and the maximum size of coarse aggregate becomes larger. Graded coarse aggregate shall be used.</p> <p>Example: For an average grading of fine aggregate (that is, Zone II of table 4 of IS 383), the proportions shall be 1:1½, 1:2 and 1:2½ for maximum size of aggregate 10mm, 20mm and 40mm.</p>			

(Clauses 9.3 and 9.3.1)

The above table is only for guidance. The mix shall be designed to produce the grade of concrete having the required workability characteristic strength not less than appropriate value given in table – 2 (I.S. 456:2000).

5.03BATCHING

The concrete ingredients shall be provided in specified quantities by volumetric measurement. When moist sand is used due allowance shall be made for bulking as directed by the Engineer-in-charge. Appropriate means of measuring correct measurement of concrete ingredients shall be provided to the satisfaction of the Engineer-in-charge. The proportion of mixes have been indicated in the items of work of drawing.

5.04MIXING

The more thoroughly a concrete is mixed the greater is its strength. The mixing shall therefore be DONE in concrete mixer only. Wherever the quantity involved is small and other conditions do not permit the mix by concrete mixer, hand mixing can be DONE with specific approval of the Engineer-in-charge or his authorized representative. It will be necessary for the contractor to arrange sufficient nos. of

concrete mixer for the work. Correct proportion of materials for the desired concrete mix shall be loaded in the mixing drum and water added in accordance to water cement ratio desired. It should then be kept rotating for 1½ to 2 minutes till all materials are mixed thoroughly and then concrete should be discharged in one operation over a level platform and turned over once, before being conveyed to concreting spot. Each time the work is stopped for the day, the concrete mixer should be cleaned out and when next mixing is commenced, the first batch should have 10% additional cement to allow for sticking losses, at contractor's cost.

Whenever the quantity to be mixed is so small and hand mixing has been permitted by the Engineer-in-charge, the mixing shall be DONE on a water tight brick platform of adequate size approved by the Engineer-in-charge with strips fastened along three sides to prevent materials being washed or shoveled off during mixing. Where hand mixing is allowed, cement and sand shall first be mixed dry thoroughly by turning over backward and forward several times. This dry mortar shall then be spread over the top of pre-measured stack of dry aggregates. The whole batch then shall be thoroughly mixed by turning over again backward and forward at least 5 times to ensure thorough mixing. To this water shall then be added from rose can gradually and the whole mass turned over and over again till every ballast is sufficiently coated with the mortar. No excess water should be used. The whole operation should not take more than 15 minutes. If the moist sand is used allowance for bulking shall be made. The concrete prepared after mixing must possess good consistency and workability. In case this is found deficient the ingredient will be adjusted to improve the same with the approval of the Engineer-in-charge or authorized representative. Slump test will be carried out regularly to check consistency and workability as specified by the Engineer-in-charge. In case of hand mixing, 10% extra will be mixed at contractor's cost.

The concrete ingredients shall be mixed thoroughly in mixer designed to insure uniform composition and consistency of the concrete mix at the end of mixing period. After all materials except the full amount of water are in the mixer, the mixing time for a mixer of 10/7cft. Capacity or less shall not be less than 1.5 minutes (90 seconds).

Each set of specimens shall consist of three 150mm cubes test blocks from a single batch specimen are to be left in the mould for 24 hours after which these are to be carefully removed from the moulds and carried under similar condition of the concrete in the job itself. A proper register of test specified showing all relevant details shall be maintained. The Engineer-in-charge or his representative may, any time, direct the contractor to make specimen from the concrete doing into the job. Not more than one set of specimens shall however be ordinary required to be made on any day. After curing these specimens would be sent to any approved laboratory for being tested in accordance with the Indian standard code of practice for concrete work.

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All slumps test shall be DONE in accordance with the recommended procedure of the Indian standard publication IS:456-2000, code of practice for plain and reinforced concrete.

5.05TRANSPORTING

Concrete shall be transported from the mixer to the site as rapidly as possible. The method and equipment used for transporting and placing concrete shall be such as will permit the delivery of concrete of the required composition and consistency in the work without segregation or loss of any of the ingredient and maintaining the required workability. During the hot or cold weather concrete shall be transported in deep containers. Other suitable methods to reduce the loss of water by evaporation in hot weather and heat loss in cold weather shall have to be adopted.

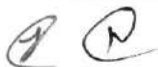
5.06SURFACE PREPARTION

When concrete has to be laid in the consecutive layers and sufficient time has elapsed between first course and successive one, the lower course will be well racked brushed with wire to the satisfaction of Engineer-in-charge. All loose aggregates and substances should be removed, to ensure bond and water tightness between the old concrete surface and the concrete to be placed. The surface should be roughened by the method of 'initial green cut' or 'sand blasting'. The green cut method consists of running the concrete surface with a high velocity air water jet accompanied by wire brushing and rubbing and chipping surface layer to expose clean surface of sound concrete, usually in about 4 to 12 hours after placing concrete depending on temperature and other placing conditions.

Where the initial clean up can not be performed at the proper stage during the hardening process all the defective and undesirable concrete shall be removed by the either chipping and picking by hammer or if so required, by wet sand blasting of the top to a depth just sufficient to expose a fresh clean-cut surface as mentioned above. There-after the surface shall be thoroughly washed. Blasting sand should be dry to permit free passage through the equipment. Ordinary sand may be used in smaller work, but on large job sand of size 1.5mm to 5mm will be suitable for blasting, concrete surface necessitating screeding and dry equipments. The air pressure for sand blasting process shall range from 60 to 80 psi.

After sand blasting and washing is over, the surface shall have to be got approved by the Engineer-in-charge and thereafter covered with 10mm to 20mm layer of mortar and the same shall be vigorously brushed into all crevices. In inaccessible places, air jets may be used to spread to mortar but care shall be taken that the mortar does not dry up excessively thus losing its consistency.

5.07PLACING



- (a) No concrete shall be placed until all form works, installation of embedded metals placing reinforcement bars and necessary cleaning up of form work and reinforcement have been carried out and checked according to specification and approved by the Engineer-in-charge. Concrete shall be deposited as nearly as practicable in its final position to avoid re-handling.

Concrete shall be placed in the work before it has stiffened as per I.S. code. Any concrete that become so stiff for which proper placement cannot be used and will go to contractor's account. The concrete for the floor shall be placed as far as possible in such fashions so that no horizontal cold joints are formed.

This can advantageously be DONE by dividing the raft for the purpose of concrete placing into various compartments of size depending upon the concreting capacity of contractor. The concrete shall then be deposited in these compartments to full height without producing cold joints. However, when placing of concrete has to be interrupted long enough, for the concrete to take its final set, the working face shall be cleaned of all loose defective surface of concrete by means of jets air and water applied at high velocity, by wet sand blasting, chipping, wire brushing or by other means approved by Engineer-in-charge, the surface of such layer shall be washed immediately prior to the placing of succeeding layer of concrete and water shall be removed from depressions, before the concrete is placed. After being cleaned, the old surface shall be covered with half inch layer of mortar made of one part of sand and one part of cement or as specified by the Engineer-in-charge. The concrete shall then be placed immediately upon the fresh mortar and shall be deposited in cases as nearly as practicable directly in its final position and shall not be caused to flow in the mass in a manner to permit or cause segregation. Dropping of concrete virtually resulting in undesirable segregation or depositing a large quantity at any point and running or working it along the forms shall not be permitted. Concrete shall be rammed, tamped, vibrated or worked with suitable appliances until it completely fills the forms, closes snugly against all surface and i.e. in perfect and complete contact of all reinforcement bars and other metal embedded in the concrete. Unless otherwise provided in these specifications, all concrete shall be compacted with the aid of suitable concrete vibrators of the internal type. Excessive vibration causing segregation and laitancy shall be avoided. Where smooth surface is required and all surface which will be permanently exposed to the weather or for all surface next to metal conduit or other embedded metal around. Surface in which it is desired to prevent leakage etc. all concrete shall be spaded, tamped or vibrated so that the coarser material is forced back and a mortar layer is brought next to the surface, which is to be finished with surface vibratos. Metal work including reinforcement bars to

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be embedded in concrete shall be thoroughly cleaned of all grout and mortar before the concrete is placed. Method of placing concrete should be such as to preclude segregation. Care should be taken to avoid the displacement of reinforcement or the movement of formwork. Concrete should be compacted thoroughly and fully worked around the reinforcement of formworks. Concrete should be compacted thoroughly and fully worked around the reinforcement around embedded fixture and into corners of the formwork. The use of mechanical vibrators complying with IS: 2505-1968, IS: 2514-1963 and IS: 4656-1968 250-1964 for compacting concrete should be adopted. Over vibration and under vibration should be avoided.

- (b) Concrete shall be placed in planned manner along the span so as to avoid cold joint. For this purpose, the contractor shall arrange sufficient labour, materials, tools and appliances to complete the work in suitable manner as programmed.
- (c) During hot or cold weather, the concreting should be DONE as per the procedure set out in IS 7861 (Part I) or IS 7861 (Part II) Concreting must be DONE within the specified air temperature limit of maximum 40°C to minimum 5°C for OPC (in case of slag cement minimum temperature should be taken as 10°C)

5.07.2 The methods of placing and compacting the concrete shall be such as to keep it uniform and make it dense. This stage of the work is the key point of the whole operation of concreting. Proper method of placing will prevent segregation and porous or honey-combed areas but will also avoid displacement of forms and reinforcement, secure a firm bond between layers, minimize shrinkage, cracking and produce a structure of neat appearance.

5.07.3 To avoid segregation, the direction of drop shall be vertical. The concrete shall be directed so as not to strike the reinforcement or the sides of the forms above the level of placement to avoid segregation and coating of the surface with paste which may dry before the concrete reaches its level. The concrete should be deposited near its final location, and not be allowed to flow laterally for more than a short distance, say 600 or 900 mm. No more concrete should be deposited at one place than can be compacted conveniently and effectively. The top of a layer being placed should be dug out and spread on other areas otherwise it will result in a rock pocket. Usually, stiff batches of concrete may be saved by being spread in a thin layer and worked into the other concrete.

5.07.4 Before concrete is placed on top of a deep lift of fresh concrete, such as slabs and beams on wall and columns, ample time for settlement should be allowed or cracking will result. Two hours is the customary period. Also to avoid cracking, wherever possible built-in-frames such as window frames should be allowed to settle slightly

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with the concrete. Keys of suitable size should be left at the end of the days work for proper bonding with the subsequent layer.

5.07.5 For the sake of appearance, either the side of a layer of concrete should be spaded lightly or the forms should be vibrated (by hammering or other suitable means) at a level a few inches below the concrete surface. The top of a lift next to the forms should be trimmed level, to form a neat showing line.

5.07.6 No concrete shall be placed without formwork

5.07.7 Before depositing the concrete, debris of all kinds shall be removed from the site of concreting. The surface shall be well cleaned and brought to lines and level as per drawing and specification. No concrete shall be placed until all formwork and placing of reinforcement bars have been completed where required and checked by the Engineer-in-charge, according the drawing and specifications. The freshly mixed concrete shall then be laid gently (not thrown) in suitable layers and compacted with vibrators, suitable for the purpose and approved by the Engineer-in-charge.

5.07.8 Placing concrete under water:

Concrete should not be placed under water unless placement in air is impracticable. The dewatering operation should be stopped at the time of placing of concrete under water. Extra cement up to 20% shall be added to the mix and the slump of the mix shall be suitable increased on the specific written approval of the Engineer-in-charge. The total quantity of such concreting will have to be got recorded by Engineer-in-charge or his authorized agent so that a check may be kept on extra cement consumed.

5.08 Compaction

5.08.1 As concrete is being placed, it should be compacted thoroughly and uniformly. Compacting includes rodding, spading, vibrating and such other operation as are necessary to compact the concrete properly. Concrete should be worked well around the reinforcement, enclosed fixtures and corners of forms.

5.08.2 HAND TAMPING

5/8-INCH M.S rods should be used for tamping. The tool should penetrate the full depth of layer being placed and should work well against or in to the materials beneath spade should be used near vertical form faces for dry hand temped concrete the surface should be rammed with heavy flat face trowel till a thin film of mortar appears at the surface showing that the air pockets have been fed.

5.08.3 VIBRATION

Mass concrete should be thoroughly compacted with the aid of immersion-type vibrators. Immediately after depositing concrete, the vibrators should be inserted and operated for 10 to 20 seconds in one and then moved to the other place without

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leaving any hole or impression of the vibrator. Vibration should be continued till the entire batch gives uniform appearance and surface just starts to glisten. Vibrator should be inserted and withdrawn slowly and operated continuously while being withdrawn in such a manner that no voids are left in the plastic concrete. Excessive vibration causing segregation shall be avoided.

Sufficient number of vibrators should be used to compact each batch properly before placing the next one. A sufficient number of reserve vibrators in good condition should be kept in hand at all time so as to ensure uninterrupted compaction. Concreting shall not be allowed to proceed without proper compaction with the vibrators, suitable for the purpose.

Under no circumstances, the vibrator should strike the face of forms nor shall reinforcement steel or embedded metal be jarred with sufficient force to impair the bond between concrete and metal.

5.9 STOPPING WORK

If for any reason it is necessary to stop concreting in the middle of a job it should be stopped as under.

5.9.1 FOR SLABS

In a vertical plane at right angles to the span either middle span over the centre of the supporting beam or girder.

5.9.2 FOR COLUMN

In a horizontal plane at right angles to the length of the column.

5.9.3 FOR BEAM AND GIRDER

In vertical plane at right angles to the length of the beam and girder either at the mid span or over the center of the support of the beam.

5.9.4 In no case shall the work be stopped in the beams or slabs where future shearing action will be great as for example near the ends or direct under concentrated load. At places other than specified above should it become necessary to stop concreting for any unforeseen reasons, the same shall be DONE at the location directed by the Engineer-in-charge. In all such cases the edges of the concrete shall be left finished in slope of 45 degree.

5.9.5 Before commencing the work, surface of the existing concrete must be carefully brushed with a stiff brush to remove particles and dust and thick grout of neat cement must be poured over it before new concrete is placed.

5.10 FINISHING OF CONCRETE SURFACE

5.10.1 Concrete proportions, consistency and methods of consolidation should be such that just sufficient mortar is available at the surface for finishing purpose. The concrete should be spread and consolidated evenly ahead of the screening of the

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float-finishing operation. For linking work, trowel finishing is normally not necessary.

5.10.2 Sprinkling of dry cement or dry cement-sand mixture on the surface should be avoided. If after the access water appearing on initial floating has evaporated and final floating does not produce the desired surface finish, a very stiff mortar having the same cement sand proportion as in the concrete, may be applied at the time of final finishing. This rendering with mortar should be DONE as soon as possible and positively before the concrete has set. Final finishing should be completed by exerting sufficiently heavy pressure with the float to compact the paste and form a dense hard surface.

5.10.3 Hair cracks appearing on uniformed concrete surface soon after placement are due to rapid loss of water by evaporation due to wind or sun, deeper cracks indicate excessive absorption by sub-grade. If the concrete has not hardened at the time of detection of cracks, re-washing, re-finishing the concrete can close these.

5.10.4 The slurry of the consistency of thick crème comprising 1 part cement and 2 parts sand passing No. 4.75mm sieve is rubbed thoroughly over the area with clean bassian pads. The idea is to fill up all tiny pits and air bubble holes. Curing should be commenced as soon as it appears that the new material will not be damaged. Holes left by tie rods of forms should be hammer packed with very stiff mortar. Defective or honey combed area revealed on removing the forms should not be plastered over but properly repaired by cutting out the concrete from the defective patch and relaying concrete. Rendering with cement and mortar, where necessary, should be DONE immediately after the forms are removed.

5.11 CURING AND PROTECTION OF CONCRETE

5.11.1 The object of curing is to prevent replenish the loss of necessary moisture during the early relatively rapid stage of hydration. Minimum curing period for the concrete shall be 21 days for OPC cement and 14 days for slag cement and is to commence as soon as the concrete has hardened but not later than 24 hours of the time of placement. The curing shall be accomplished by keeping the exposed surface continuously moist by spreading or ponding or by covering with sand, gunny bags or burlap maintained in moist condition. Where forms are used these shall be kept sprinkled with water until removal. Wooden forms may be loosened and wetted thoroughly at frequent interval so that the water floods the space between the forms and concrete. Merely moving from in place will not keep the concrete sufficiently moist for proper curing. When spray pipe system is used for spraying, galvanized or alloy pipes shall be used. This will prevent rust stain that may be formed by use of iron pipe. Construction joints shall be continuously kept wet for at least 72 hours, prior to placing of additional concrete. All water used in curing shall be free from excessive amount of silt and other impurities.

5.11.2 DAMAGED AND DEFECTIVE CONCRETE



Repair of all imperfections of the concrete surface necessary to produce surface that conform to the specified requirements shall be completed as soon as practicable after removal of forms and within 24 hours after removal of forms. Concrete that is damaged due to any cause and concrete that is honeycombed, fractured or otherwise defective and unsafe because of excessive surface depressions must be removed and rebuilt to bring the surface to the prescribed lines. Such concrete shall be removed and replaced with dry-patching mortar. Dry-patching shall be used for holes having at least one surface dimension not greater than the whole depth for the holes left by removal of fasteners from the end of the forms, tie rods, group pipes recessed, and for narrow slots, cut for repair of cracks. Dry patching mortar shall consist of one part of cement, two parts of sand by volume and just enough water to hold the ingredients together. The mortar shall be placed in layers of 25mm, each layer thoroughly tamped and the finished layer shall be smoothed to form the surface continuous with the surrounding concrete. All fillings shall be bound tightly to the surface, of the holes and shall be sound and free from shrinkage; cracks after the filling have been cured and dried.

5.12 TESTING

The contractor shall without any separate payments provide all labour required for making and curing test specimen.

5.13 JOINTS IN CONCRETE

There are three types of joints envisaged in the construction of the structure. These are (i) Construction joints, (ii) Expansion joints and (iii) Contraction joints. The various joints and their construction details are briefly described below.

- (I) **CONSTRUCTION JOINTS:** The construction joints are provided around the piers (columns) separating the pucca floor concrete from the pier concrete. The location of the copper seal rubber seal proposed around the pier will as per drawing or as directed by the Engineer-in-charge. In the first stage the 230 mm leg of the copper seal will be fixed in the pier concrete keeping the remaining 80 mm vertically down. Just prior to the pouring of pucca floor concrete, the 230 mm leg of the seal will be bent so as to have 150 mm vertical leg and 230 mm horizontal leg which will be embedded into the pucca floor concrete. Care should be taken to ensure that the concrete is placed all-round the copper seal.
- (II) **EXPANSION JOINTS:** The expansion joints shall be provided in the transverse direction of the structure, right through the pucca floor to facilitate construction in different seasons and to provide for expansion due to temperature variations. The details of the joints will be as per drawing or as directed by the Engineer-in-charge. Copper seal/rubber seal of approved quality shall be provided at the expansion joints of the structure.
- (III) **CONTRACTION JOINTS:** These are provided both in the piers (columns) and in the pucca-floor purely to facilitate the contraction and all measures should

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be taken to ensure good bond between the concrete poured in on the previous day and on the successive days. Every care should be taken to ensure good bond between the old concrete and the new concrete. Two approved methods i.e. air water jet and wet sand blasting are described below. One of these methods can be used. The air water method of treating the construction joints consists of cutting the surface of the fresh concrete with a high velocity air water jet to remove the surface layer and expose a clear surface of sound concrete. The operation must be performed after the concrete has stiffened but before it has become too hard for effective cutting. Usually this is from 4 to 12 hours after placement, depending on a temperature and other factors which effect the rate of hardening. The air pressure inject shall be 7 kg/cm^2 plus or minus 0.35 kg/cm^2 and the water pressure shall be just sufficient to bring the water into effective influence of the air pressure. After cutting the surface shall be washed and rinsed so long as there is any trace of claudness of the waste water surface should again be washed with an air water jet prior to placing the succeeding lift. The wet sand blasting is adopted; the equipment should be operated at an air pressure of approximately 7 kg/cm^2 . Blasting sand should be sufficiently dry to permit free passage through the equipment. The surface be thoroughly washed after wet sand blasting and just prior to correcting. The wet sand blasting is usually DONE just before commencing the new concreting.

5.14 PREPARATION OF CONCRETE FOR REPAIR

5.14.1 The repair should be completed within 24 hours after the forms have been removed. For this all concrete of questionable quality shall be removed. It is far better to remove too much concrete than too little because affected concrete generally continues to disintegrate. Often the nature of imperfections and the type of repair to be made can not be determined until the defective materials has been removed. Air driven chipping hammers are most satisfactory for this work. After concrete is broken and taken out the broken surface shall be tamped with light hammer to take out any loose materials and shall be air blown at a minimum of about 50 pounds per square inch pressure.

5.14.2 The holes cut for repair shall be such as to be easily visible to sight and accessible for application of repair concrete. Holes shall invariable be slightly tapered be slightly tapered with the taper narrowing out in case of vertical concrete surface so that when the repair concrete is inserted in the hole it does not come out from the repair hole and the taper shall be of such a nature that it does not interfere with the repair concrete passage inside the repair hole.

5.14.3 After cutting the holes of repair, the surface for receiving repair shall be wetted with water for at least 48 hours, before supplying repairs keeping the surface wet.

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5.14.4 All excess water at the time of placement of repair concrete shall be soaked out.

5.15 PLACING OF REPAIR CONCRETE

(A) DRY PACK

Dry pack is usually a mix (by dry volume of weight) of one part cement to $2\frac{1}{2}$ part sand that will pass no. 16 screen. Dry pack materials shall be placed and packed in layer having thickness of about $\frac{3}{8}$ inch. Thicker layer shall not be placed as it can not be well compacted at the bottom. The surface of each layer shall be scratched to facilitate bonding with the next layer. Each layer must be solidly compacted over its entire surface by use of a hardwood stick and a hammer. Solid finishing tools should not be used and water must not be used for finishing

(B) CONCRETE REPLACEMENT METHOD:

Concrete replacement method consists of placing in formwork fixed against the wall and filling it with concrete after the surface is prepared in way described in the forgoing pages. Form work shall be tightly secured against the wall with clear access for pouring the repair concrete. The concrete for repair shall have the same water cement ratio as for similar new structures. As large a maximum size of aggregate and as low a slump as are consistent with proper placing and thorough vibration shall be used to minimize water content and consequent shrinkage. In repairs requiring large quantity of concrete 3 to 5 percent air entrainment may be used. The repair concrete mix shall be batched by volume. The concrete shall be as cool as practicable to reduce shrinkage. The lifts of concrete placement shall not be continuous but a minimum period of 30 minutes should elapsed between lifts. The slump shall be minimum for better quality of repair. Immersion type vibrator shall be used if accessibility permits, if not this type of vibrator can used effectively on the forms from outside.

(C) MORTAR REPLACEMENT METHOD

The mortar replacement repairs shall be carried out by means of pneumatic appliances (air suction guns or mortar guns). The repair shall be carried out immediately after the surface has been chipped, saturated with water, sand blasted and washed with clean water and after removing free water from the surface. The mix for air suction gun shall be one part cement to four and half parts natural sand by dry volume. The sand to be used shall pass no. 16 screen. The cement and sand shall be mixed with water to approximately the same consistency as for dry pack repairs.

5.16 MODE OF PAYMENT FOR CONCRETE WORK

The rate of concrete shall include cost of materials, mixing, placing curing, compaction, finishing of concrete and also cost of providing and fixing support

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contrivances and form work along with removal there of including the surface preparation for the next lift and removal and making good the damaged concrete as required. The unit of measurement will be hundreds cubic meter.

5.17 FORM WORK

5.17.1 The term formwork shall include all forms, moulds, sheeting, strutting, plants, poles, post, shores, ties, uprights and all other temporary supports to the concrete during the process of laying and setting. The formwork shall be of such dimensions, strength and rigidity and so constructed as to hold the concrete and to withstand the necessary pressure and remain rigid during the laying tamping vibration and setting of the concrete without any defective from the prescribed lines. The joints must be water tight and smooth so as to prevent leakage of cement slurry. All faces that will come in contact with the concrete must be plain cleaning, rigid, tight and smooth. Suitable devices shall be used to hold the corners, adjacent ends and edges of panels or other form together in accurate alignment. The forms shall be such as to produce good and smooth finish of concrete surface.

5.17.2 Where wooden are used the lapping shall be in the direction which will blend architecturally into the lines of structures as shown on the drawing or as directed. Wood sheathing or lining shall be of such a type and quality or shall be so treated or coated that there shall be no chemical deterioration or discoloration of the formed concrete surface.

5.17.3 All timber used should be of good quality, sound and straight grown, free from sap, loose knots, warps, holes and other defects. Seasoning is of great importance but partially seasoned timber is the best for form work since if it is to dry it will tend to swell from absorption of moisture, while green timber will try to dry out and shrink in hot weather causing with concrete should be made plane to give better finish of the concrete face.

5.17.4 STAGGING

The contractor shall provide efficient and rigid temporary staging required for constructing the structure.

The staging should be wide and strong enough to take two gang ways on each side to be used both workmen as for inspection purpose. It should also be strong enough to permit working with vibrating and another machinery, as may be required for concreting etc. Due allowance for sagging of shuttering and support should made in the design of the shuttering. On the completion of work, staging shall be removed to the entire satisfaction of Engineer-in-charge. No payment will be made separately for staging. This will taken as covered by the contractor's rate for finished item of work.

5.18 PLACING OF REINFORCEMENT

5.18.1 GENERAL



The contractor shall do the cutting, bending, binding of reinforcement bars including mild steel rods, tor-steel rods as indicted in drawing or as directed by the Engineer-in-charge.

All steel, to be used for reinforcement shall be clean, free from mill scales, loose rust oil, grease, paints, dust, mortar kinks, rust or any rolling defects or bends other than those required as per drawing or as per directions of the Engineer-in-charge.

5.18.2 CUTTING AND BENDING OF RE-ENFORCEMENT BARS

Re-enforcement bars shall be of size as prescribed and shall be cut to the length, bent to the shape and fixed in position as shown in the drawing or as directed by the Executive-Engineer and shall conform to IS:250 of 1963 as revised from time to time.

Deformed bars shall not be rebent after being bent and should not be straightened unless initial bending and subsequent straightening and binding are carried out under proper and approved supervision.

Re-enforcement bars shall be bent cold. Bars shall not be cooled by placing in water. Bars shall be straightened or bent in a manner that does not injure or weaken the materials.

5.18.3 JOINTS AND SPLICING

5.18.3.1 Joints or splices in re-enforcement bars shall be made at the position shown in the drawings. Additional joints or splices may be permitted as position other than those shown in the drawing provided that the position of the joints and splices in adjacent bars are staggered and are placed as approved.

5.18.3.2 Re-enforcement bars if required may be either lapped or butt welded, whichever is the most practicable.

5.18.3.3 Deformed bars shall not be lap welded at splices except where lap welding is shown on the drawing or otherwise specifically approved.

5.18.3.4 butt welding of re-enforcement bars shall be performed under cover from the weather and may be performed either by the gas pressure or flash pressure welding process, or by the electric arc methods. The following requirements shall apply for all welding of re-enforcement bars including butt welding and the preparation of welded re-enforcement mats.

- (i) The ends of the bars to be butt welded by gas-pressure welding shall be equated off abrasive disc cutter. Any accumulation of dirt or oxide film formed after the cutting operation shall be removed by sand blasting or puffing prior to welding. Ends of bars to be joined by flash pressure welding shall be cleaned of rust and projections of the end faces and for a distance of about 15cm. from the ends. If necessary to prevent arching care shall be taken in aligning and separating the ends of the bars to be joined by arc welding and the ends to the bars shall be matched accurately and shall be retained firmly in position during the welding operation. For pressure welding the

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bars shall be accurately held in position with the prescribed pressure applied prior to heating and during heating and welding.

- (ii) Where bars to be joined by electric arc welding, the welding metal shall be deposited in successive layers and each layer shall be thoroughly cleaned before the subsequent layer is deposited.
- (iii) All structural welds shall have complete fusion and free from imperfections. Defective pressure welded joint shall be separated by flame cutting and rewelding. Defective welds shall be chipped to sound metal and resulting cavities shall be filled in the same manner as the original grooves were filled or the bars shall be flamed cut and rewelded.
- (iv) Track welding of re-enforcement bars for fixing bars in place of or for preparation of mats shall be carried out by competent operators using approved techniques. The work shall be so performed that there are no sharp discontinuities or loss of cross section in the joined bars at or adjacent to the weld.
- (v) Only operators skilled in the type of welding procedure used for the welding of re-enforcement bars shall be employed for work before being permitted to weld bars on the job, each operator shall make for satisfactory test welds of the bars using the same bar materials, and preparation pressure heading and upsetting will be used for the actual re-enforcement. The test bars shall not be less than 45cm long before welding. The bars when tested shall show a breaking strength at not less than 90 percent of specified minimum tensile strength. For the welding process, the operators to qualify of in all test welds must meet this requirement. The operator may be permitted to weld additional sets of bars and if these meet the requirements, the process and the operator will be qualified.
- (vi) Welding materials and welding procedures and the workmanship of welding operations shall be subject to inspection and approval at all times during the progress of the work.

5.18.3.5 The position and dimension of lapped splices will normally be as shown on the re-enforcement drawing. Where splices are required for the work, the standards prescribed in relevant I.S. code shall be strictly followed.

5.18.3.6 Binding wire used shall be of soft annealed steel of 16 S.W.G. and shall have an ultimate strength or not less than 5,600 kg. per cm² and a yield point strength of not less than 3850 kg. per cm².

5.18.4 MEASUREMENT AND PAYMENT

The price entered in the schedule for the work required by this section shall be all inclusive of and constituting full compensation for mobilizing demobilizing and supplying all equipment, material, labour, supervision and all incidental work except for and item specifically exempted therefore and for which in addition a specific payment item has been included in the schedule.

5.18.4.1 Measurement of steel re-enforcement shall be made for the weight of the steel re-enforcement exclusive of weight of weld, actually placed in position and only to the extent shown in the approved drawing and will include all laps and hooks as directed by the Engineer-in-charge if not shown in the drawing. The rate shall include the cost of re-enforcement bars, the cost of supplying binding wire, labour in making lap joints, tack welding, welded joints, ties and metal supports, if any of hauling storing, sorting cutting bending, binding, cleaning, placing, securing and maintaining in position all reinforcement bars, as shown in the drawing or as directed by the Engineer-in-charge. The rate shall also include for the wastage etc. of the steel bars. The weight as specified by the manufacturer's sectional tables shall be taken as standard for purpose of computing total weight of steel used as re-enforcement. The weight of steel re-enforcement actually placed in position as obtained by the aforesaid computation shall be limited to the weight of steel actually used.

5.18.4.2 payment of mild steel and for tor steel re-enforcement shall be made on the basis of the unit rates entered in the contract schedule for the respective sizes of the re-enforcement bars. Steel requires for anchors shall be supplied by the department at the prescribed issue rate.

6.0 BRICK WORK IN CEMENT

Unless otherwise specified brickwork shall be of 100A class brick laid in cement mortar as per drawing and specification. Brick shall be soaked in water for at least 24 hrs, before using in the work and for this purpose, brick lined vats of sufficient size must be constructed by the contractor at site of work at his own cost which shall either be filled up or dismantled after completion of work by the contractor at his own cost.

Cement and sand shall be measured and mixed dry. Optimum quantity of water to ensure workability shall be added and the mortar mixed thoroughly by turning over and over again backward and forward as approved by the Engineer-in-charge. Addition of water in mortar after it leaves the mixing platform will not be allowed. All cement mortar shall be used within 30 minutes of mixing.

The brickwork shall be of English bond and the use of half bricks shall be restricted to minimum. Great care shall have to be taken in the selection of the brick which are to be left exposed for pointing etc. All best shaped bricks and those most uniform in size and appearance shall be used and no mortar shall be smeared over the brick face exposed to view.

All the face work must be finished with a neat drawn joint as pointed out. When the face work has to be plastered the joints shall be well racked out at a depth of 12mm ($\frac{1}{2}$ inch) when the mortar is still green with iron hook before any plaster is laid out. While laying the brick each course must be laid truly level and in perfect bond and all bricks shall be thoroughly bedded by light tapping and is to be flushed, in sound

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mortar so that the surface is well straight and true to plumb. No mortar joint should exceed 10mm (3/8 inch) thickness or be of less thickness than 6mm (1/4 inch). They must be properly filled up by mortar by means of trowel (karni) and not grouted by spreading the mortar at the top layer. The walls must be carried up regularly and no portion of work shall be left more than 900mm (3 ft.) lower than another.

All work shall be kept wet for at least 7 days after it is laid. The work shall be left flooded at the end of each day's work by making mortar fillets throughout.

Suitable scaffolding shall be provided by the contractor for important structures. The putlog holes must however, invariable be closed with brick and mortar after the scaffolding is removed and before plastering is DONE. The contractor shall provide planks on which soaked bricks shall be stacked before they are laid on the wall.

All brick work shall be DONE in cement, sand mortar as specified in BOQ.

MODE OF PAYMENT OF BRICK WORK

The unit of measurement shall be cubic meter. The contractor's rate for brick work shall include cost of all scaffolding, curing, providing necessary setbacks, splays, projection, cutting, toothing string course, making holes for various sources as shown on drawing or as directed by Engineer-in-charge.

7.0 CEMENT PLASTER

- (a) The cement plaster shall consist of sand and cement of proportion specified in drawing or in item of work in BOQ.
- (b) All joints in masonry shall have to be thoroughly wetted and previously racked out to a depth of at least 12mm. water to be used for cleaning must be perfectly clean.
- (c) Cement and sand shall be mixed dry in the specified proportion in clean vat or on pucca platform. Water shall be added to form easily worked paste. In no case shall mortar, which has been allowed to stay for more than half an hour after mixing, be used.
- (d) The plaster shall be laid in two coats. First coat shall be dashed on the prepared surface with trowel in thickness just sufficient to fill all unevenness in the surface under treatment but the surface shall not be smoothed. The second coat shall be applied while the first coat is still soft. Thickness of the second coat shall be just sufficient to finish the plaster of specified thickness. Plaster shall be spread evenly and smoothed with straight edge. The mortar which falls on ground, on no account, shall be used.
- (e) Care shall be taken to keep whole surface thoroughly wetted for at least a week.
- (f) If the water proof plaster is indicated in the drawing or if the Engineer-in-charge so directs, such plaster shall be provided with cement mortar of

specified proportion after adding the approved quantity of water proofing compound as directed by the Engineer-in-charge.

PAYMENT:

The unit of measurement shall be "Sqr meter". The rate for plaster shall include charge on account of (a) plastering surfaces corners & round angles. (b) Preparation and wetting the surface to plastered (c) Curing and protection plaster after completion. (d) Provision erection and removal of scaffolding to the place where necessary as per drawing and (e) Provision of water proofing compound of approved quality.

8.00 DRY BRICK PITCHING

- a. The work if any shall consist of picked jhama bricks or 2nd class bricks over dry rammed khoa as specified by the Engineer-in-charge. The brick shall be laid with frogs down wards. The joints should not be less than 3mm (1/8") and not more than 6mm (1/4") width. The joints should be filled up completely with sand. For filling joints sand should be spread over the bricks and water sprinkled over the same so that the sand along with water flows and fills up the joints. Brooming may also be resorted to where considered necessary to ensure that the sand goes and fills up the joints properly.

b. **MODE OF PAYMENT**

The unit of measurement shall be "sqr. meter". Payment for this item shall be made in accordance with the rate quoted in the schedule and shall be inclusive of all materials, sand, labour required along with the labour required for preparation of sub grade and supplying, filling of sand in joints.

9.00 BRICK BLOCK PITCHING

Brick block shall be constructed over dry graded filter of specific size and thickness in accordance with drawing and specification.

The brick shall be constructed in cement sand mortar as specified in BOQ. The brick work shall be 2nd class brick.

This will DONE in manner specified for brickwork at para 6.00. All edges shall be kept vertical and gap of 50mm (2") shall be left in between the two adjacent blocks, which shall be filled, by jharries or shingles of size 20mm (3/4") and down.

Care will be taken to ensure that the mortar does not fall on the filter of jhama ballast so as to choke them. Burlap shall be invariably placed adjacent to the blocks to prevent mortar going in to the filter.

MODE OF PAYMENT:

The unit of measurement will be "sqr meter" of the finished area including the quantity of jharries in 50mm (2") gaps. No separate payment shall be

made for jharris and its placement. Mode of payment will be as per rate accepted in corresponding item of work.

10.00 BOULDER PITCHING: (CRATED OR UNCRATED)

- (a) Before placing boulders into position, the sub grade shall be brought to the uniform level as mentioned in drawing and properly compacted and got approved by the Engineer-in-charge. The stone shall be approved by Engineer-in-charge as to its size & shape and shall weight between 40kg. to 50kg. each. It should be laid with flat surface on top and finished with even surface. Each shall be laid adjacent to the other so as to create minimum void. To create minimum void and proper packing, chiseling will be used wherever necessary. Interstices in between the boulders shall be filled up with spawls properly. The top layer shall have to be leveled and hand packed so as to present an even surface to the river flow. Rock fragment and spawls shall be tightly driven to wedge the boulders in place and to close direct opening to the under lying layer. While laying the boulders attempt shall be made to break the joints as far as possible.

In case of crated boulder pitching, crates will be opened, its wire will be stretched and fully straight such that it will take a perfect rectangular shape and size, then boulder will be placed as mentioned above as per direction of E/I. After proper placing and packing of boulder in crates, they will be closed tightly and perfectly as per direction of E/I.

(b) MODE OF PAYMENYS

The unit of payment will be cubic meter of finished work after deduction of void and rates shall include the cost of supply and placing of boulder and spawls in position and finishing the same in the manner specified.

Payment will be made after deduction of voids 5% in slope and 10% in apron in uncrated boulder pitching. In case of crated boulder, deduction of void will be taken as 20%.

The payment will be limited under quantity of boulders found after deduction of 20% natural voids in stack measurement in stack-yard.

If intentional void is suspected by E/I, test checks for extra void will be conducted by E/I for which management of mazdoors etc will be DONE by the contractor on his own cost. And the extra void over natural void will be deducted in measurement and payment will be reduced accordingly.

11.00 DRY GRADED FILTER

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- (a) before the filter is placed the under lying foundation shall be excavated to the line and level as shown in the drawings. Segregation of fine and coarse size in each layer shall be avoided in each layer must be free from pockets of coarse & fine materials. Blending shall be remixing segregated material. Care shall be taken not to mix materials of one layer with the material of another layer or with earth filling.
- (b) The graded filter shall consist of a part of the thickness of coarse sand, the other part of wingle 20mm to 5mm (3/4" to 3/16") & the balance thickness by size 40mm to 20mm (3/2" to 3/4"). Thickness of different layers as required by the conditions prevailing at site will be supplied by the Engineer-in-charge in time. The filter will be laid and compacted in layers; each layer being duly measured before being governed by the subsequent layer.
- (c) **MODE OF PAYMENT**
The unit of payment will be "cum" of finished work and rate shall include the cost of supply and placing of layers of coarse sand and graded stone filter material is required thickness.

12.00RCC RAILING

- (a) the railing shall be constructed as per drawing and details given in the item of work either precast or cast in sites as directed by Engineer-in-charge.

(b)MODE OF PAYMENT:

The contractor shall quote the rate per meter of railing on each side of the bridge, which will include the cost of railing posts and railing etc all complete as shown in drawing.

13.00JOINTS

Construction of dry joints will have to be provided as per drawing or the direction of Engineer-in-charge. The joint will have to be treated in any of the following ways.

- (a) Painting the concrete surface after cleaning and preparing of the surface to the satisfaction of the Engineer-in-charge with two coats of bituminastic paint approved by the Engineer-in-charge.
- (b) The gap in between shall be filled up with 12mm thick 1/2inch bituminastic filter.

PAYMENT

No payment will be separately made for this item. The cost of this item shall be included in contractor's rate for concreting, brickwork unless given as separate item of work in bill of quantity.

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14.00 SHEET PILES

14.01 GENERAL

Sheet piling shall be provided as cut off walls in barrage and its appurtenant works, dams and canal structure as per approved drawings. Connection between steel sheet piles and concrete shall be made as shown on the drawings. The choice of sheet piles in preference to concrete cut off should be guided by physical condition of bed and also economy.

14.02 DRIVING SHEET PILES

Sheet piles of required length and section shall be driven in the location as shown on the drawings. The piling should be DONE closely to the lines shown on drawings or as per direction of Engineer-in-charge. Necessary assembly frames or other suitable guide structure shall be used so that each pile is driving plumb. Mode of driving shall be such as to ensure driving of sheet piles true to line and plumb without splitting interlock or web wrinkling.

The driving of piles shall be cut off left at the required levels specified in the drawing. All sheet piles having a plumb deviation of more than 1/8" per foot and all sheet piles which have left their interlock or otherwise injured in diving shall be pulled out and fresh piles driven in their place. Should boulders be encountered, efforts shall be made to drive the piling to the required depth either by moving or shattering the boulder or by deviation in the line of piling as ordered by Engineer-in-charge.

If at any time the forward edge of steel sheet piling is found to be cut of plumb the piling already assembled and partly driven shall be driven to the required depth and taper piles shall be used to bring the forward edge to plumb before the next pile is assembled and driven. The maximum taper in a single pile shall be 27mm per meter length (1/3 inch per ft of length). If work of pile driving is DONE by a contracting agency the sheet piles including taper piles and splice plates and bolts for making splice will be furnished by the department as per stipulation in the agreement.

14.03 PAINTING SHEET PILES

The shall be rubbed off all milli scales and rusts by hard wire brush or other driven rust cleaner before applying paint. Approved paint of anti-corrosive shall then be applied uniformly with brush from one end at first coat of priming shall be allowed to dry in air for a minimum period of 24 hours. After the coat dries out, un-uniformly of the paint shall be removed by gently rubbing the prime surface with emery paper of final grit. The second coat of anti-corrosive with domestic paint or any other paint approved by the Engineer-in-charge shall be applied and allowed to dry for 24 hours after which the final coat of the paint shall be applied. No paint shall be applied on the concrete.

14.04 MODE OF DRIVING OF SHEET PILES



The mode of driving of sheet piles shall be a two-stage driving which gives the best result and avoid plumb deviation.

The first stage driving or pitching of piles as it is called, shall be DONE by putting two bottom guides securely fixed with the ground keeping the two edges of the guide flush with the back of the piles. The guides shall be strutted at a suitable interval before piles are pitched and should be straight enough to withstand the vibrations transmitted to it by the strokes of power hammer or the impact of the monkey falling from top driven manually.

The pitching of the piles shall proceed the driving and shall run in advance by about 60' ft. minimum and the pitching driving may be DONE by driving at least 4 to 5' ft. This method remedies the large-scale lateral and linear displacement of piles.

The final stage driving shall be accomplished by redriving the piles standing erect interlocked in the clutches provided for the purpose. The final stage driving shall be DONE by attaching plumb string in the holes provided below the top so the deviation if any can be detected instantly and remedial measures taken to rectify the piles position.

The piles shall be provided with a cap having at least 0.8m(2'-6") guide at the top in order that the strokes coming on the top falls squarely on the piles and does not deviate making the pile leaning on the sides.

When without a frame, care must be taken to see that the envil and the hammer block remains reasonably vertical by providing pulling wires or ropes of flexible length to suit and keep the hammer vertical while going down.

14.05 PRECAUTION TO BE TAKEN IN SELECTING AND STRAIGHTNING PILES

The before taken for driving shall invariably be tested for its true shape and for correct clutches. If the piles is not perfectly straight with its edges in perfect shape, they are likely to cause rapture in the locks. A bent or blocked pile must be examined and seen that there is no deformation anywhere causing obstruction in driving and should such a deficiency be found, they must be removed.

The clutches of the piles before driving must be greased after painting so that the frictional resistance to the pile being driven into them is minimized.

14.06 MAKING JUNCTION PILES AND CORNER PILES

Junction piles shall be made to suit the angle of the junction provided in the drawing and similarly the angles piles shall be made out of stock by shearing the normal piles unless the required special corner pile is obtained. Since the angle of required junction piles usually are not known, they have to be manufactured locally.

14.07 WELDING OF JUNCTION AND SPECIAL PILES

The shared edges of the piles must be filed or cut into double VEE or single V welding DONE from top while filling weld metal in the VEE so prepared, care must be taken

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to see that the weld metal reaches all parts thoroughly. For angle, the web of the sheet piles shall be kept so that the slopped sheared edges of the piles conform the angle required as per drawing or direction of E/I.

Elongation of piles by welding two pieces shall be DONE with specific permission of the Engineer-in-charge, where the driving depth is large being above 15' ft. For shallow piles the welding may be DONE by cutting half V on each sheet and joining them into one.

14.08 EMBEDDED SHEET PILES IN CONCRETE TRENCHES

Sheet piling shall be cut or left at the required levels specified in the drawings. This shall be held in position so as not to be disturbed when the concrete is placed. Anchor bars will be placed through the top portion of the sheet piling where shown on the drawings. Special care shall be taken not to disturb the piling after the concrete have been placed and during the back filling or the excavation.

14.09 MODE OF PAYMENT

Unless otherwise specified driving and extraction of sheet piles will be paid at the rate of each square meter driven below existing ground level only. Width of each sheet piles will be taken as the shortest distance from the center to center of the interlock unless mentioned otherwise in tender documents. No payment will be made for driving sheet piles more than the required depth and extra charge for handling sheet piles which are left over the ground level will not be allowed.

The unit rate shall include cost of handling and carriage of materials from storage yards, storing, handling, driving, cutting, and splicing where required, fabrication taper piles, pulling and replacing unsatisfactory and defective piles.

The portion of piles covered in concrete of capping portion will not be including in measurement of pile driving and no payment shall be made for this.

INVERTED FILTER – GENERAL

15.00 GENERAL

Inverted shall be laid to the required thickness and grading as shown on the drawing. The numbers of layers in the filter and thickness of each layer shall be specified on the drawing. Measurement of filter thickness will be a right angle to the surface on which it is laid. Unit of payment will be as mentioned in BOQ.

15.1 FILTER MATERIAL

Filter material shall be clean, sound, well graded and gravel of screened rock fragments. The gradation of each layer shall meet the following requirements with respect to the materials to be protected and also with respect to the adjacent filter layers. The criteria for the design of filter to be laid will be that (1) D_{15} of filter is greater than $4D_{85}$ of coarsest material to be protected (2) D_{15} filter layer is less than $4D_{85}$ of finest material to be protected. The filter layer shall be weighed down by

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larger size stone materials specially between the gap provided by the two adjacent cement concrete blocks. The design of the filter on the criteria given shall be processed either in laboratory at Valmikinagar or a Bihar institute of Haudraulic and allied research, Khagaul or any other research station as directed by E/I.

Suitable inverted filter consisting of various layers of approximately uniform size particles be found economical or preferred by the chief engineer, the D_{15} size of any layer shall not exceed 8 times the D_{15} size of the layer below it. The thickness of each layer shall in no case be less than 9 inches measured a right angle to the surface on which laid.

In the above, D_{15} is the size of the material from which 15 percent of it is finer and 85 percent coarser and D_{85} is the size of the material from which 85 percent of it is finer and 15 percent coarser.

The actual gradation requirement of the filter should be established by the field laboratory on the basis of mechanical analysis of the foundation material and the filter material available at the query. No debris, wood, vegetable matter, particles of decomposed rock or other deleterious material shall be permitted in the filter.

15.2 PLACING OF FILTER

Before the filter is placed the underlying foundation shall be excavated to the line and level as shown on the drawing after ramming and tamping. The filter material shall then be placed carefully to thickness and lines as shown on the drawings. Segregation of fine and coarse size in each layer shall be avoided and each layer shall be free from pockets of coarse and fine material. Segregation materials shall be remixed by blading. Care shall be taken not to mix the material of one layer with the material of another layer or with earth-fill.

15.3 OUTLET PIPES FOR INVERTED FILTERS

Outlet for the inverted filters shall be constructed as shown on the drawing. The pipe and fittings shall be of concrete and the dimensions as given on drawings. Care must be taken by properly caulking all the joints between pipe sections to prevent clogging when being embedded in concrete. The pipe shall be placed accurately and held securely in position so as not to be displaced when the concrete is placed. Special care shall be exercised to ensure that the bottom end of the drain pipe, in contact with the reverse filter, is protected against clogging by concrete or other material. Method adopted for caulking of joints, anchoring of pipes and anti-clogging measures taken at the bottom and top ends of the pipes shall be subjected to approval of the Engineer-in-charge.

16.00 PAINTING OF GATES

- 16.01 the gates in the main canal head regulators or in the cross regulators are low head gates, the head generally varying from 7' to 10'. The gates will be called upon to withstand the gandak water. The painting of gates, therefore will have to be DONE

so that they do not easily get attacked from the water current and from wetting and drying condition to which they will be subjected while under operation. The following type of paints with their mode of application are in use under the different formulas of the manufacturers. The comparative value of the paints of different makes may be experimented in laboratory for important gates. The one giving the best result shall be used for painting of gates.

The painting of gates as well as their component structures under water shall be DONE on the specification given below: -

16.02 SURFACE PREPARATION

The surface requiring painting shall be thoroughly cleaned to bear the metal. This shall be DONE by grit blasting or sand blasting or thoroughly wire brushed so as to clean the material bare of all rust, old paints, grease and other intrusions. The surface after this, shall be rubbed with solvent turpentine to remove the sticking grease which do not go away on simple rubbing and part of it sticks to the surface. All milli scales of the gate surface must be thoroughly removed before the priming on protective treatment of the gate is DONE.

16.03 APPLICATION OF THE PAINT

The paint shall be one of the following makes and shall be applied on the recommended procedure of the manufacturer: -

16.04 SHALIMAR TAR PAINT

Priming of the blasted and cleaned surface of gate shall be processed by a treatment of the surface by a protective point and priming shall be DONE after least 48 hours by brushing with coal tar primer. The prime coat shall be dried for 24 hours and the coal tar enamel will be applied. The Shalimar coal tar enamel primer is applied in hot state heated to 500°F in a tar boiler and applied by brush. The coat applied will be about 1/6" to 3/32". If the painting is to be DONE in yards as the gates are smaller, they may be given hot-bath in coal tar enamel heated to 500°F. This paint is found to give satisfactory performance and is not liable to be attacked by temperature variation at site.

- 16.05 The other type of paint to be applied for painting surface is Shalimar which has to be applied in 4 coats on the prepared gate surface in the way described in earlier paragraphs. The coats shall be applied in the manner described below: -

First coat of black paint will be applied by brush uniformly and dried for 24 hours minimum. After 24 hours the 2nd coat of brown paint will be applied uniformly on the 1st coat and dried for 24 hours. The 3rd coat will be dark-tan applied uniformly with brush and dried for 24 hours. The 4th and final coat shall be black paint of epoxide paint applied uniformly with brush and cured for a minimum of 3 weeks before commissioning the painted surface. The making of paints of Shalimar epoxide paint

is recommended as 10 parts of the base by volume with one part of accelerator giving a coverage of 7 to 9 sq. in. per liter of the paint.

16.06 THE PAINT MANUFACTURED BY MACFERLANE AND CO. IS APPLIED AS FOLLOWS

- (a) After surface preparation by normal cleaning and blasting of the metal and rubbing with turpentine or naphthalene, a pre-treatment coat of solvent type is applied by brush and dried for an hour. On his pre-treated surface one coat of priming of special red lead is applied by brush and dried for 36 hours. The application of priming is DONE within 2 or 3 hours of the pre-treatment the 2nd coat of priming of special red lead is applied by brush and dried for 36 hours. The finishing coat of paint of Macferlane make of the two coats as finishing coat at intervals of minimum of 24 hours. The 2nd coat following the 1st coat is applied and dried for 48 hours and cured.
- (b) One coat of chlorinated rubber paint of gray colour (chlorolac rubber base paint finishing gery) is applied and cured for 24 hours in air and is followed by 2nd coat of Chlorinated rubber paint and fried in air for 48 hours.

16.07 The Johnson Nicholson Epoxy coal tar enamel is also one of the recommended paints for painting gates subjected to the conditions to which canal gates or barrage gates are subjected. The application of Epoxy coal tar enamel is DONE for 2 coats, the first earlier. 1st coat is applied with brush and dried in air for 18 hours, the coats making a thickness approximately 5/6 thous.

17.00 ELASTOMERIC (NEOPRENE) BEARINGS

17.1 GENERAL

The dimensions and size of the Neoprene bearing shall be shown in the drawing or as directed by the Engineer-in-charge.

17.02 MATERIALS OF MANUFACTURING AND TESTING

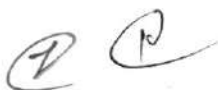
The materials for the manufacture of elastomeric bearing shall confirm to the Indian Road Congress: 83 (Part-II) 1987. Elastomeric bearing shall be manufactured, inspected, tested, accepted, marked and certified and standards and specifications and code of practice of Road Bridge Section-9 bearing I.R.C. 83 part-II-1987 "Elastomeric bearing as well as the standard specification for bearing lead down by the ministry of surface transport, Govt. of India". The contractor shall purchase such bearing of these standards and specification from the list of the manufacturers approved by the department. The officers of the department like the Chief Engineer, Superintending Engineer and the Executive Engineer shall have the right to inspect, test and accept such bearing in the factories of the approved manufacturer before the same purchase by the contractor for their use at the site of work. Test places offered for inspections, tests and acceptance by the officers of the department shall be identified by suitable markings and duly certified by the manager. Tests shall also be conducted on these bearings by the department separately to determine their

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shear modulus, elastic modulus (short term loading) adhesion strength and ultimate compressive strength. The bearing shall be accepted by the department for their use in the work only when they shall stand true to the tests, specifications and acceptance criteria as given in Appendix 2 as well as the quality control report as per Appendix-3 of I.R.C.83 (Part-II) 1987. The contractor shall have to submit to the Engineer-in-charge, all the certified copies of the inspection, certificates and the quality control certificates of all the bearings before the same are brought to the site of work. All additional test, inspections and examinations of these elastomeric bearings, which will be conducted by the department, separately shall be DONE entirely at the cost and expense of the contractor. In case a bearing brought at the site of work is found defective to any quality characteristics, the same shall be rejected by the Engineer-in-charge. All the bearing brought at the site for use shall have index marking identifying all the information given in clause 919.2 of I.R.C. 83 (Part-II) 1987 and shall be accompanied by an authenticated copy of the certificate to that effect. These accepted bearings shall be brought to the site of work only after they are inspected, tested and approved by the department.

17.03 PAYMENT

Payment to the contractor for such bearing brought at sight of work and found suitable as per the drawing and specifications laid down in I.R.C. 83 (Part-II) 1987 shall be made on the basis of each bearing. The quoted rate of the contractor for each bearing shall include the cost of supply, the cost of hosting, fitting and fixing in proper position and alignment, the cost of all testing and examinations to be DONE separately by the department and as per direction of Engineer-in-charge, the cost of all material, all labours accessories, tools and plants required, carriage cost of bearing to the site of work and all taxes, royalties etc. to be paid for such supply.



SECTION 7
BILL OF QUANTITY
(Attached)

BILL OF QUANTITIES

Preamble

1. The Bill of Quantities shall be read in conjunction with the Instructions to Bidders, 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, labour 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 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.
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 directions 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.

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8. The method of measurement of completed work for payment shall be in accordance with the specification issued by the department time to time.
9. Errors will be corrected by the Employer for any arithmetic errors pursuant to Clause 29 of the Instructions to Bidders.

BILL OF QUANTITIES

Sl. No.	Description of Item (with brief specification and reference to book of specification)	Quantity	Unit	Rate		Amount
				In Figure	In Words	
	<div>As Annexed</div>					

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Note :

1. Item for which no rate or price has been entered in will not be paid for by the Employer when executed and shall be deemed covered by the other rates and prices in the bill of quantities
2. Unit rates and prices shall be quoted by the bidder in Indian rupee
3. Where there is a discrepancy between the rate in figures and words, the rates in words will govern.
4. Where there is a discrepancy between the unit rate and the line item total resulting from multiplying the unit rate by quantity, the unit rate quoted shall govern

SECTION 8

SECURITIES AND OTHER FORMS

(to be filled by Bidder/Employer)

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BID SECURITY (BANK GUARANTEE UNCONDITIONAL)

WHEREAS, _____ [name of Bidder] (hereinafter called "the Bidder") has submitted his Bid dated _____ [date] for the construction of _____ [name of Contract 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 by the Bank itself, his successors and assigns by these presents.

SEALED with the Common Seal of the said Bank this _____ dya of _____, 20____.

THE CONDITIONS of this obligation 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 having been notified to 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 refuses to furnish the Performance Security, in accordance with the Instruction to Bidders; or
- (c) does not accept the correction of the Bid Price pursuant to Clause 27.

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 as due to him owing to the occurrence of one or any of the three conditions, (specifying the occurred condition or conditions).

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

DATE _____

SIGNATURE

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 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.

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PERFORMANCE BANK GUARANTEE

To

_____ [name of Employer]
_____ [address of Employer]

WHEREAS _____ [name and address of Contractor] (hereafter called "the Contractor") has undertaken, in pursuance of Contract No. _____ dated _____ to execute _____ [name of Contract and brief description of Works] (hereinafter called "the Contract").

AND WHEREAS it has been stipulated by you in the said Contract that the 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 Contractor 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 the types and proportions of currencies in which the Contract Price is payable, and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of _____ [amount of guarantee] as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the contractor before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the Contract or of the Works to be performed there under 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 change, addition or modification.

This guarantee shall be valid until 28 days from the date of expiry of the Defect Liability 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 including additional security for unbalanced Bids, if any and denominated in Indian Rupees.

UNCONDITIONAL 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 to 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 modification of the terms of the Contractor or Works to be performed there under or 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 modification.

This guarantee shall remain valid and in full effect from the date of the advance payment under the Contract until _____ [name of Employer] receives full repayment of the same amount from the Contractor.

Yours truly,

Signature and Seal: _____
Name of Bank /Financial Institution _____
Address: _____
Date: _____

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

INDENTURE FOR SECURED ADVANCES

FORM 31

(for use in case in which the contract is for finished work and the contractor has entered into an agreement for the execution of a certain specified quantity of work in a given time)

This indenture made the _____ day of _____, 20____ BETWEEN _____ (hereinafter called the contractor which expression shall where the context so admits or implies be deemed to include his executors, administrators and assigns) or the one part and the Employer of the other part.

Whereas by an agreement dated _____ (hereinafter called the said agreement) the contractor has agreed.

AND WHEREAS the contractor has applied to the Employer that he may be allowed advance on the security of materials absolutely belonging to him and brought by him to the site of the works the subject of the said agreement for use in the construction of such of the works as he has undertaken to execute at rates fixed for the finished work (inclusive of the cost of materials and labour and other charges)

AND WHEREAS the Employer has agreed to advance to the Contractor the sum of Rupees _____ on the security of materials the quantities and other particulars of which are detailed in Accounts of Secured Advances attached to the Running Account bill for the said works signed by the Contractor on _____ and the Employer has reserved to himself the option of making any further advance or advances on the security of other materials brought by the Contractor to the site of the said works.

Now THIS INDENTURE WITNESSETH that in pursuance of the said agreement and in consideration of the sum of Rupees _____ on or before the execution of these presents paid to the Contractor by the Employer (the receipt where of the Contractor doth hereby acknowledge) and of such further advances (if any) as may be made to him as a for said the Contractor doth hereby covenant and agree with the President and declare as follows:

- (1) That the said sum of Rupees _____ so advanced by the Employer to the Contractor as aforesaid and all or any further sum of sums advanced as aforesaid shall be employed by the Contractor in or towards expending the execution of the said works and for no other purpose whatsoever.
- (2) That the materials details in the said Account of Secured Advances which have been offered to and accepted by the Employer as security are absolutely the Contractor's own propriety and free from encumbrances of any kind and the contractor will not make any application for or receive a further advance on the security of materials which are not absolutely his own property and free from encumbrances of any kind and the Contractor indemnified the Employer against all claims to any materials in respect of which an advance has be made to him as aforesaid.
- (3) That the materials detailed in the said account of Secured Advances and all other materials on the security of which any further advance or advances may hereafter be made as aforesaid (hereafter called the said materials) shall be used by the Contractor solely in the Execution of the said works in accordance with the directions of the Engineer.
- (4) That the Contractor shall make at his own cost all necessary and adequate arrangements for the proper watch, safe custody and protection against all risks of the said materials and that until used in construction as aforesaid the said materials

shall remain at the site of the said works in the Contractor's custody and on his own responsibility and shall at all times be open to inspection by the Engineer or any officer authorized by him. In the event of the said materials or any part thereof being stolen, destroyed or damaged or becoming deteriorated in a greater degree than is due to reasonable use and wear thereof the Contractor will forthwith replace the same with other materials of like quality or repair and make good the same required by the Engineer.

- (5) That the said materials shall not be any account be removed from the site of the said works except with the written permission of the Engineer or an officer authorized by him on that behalf.
- (6) That the advances shall be repayable in full when or before the Contractor receives payment from the Employer of the price payable to him for the said works under the terms and provisions of the said agreement. Provided that if any intermediate payments are made to the Contractor on account of work done than on the occasion of each such payment the Employer will be at liberty to made recovery from the Contractor's bill for such payment by deducting there from the value of the said materials that actually used in the construction and in respect of which recovery has not been made previously, the value for this purpose being determined in respect of each description of materials at the rates at which the amounts of the advances made under these presents were calculated.
- (7) That if the Contractor shall at any time make any default in the performance or observance in any respect of any of the terms and provisions of the said agreement or of these presents the total amount of the advance or advances that may still be owing of the Employer shall immediately on the happening of such default be repayable by the Contractor to be the Employer together with interest thereon at twelve per cent per annum from the date or respective dates of such advance or advances to the date of repayment and with all costs, charges, damages and expenses incurred by the Employer in or for the recovery thereof or the enforcement of this security or otherwise by reason of the default of the Contractor and the Contractor hereby covenants and agrees with the Employer to reply and pay the same respectively to him accordingly.
- (8) That the Contractor hereby charges all the said materials with the repayment to the Employer of the said sum of Rupees _____ and any further sum of sums advanced as aforesaid and all costs, charges, damages and expenses payable under these presents PROVIDED ALWAYS and it is hereby agreed and declared that notwithstanding anything in the said agreement and without prejudice to the power contained therein if and whenever the covenant for payment and repayment here in before contained shall become enforceable and the money owing shall not be paid in accordance there with the Employer may at by time thereafter adopt all or any of the following courses as he may deem best :
 - (a) Seize and utilise the said materials or any part thereof in the completion of the said works on behalf of the contractor in accordance with the provisions in that behalf contained in the said agreement debiting the contractor with the actual cost of effecting such completion and the amount due to the contractor with the value of work done as if he has carried it out in accordance with the said agreement and at the rests thereby provided. If the balance is against the contractor, he is to pay same to the Employer on demand.

② ③

- (b) Remove and sell by public auction the seized materials or any part thereof and out of the moneys arising from the sale retain all the sums aforesaid repayable or payable to the Employer under these presents and pay over the surplus (if any) to the Contractor.
 - (c) Deduct all or any part of the moneys owing out of the security deposit or any sum due to the Contractor under the said agreement.
- (9) That except in the event of such default on the part of the contractor as aforesaid interest on the said advance shall not be payable.
- (10) That in the event of any conflict between the provisions of these presents and the said agreement the provisions of these presents shall prevail and in the event of any dispute or difference arising over the construction or effect of these presents the settlement of which has not been here-in-before expressly provided for the same shall be referred to the Employer whose decision shall be final and the provision of the Indian Arbitration Act for the time being in force shall apply to any such reference.

12

Letter of Acceptance
(Letterhead 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 Bidders¹ is hereby accepted by our agency.

We accept/ do not accept that _____ be appointed as the Adjudicator². You are hereby requested to furnish Performance Security, in the form detailed in Para 31.1 of ITB for an amount equivalent to Rs. _____ within 21 days of the receipt of this letter of acceptance valid up to 28 days from the date of expiry of defects Liability Period i.e. up to _____ and sign the contract, failing which action as stated in Para 31.3 of ITB will be taken.

Yours faithfully,

Authorized Signature

Name and title of Signatory

Name of Agency

¹Delete "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.

²To be used only if the Contractor disagrees in his Bid with the Adjudicator proposed by the Employer in the "Instructions to Bidders".

Issue of Notice to proceed with the work
(Letterhead of the Employer)

② ③

_____(Date)

To

_____(Name and address of the Contractor)

Dear Sirs,

Pursuant to your furnishing the requisite security as stipulated in ITB Clause 31.1 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 the _____ day of _____

between _____ (name and address of Employer) [hereinafter called

"The (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:

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 and construed as a part of this Agreement.

In consideration of the payments to be made by Employer to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to execute and complete the Works and remedy any defects therein in conformity in all aspects with the provisions of the contract.

The Employer hereby covenants to pay the contractor in consideration of the Execution and completion of the Works and 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.

The following documents shall be deemed to form and be read and construed as part of this Agreement viz.

- i. Letter of Acceptance
- ii. Notice to proceed with the works;
- iii. Contractor's Bid
- iv. Condition of Contract: General and Special
- v. Contract Data
- vi. Additional condition
- vii. Drawings (To be supplied by Executive Engineer)
- viii. Bill of Quantities
- ix. Invitation for Bid (IFB)
- x. Notice inviting Tender (NIT)
- xi. Instruction to Bidders (ITB)
- xii. technical specification
- xiii. The letter exchanged between employer and the contractor after receipt of Tender but before award of the contract
- xiv. Any addenda or modification to above.
- xv. Any other documents listed in the Contract Data as forming part of the contract.

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

The Common Seal of _____ was hereunto 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


I, the undersigned do hereby undertake that our firm M/s _____
_____ agree to abide by this bid for a period _____ days for the 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


Hemish Kesh


Nitish Kumar

