



भारतीय स्टेट बैंक
State Bank of India

जयपुर
Jaipur

SBI LOCAL HEAD OFFICE, Tilak Marg, C-Scheme, Jaipur- 302005

Tender ID: - JAI/P&E/LHO JAI/LAL KOTHI/1/2

TENDER DOCUMENT

INVITES TENDERS

THROUGH E-TENDERING PROCESS.

FROM PRE-QUALIFIED CIVIL CONTRACTOR
(PQ Tender ID JAI/P&E/LHO JAI/LAL KOTHI/1 dated: -13.06.2025)

FOR

CONSTRUCTION OF PROPOSED 24 Nos OF RESIDENTIAL FLATS IN STILT + 4
FORMAT AT BANK'S OWN PLOT AT, LK-3, LAL KOTHI SCHEME, NEAR JYOTI NAGAR,
JAIPUR.

Last Date and Time of submission: 25-02-2026 up to 15:00 Hours

NAME OF THE APPLICANT / FIRM:

ADDRESS:

Application Documents to be submitted to: -

AGM (Premises & Estate),

State Bank of India,

Ground Floor, LHO, (Jaipur)

Tilak Marg, Jaipur (Raj.) PIN 302005

Telephone No. -0141- 2256351

Email agmpremises.lhojai@sbi.co.in

STATE BANK OF INDIA

NOTICE INVITING TENDER

CONSTRUCTION OF PROPOSED 24 Nos OF RESIDENTIAL FLATS IN STILT + 4 FORMAT AT BANK'S OWN PLOT AT, LK-3, LAL KOTHI SCHEME, NEAR JYOTI NAGAR, JAIPUR.		
<u>1.</u>	<u>Name of work</u>	E-Tender Notice for CONSTRUCTION OF PROPOSED 24 Nos OF RESIDENTIAL FLATS IN STILT + 4 FORMAT AT BANK'S OWN PLOT AT, LK-3, LAL KOTHI SCHEME, NEAR JYOTI NAGAR, JAIPUR.
<u>2.</u>	<u>Time allowed for completion</u>	18 Calendar Months
<u>3.</u>	<u>Earnest Money Deposit</u>	Rs. 10,30,000.00/- (Rupees Ten Lakh and Thirty Thousand only) as Earnest Money (approx. 1 % of the estimate) as Bank draft/ Banker's cheque drawn in favour of State Bank of India payable at Jaipur.
<u>4.</u>	<u>Additional Security Deposit (ASD)/ Additional Performance Guarantee (APG)</u>	1. Additional Security deposit (ASD)/Additional performance Guarantee (APG) shall be applicable if the bid price is below 10% of the estimated cost put to tender. The amount of such ASD/ APG shall be the difference between 90% of estimated cost put to tender and the quoted price. ASD in the format of DD / Banker's Cheque / Bank Guarantee shall be submitted within 15 days of intimation of award of work / work order, without which the contractor will not be allowed to start the work and failure of submission of ASD will result in forfeiture of EMD and cancellation of tender. For e.g, if a contractor is quoting 15% below the estimated cost put to tender (i.e. 85% of the estimate), then ASD of 5% of estimated cost is required to be obtained from the contractor (90%-85%).
<u>5.</u>	<u>Cost of tender documents</u>	No cost to be paid
<u>6.</u>	<u>Last date and time of receipt of EMD</u>	25.02.2026 Up to 03:00 PM
<u>7.</u>	<u>Address at which the EMD are to be submitted</u>	AGM(P&E), SBI, LHO, C-Scheme, Near Udyog Bhawan, Jaipur-302005
	<u>Date of Holding Pre-Bid Meeting</u>	18.02.2026 by 03:00 PM At address mentioned above
<u>8.</u>	<u>Date and time of opening of tender</u>	Online on 25.02.2026 Up to 03:00 PM
<u>9.</u>	<u>Place of opening tenders</u>	Technical Bid (TO BE SUBMITTED IN HARD COPY): The Assistant General Manager, Local Head Office, Tilak Marg, C-scheme, Jaipur302005.

		Price Bid: to be submitted online www.tenderwizard.com/SBIETENDER
10.	<u>Defects Liability Period</u>	Twelve (12) Months
11.	<u>Validity of offer</u>	Three (3) Months
12.	<u>Value of interim bill</u>	Minimum Rs. 100 lacs
13.	Liquidated Damages	@ 0.5% of the value of work per week of delay subject to a maximum penalty of 5% of the value of work.
14.	Any additional Information	The estimated rates as per the Break-up Of Quantities (BOQ) uploaded in this tender are inclusive of materials, labour, wages, fixtures, transportation, installation, all taxes & charges , cost of the insurances as specified in the tender, cost towards testing of materials supplied, wastages, Octroi, machinery, temporary works such as scaffolding, cleaning, overheads, profit, statutory expenses, incidental charges and all related expenses to complete the work. However, GST on work contract will be extra as applicable.
15.	Electronic Payment	Payment shall be made by way of Electronic fund transfer. Firm should furnish details of the bank, a/c no, IFSC code etc.
16.	Water & Electricity	The Contractor shall make his own and adequate arrangements for water required for drinking and construction purposes and also for required electric supply at site for satisfactory execution and completion of the work, at his own cost. The Bank will not pay any sort of charges towards electricity and water required at the site till completion of the work.
17.	Working Methodology Compliance	Working methodology has to comply with all specified norms as per SVA GRIHA/IGBC including stacking of materials at site, site barricading, protection of existing trees, water conservation and waste material segregation. Cost of all compliances at site as per SVA GRIHA/IGBC norms is included in quoted rates. The norms can be downloaded from GRIHA website.
18	For e-Tender related queries	Service provider: www.tenderwizard.com/SBIETENDER M/s. Antares Systems Limited, Registered Office: #24, Sudha Complex, 3rd Stage, 4thBlock, Bangalore – 545079, Karnataka. Ph.: 080-49352000 / 40482000 Fax:080-49352034

		<p>Contact Persons: 1. Mr. Pravesh, Mobile No.: +91 9044314492 Email: praveshmani.t@antaressystems.com 2. Kushal Bose, Mobile No.: +91 9674758719, e-Mail: kushal.b@antaressystems.com</p>
<p>In case the date of opening of tenders is declared as a holiday, the tender will be opened on the next working day at the same time.</p>		
<p>SBI has the right to accept/reject any/ all tenders without assigning any reasons. The Bank also reserves its right to reject any bid which, in the opinion of the Bank, is too low or unrealistic for effectively carrying out the obligations required under the terms and conditions of the tender.</p>		
<p>For and behalf of State Bank of India</p>		

For any clarifications, please contact AGM (Premises & Estate) Ground floor, C Scheme, Tilak Marg SBI LHO Jaipur, Phone No. 0141-2256353 /; email – agmpremises.lhojai@sbi.co.in. Clarifications if any shall be raised up to **18.02.2026 only**, to enable the Bank to reply to the bidder or post corrigendum in Bank's web site if required well in time in the following format:

S.no	Clause of Bid Document	Page No	Query/Clarification Sought

Pre-Bid meeting will be held at 3.00 PM on **18/02/2026 in** the Office of the Assistant General Manager (P&E), State Bank of India, LHO Jaipur, Premises and Estate Department, Tilak Marg, C-scheme, Jaipur-302001. All efforts will be made to furnish clarification during the Prebid meeting. In exceptional cases, the clarification will be furnished subsequently. In both cases, the minutes of the pre-bid meeting containing clarifications shall be published on the BANK's website only. Any clarifications issued by the BANK shall be an integral part of this document and shall amount to an amendment to the relevant clauses of this document, wherever required.

MODE OF SUBMISSION OF TENDER

The Tender Document will be available online from date 04.02.2026 to 25.02.2026. The tender shall be submitted in accordance with the procedure detailed herein below. Specified documents shall be sealed in envelopes of appropriate size each of which shall be sealed.

- 1) Technical Bid: An Envelope marked COVER-1 shall contain covering letter, EMD, clarification (if any), to be deposited along with Technical & Commercial terms and if any required documents duly signed at the Office of The AGM (P& E), SBI, LHO, TILAK MARG, C-SCHEME, JAIPUR latest by 25.02.2026 up to 3.00 PM.
- 2) Price Bid: The price Bid duly filled and to be uploaded ONLINE. (Not in physical format)

OPENING OF TENDER:

- 1) Envelope No. 1(COVER-1) containing the EMD, covering letter, terms and conditions will be opened first and if any of the above is not found as prescribed, the tender shall be rejected.
- 2) After opening COVER 1 and after evaluating the clarifications / conditions, if any, stipulated by the contractors, i.e., if the vendors are qualified, priced BOQ will be opened ONLINE of those qualified vendors.

In case the date of opening of tenders is declared as a holiday, the tenders will be opened on the next working day at the same time.

State Bank of India has the right to accept / reject any or all tenders without assigning any reasons.

Yours faithfully,

Signature of the Tenderer

Asstt. General Manager (P&E)

Type of On-line Price Bid: -

The On-line Price Bid e-tendering will be conducted on the basis of "Item Rate System" by adopting the following broad process flow as under: -

1. For the proposed e-tendering process, pre-qualified vendors for the said purpose who fulfill all terms and conditions including deposit of Earnest money amount only shall be eligible to participate.
2. SBI will engage the services of a service provider who will provide all necessary training and assistance before commencement of online bidding on Internet.
3. SBI will inform the service provider to enable them to contact and get trained.
4. Business rules like event date, time, etc. also will be communicated through service provider for compliance.
5. Vendors have to mail the compliance form in the prescribed format (provided by service provider) before start of e-tendering process. Without this the vendor will not be eligible to participate in the event.
6. E-tendering process will be conducted on schedule date & time.
7. The lowest bidder has to mail the duly signed filled-in prescribed format as provided on case- to-case basis to SBI through service provider within 24 hours of completion of tendering without fail.
8. Any variation between the on-line bid value and signed document will be considered as sabotaging the tender process and will invite disqualification of vender to conduct business with SBI as per prevailing procedure.

Procedure of "E-TENDERING PROCESS" :-

9. For the proposed e-Tendering Process, pre-qualified vendors for the said purpose who qualified in Pre-qualification Tender only shall be eligible to participate.
10. SBI will engage the services of a service provider M/s. Antares Systems Limited who will provide all necessary training and assistance before commencement of online bidding on Internet.
11. Business rules, tender details, event date, time etc. will be communicated through service. provider for compliance in addition to uploading the same in Bank's website.

12. Bidders must send the duly signed Process compliance form in the prescribed format (provided by service provider), On-line Payment details for Tender Fee and Earnest Money Deposit within the stipulated date & Time as Technical Bid, failing which, the vendor/contractor will not be eligible to participate in the price bid event.
13. E-Tendering Process will be conducted on schedule date & time.
14. Any variation between the on-line bid value and signed document will be considered as sabotaging the tender process and will invite disqualification of vender to conduct business with SBI as per prevailing procedure.
15. All the bidders are requested to ensure that they have a valid digital signature certificate well in advance to participate in the online event.

INSTRUCTIONS TO THE TENDERERS

ONLINE Sealed Tenders are invited by State bank of India for the **CONSTRUCTION OF PROPOSED 24 Nos OF RESIDENTIAL FLATS IN STILT + 4 FORMAT AT BANK'S OWN PLOT AT, LK-3, LAL KOTHI SCHEME, NEAR JYOTI NAGAR, JAIPUR.**

1.0 SCOPE OF WORK

State Bank of India intends to construct of 24 No's of Flats at Bank's own plot at LK-3, Lal Kothi -Scheme, near Jyoti Nagar, Jaipur. The plot is having an area of 2100 Sq.mtrs. Construction of stilt plus four floors is proposed on the plot. Presently a guard room and three side compound walls are constructed on the plot. The fourth side has nallah (west side). The total constructed area of the building is 4632.93 sq.mt. The area of one typical floor is 922.39 Sq.mtrs. Six flats are proposed on each typical floor. Each flat consists of drawing cum dining room, kitchen, store, two bedrooms, one study room, one dressing room, three toilets and balconies. A total of 33 cars and 33 two-wheeler parking is proposed in the stilt area and open space in the plot.

1.1 SITE AND ITS LOCATION

The proposed work is to be carried out at **SBI plot at LK- 3, Lal Kothi Scheme, Jyoti Nagar Jaipur.**

2.0 Tender documents

2.1 The work has to be carried out strictly according to the conditions stipulated in the tender consisting of the following documents and the most workmen like manner.

- i) Instructions to Tenderers
- ii) General Conditions of Contract
- iii) Special conditions of contract
- iv) Technical specifications
- v) Price bid
- vi) Drawings

2.2 The above documents shall be taken as complementary and mutually explanatory of one another but in case of ambiguities or discrepancies, shall take precedence in the order given below:

- i) Price bid
- ii) technical specifications
- iii) Instructions to the tenderer
- iv) Special Conditions of Contract
- v) General Conditions of Contract

2.4 Tender documents are not transferable.

3.0 **SITE VISIT**

3.1 The tenderer must obtain himself on his own responsibility and his own expenses all information and data which may be required for the purpose of filling this tender document and enter into a contract for the satisfactory performance of the work. The tenderer is requested satisfy himself regarding the availability of water, power, transport and communication facilities, the character quality and quantity of the materials labour, the law and order situation, climatic conditions local authorities requirements, traffic regulations etc.

The tenderer will be fully responsible for considering the financial effect of any or all the factors while submitting his tender.

4.0 **EARNEST MONEY DEPOSIT**

4.1 The tenderers are requested to submit the **Earnest Money of Rs 10,30,000/- (Rupees Ten Lakh Thirty Thousand only) in the form of Demand Draft or Bankers' Cheque in favour of State Bank of India, Jaipur.**

4.2 EMD in any other form other than as specified above will not be accepted. Tender not accompanied by the EMD shall be rejected.

4.3 No interest will be paid on the EMD.

4.4 EMD of unsuccessful tenderers will be refunded within 30 days of award of Contract.

4.5 EMD of successful tenderer will be retained as a part of security deposit.

4.6 The EMD of the successful tenderer shall be forfeited in case the contractor refuses to accept the work order or if he fails to commence the work awarded to him within the prescribed or extended time limit or if he does not remit the initial security deposit within the prescribed time.

5.0 INITIAL SECURITY DEPOSIT

The amount of initial security deposit shall be 2% of the accepted tender amount including the EMD in the same form as of EMD or Bank Guarantee issued by the scheduled Bank other than SBI. The initial security deposit is to be paid by the contractor to the Bank within 15 (fifteen) days of intimation to him of the acceptance of his tender.

6.0 Additional Security Deposit (ASD)/ Additional Performance Guarantee (APG)

1. ASD shall be applicable if the bid price is below 10% of the estimated cost put to tender.
2. The amount of such ASD/ APG shall be the difference between 90% of estimated cost put to tender and the quoted price.
3. Bank Guarantee or FDR receipt favoring SBI Bank but drawn on any other Nationalized Bank may also be accepted as ASD/APG

7.0 Retention Money

From each running bill, an amount at the rate of 10% of the gross value of the running bill shall be recovered as retention money, till the total retention amount including the EMD and ISD amounts already with the Bank become 5% of the value of the contract amount. This amount is called as Total Security Deposit - which consists of three components:

- a) EMD - Earnest Money Deposit.
- b) ISD - Initial Security Deposits.
- c) RM - Retention Money.

7.1 The total security deposit will be kept with the Bank. 50% of the total security deposit amount shall be refunded without interest to the contractor on issuance of virtual completion certificate by the Architect/Bank and the Contractor's removal of his materials, equipment, labour force, temporary sheds, stores, site office etc. and on receipt of physical possession of the site by the Bank. The remaining 50% of the total security deposit may be refunded 15 days after the end of defects liability period, provided he has satisfactorily carried out all the works and attended to rectification of all defects in accordance with the conditions of the contract. Wherever the Bank Guarantee is acceptable, it should be issued by the scheduled Bank other than SBI or its Associate Banks

7.2 No interest shall be paid to the amount retained by the Bank as Security Deposit.

8.0 Signing of Contract Documents

The successful tenderer shall be bound to implement the contract by signing an agreement and conditions of contract attached herewith within 15 days from the receipt of intimation of acceptance of his tender by the Bank. However, the written acceptance of the tender by the Bank will constitute a binding agreement between the Bank and successful tenderer whether such formal agreement is subsequently entered into or not.

9.0 Completion Period **18 Calendar Months** from the date of commencement.

10.0 Validity of Tender

Tenders shall remain valid and open for acceptance for a period of 3 (Three) months from the date of opening price bid. If the tenderer withdraws his/her offer during the validity period or makes modifications in his/her original offer which are not acceptance to the Bank without prejudice to any other right or remedy the Bank.

11.0 Liquidated Damages

The liquidated damages shall be 0.5% per week subject to a maximum of 5% of contract value.

11.0 Rates and Prices

11.1 In case of item rate tender

11.1.1 The tenderers shall quote their rates for individual items both in words and figures in case of discrepancy between the rates quoted in words and figures the unit rate quoted in words will prevail. If no rate is quoted for a particular item, the contractor shall not be paid for that item when it is executed. The amount of each item shall be calculated and the requisite total is given. In case of discrepancy between the unit rate and the total amount calculated from multiplication of unit rate and the quantity the unit rate quoted will govern and the amount will be corrected.

11.1.2 The tenderers need not quote their rates for which no quantities have been given. In case the tenderers quote their rates for such items those rates will be ignored and will not be considered during execution.

11.1.3 Each page of the BOQ shall be signed by the authorized person and cutting or overwriting shall be duly attested by him.

11.1.4 The rate quoted shall be firm and shall include all costs, allowances, taxes (any other than GST), levies, etc.

ARTICLES OF AGREEMENT

This Agreement made on the between State Bank of India, a body corporate constituted under the State Bank of India Act, 1955 having its Corporate Office at Madame Cama Road, Mumbai and one of its Local Head Office at Tilak Marg, C-Scheme, Jaipur represented by Assistant General Manager (Premises & Estate) hereinafter called 'SBI'/ 'Bank'/Employer, which expression shall unless repugnant to the context or meaning thereof be deemed to include its successors and assigns of the **ONE PART**.

And

----- (hereafter referred to "the contractor") which expression shall, unless repugnant to the context or meaning thereof be deemed to include its/his legal heirs, executors, administrators and assigns of the **OTHER PART**.

(The Bank and the Contractor are collectively referred to as "the Parties" and individually as "the party")

WHEREAS the SBI requires -----(hereinafter the aforesaid works are collectively referred to as "the works"),

WHEREAS the said works are more particularly described in contract documents consisting of agreement, the set of conditions of contract to be complied with by the Contractor, schedule of quantities and drawings annexed herewith as part and parcel of this agreement. The parties to the contract agree to abide by the same,

WHEREAS, the Bank has invited the tender from the prequalified contractors, the tender of the contractor has been accepted by the bank vide Architect letter dated ----- being L1,

WHEREAS the Employer is desirous of getting the works executed and has caused drawings, conditions of contract, specifications and schedule of quantities etc., describing the works prepared by M/s Lavanya – C-Scheme Jaipur,

WHEREAS the SAID DRAWINGS numbered as per list attached inclusive of and the conditions of contract, specifications, and schedule of quantities etc., have been signed by or on behalf of the parties hereto

AND WHEREAS THE CONTRACTOR has agreed to execute upon and subject to the conditions set forth in the Schedule here to (hereinafter referred to as "Said Conditions") the works shown upon the said drawings and described in the same specifications and included in the said schedule of quantities for such sum as may be ascertained to be payable in terms of the Bills of Quantities, and which sum is estimated to be Rs. _____ (Rupees _____) (hereinafter referred to as "Said Contract Amount").

NOW IT IS HEREBY AGREED AS FOLLOWS:

1. In consideration of the said sum to be paid at the times and in the manner set forth in the said conditions, the contractor shall upon and subject to the said conditions, execute and complete the work shown in the said drawings and described in the said specifications.
2. The Employer shall pay the contractor the said sum or such sums as shall become payable hereunder at the times and in the manner specified in the said conditions.
3. The term “Architect” in the said conditions shall mean the said M/s Lavanya – C-Scheme Jaipur or in the event of their ceasing to be the Architect for the purpose of this contract, such other person as shall be nominated for that purpose by the Employer , not being a person to whom the contractor shall object for reasons considered to be sufficient by the Arbitrator mentioned in the said conditions provided always that no persons subsequently appointed to be the Architect under this contract shall be entitled to disregard or over-rule any previous decision or approval or direction given or expressed by the Architect for the time being.
4. Tender documents containing work order Notice to the Contractor, Conditions of Contract, Appendix thereto, Special Conditions of Contract, Specifications and Schedule of Quantities with the rates entered therein, shall be read, and studied as forming part of this agreement and the parties hereto shall respectively abide by and submit themselves to the conditions and stipulations and perform the agreement on their part respectively in such conditions contained.
5. The contract is neither a fixed lump sum contract or a piece work contract but is a contract to carry out work in respect of the entire works to be paid for according to actual measured quantities, including variations from BOQ at the rates contained in the Schedule of rates and Probable bill of quantities or as provided in the said conditions.
6. The Employer through the Architect, reserves to himself the right of altering the drawings and natures of the work, of adding/substitution to or omitting any items of work or having portions of the same carried out through alternate agencies without prejudice to this contract.
7. Time shall be considered as the essence of this agreement and the contractor hereby agrees to commence the work soon after the site is handed over to him but within 15 days reckoned from the date of issue of work order to execute the work, as provided for in the said conditions and complete the entire work in **18 Months** subject to nevertheless to the provisions for extension of time.

8. That in consideration of the payments to be made to the contractor as hereinafter provided, the contractor shall upon and subject to the set of said conditions described in the contractual documents, execute and complete the work as shown in the said plans, drawings, complete specifications, schedule of quantities of the various classes of works to be done and such further detailed drawings/plans and specifications as may be furnished/provided to him by the Bank and described in the said specifications and on the said price of schedule of quantities.
9. The AGM (Premises & Estate) Jaipur shall exercise power on behalf of the SBI for the purpose of this Contract Agreement.
10. Both the parties agree to sign the following annexure to this agreement in token of their acceptance.
 1. Complete tender Documents
 2. Safety code
 3. Priced Bill of Quantities and
 4. Drawings/Layout plans
 5. Schedule of Work completion days wise for 18 months.
11. The Bank shall pay the contractor such sum as shall become payable hereunder at the times and in the manner as specified in these said conditions mentioned in the General Conditions of Contract.
12. WHEREAS the contractor hereby undertakes and agrees to carry out complete the work within 18 Months from the 15th day after the date of written award to commence the works are given to the contractors. The contractor agrees & has deposited the sum of Rs. -----/- by way of initial security deposit for due fulfillment of the contract for the works. It is agreed that the security deposit shall be deducted from each running bill as per clause of the general conditions of the contract and refunded to the contractor as per clause of the General Conditions of the Contract annexed herewith. No interest shall be paid on the amount retained by the Bank as Security/EMD. Time is the essence of the contract.
13. WHEREAS it agreed that the initial security deposit money amounting to Rs. ---- -/- deposited by the Contractor in the form of FDR shall be forfeited in full in case contractor does not start the work within the stipulated date mentioned in the award letter.
14. Shri is the accredited Representative(s) of the contractor who would be responsible for taking instructions from the SBI in relation to the works. The contractor agrees to pay GST or any other tax on materials of finished

works like work contract tax, turnover tax etc., in respect of this contract of the works GST will be paid by the SBI. If due to non-payment of any of the aforesaid tax or other taxes connected with the works, the contractor suffers any loss or damages or delays in completing the works, the SBI shall not be responsible for such loss or damages occurred to the contractor.

15. The SBI will be entitled to claim damages from the contractor for non-completion of work within 18 Months as stipulated in para 7 above.
16. The contractor declares that none of his relatives is working with the SBI.
17. The plans, drawings, specifications, contract documents and the documents above mentioned shall form the basis of this contract and the decisions of the AGM(Premises & Estate), for the time being as mentioned in the General Conditions of Contract in reference to all matters of dispute as to material, workmanship of account and as to be intended interpretation of the clauses of the agreement or any of the document attached hereto shall be final and binding on both parties and may be rule of the court.
18. The work comprises of -----as mentioned above and subsidiary and other works connected therewith on the same site as may be ordered to be done from time to time by the said AGM (Premises & Estate) Jaipur for the time being even though such works may not have been shown on the drawings plans or described in the said specifications or schedule of quantities of various classes of works to be done.
19. The SBI through the AGM (Premises & Estate) Jaipur reserves himself the right off altering the plan, Nature of work and of adding to or omitting any items of work or having portions of the same carried out departmentally or otherwise and such alterations or variations shall be carried out without prejudice to this contract.
20. The contractor shall comply with all the statutory provisions as laid down under various Labour Laws/Act/ Rules relating to Minimum Wages, Provident Funds, ESI, Rajasthan Shop and Establishment Act, Bonus, Gratuity, Contract Labour, or any other related laws Laws/Act/Rules in force from time to time as applicable at its own cost. In case of violation of such statutory provisions under Labour Laws and / or any other laws applicable, by the contractor, there will not be any liability on part of the Bank and in case of violation of labour laws, bank reserves right to terminate the contract and entitle to claim damages from the contractor.
21. Persons Engaged by the Contractor
 - a. The contractor shall not employ any person under the age of 18 (Eighteen) years and documentary evidence to this effect will be maintained by the contractor and upon request, the same shall be provided to the SBI.

- b. The contractor shall ensure that all persons, employees, workers and other individuals engaged by the contractor in rendering the services under this Agreement have undergone proper background check, police verification and other necessary due diligence checks to examine their antecedent and establishing their identity as also to ensure their suitability for such engagement. No person shall be engaged by the contractor unless such person is found to be suitable in such verification and the contractor shall retain the records of such verification and shall produce the same to the SBI as and when requested. The Contractor shall issue identity cards to all persons engaged by it and shall ensure that identity card is worn by such persons engaged by it while providing the services under this Agreement.
- c. The contractor through its supervisors/managers will supervise and control the working of all their personnel engaged by them for the purpose of providing the services under this Agreement and will be fully responsible for maintaining discipline, peace, good behavior, dealings, appearance of their personnel deployed for providing such services to the SBI. The contractor shall further ensure that their personnel deployed shall be exclusively under their supervision, direction and control and ensure that these personnel shall comply the terms and conditions of this Agreement.
- d. Upon receipt of a written communication from the SBI, which will be duly acknowledged by the contractor, or if any person engaged by contractor indulges in any act of indiscipline, misbehavior or slogan shouting or indulges in violent act(s) or abets others in doing so and there appears to be *prima facie* proof of the same, the contractor shall promptly remove such person from the premises of the SBI.

22. **Indemnity & Liability:** - (a) The contractor, at all times during the term of this Agreement, indemnifies the SBI, upon demand, for any loss caused to or suffered by the SBI, whether directly or indirectly, for any deficiency in the service provided or for any breach of any term or condition under this Agreement, by the Contractor or any person engaged by it. It is clarified that the demand made by the SBI pursuant to this Clause shall be sufficient proof of the loss suffered by the SBI and the Contractor shall immediately and in no event later than 7 Working Days make good the amount of loss suffered by the SBI.

(b) The contractor agrees to indemnify the Bank against all losses or claims in respect of any or all statutory / financial obligations arising out of any negligence or misconduct on the part of the bidder howsoever and in whatsoever manner

caused to the Bank. The Bank will not enter into any litigation whatsoever under any circumstances in respect of afore- stated statutory / financial obligations. Any litigation if so warranted /compelled will be conducted and pursued by the Bank at the cost of the contractor only.

(c) The Contractor shall be responsible and answerable for all claims from third parties including the Employees of the Bank in the event of any accident or injury, death, loss, or damage leading to involving any liability caused by the Contractor or its employees. The Bank will have no master servant relationship with the employees of the Contractor. The relation between Contractor and the Bank is on principal-to-principal basis. If during the contract period, any loss or damage to property or life, death due to accident etc., is caused either to the occupants or employees of the Contractor or any other third party, the Bank shall not be responsible for the same.

23. Transfer of Interests: -The contractor shall not assign, sub-let or transfer their interest in this agreement, without the prior written consent of the Bank. Whether the firm is a partnership firm or a company, no change in the constitution of such partnership or in the constitution of Board of Directors of the company shall be made without the prior approval of SBI.

24. Severability :-If any provision of this agreement is/are declared by any Court, Government or administrative body of competent jurisdiction to be invalid or unenforceable under any applicable law, such invalidity or un-enforceability of the provisions shall be construed as if such unenforceable provision had not been contained therein and shall not affect the other provisions of this agreement and all provisions not affected by such invalidity or unenforceability shall remain in full force and effect. The parties hereby agree to attempt to substitute for any invalid or unenforceable provisions a valid or enforceable provision, which achieves to the greatest extent possible the economic, legal, and commercial objectives of the invalid or unenforceable provision.

25. The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013.

The Contractor shall be solely responsible for full compliance with the provisions of the Sexual Harassment of women at workplace (Prevention, Prohibition and Redressal) Act, 2013, In case of any complaint of sexual harassment against its employee within the Premises of the Bank, the complaint will be filed before the Competent Authority.

26. INDEPENDENT CONTRACTOR:

(1) This agreement is on a principal-to-principal basis and does not create any employer-employee relationship.

(2) The Contractor shall provide the Services hereunder as an independent contractor and nothing contained herein shall be deemed to create an association, partnership, joint venture or relationship of principal and agent or master and servant, or employer and employee between SBI and Vendor.

(3) The Contractor, its Staff, or its agents have no authority to bind SBI in any manner by any action / representation whatsoever.

27. DIGITAL PERSONAL DATA PROTECTION ACT, 2023

The Contractor agrees to comply with the obligations arising out of the Digital Personal Data Protection Act, 2023, as and when made effective. Any processing of Personal Data by the Contractor in the performance of this Agreement shall be in compliance with the above Act thereafter. The Contractor shall also procure that any sub-contractor engaged by it shall act in compliance with the above Act, to the extent applicable. The Contractor understands and agrees that this agreement may have to be modified in a time bound manner to ensure that the provisions contained herein are in compliance with the above Act.

28. FORCE MAJEURE :

Neither party shall be held responsible by the other for breach of any condition of this Agreement, attributable to any “Act of God”, Act of State, Strike, lock-out or control or any other reason, beyond the control of the parties and any breach of clauses arising from such Force Majeure conditions as aforesaid shall not be regarded as breach of the provisions of this Agreement.

29. This Agreement supersedes any and all agreements, contracts or addenda relating to the said Services performed by Contractor. This Agreement together with Annexures is entire in it and cannot be changed or terminated orally. This agreement is in addition to and not in derogation to the work order and annexures thereto. No modification of this agreement shall be binding unless communicated in writing and signed on behalf of the Bank and Contractor.

30. This agreement and contract shall be deemed to have been made in Jaipur and any questions or dispute rising out of or in any way connected with this Agreement and Contract shall be deemed to have arisen in Jaipur and only the courts in Rajasthan at Jaipur shall have jurisdiction to determine the same.

GENERAL PROVISIONS:

Paragraph Headings: Paragraphs headings are for convenience only and shall not be a part of the Terms and Conditions of this Agreement.

Waiver: Failure by the Bank at any time to enforce any obligation of Contractor to claim a breach of any term of this Agreement or to exercise any power agreed to hereunder, will not be construed as a waiver of any right, power or obligation under this Agreement and it will not affect any subsequent breach and will not prejudice SBI as regards any subsequent action.

Severability: If any term or provision of this Agreement should be declared invalid, the remaining terms and provisions of this Agreement shall remain unimpaired and will remain in full force and effect.

Modification: No modification, waiver or amendment of any term or conditions of this Agreement shall be effective unless and until it shall be reduced to writing and signed by the Bank and Contractor.

Employees or representative of Contractor: It is agreed that under no circumstances and / or at no point of time any employees or representative of Contractor shall be or construed to be the employees of The Bank.

All the several parts of this contract have been read by us and fully understood by us.

IN WITNESS whereof the parties above named have executed these presents on the date and year first hereinabove written.

State Bank of India

M/s.....

Through.....

Through.....

Place:

Date:

Witness:

1.

2.

APPENDIX TO GENERAL CONDITIONS OF CONTRACT

1.	Earnest Money Deposit (EMD):	Rs. 10,30,000/-
2.	Additional Security Deposit (ASD)/ Additional Performance Guarantee (APG)	<ol style="list-style-type: none">1. ASD shall be applicable if the bid price is below 10% of the estimated cost put to tender.2. The amount of such ASD/ APG shall be the difference between 90% of estimated cost put to tender and the quoted price.3. Bank Guarantee or FDR receipt favoring SBI Bank but drawn on any other Nationalized Bank may also be accepted as ASD/APG
3.	Period of completion:	18 months
4.	Defects Liability period:	12 months after completion as recorded in the completion certificate.
5.	Agreed Liquidated Damages:	½% of contract amount per week of delay subjected to a maximum of 5% of contract value.
6.	Period of final measurement:	Three months after completion as recorded in the completion certificate.
7.	Minimum value of work to be: Executed for issue of interim Certificates for making payment	Minimum Rs. 100.00 Lakhs
8.a)	Retention money from each bill:	10% of gross value of each interim bill, subject to 8(b) below.
b)	Total retention money	5% of the contract value.

9.	Release of Security deposit after: Virtual completion.	50% of the total security to be released along with final certificate of payment, but only after removing all his materials, equipment, labour, Huts/force, temporary sheds/stores, all his installations, machinery etc., from the site. Balance payment to be released on submission of Bank Guarantee on any Scheduled Bank, Other than SBI, and its associated banks in the prescribed manner and valid till the completion of defects liability period of 12 months plus 3 months.
10.	Period for honoring certificate:	15 working days from date of Architects certificate of payment for interim bills and 45 working days for final certificate.
11.	Price Variation Adjustment:	PVA Clause as per Bank Norms.

WITNESS :

DATE :

SIGNATURE OF THE CONTRACTOR WITH DATE

GENERAL CONDITIONS OF CONTRACT

1. **INTERPRETATIONS: / Definitions**

In constructing these conditions and the specifications, schedule of quantities and contract agreement, the following words shall have the meaning herein assigned to them except where the subject or context otherwise required:

- a. "Employer" shall mean **Asst. General Manager (Premises & Estates), State Bank of India, LHO, Tilak Marg, C-Scheme, Jaipur, Rajasthan.** shall include his/their heirs, legal representatives, assignees and successors.
- b. "Contractor" shall mean _____
_____ and shall include his/their heirs, legal representatives, assignees and successors.
- c. "Banks Engineer" shall mean any Engineer who is employed by State Bank of India or any other Engineer appointed from time to time by the Employer, and certified in writing to the Architect and the contractor, to act as Engineer for the purpose of the Contract in place of the said engineer.
- d. "Employer's Representative" shall mean Project Management Consultants employed by the Bank/any assistant of the Engineer or any site engineer/ PMC appointed from time to time by the employer to perform the duties set forth in clause 17 here of whose authority shall be notified in writing to the Architect and Contractor by the EMPLOYER.
- e. "Architects" shall mean any Engineer/ representative appointed by M/s Lavanya C-Scheme, Jaipur.
- f. "Works" shall mean the works to be executed in accordance with contract specifications, quantities etc.
- g. "Contract" shall mean the Articles of Agreement, the General Conditions, Special Conditions, the Appendix, the Schedule of Quantities, Specifications and drawings, work order etc., attached here to and duly signed.
- h. "Contract Price" shall mean the sum named in the Tender, subject to such amount additions thereto or deductions there from as may be made under the provisions, hereinafter contained.
- i. "Site" shall mean the lands and other places as shown on the site plan, on which the works are to be, provided, by the Employer or Architect for the purpose

of the Contract.

- j. Drawings” shall mean the drawings referred to in the contract etc., and any modifications of such drawings approved in writing by the Architect and the Bank and such other drawings as may from time to time be furnished or approved in writing by the Architect and Employer.
- k. “Notice in Writing” or written notice shall mean a notice in writing, typed or printed characters sent (unless delivered personally or otherwise provided to have been received) by registered post to the last known private or business address or registered office of the address and shall be deemed to have been received, when in the ordinary course of post, it would have been delivered.
- l. “Act of Insolvency” shall mean any Act of Insolvency as defined by the Presidency Towns Insolvency Act, or the Provincial Insolvency Act or any act amending such original.
- m. “Net Prices” if in arriving at the Contract Amount, the contractor has added to or deducted from the total of the items of the Tender any sum, either as a percentage or otherwise, then the net price of any items, in the tender, shall be the sum arrived at by adding to or deducting from the actual figure appearing in the Tender, as the price of that item, a similar percentage or proportionate sum. Provided always that in determining the percentage or proportion of the sum so added or deducted by the contractor, the total amount of any Prime cost items and provisional sums of money shall be deducted from the total amount of the Tender. The expression “net rates” or “net prices” when used with reference to the contract or account shall be held to mean rates or prices so arrived at.
- n. “Virtual Completion” shall mean that the building is in the opinion of the Architect and Employer, sufficiently completed for occupation by the Employer, in relation to the scope of work of this contract.
- o. Words importing persons include firms and corporations. Words importing the singular only, also include the plural and vice versa, where the context requires.

2. **SCOPE OF CONTRACT:**

The contractor shall carry out and complete the said work in every respect in accordance with this contract with the directions of and to the satisfaction of the Architect and Employer. Architect, with the approval of the Employer, may issue further drawings and/or written instructions, details, directions and explanations, which are hereafter collectively referred to as “Architect’s Instructions” in regard to:

- a. The variations or modifications of the designs, quality or quantity of works or the addition or omission or substitution of any work.
- b. Any discrepancy in the drawings or between the Schedule of Quantities/ or drawings and/or specifications etc.
- c. The removal and/or re-execution or any works executed by the contractor.
- d. The removal from the site of any material brought there on by the contractor, and the substitution of any other material there from.
- e. The dismissal from the works of any person employed thereupon.
- f. The opening up for inspection of any work covered up.
- g. The amending and making good of any defects under clause 24 “Removal of Improper works and Materials”.

The contractor shall forthwith comply and fully execute any work comprised in such Architect’s instruction, provided always that instructions, directions and explanations given to the contractor or his representative upon the works by the Architect shall, if involving a variation, be confirmed in writing by the contractor or within 7 days, and if not dissented from in writing within further 7 days by the Architect, such shall be deemed to be the Architects instructions within the scope of contract.

If compliance with the Architect’s instructions as aforesaid involved work and/or expense and/or loss beyond that contemplated by the contract, then unless the same were issued owing to some breach of this contract by the contractors, the employer shall pay to the Contractor on the Architect’s certificate, the price of the said work (as an extra to be valued as herein after provided) and/or expense and/or loss.

3. **DRAWINGS AND SPECIFICATIONS:**

The works shall be carried out to the entire satisfaction of the EMPLOYER and the Architect & Bank’s representative (site engineer), in accordance with the signed contract document, drawings and specifications and such further drawings and details as may be provided by the Architect, and in accordance with such written instructions, directions and explanations, as may from time to time be given by the Architect and the bank, whose decision as to the sufficiency and quality of the work and materials shall be final and binding on the contractor. If the work shown on any such further drawings or work that may be necessary to comply with any such instructions, directions or explanations, be in the opinion of the contractor outside the scope of work or reasonably could not be inferred from the

contract, he shall before proceeding with such work, give notice in writing to this effect to the Architect and the Bank, and in the event of the Architects and the Bank agreeing to the same in writing, the contractor shall be entitled to an allowance in respect of such extra work as an authorized extra. If the Architect and the contractor fail to agree, as to whether or not there is an extra, then, if the Architect decided that the contractor is to carry out the said work, the contractor shall do so, and the question whether or not there is any extra and if so, the amount thereof, shall failing agreement be settled by Arbitration as hereinafter provided, but such reference shall in no way delay the fulfillment of this contract.

No drawing shall be taken as in itself an order for variation, unless in addition to the Architect's signature, it bears express works stating that it is intended to be such an order or bears a remark "VALID FOR CONSTRUCTION". No claim for payment

for extra work shall be allowed, unless the said work shall have been executed under the provisions of clause 8 (Authorities, notices, patents, rights and royalties) or by the authorities, of directions in drawing of the Architect as herein mentioned.

One complete set of the signed drawings and a copy of contract document (specifications and schedule of quantities etc) shall be furnished by the Architect to the contractor. The Architect shall furnish within such time as he may consider reasonable, one copy of any additional drawings, which in his opinion may be necessary for the execution of any part of the work. Such copies shall be kept at the works, and the Architect or his representatives shall, at all reasonable times have access to the same and shall be returned to the Architect by the Contractor, before the issue of the final certificate. The original contract documents shall remain in the custody of employer.

Please refer clause 36 of Special conditions of contract.

4. **SCHEDULE OF QUANTITIES:**

The Schedule of Quantities unless otherwise stated shall be deemed to have been prepared in accordance with the Standard Procedure of the Architects and shall be considered to be approximate and no liability shall attach to the Architect for any error/variations that may be discovered therein.

Please refer Clause 5, 6 and 40 of Special conditions of contract.

5. **SUFFICIENCY OF SCHEDULE OF QUANTITIES:**

The contract shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of his tender for the works and of the prices stated in the schedule of Quantities and/or the Schedule of Rates and Prices, which rates and prices shall cover all things necessary for the proper completion of the works.

Please refer clauses 5, 6 and 39 of Special Conditions of Contract.

6. **ERRORS IN SCHEDULE OF QUANTITIES:**

Should any error appear in the Schedule of Quantities, other than in the Contractor's prices and calculations, it shall be rectified and such rectification shall not vitiate the contract but shall constitute a variation of the contract and be dealt with as an authorized extra or deduction.

7. **CONTRACTOR TO PROVIDE EVERYTHING NECESSARY:**

The contractor shall provide everything necessary for the proper execution of works according to the true intent and meaning of the drawings, specifications and the Schedule of Quantities etc., taken together, whether the same may or may not be particularly shown or described there in, provided the same can be inferred there from. The several documents forming the contract are to be taken as mutually explanatory to one another; detailed drawings and figured dimensions in preference

to scale, and special conditions in preference to General conditions and particular specifications in preference to General specifications.

In 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 specifications and special condition, if any.
- iii) Drawings.
- iv) CPWD specifications.
- v) Indian Standard specifications of B.I.S.

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

Any error in description, quantity or rate in schedule of quantities or any omission there from shall not vitiate the contract or release the contractor from the execution of the whole or any part of the works expressed therein according to drawings and specifications or from any of his obligations under the contract.

The contractor shall make his own arrangements for providing water, for carrying out the work, at his own cost. If water from any source other than Municipal main is to be used for construction, the same shall be tested at the contractor's cost, and a report submitted to the Architect for his approval, before such water is used for the works. Temporary Electrical connections

shall be obtained by the contractor to facilitate execution and completion of work at their cost and all the charges there of should be borne by them.

The contractor shall supply, fix and maintain at his cost, during the execution of any works, all the necessary centering, scaffolding, staging, planking, timbering, strutting, shoring, pumping, fencing, hoarding, watching and lighting during nights as well as by day required not only for the proper execution and protection of the said works, but also for the protection of the public and the safety of any adjacent road, streets, cellars, vaults, pavements, walls, houses, buildings and all other erections, matters or things. The Contractor shall take down and remove any or all such centering, scaffolding, staging, planking, strutting, shoring etc., as occasion shall require or when ordered or so to do, and shall fully reinstate at his own cost and make good all the matters and things disturbed during the execution of the works to the satisfaction of the Architects.

Please refer clause 7 of Special conditions of contract.

8. **AUTHORITIES, NOTICES, PATENT RIGHTS AND ROYALTIES:**

The contractor shall conform to the provisions of the statutes relating to the works, and to the regulation and by laws of any local authority, and of any water, lighting and other companies or authorities, with whose systems the structures are proposed to be connected; and shall before making any variation from the drawings or

specifications, that may be necessitated by so conforming, give to the Architects a written notice, specifying the variations proposed to be made and the reason for making it and apply for instruction thereon. In case, the contractor shall not within ten days receive such instructions, he shall proceed with the work conforming with the provisions, regulations or by laws in question.

The contractor shall bring to the attention of the Architect all notices required by the said acts, regulations or bylaws to be given to any authority, and pay to such authority or to any Public Officer all fees that may be properly chargeable in respect of the works, and lodge the receipts with the Architects.

The contractor shall indemnify the Employer against all claims in respect of patent rights, designs, trademarks or name or other protected rights in respect of any constructional plant, machine, work or material used for or in connection with works or temporary works and from and against all claims, demands, proceedings, damages, costs, charges, and expenses whatsoever in respect thereof or in relation thereto. The Contractor shall defend all actions arising from such claims, unless he has informed the Architects, before any such infringement and received their permission to proceed, and shall himself pay all royalties, licence fees, damages, cost and changes of all and every sort that may be legally incurred in respect thereof. Please refer clause 23 of special conditions of contract.

9. **MATERIALS AND WORKMANSHIP TO CONFORM DESCRIPTION:**

All materials and workmanship shall, so far as procurable be of the respective kinds specified in the Schedule of Quantities and/or specifications and in accordance with the Architect's instructions and the contractor shall on the request of the Architects furnish to them all invoices, accounts, receipts and the other vouchers to prove that the materials comply therewith. The contractor shall at his own cost arrange for and/or carry any test of any materials, which the Architect & Employer may require. The costs of materials used for testing, packing, transportation and testing shall be borne by the contractor and his quoted rates/amounts shall include all such expenses/contingencies.

- 9a. In case of non-availability of specified Make/brand of any material including steel and cement the alternate make/brand will be given by the Employer/Architect.

10. **THE SETTING OUT:**

The Contractor shall at his own expense, set out the works accurately in accordance with the plans and to the complete satisfaction of the Architect. The Contractor shall be solely responsible for the true and perfect setting out of the same and for the correctness of the positions, levels, dimensions and alignment of all parts thereof. If at any time any error shall appear during the progress or on completion of any part of the work, the contractor shall at his cost rectify such error if called upon to the satisfaction of the Architects/Employer. The work shall from time to time be inspected by the Architect and/or his representatives, but such inspections shall not exonerate the contractor in any way from his obligation to remedy any defects, which may be found to exist at any stage of the work or after the same is completed, at his own cost.

(Please refer clause 7 of Special Conditions to Contract)

11. **REMOVAL OF ALL OFFENSIVE MATTERS:**

All soil, filth or other matter of an offensive nature, taken out of any trench, sewer, drain, cesspool or other place shall not be deposited on the surface, but shall at once be carried out away by the contractor to some pits or place provided by them and shall be disposed off as per the rules and regulations of the Local authorities concerned.

12. **OPENING UP WORKS:**

The contractor shall notify the Architect in writing immediately, the trenches or excavation as shown on the drawings are get ready or as soon as any ground is cut into which, from unexpected causes, appears need for immediate attention. After notifying the Architect, he shall await instructions, which shall be given within ten days of receipt of such notice. If the contractor put in any parts of the foundations before he has so notified the Architect and received instructions, he shall be liable to reinstate all such work that may be subsequently, at any time, damaged on account of any defect or insufficiency of the foundations. The Contractor shall at the request of the

Architect, within such time as the Architect so desires, open for inspection any work, and should the contractor refuse or neglect, to comply with such request, the employer, through the Architect may employ other workmen to open up the same. If the said work has been covered up in contravention of the Architect's instructions, or if, on being opened up, it be found in accordance with the drawings

and specifications, or the instructions of the Architect or otherwise, the expenses of such other workmen shall be borne by and recoverable from the contractor or may be deducted from any money due or which may become due to the contractor. If the work has not been covered up in contravention of such instruction, and be found in accordance with the said drawings and specifications and instructions, then the expenses aforesaid shall be borne by the Employer and be added to the contract sum, provided always that in the case of foundations or of any other urgent work so opened up and requiring immediate attention, the Architect shall within seven days after receipt of the written notice from the contractor that the work has been opened, make or cause the inspection thereof to be made, and at the expiration of such time, if such inspection shall not have been made, the contractor may cover the same and shall not be required to open it up again, except at the expenses of Employer.

Refer clause 7 & 24 of special conditions of contract.

13. **CONTRACTOR'S SUPERINTENDENCE & REPRESENTATIVE ON THE WORKS:**

The contractor shall give all necessary personal superintendence during the execution of the works and so long thereafter as the Architect may consider it necessary until the expiration of the "Defects Liability Period" stated in clause 25. The Contractor shall meet the Architect or his representative, whenever required and so informed by the Architect.

The Contractor shall maintain and be represented at site at all times, while the work is in progress, by a responsible and efficient foreman, approved by the Architect and who must thoroughly understand all the trades entailed and be constantly in attendance while the men are at work. Any directions, explanations, instructions or notices give by the Architect & site engineer appointed by the Bank & Employer to such foreman shall be deemed to have been given to the contractor and shall be binding as such on the contractor. The Foreman shall be thoroughly conversant with the English language and should be able to read, write and speak English.

14. **DISMISSAL OF WORKMEN:**

The contractor shall on the request of the Architect and Employer immediately dismiss from the works any person employed thereon who may, in the opinion of the Architect and Employer be unsuitable or incompetent or who may misconduct himself, and such person shall not again be employed or allowed on the works without the permission of the Architect & Employer.

15. **ACCESS TO WORKS:**

The Architect, the Employer and any person authorized by them shall at all reasonable times have free access to the works and to the workshops, factories or other places where materials are being prepared or constructed by the contract and also to any place where the materials are lying or from which they are being obtained. The Contractor shall give every facility to the Architect and the Employer and their representatives for inspection and examination and test of the materials and workmanship. No person, unless authorized by the Architect or the Employer, except the representatives of Public authorities, shall be allowed on the works at any time. If any work is to be done at a place other than the site of works, the contractor shall obtain the written permission of the Architect for doing so.

16. **EMPLOYER'S REPRESENTATIVE/PMC/SITE ENGINEER:**

The Employer may appoint an assistant to the Engineer, any Site Engineer or Project Management Consultant (PMC), who shall be the representative of the Employer. The duties of the Employer's representatives are to watch and supervise the works and to test any materials to be used and of workmanship employed in connection with the works. He shall have no authority either to relieve the contractor of any of his duties or obligations under the contract, or except those expressly provided hereunder, to order any work involving delay or any extra payment by the Employer or any variation of or in the works.

The contractor shall afford the Employer's representative every facility and assistance for examining the works and materials and checking and measuring item and materials. Neither the Employer's representative nor any assistant to the Architect shall have power to revoke, alter, enlarge or relax the requirements of this contract, or to sanction any new-work, additions, alterations, deviations or omissions unless such an authority may be specially conferred by a written order of the Architect and Employer.

The Employer's representative shall have to give notice to the Contractor or his representation about the non-approval of any work or materials and such works shall be suspended or the use of such materials should be discontinued until the decision of the Architect is obtained. The work will from time to time be examined by the Architect or the Employer's representative, but such examinations shall not in any way exonerate the contractor from the obligation to remedy any defects, which may be found to exist at any stage of the work or after the same is completed. Subject to the limitations of the clause, the contractor shall take instructions only from the Architect and Employer.

17. **ASSIGNMENT OF SUB-LETTING:**

The works included in the contract shall be executed by the contractor and the contractor shall not directly or indirectly transfer, assign or underlet the contract or any part/share thereof or interest therein without the written consent of the Architect and Employer, and no undertaking shall relieve the contractor from the full and entire responsibility of the contract or from active superintendence of the works during their progress.

18. **SUB-CONTRACTORS:**

All specialists, merchants, tradesmen, and others, executing any work or supply and fixing any goods for which prime cost prices or provisional sums are included in the Schedule of Quantities and/or specifications, who may be nominated or selected by the Architect and employer and hereby declared to be sub-contractors employed by the Contractor, are herein referred to as nominated sub-contractors. No nominated sub-contractors shall be employed on or in connection with the works, against whom the contractor shall make reasonable objection or (see where the Architect and contractor shall otherwise agree), who will not enter into a contract provided.

- a. The nominated sub-contractors shall indemnify the contractor against the same obligations in respect of the sub-contract as the contractor is under, in respect of this contract.
- b. The nominated sub-contractors shall indemnify the contractor against claims in respect of any negligence by the sub-contractor, his servants or agents or any misuse by him or them of any scaffolding or other plant, the property of the contractor or under any Workman's Compensation Act in force.
- c. Payment shall be made by the contractor to the nominated sub-contractor, within 14 days of receipt of the Architect's certificate, provided that before any certificate is issued, the contractor shall upon request furnish to the Architect proof that all nominated sub-contractor's account included in the previous certificates have been duly discharged; in default whereof the Employer may pay the same upon a certificate of the Architect and deduct the amount thereof from any sums due to the contractor. The exercise of this power shall not create any contract between Employer and Sub-contractor.

19. **VARIATIONS NOT TO VITIATE CONTRACT:**

The contractor shall when directed in writing by the Architect, omit from or vary works shown upon the drawings or described in the specifications or included in the priced schedule of quantities, but the contractor shall not make any alterations or additions to or omissions from the works or any deviations from the provisions of the Contract without such authorizations or direction in writing from the Architect and Employer.

No claim for any extra item or deviations shall be allowed, unless it shall have been

executed by the Authority of the Architect and Employer as herein mentioned. Any such extra item or deviation is hereinafter referred to as an authorised extra item or deviation. No variations i.e., additions, omissions or substitutions shall vitiate the contract.

The rate of items not included in the bill of quantities shall be settled by the Architect and Employer in accordance with the provisions of clause 21, hereof.

20. **MEASUREMENTS OF WORKS:**

The Architect/PMC may from time to time intimate the Contractor that he requires the works to be measured and the contractor shall forthwith attend or send a qualified agent to assist PMC/Architect's representative in taking measurements and calculations, and to furnish all particulars or give all assistance required by either of them.

Should the contractor not attend or neglect or omit to send such an agent, then the measurements and calculations, and to furnish all particulars or give all assistance required by either of them.

Should the contractor not attend or neglect or omit to send such an agent, then the measurements taken by the PMC/Architects representative approved by them shall be taken to be the correct measurements. The mode of measurements wherever not mentioned in contract documents be taken in accordance with the Indian Standard of Method of measurements of building works (I.S.1200 – 1958) and its revisions, if any. In case of any discrepancy between various contract documents on mode of measurements, the mode given in Bill of Quantities will take precedence over others.

The contractor or his agent may at the time of measurement take such notes and measurements as he may require.

All authorized extra works, omissions and all variations made without the Architect's knowledge, if substantially sanctioned by him in writing shall be included in such measurements.

21. **PRICES FOR SUBSTITUTIONS/EXTRA ETC., ASCERTAINMENT OF:**

No claim for an extra shall be allowed unless it shall have been executed under the authority of the Architect/Consultant with the concurrence of the SBI as herein mentioned. Any such extra is herein referred to as authorized extra and shall be made in accordance with the following provisions.

i)The net rates or prices in the contract shall determine the valuation of the extra work where such extra work is of similar character and executed under similar conditions as the work priced herein.

ii) Rates for all items, wherever possible should be derived out of the rates given in the priced BOQ.

b) The net prices of the original tender shall determine the value of the items omitted, provided if omissions do not vary the conditions under which any remaining items of works are carried out, otherwise the prices for the same shall be valued under sub clause (c) hereunder.

c) Where the extra works are not of similar character and/or executed under similar conditions as aforesaid or where the omissions vary the conditions under which any remaining items or works are carried out, then the contractor shall within 7 days of the receipt of the letter of acceptance inform the Architect/Consultant of the rate which he intends to charge for such items of work, duly supported by analysis of the rate or rates claimed and the Architect/Consultant shall fix such rate or prices as in the circumstances in his opinion are reasonable and proper, based on the market rate.

d) Where extra work cannot be properly measured or valued the contractor shall be allowed day work prices at the net rates stated in the tender of the BOQ or, if not, so stated then in accordance with the local day work rates and wages for the district; provided that in either case, vouchers specifying the daily time (and if required by the Architect/Consultant) the workman's name and materials employed be delivered for verifications to the Architect/Consultant at or before the end of the week following that in which the work has been executed.

e) It is further clarified that for all such authorized extra items where rates cannot be derived from the tender, the contractor shall submit rates duly supported by rate analysis worked on the "market rate basis" for material, labour, hire/running charges of equipment and wastages etc plus 15% towards establishment charges, contractor's overheads and profit. Such items shall not be eligible for escalation.

22. **UNFIXED MATERIALS:**

When any materials intended for the works shall have been placed at site by the contractor, such materials shall not be removed there from (except for the purposes of being used on the works) without the written authority of the Architect and Employer and when the contractor shall have received payment in respect of any certificate in which the architect shall have stated that he has taken into account the value of such unfixed materials on the works such materials shall become the property of the Employer and the Contractor shall be liable for any loss or damage to any such materials.

23. **REMOVAL OF IMPROPER WORK AND MATERIALS:**

The Architect shall, during the progress of the works, have power to order in writing from time to time the removal from the works, within such reasonable times as may be specified in the order, of any materials which in the opinion of the Architect and Employer are not in accordance with the specifications or the instructions of the Architect and Employer; and the substitution with proper materials and the removal and proper re-execution of any work, which has been executed with materials or workmanship, not in accordance with the contract/drawings and specifications or instructions etc., the contractor shall forthwith carry out such orders at his own cost. In case of default on the part of the contractor to carry out such orders, the Employer shall have the power to employ and pay other persons to carry out the same and all expenses consequent thereon or incidental thereto shall be borne by the Contractor, and shall be recoverable from the contractor by the Employer, or may be deducted by the Architect, from any money due or may become due to the contractor for this work or on any other account.

Instead of this procedure for work not done in accordance with the contract, the Architect and Employer may allow such work to remain, and in that case may make allowance for the difference in value together with such further allowance for damages to the Employer, as in his opinion may be reasonable. This allowance shall be recoverable from the contractor by the Employer, or may be deducted by the Architect, from any money due or may become due to the contractor for this work or on any other accounts. The decision of Architects in these matters shall be final and binding on the contractor.

24. **DEFECTS AFTER COMPLETION:**

Any defect, shrinkage, settlement or other faults which may appear within the “Defects Liability Period” stated in the Appendix to General Conditions of Contract on i.e. within 12 months after the virtual completion of the works arising in the opinion of the Architect and the Bank, from materials or workmanship not in accordance with the contract, shall upon the directions and writing of the Architect and Employer and within such reasonable time as shall be specified therein, be rectified and made good by the Contractor at his own cost. In case of default, the Employer may employ any other person to amend and make good such defects, shrinkage, settlements or other faults. All damages, loss and expenses consequent therein or incidental thereto shall be made good and borne by the contractor and such damage, loss and expenses shall be recoverable from him by the employer or may be deducted by the Employer, the damages, loss and expenses from any sums that may be due to the contractor or amount retained under condition 39 (Certificate and Payment).

25. **CERTIFICATE OF VIRTUAL COMPLETION:**

On successful completion of entire works covered by the contract to the full satisfaction of the SBI, the contractor shall ensure that the following works have been completed to the satisfaction of the SBI.

- a) Clear the site of all scaffolding, wiring, pipes, surplus materials, contractor's labour, equipment and machinery.
- b) Demolish, dismantle and remove the contractor's site office, temporary works, structures including labour sheds/camps and constructions and other items and things whatsoever brought upon or erected at the site or any land allotted to the contractor by the SBI and not incorporated in the permanent works.
- c) Remove all rubbish, debris etc from the site and the land allotted to the contractor by the SBI and shall clear, level and dress, compact the site as required by the SBI.
- d) Shall put the SBI in undisputed custody and possession of the site and all land allotted by the SBI.
- e) Shall hand over the work in a peaceful manner to the SBI.
- f) All defects/imperfections have been attended and rectified as pointed out by the SBI to the full satisfaction of SBI.

Upon the satisfactory fulfilment by the contractor as stated above, the contractor shall be entitled to apply to the Architect/Consultant for the certificate. If the Architect/Consultant is satisfied of the completion of the work, relative to which the completion certificate has been sought, the Architect/Consultant shall within fourteen (14) days of the receipt of the application for virtual completion certificate, issue a VCC in respect of the work for which the VCC has been applied.

This issuance of a VCC shall be without prejudice to the SBI's rights and contractor's liabilities under the contract including the contractor's liability for defects liability period nor shall the issuance of VCC in respect of the works or work at any site be construed as a waiver of any right or claim of the SBI against the contractor in respect of works or work at the site and in respect of which the VCC has been issued.

26. **OTHER PERSONS ENGAGED BY THE EMPLOYER:**

The Employer reserves the right to use the premises and any portions of the site for the execution of any work not included in this contract which he may desire to carry out through other persons, and the contractor is to allow all reasonable facilities for the execution of such work, except by special arrangement with the Employer. Such work shall be carried out in such a manner as not to impede the progress of the works included in the contract, and the contractor shall not be responsible for any damage or

delay which may happen to or be occasioned by such work.

27. **INSURANCE IN RESPECT OF DAMAGE TO PERSONS AND PROPERTY:**

The contractor shall, except if and so far as the contract provides otherwise indemnify the SBI against all losses and claims in respect of injuries or damages to any person or material or physical damage to any property whatsoever which may arise out of or in consequence of the execution and maintenance of the works and against all claims proceedings, damages, costs, charges and expenses whatsoever in respect of or in relation thereto except any compensation of damages for or with respect to :

a)The permanent use or occupation of land by or any part thereof.

b)The right of SBI to execute the works or any part thereof, on, over, under, in or through any lands.

c)Injuries or damages to persons or properties which are unavoidable result of the execution or maintenance of the works in accordance with the contract.

d)Injuries or damage to persons or property resulting from any act or neglect of the SBI, their agents, employees or other contractors not being employed by the contractor or in respect of any claims, proceedings, damages, costs, charges and expenses in respect thereof or in relation thereto or where the injury or damage was contributed to by the contractor, his servants or agents such part of the compensation as may be just and equitable having regard to the extent of the responsibility of the SBI, their employees, or agents or other employees, or agents or other contractors for the damage or injury.

The contractor shall be responsible for all injury to persons, animals or things and for all structural and decorative damage to property, which may arise from operation or neglect of himself or any of his or sub-contractor's employees, whether or any other cause whatever in any way connected with the carrying out of this contract. This clause shall be held to include, inter alia any damage to buildings, whether immediately adjacent or otherwise, any damage to roads, caused to the buildings and works forming the subject of this contract by frost or other inclement weather. The contractor shall indemnify the employer and hold him harmless in respect of all and any expenses arising from any such injury or damage to persons or property as aforesaid and also in respect of any claim made in respect of injury or damage under any acts of government or otherwise, and also in respect of any award of compensation or damages consequent upon such claim.

The Contractor shall reinstate all damages of every sort mentioned in this clause, so as to deliver up the whole of the contract works complete and perfect in every respect and so as to make good or otherwise satisfy all claims for damage to the property of

third parties.

The contractor shall indemnify the Employer against all claims which may be made against the Employer, by any member of the Public or other party, in respect of anything which may arise in respect of the works or in consequence thereof and shall at his own cost, effect and maintain until one month after the works are taken over by the Employer or three months after the date of completion of the contract with an approved office, a policy of Insurance in the joint names of the Employer and the contractor against such risks and signing of the contract. The contract shall also indemnify the employer against all claims which may be made upon the Employer whether under the Workmen's compensation act or any other statute in force during the currency of this contract or at common law in respect of any employees of the contractor or of any sub-contractor and shall at his own expense effect and maintain until one month beyond the virtual completion of the contract, with an approved office. A policy of Insurance in the joint names of the Employer and the Contractor against such risks and deposit such policy or policies with the Architects from time to time, during the currency of the contract. In default of the contractor insuring as provided above, the Architect on behalf of the Employer may so insure and may deduct the premiums paid from any money due or which may become due to the contractor.

The contractor shall be responsible for anything which may be excluded from the Insurance Policies above referred to and also for all other damages to any property arising out of and incidental to the negligent or defective carrying out of this contract however, such damage shall be caused.

The Contractor shall also indemnify the Employer in respect of any costs, charges or expenses arising out of any claim or proceedings and also in respect of any Award of or compensation of damages arising there from.

The Employer with the concurrence of the Architect shall be at liberty and is hereby empowered to deduct the amount of any damages, compensations, costs, charges and expenses arising or occurring from or in respect of any such claims of damages from any sums due or to become due to the contractor.

28. **CONTRACTOR'S ALL RISK POLICY:**

The contractor shall within 14 days from the date of commencement of the work insure the works at his cost and keep them insured until one month after the works are taken over by the Employer or three months after the date of completion whichever is earlier, against loss or damage by fire and usual risks other than fire against which insurers generally provide cover in a CONTRACTOR'S ALL RISK POLICY, with an insurer to be approved the Architects, in the joint names of the Employer and contractor (the name of the former being placed first in the policy), progressively for the full amount of the contract, in three stages, beginning with 1/3 of the contract value, and for any further sum as called upon to do so by the Architect, with the prior written consent of the Employer, the premium of such further sum being allowed to

the contractor as an authorised extra. Such policy shall cover the property of the Employer only and Architects and surveyor's fees for assessing the claim and in connection with his services generally in reinstatement and shall not cover any property of the contractor of any subcontractor or employee. The contractor shall deposit the policy and receipts for the premiums paid with the Architects, within twenty one days of the date of commencement of work, unless otherwise instructed, as provided above failing which the employer or the Architect on his behalf may insure and may deduct the premium paid from any money that may be due or that may become due to the contractor. The contractor shall as soon as the claim under the policy is settled, or the work reinstated by the insurers should they elect to do so, proceed with all due diligence with the completion of the works in the same manner as though the fire or other such risk had not occurred and in all respects under the same conditions of contract.

The contractor in case of rebuilding or reinstatement after fire or other such usual risk shall be entitled to such extension of time for completion as recommended by the Architect.

Please refer clause 51 Special Conditions of Contract.

29. **MINIMUM AMOUNT OF THIRD PARTY INSURANCE:**

Such insurance shall be effected with an insurer and in terms approved by the SBI which approval shall not be reasonably withheld and for at least the amount stated below. The contractor shall, whenever required, produce to the Architect/Consultant the policy or policies of insurance cover and receipts for payment of the current premium.

The minimum insurance cover for physical property, injury, and death is Rs.5.00 lakhs per occurrence with the number of occurrences limited to four. After each occurrence contractor will pay additional premium necessary to make insurance valid for four occurrences always.

30. **REMEDY ON CONTRACTOR'S FAILURE TO INSURE**

If the contractor fails to effect and keep in force the insurance referred to above or any other insurance which he may be required to effect under the terms of contract, then and in any such case the SBI at its sole discretion (but not bound to do so) may effect and keep in force any such insurance and pay such premium or premiums as may be necessary for that purpose and from time to time deduct the amount so paid by the SBI as aforesaid and also deduct 15% of contract value from any amount due or which may become due to the contractor, or recover the same as debt from the contractor.

Without prejudice to the other rights of the SBI against contractors, in respect of such default, the Bank shall be entitled to deduct from any sums payable to the contractor

the amount of any damages, costs, charges, and other expenses paid by the SBI and which are payable by the contractors under this clause. The contractor shall upon settlement by the insurer of any claim made against the insurer pursuant to a policy taken under this clause, proceed with due diligence to rebuild or repair the works destroyed or damaged. In this event all the monies received from the insurer in respect of such damage shall be paid to the contractor and the contractor shall not be entitled to any further payment in respect of the expenditure incurred for rebuilding or repairing of the materials or goods destroyed or damaged.

31. **COMMENCEMENT AND COMPLETION:**

The contractor shall be allowed admittance to the site on the “Date of Commencement” stated in the Appendix, and he shall thereupon and forthwith begin the works and shall regularly proceed with and complete the same (except such painting or other decorative work as the Architect may desire to delay) on or before the ‘Period of Completion’” stated in the Appendix to the General Conditions of Contract subject nevertheless to the provisions for extension of time hereinafter contained.

32. **DELAY AND EXTENSION OF TIME:**

If in the opinion of the Architect the works be delayed:

- a. by force majeure, or
- b. by reason of any exceptionally inclement weather, or
- c. by reason of proceedings taken on threatened by or dispute with adjoining or neighbouring owners or public authorities arising otherwise than through the contractor’s own default, or
- d. by the works or delays of the contractors or tradesmen engaged or nominated by the Employer or Architect and not referred to in the Schedule of Quantities and/or specifications, or
- e. by reason of civil, commotion, local combination of workmen or strike or lock-out affecting any of the buildings/traders, or
- f. by reason of the Architect’s instructions as per clause 2, or
- g. In consequence of the contractor not having in due time, necessary instructions from the Architect, for which he shall have specifically applied in writing ahead of time,

giving reasonable time to prepare such instructions.

The Architect shall make a fair and reasonable assessment for extension of time, for completion of the contract works which may be approved by the Employer.

In case of such strike or lock-out, the contractor shall as soon as possible, give written notice thereof to the Architect, but the contractor shall nevertheless constantly use his endeavours to prevent delay and shall do all that may reasonably be required, to the satisfaction of the Architect to proceed with the work.

- h. If, in the opinion of the Architect/Consultant, the work be delayed for reasons beyond the control of the contractor, the Architect/Consultant may submit a recommendation to the SBI to grant a fair and reasonable extension of time for completion of work as per the terms of contract. If the contractor needs an extension of time for the completion of work or if the completion of work is likely to be delayed for any reasons beyond the due date of completion as stipulated in the contract, the contractor shall apply to the SBI through the Architect/Consultant in writing at least 30 days before the expiry of the scheduled time and while applying for extension of time he shall furnish the reasons in detail and his justification if any, for the delays. The architect/consultant shall submit their recommendations to the SBI in the prescribed format for granting extension of time. While granting extension of time the contractor shall be informed the period extended time which will qualify for levy of liquidated damages. For the balance period in excess of original stipulated period and duly sanctioned extension of time by the SBI the provision of liquidated damages as stated under GCC shall become applicable. Further contract shall remain in force even for the period beyond the due date of completion irrespective whether the extension is granted or not.

33. **DAMAGES FOR NON-COMPLETION:**

If the contractor fails to complete the works by the date stated in Clause 31 (date of completion) or within any extended time certified under Clause 32 (extension of time) and if the Architect shall certify in writing on or before the date of issue of the certificate for the last payment to which the contractor may become entitled

hereunder that the works could have been reasonably completed by the said date or within the said extended time, then the contractor shall pay to the Employer or allow the employer to recover from dues to the contractor on any account the sum (liquidated damages and not by way of penalty), subject to a maximum amount of 5% as stated in Appendix of General Conditions of contract and as stated in clause 16 of "Notice to contractors and such damages may be deducted from any money due or which may become due to the contractor.

The deduction of such sums shall not, however, absolve the contractor of his responsibility and obligations to complete the work in its entirety.

34. **No compensation for restrictions of work**

If at any time after acceptance of the tender SBI shall decide to abandon or reduce the scope of work for any reason whatsoever and hence not require the whole or any part of the work to be carried out, the Architect/Consultant 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 work fully but which he did not derive in consequence of the foreclosure of the whole or part of the work.

Provided that the contractor shall be paid the charges on the cartage only of materials actually and bona fide brought to the site of the work by the contractor and rendered surplus as a result of the abandonment, curtailment of the work or any portion thereof and then taken back by the contractor, provided however that the Architect/Consultant shall have in such cases the option of taking over all or any such materials at their purchase price or a local current rate whichever is less.

In case of such stores having been issued from SBI stores and returned by the contractor to stores, credit shall be given to him at the rates not exceeding those at which were originally issued to the contractor after taking into consideration and deduction for claims on account of any deterioration or damage while in the custody of the contractor and in this respect the decision of Architect/Consultant shall be final

35. **FAILURE BY CONTRACTOR TO COMPLY WITH ARCHITECT'S INSTRUCTIONS:**

If the contractor after receipt of written notice from the Architect requiring compliance with such further drawings and/or Architects instruction, fails within seven days to comply with the same, the Architect and Employer may employ and pay other persons to execute any such work whatsoever as may be necessary to give effect thereto and all costs incurred in connection therewith shall be recoverable from the contractors by the employer on a Certificate by the Architect as a debit or may be deducted by him from any money due or which may become due to the contractors.

36. **ARCHITECT'S DELAY IN PROGRESS:**

The Architect may delay the progress of the works in case of rains or otherwise, without vitiating the contract and grant such extension of time with the approval of the Employer for the completion of the contract as he may think proper and sufficient in consequence of such delay, and the contractor shall not make any claim for compensation or damage in relation thereto.

SUSPENSION OF WORKS:

If the contractor, except on account of any legal restraint upon the employer preventing the continuance of the works, or on account of any of the causes mentioned in the clause "Extension of time" or in the case of certificate being withheld or not paid when due, shall suspend works or in the opinion of the Architects, shall neglect or fail to proceed with due diligence in the performance of his part of the contract or if he shall more than once make default in the respects mentioned in Clause 23 (removal of improper work and materials), the Employer through the Architect shall have the power to give notice in writing to the contractor required that the works be provided within a reasonable manner, and with reasonable dispatch, such notice shall not be unreasonably given and must signify that it purports to be a notice under the provisions of this clause and must specify the acts or defaults on the part of the contractor upon which it is based. After such notice shall have been given, the contractor shall not be at liberty to remove from the site of works, or from any ground contiguous thereto, the site of works, or from any ground

contiguous thereto, any plant or materials belonging to him which shall have been placed thereon for the purpose of work, and the Employer shall have lien upon such plants and materials to subsist from date of such notice being given until the notice shall has been complied with, provided always that such line shall not under any circumstances subsist after the expiration of 30 (thirty) day from the date of such notice given, unless the employer shall have entered upon and taken possession of the works and site, as hereinafter provided.

If the contractor shall fail for seven days after such notice has been given, to proceed with the works as therein prescribed, the Employer may enter upon and take possession of the works and site, and of all such plants, machinery and materials thereon intended to be used for the works, and the Employer shall retain and hold a lien upon all such plants, machinery and materials until the work shall have been completed, under powers hereinafter conferred upon him;

If the Employer shall exercise the above power, he may engage any other person to complete the works and exclude the contractor, his agents and servants from entry upon or access to the same, except that the contractor or any person appointed in writing may have access at all times during the progress of the works to inspect, survey and measure the works. Such written appointments or a copy thereof shall be delivered to the Architects before the person appointed comes on to the works and the Employer shall take such steps as in the opinion of the Architect may be reasonably necessary for completion the works, without undue delay or expenses using for that purpose the plant, machinery and materials above mentioned in so far as they as they are suitable and adopted to such use.

Upon the completion of the works, the Architects shall certify the amount of the

expenses properly incurred consequent on and incidental to the default of the contractor as aforesaid and in completion the works by other persons.

Should the amount so certified as the expenses properly incurred be less than amount which should have been due to the contractor upon the completion of the works by him, the difference shall be paid to the contractor by the Employer, should the amount of the former exceed the later, the difference shall be paid by the contractor to the Employer. The Employer shall not be liable to make any further payments or compensations to the contractor for or on accounts of the proper use of the plant for the completion of the works under the provisions herein before mentioned other than such payments as is included in the contract.

After the works shall have been so completed by persons other than the contractor, under the provisions herein before contained, the Architect shall give notice to the contractor to remove his plan and all surplus materials as may not have been used in the completion of the works from the site.

If such plant and materials are not removed within a period of 14 days after the notice shall have been given, the Employer may remove and sell the same, holding the proceeds less the cost of the removal and sale, to the credit of the contractor. The Employer shall not be responsible for any loss sustained by the Contractor from the sale of the plant in the event of the Contractor not removing it after notice.

38. PRIME COST AND PROVISIONAL SUMS:

- a. Where “Prime Cost” (P.C.) prices or provisional sums of money are considered for any goods or works in the specifications or Schedule of quantities or deviations hereof, the same are exclusive of any trade discounts, or allowances, discount for cash, or profit which the contractor may require and or carriage and fixing.
- b. All goods or work, for which prime cost prices or provisional sums of money are considered may be selected or ordered from any manufacturer’s or firms, at the discretion of the Architect or the Employer. The Employer reserves to himself the right of paying directly for any such goods or work and the Architect may deduct the said prices or sums from the amount of the contract. Should any goods or works for which prime cost prices or provisional sums are considered or portions of same be not required, such prices or sums, together with the profits allowed for such additional amount as the Contractor may have allowed for carriage and fixing will be deducted in full, from the amount of the Contract. Whether the goods be ordered by the Contractor or otherwise, the contractor shall at his own cost fix the same, if called upon to do so, and the contractor shall also receive and sign for such goods and be responsible for their safe custody as and from the date of their delivery upon the works.
- c. In cases in which provisional quantities of items/materials are contained in the contract, the contractor shall provide such materials and or execute such items to such amounts or to greater or lesser amounts as the Architect shall direct in his schedule of quantities.

- d. No prime cost sum or sums (or any portion thereof) shall be included in any certificate for payment to the contractor until the receipted accounts relating to them have been produced by the contractor to the Architect. Such accounts shall show all discounts and any sum or sums in respect of such discounts shall be treated as a trade discount. Provided always, that should the contractor in lieu of producing such receipted accounts, request the Architect in writing to issue a certificate to the Employer for such sum or sums, due either on account or in settlement to a sub- contractor direct, the Architect shall, upon satisfying himself that the sub-contractor is entitled to the same, so issue the certificate and such sum or sums be deducted from the amount of the contractor, at the settlement of accounts and any profit or sum to which the contractor is properly entitled, in respect of such sub-contract, and which is in conformity with the terms of contract as though the amount of such certificates to the sub-contractor has been included in a certificate drawn in favour of the contractor.
- e. If the contractor neither produces the receipt nor gives authority to the Architect to issue a certificate in favour of such sub-contractor direct, the Architect may upon giving the contractor SEVEN DAYS NOTICE in writing of his intentions to do so, issue to the sub-contractor such certificate direct to the Employer and obtain a receipt from the sub-contractor, which receipt shall be deemed as a discharge for the amount of such certificates, as though given by the contractor. In such event, the contractor shall not be allowed any profit he may have added in the Schedule of Quantities upon such sub-contract.
- f. The exercise of the option before referred to by the Contractor and the issue of certificates, as before described to sub-contractor direct or certificates by the Architect, shall not however, relieve the contractor from any of the liabilities in respect of insufficient, faulty or in completed work of the sub-contractor for which he may be liable under the terms of the contract.

39. CERTIFICATES AND PAYMENTS:

The contractor shall be paid by the Employer after due checking and after making necessary correction from time to time, by installments under Interim Certificates to be issued by the Architect on account of the works executed by the contractor based on the joint measurements taken by the PMC, the Architects representative and the contractors representative when in the opinion of the Architect, work to the approximate value named in the Appendix to the General Conditions of Contract on as “Value of work for Interim Certificates”, (or less at the reasonable discretion of the Architect & Employer) has been executed in accordance with the Contract, subject however, to a retention of the percentage of such value named in the Appendix hereto mentioned as “Retention Percentage for Interim Certificates”, until the total amount retained shall reach the sum named in the appendix as Total Retention Money, after which time the installments shall be upto the full value of the work subsequently so executed plus such amount as he may consider proper on account of materials

delivered upon the site by the contractor for use in the work and available on the date of billing.

And when the works have been virtually completed and the Architect shall have certified in writing that they have been so completed, the contractor shall be paid by the Employer after satisfying himself in accordance with the certificate to be issued by the Architect, the sum of money named in the Appendix as 'Installment after Virtual Completion' being a part of the said Total Retention Money.

The Contractor shall be entitled to the payment of the final balance (balance security deposit/retention money) in accordance with the final certificate to be issued in writing by the Architect at the expiration of the period referred to as 'The Defects Liquidation Liability period' in appendix on page 10 hereto, from the date of virtual completion or as soon after the expiration of such period as the work shall have been finally completed and all defects made good according to the true intent and meaning hereof, whichever shall happen, provided always that the issue by the Architect of any Certificate during the progress of the works or after the completion shall not relieve the contractor from his liabilities in cases of fraud, dishonesty or fraudulent concealment relating to the works or materials or any matter dealt within the certificate, and in case of all such defects and insufficiencies in the works or materials, which reasonable examination would have disclosed. No certificate of the Architect shall by itself be conclusive evidence that any works or materials to which it relates are in accordance with the contract.

The Architect shall have power to withhold any Certificate, if the works or any parts thereof are not being carried out to his and employers satisfaction. The Architect may by any certificate make any correction in any previous Certificate, which shall have been issued by him. Payment upon the Architect's Certificates shall be made within the period named in the Appendix as 'Period of Honoring of Certificates, after such certificates have been delivered to Employer.

Please refer clause 37 & 46 of Special conditions of agreement.

40. **NOTICES:**

Notices for the Employer, the Architect, or the Contractor may be served personally or by being left at or sent by registered post to the last known place of abode or business of the party to whom the same is to be given or in the case of the contractor by being left on the works. In case of a company or corporation, notices may be served at or sent by registered post to the Registered Offices of the Company or Corporation. Any notice sent by registered post shall be deemed to be served at the time, when in the ordinary course of post it would be delivered.

41. ACTION WHEN THE WHOLE SECURITY DEPOSIT IS FORFEITED

In any case in which under any clause or clauses of this contract, the Contractor shall have rendered himself liable to pay compensation amounting to the whole of his security deposit the Architect/Consultant shall have the power to adopt any of the following course as they may deem best suited to the interest of the SBI.

a)To rescind the contract (of which rescission notice in writing to the contractor by the Architect/Consultant shall be conclusive evidence) and in which case the security deposit of the contractor shall be forfeited and be absolutely at the disposal of SBI.

b)To employ labour paid by the SBI and to supply materials to carry out the work, or any part of the work, debiting the contractor with the cost of the labour and materials (the cost of such labour and materials as worked out by the Architect/ Consultant shall be final and conclusive against the contractor) and crediting him with the value of the work done, in all respects in the same manner and at the same manner and at the same rates as if it had been carried out by the contractor under the terms of this contract the certificate of Architect/Consultant as to the value of work done shall be final and conclusive against the contractor.

c)To measure up the work of the contractor, and to take such part thereof as shall be unexecuted, out of his hands, and to give it to another contractor to complete in which case any expenses which may be incurred in excess of the sum which would have been paid to the original contractor, if the whole work had been executed by him (of the amount of which excess the certificates in writing of the Architects/ Consultant shall be final and conclusive) shall be borne by original contractor and may be deducted from any money due to him by SBI under the contract or otherwise, or from his security deposit or the proceeds of sale thereof, or sufficient part thereof.

In the event of any of above courses being adopted by the SBI the contractor shall have no claim to compensation for any loss sustained by him by reasons of his having purchased or procured any material or entered into any engagements or make any advances on account of, or with a view to the execution of the work or the performance of the contract and in case the contract shall be rescinded under the provision aforesaid, the contractor shall not be entitled to recover or to be paid any sum or any work thereto for actually performed under this contract, unless, and until the Architect/Consultant will have 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.

42. TERMINATION OF CONTRACT BY THE EMPLOYER:

If the contractor being an individual or a firm, commit any act of insolvency, or shall be adjudged as Insolvent or being an incorporated Company shall have an order for compulsory winding up made against it or pass an effective resolution for winding up voluntarily or subject to the Supervision of the Court and of the Official Assignee of the Liquidator in such acts of insolvency or winding up, shall be unable within seven days after notice to him requiring him to do so, to show to the reasonable satisfaction of the Architect that he is able to carry out and fulfill the contract, and to give security thereof, if so required by the Architect.

Or if the contractor (whether an individual, firm or incorporated Co.) shall suffer execution to be issued.

Or shall suffer any payment under this contract to be attached by or on behalf of any of the creditors of the contractor.

Or shall assign or sublet this contract without the consent in writing of the Architects/Employer first obtained.

Or shall charge or encumber this Contract or any payments due or which may be due to the Contract thereunder.

Or if the Architect shall certify in writing to the Employer that the contractor,

- a. has abandoned the contract or
- b. has failed to commence the works, or has without any lawful excuse under these conditions suspended the progress of the works for 14 days, after receiving from the Architect written notice to proceed, or
- c. has failed to proceed with the works with such due diligence and failed to make such due progress as would enable the works to be completed within the time agreed upon, or
- d. has failed to remove materials from the site or to pull down and replace work for 7 days after receiving from the Architect written notice that the said materials or work were condemned and rejected by the Architect under these conditions, or
- e. has neglected persistently to observe and perform all or any of the acts, matters or things by this contract to the observed and performed by the Contractors for 7 days after written notice shall have been given to the contractor requiring the contractor to observe or perform the same, or
- f. has to the detriment of good workmanship or in defiance of the Architect's instructions to the contrary, sublet any part of the contract.

Then and in any of the said cases the Employer with written consent of the

Architect, may notwithstanding any previous waiver, after giving 7 days notice in writing to the contractor, determine the contract, but without hereby affecting the powers of the Architect to continue in force as full as if the contract has not been so determined and as if the works subsequently executed has been executed by or on behalf of the contractor.

And further, the Employer under recommendations of the Architect, by his Agents, or servants may enter upon and take possession of the works and all plants, tools, scaffoldings, sheds, machinery, and other equipment and materials also laying upon the premises or the adjoining lands or roads, and use the same as his own property or may employ the same by means of his own servants and workmen in carrying on and completion the works or by employing any other contractors or other persons to complete the works and the contractor shall not in any way interrupt or do not act, matter or thing to prevent or hinder such other contractor or other persons or person employed for completing and finishing or using the materials and plant for the works. When the works shall be completed or soon thereafter as convenient, the Architect shall give a notice in writing to the contractor to remove his surplus materials and plant, and should the contractor fail to do so, within a period of 14 days, after receipt thereof by him, the Employer shall sell the same by publication and shall give credit to the contractor for the amount realised. The Architect shall thereafter ascertain and certify in writing under his hand when (if anything) what shall be due to or payable by the Employer for the value of the said plant and materials so taken possession of by the Employer, and the expense or loss, which the Employer shall have incurred due to the contractor, and the amount which shall be so certified shall thereupon be paid by the Employer to the contractor or by the contractor to the Employer, as the case may be.

(2) It shall be open for SBI to terminate the agreement on the death, retirement, insanity or insolvency of any person/s, being director/s or partner/s, in the said company / firm or on the addition or introduction of a new partner without the previous approval in writing of SBI. But in the absence of and until its termination by SBI as aforesaid, this agreement shall continue to be of full force and effect notwithstanding any changes in the constitution of the firm by death, retirement, insanity or insolvency of any of its partner or the addition or introduction of any partner. In case of retirement/ death, the surviving or remaining partner of the firm shall be jointly and severally liable for the due and satisfactory performance of the terms and conditions of the agreement”

43. Matters to be finally determined by the Architects and the Bank (Called excepted matters) – (mentioned below), which shall be final, conclusive and binding on the following matters:

- a) Instructions

- b) Transactions with local authorities
- c) Proof of quality of materials
- d) Assigning or underletting of the contract,
- e) Certificate as to the causes of delay on the part of the contractor and justifying extension of time or otherwise,
- f) Rectification of defects pointed out during the defects liability period.
- g) Notice to the contractor to the effect that he is not proceeding with due diligence.
- h) Certificate that the contractor has abandoned the contract.
- i) Notice for determination of the contract by the Employer.

44. ARBITRATION:

Except where otherwise provided in the contract all questions and disputes relating to the meaning of the specifications, design, drawings and instructions herein before mentioned and as to the quality of workmanship or materials used on the work or as to any other question, claim, right, matter or thing whatsoever in any way arising out of or relating to the contract, designs, drawings, specifications, estimates, instructions, orders or these conditions or otherwise concerning the work or the execution or failure to execute the same, whether arising during the progress of the work or after the cancellation, termination, completion or abandonment thereof shall be dealt with as mentioned hereinafter :

i) If the contractor considers that he is entitled to any extra payment or compensation in respect of the works over and above the amounts admitted as payable by the Architect or in case the contractor wants to dispute the validity of any deductions or recoveries made or proposed to be made from the contract or raise any dispute, the Contractor shall forthwith give notice in writing of his claim, or dispute to the Assistant General Manager (Premises& Estate)/Dy.General Manager (Premises) and endorse a copy of the same to the Architect, within 30 days from the date of disallowance thereof or the date of deduction or recovery. The said notice shall give full particulars of the claim, grounds on which it is based and detailed calculations of the amount claimed and the contractor shall not be entitled to raise any claim nor shall the Bank be in any way liable in respect of any claim by the contractor unless notice of such claim shall have been given by the contractor to the Assistant General Manager (Premises& Estate)/Dy.General Manager (premises) in the manner and within the time as aforesaid. The contractor shall be deemed to have waived and extinguished all his rights in respect of any claim not notified to the Assistant General Manager (Premises& Estate)/Dy.General Manager (premises) in writing in the manner and within the time aforesaid.

ii) The Assistant General Manager (Premises& Estate)/Dy.General Manager (premises) shall give his decision in writing on the claims notified by the contractor. The contractor may within 30 days of the receipt of the decision of the Assistant General Manager (Premises& Estate)/Dy.General Manager (premises) submit his claims to the conciliating authority

namely the Circle Development Officer/General Manager (Corporate Services) for conciliation along with all details and copies of correspondence exchanged between him and the Assistant General Manager (Premises& Estate)/Dy.General Manager (premises)

iii)If the conciliation proceedings are terminated without settlement of the disputes, the contractor shall, within a period of 30 days of termination thereof shall give a notice to the concerned Chief General Manager/Dy.Managing Director &Corporate Development Officer of the Bank for appointment of an arbitrator to adjudicate the notified claims failing which the claims of the contractor shall be deemed to have been considered absolutely barred and waived.

iv)Except where the decision has become final, binding and conclusive in terms of the contract, all disputes or differences arising out of the notified claims of the contractor as aforesaid and all claims of the Bank shall be referred for adjudication through arbitration by the Sole Arbitrator appointed by the Chief General Manager/Dy.Managing Director &Corporate Development Officer. It will also be no objection to any such appointment that the Arbitrator so appointed is a Bank Officer and that he had to deal with the matters to which the Contract relates in the course of his duties as Bank Officer. If the arbitrator so appointed is unable or unwilling to act or resigns his appointment or vacates his office due to any reason whatsoever another sole arbitrator shall be appointed in the manner aforesaid by the said Chief General Manager/Dy.Managing Director &Corporate Development Officer. Such person shall be entitled to proceed with the reference from the stage at which it was left by his predecessor.

It is a term of this contract that the party invoking arbitration shall give a list of disputes with amounts claimed in respect of each dispute along with the notice for appointment of arbitrator.

It is also a term of this contract that no person other than a person appointed by such Chief General Manager aforesaid should act as arbitrator.

The conciliation and arbitration shall be conducted in accordance with the provisions of the Arbitration & Conciliation Act 1996 or any statutory modification or re-enactment thereof and the rules made there under.

It is also a term of the contract that if any fees are payable to the arbitrator these shall be paid equally by both the parties. However, no fees will be payable to the arbitrator if he is a Bank Officer.

It is also a term of the contract that the arbitrator shall be deemed to have entered on the reference on the date he issues notice to both the parties calling them to submit their statement of claims and counter statement of claims. The venue of the arbitration shall be such place as may be fixed by the arbitrator in his sole discretion. The fees if any, of the

arbitrator shall, if required to be paid before the award is made and published, be paid half and half by each of the parties. The cost of the reference and of the award (including the fees, if any of the arbitrator) shall be in the discretion of the arbitrator who may direct to any by whom and in what manner, such costs or any part thereof shall be paid and fix or settle the amount of costs to be so paid.

INDEX TO SPECIAL CONDITIONS OF CONTRACT

1. Inspection of drawings
2. Contractor to visit site
3. Execution of work (Prices to include)
4. R.C.C.Work
5. Schedule of Quantities
- 6a. Quantities liable to alterations
 - b. Filling of tenders
7. Access for inspection
8. Dimensions
9. Program of works
10. Offices, Stores, Sheds etc., at the site
11. Water and Electricity
12. Procurement of materials
13. Secured advance for materials on site
14. Facilities to other contractors
15. Testing
16. Testing of concrete
17. Site meetings
18. Custody and security of materials
19. Cement
20. Steel
21. Price variations adjustment for all materials and labour

22. Treasure trove
23. Notices
24. Statutory regulations
25. Measurements to be recorded before work is covered up.
26. Working at night or on holidays.
27. Working on holidays
28. Action where there is no specification
29. Reporting of accident
30. Cleaning the site on completion/determination of work
31. Possession of buildings/work completed
32. Typographic, Clerical and other errors.
33. Information to be supplied by the Contractors.
34. Bench marks
35. Force Majeure
36. Architect's drawings and instructions
37. Completion of work and liquidated damages
38. Bill of payments
39. Workmanship
40. Schedule of quantities
41. Site Supervision
42. Engagement of Apprentices
43. Rates
44. Income tax and works contract tax
45. Extra items rates

46. Service drawings/shop drawings/catalogue
47. Payment
48. Permission
49. Maintaining Registers at site
50. Agreement
51. Insurance
52. Indebtedness and liens
53. Work performed at contractor's risk
54. Photographs
55. Inspection by the Chief Technical Examiner
56. Special conditions of contract
57. B.I.S. Codes
58. As built drawings
59. Occupancy Certificate

SPECIAL CONDITIONS OF CONTRACT

1. INSPECTION OF DRAWINGS:

Before filling in the tender, the contractor will have to check up all drawings and Schedule of quantities, and will have to get immediate clarifications from the Architect on any point, that he feels is vague or uncertain. No claim/damages or compensation will be entertained on this account.

2. CONTRACTOR TO VISIT SITE:

Each tenderer must, before submitting his tender, visit the site of works, so as to ascertain the physical site conditions prices and availability and quality of materials according to specifications before submitting the quotations. No excuse regarding non-availability of any materials or changes in the price will be entertained or extra allowed on that account.

The existing adjacent buildings belonging to Govt/private which are in close proximity of the proposed construction, hence the contractor shall cater for all arrangements to carry out the work without causing any disturbance to the occupants by providing screens with bamboo matting or other suitable material approved by Architects/Engineer. The contractor shall ensure that no dust or construction material falls near/around the existing buildings.

3. EXECUTION OF WORK (PRICES TO INCLUDE):

- i) The whole of the work as described in the Contract (including the Schedule of Quantities, the specifications and all drawings pertaining thereto) and as advised by the Architect & employer from time to time is to be carried out and completed in all its parts to the entire satisfaction of the Architect & Employer. Any minor details of construction, which may not have been definitely referred to in this contract, but which are usual in sound building, road and all construction practice and essential to the work, are deemed to be included in this contract. Rates quoted in the Schedule shall be inclusive of all freights, taxes, such as octroi, , Royalties, duties, excise, turnover tax, on works contract, etc., as well as transportation, so as to execute the contract as per the rules and regulations of Local Bodies, State Government and Government of India. Any increase in these taxes and rates, during pendency of contract, shall be borne by the contractor and no extra claim on this account will be entertained. The rates shall not include GST.

The rates quoted in the tender should also include all charges for:

- a) 1. Carrying
 2. Hauling

3. Labour
 4. Fixing
 5. Watering
 6. Cleaning
 7. Making good and
8. Maintenance etc.
- b) The contractor should arrange timely at his cost for all required.
- i) Plant, machinery, scaffolding, formwork, ladders, ropes, nails, spikes, shuttering, temporary supports, platforms, tools, all materials etc., required for executing the work, and protecting them from weather and other normal/natural causes.
 - ii) Covering/protecting for the walling and other works, during inclement weather, strikes etc., as and when necessary and or as directed.
 - iii) All temporary canvas covers/covering, lights, tarpaulin, barricades, water shoots etc.
 - iv) All stairs and steps, thresholds and any other requisite protection for the works.
 - v) All required temporary weather-proof sheds at such places and in a manner approved by the Architect, for the storage and protection of materials, against the effects of sun and rain.
 - vi) All required temporary fences, lighting/sign-boards etc., guards, approaches and roads as may be necessary for execution of the contract works and for safeguarding the public.
 - vii) The whole of necessary plant and machinery like bull dozers, graders, road rollers, bitumen heating plants, blowers, pumps, concrete mixers, hoists, vibrators, scaffolding, formwork, tackle, cartage, labour etc., and removal of the same at the completion of works.
 - viii) Dewatering by bailing out or pumping out the water from foundation/trenches during the progress of work anywhere on site, to the satisfaction of the Architect & Employer: and clearing of the site.
- c) The Architect & Employer will be the sole judge in deciding as to the suitability or otherwise of the tools/formwork/machinery or plant that may be brought to the work site by the contractor for the proper execution of the work.
- d) The rates quoted by the tenderer in the Schedule of Probable items of work will be deemed to be for the finished work.

4. **R.C.C.WORKS:**

The contractor shall carry out all the RCC works, including formwork, strictly in accordance with drawings, details, relevant BIS specifications, and instructions of the Architects/Employer/Consulting Engineer. If any changes have to be made in the RCC designs, the contractors shall carry out the same without any extra charge.

The Architect & Employer's decision in such cases shall be final and shall not be open to arbitration.

5. **SCHEDULE OF QUANTITIES:**

The Schedule of quantities forms part of the contract, but the Employer reserves the right to modify the same or any part thereof as per variation clause stated herein below. The contractor shall not be allowed any compensation or damages for the work which is so omitted or cancelled or added or substituted by the Architect & Employer.

Please refer clause 4 of General Conditions of Contract.

6. **QUANTITIES LIABLE TO VARY:**

This clause applies for unlimited variations (+ or -) for items of foundations and those executed below plinth level. For all other items, only in case where + variations of any item exceeds 100% of Quantities of respective items given in the schedule of quantities of the contract, such additional quantities of those items shall be treated as extra items and valued as per clause 45 of special conditions of contract, considering of that rates for these items cannot be derived from the contracted items of work.

The quantities indicated in the bill of quantities are only approximate, and hence may vary on either side (+ or -) for accomplishing the works enunciated under the scope of works, in accordance with designs, drawings and specifications and or instructions of the Architect & Employer. Variations may also occur, consequent upon addition or deletion or substitution of particular items, change of designs or specifications during the course of execution. The contractor, in either case, is bound to carryout the modified quantities upto +100% (plus one hundred percent) variation, without any enhancement in rates and at the same rates as per accepted original tendered rates.

Please refer clause 4, 5 & 6 of General conditions of contract.

7. **ACCESS OF INSPECTION:**

The contractor is to provide at all times, during the progress of the works and the maintenance period, means of access with ladders, gangways etc., and the necessary attendants to move and adopt the same as directed for the inspection or measurement of the work by the Architect and Employer or any other agency employed by the

client.

Refer clauses 7, 10 & 12 of General Conditions of Contract.

8. DIMENSIONS:

In all cases figured dimensions are to be accepted in preference to scaled sizes. Large scale details shall take precedence over small scale details/drawings. In case of any discrepancy, the contractor shall ask for a clarification, before proceeding with the work. Accordingly, if any work is executed without prior clarification, it is liable to be rejected and shall not be paid for,

9. PROGRAMME OF WORKS:

The contractor on starting the work shall furnish to the Employer and Architect a PERT/CPM programme, for carrying out the work stage by stage in the stipulated time, for the approval of Architects and Employer, and follow strictly the approved time schedule by incorporating changes, if any, so authorized by the Architect and Employer, to ensure the completion of construction work ins stipulated time. A graph or chart on individual item/group of items/trades of work shall be maintained, showing the progress both in terms of quantities and value, week by week. The contractor shall submit to the Employer and Architect a weekly progress report stating the number of skilled and unskilled labourers employed on the work, working hours done, quantity of cement, steel and other major items of materials

(quantity and value wise) used and corresponding place, type and quantity of work done during the period.

The contractor must inform the Architects, 10 days in advance of requirement of respective drawings and details by him, from time to time. The contractor shall strictly adhere to the approved programme and arrange for the materials and labour etc., accordingly.

Despite repeated instructions, if the contractor fails to show satisfactory progress of the work, the Employer/Architect may take suitable action as deemed fit, including levying of liquidated damages not exceeding ½% of contract price for delay of every week or part thereof, subject to a limit of total liquidated damages levied under this clause to 5% of contract price without prejudice to any terms and conditions of the contract.

Please refer clause 29 & 30 of General Conditions of contract.

10. OFFICES, STORES, SHEDS ETC.. ON THE SITE:

a The contractor shall erect and maintain entirely at his own expense properly

lighted, ventilated waterproof and lockable aircooled offices for the Architect's/ Employers representatives and for his own staff respectively on such parts as the Architects shall indicate. Separate offices for Architects and Employers representatives shall be constructed having minimum area of 20 Sqm, as per the sketch plan and specifications, which will be given by the Architects before starting the work. Contractor shall also provide and maintain, at his own cost, adequate water supply, closets and sanitary accommodation for exclusive use of Architect & Employer's representatives at site. In case, these offices have been provided with AC/GI sheet roofing, the same shall have false ceiling as directed. These offices shall be provided by the contractor with adequate numbers of windows, tables, chairs, steel cupboards, fans, lights and attendants etc., as directed by the architects. Necessary permission from various authorities will be obtained by the contractor and necessary fees shall be paid by the contractor prior to constructing such offices, and as well for stores, huts for labourers or any other temporary structures required for the due execution of work. Any penalty levied by local authorities, for not following their bye- laws/regulations etc., in the matter, will be borne by the contractor. The contractor shall pay for the Electricity and Water charges consumed. All these offices shall be demolished and the materials shall be taken away from site and ground left in good and proper order on completion of work, as required and directed.

- b. The contractor shall provide for all necessary storage on the site, in a specified area for all materials, in such a manner that all such materials, tools etc., shall be duly protected from damages by weather or any other cause. Stores for storage of cement shall have all weather proof floors, walls and roof and have proper locking arrangements and must be secure. All these must be maintained till the work is completed and so certified by the Architect. Necessary and adequate watch and ward for all such

accommodations and stores shall be provided for by the contractor at his cost and same included in the rates/amounts quoted by him. All such stores shall be cleared away and the ground left in good and proper order on completion of this contract unless otherwise expressly mentioned herein.

- c. All materials which are stored on the site such as cement, brick, metal sand etc., shall be stacked in such a manner as to facilitate rapid and easy checking of quantities of such materials and prevent deterioration in quality due to water etc.
- d. In addition to the offices provided to Architect's Employer's representative, contractor shall provide accommodation for Project Management Consultants as specified.

11. WATER AND ELECTRICITY:

Contractor shall make his own and adequate arrangements for water required for drinking and construction purposes and also for required electric supply at site for satisfactory execution and completion of the work, at his own cost. The contractor shall get the water used for construction purpose tested periodically as per relevant BIS codes at his cost, and shall get the same approved from Architect and clients before using such water for the work.

12. PROCUREMENT OF MATERIALS:

Contractor shall procure all the materials including cement and steel required for the work from the open market. Time is the essence of the contract. Acceptance of the completion date by the contractor shall mean that he has taken into consideration the availability of all materials of approved make and quality in sufficient quantities at respective markets/sources, to enable him to complete the entire work in the stipulated period.

Contractor will get samples of all materials approved by the Architect and employer, before placing order/purchase/procurement. They shall conform to relevant B.I.S. codes and or tender specifications as applicable.

For all materials, the contractor shall quote for the best quality of the materials of best make/source or supply and they should be got approved by the architect and employer, before procurement.

In case sufficient quantities of approved quality materials from approved sources are not available in time, contractor may have to procure the same from neighbouring areas even with longer leads, as required and directed, at no extra cost. In case approved good quality sand is not available consistently throughout the duration of the contract period, best quality of sand locally available may have to be screened and washed, as directed by the Architect and Employer depending upon the use of sand in different items of work, at no extra cost. The materials will be, however as per relevant I.S.S. as and wherever applicable.

Please refer clause 9 of General Conditions of contract.

13. SECURED ADVANCE FOR MATERIALS ON SITE:

The contractor will be paid secured advance against the materials required and brought and stacked safely and securely at site for consumption within 45 days. The advance paid shall be limited to 75% of the cost (limited to costs of materials based on quoted and approved rate for relevant items of work) of the materials stacked at site, and the contractor shall produce necessary cash vouchers/documents in support of the cost of each of such materials for each consignment. In case of sanitary, Water supply and electrical materials, the advance will be restricted to 65% of the quoted rates for the relevant items in the tender and not exceeding 75% of the cost of those materials in the market. Whenever payment is made on stack measurement basis, necessary

deductions for voids will be made, which shall be applicable both for advance and/or for final payment, wherever applicable. These materials shall be stacked on fairly level ground and at safe and secure places, as directed. No secured advance will be paid for materials brought prematurely to the site.

The materials against which advance is paid, shall be the property of the Employer and shall not be removed from the site, without written permission of the Architect & Employer. However, the security of these materials and preventing deterioration of quality of same shall be the sole responsibility of the contractor. The materials shall also be in conformity with the contract specifications and of approved quality/make/brand etc.

The secured advances shall be recovered in the next immediate interim bill.

These advances shall be made on the basis of the quantity of each of the materials lying at site, at the time of preparation of respective interim bill. For all such advances claimed/proposed, the Contractor shall sign an indemnity bond for each of such interim bills, in favour of the Bank, against any loss either due to theft or fire etc. The format shall be finalised in consultation with Architect/Engineer.

14. FACILITIES TO OTHER CONTRACTORS:

The contractor shall provide and maintain at his own cost and expense adequate closet and sanitary accommodation for the use of his workmen and others in accordance with the rules and regulations of the relevant local authorities.

The contractor shall give full facilities and co-operation to all other contractors working at site doing plumbing, Electrical, civil works etc., as directed by the Architect & Employer and shall arrange his programme of work, so as not to hinder the progress of other works. The decision of the Architect & Employer, on any point of disputes between the various contractors, shall be final and binding on all parties concerned.

15. TESTING:

The contractor shall, as and when directed by the Architect & Employer, arrange to test materials and/or portions of the work at site in any approved laboratory at his own cost, in order to provide their soundness and efficiency. The contractor shall transport all the materials from site to the approved laboratory at his own cost. The contractor shall carryout all the mandatory tests as per list attached at the frequencies stated therein. Even after such tests, any materials brought to site or incorporated in the works are found to be defective or unsound or not as per approved samples, the contractor shall remove the same and re-erect at his own cost and without any additional time/period for the same, with reference to the date fixed for completing the work. In case these tests are not carried out at the frequencies stated, then proportionate costs of materials not so tested, including cost of testing and quantities of items of work executed with such materials, if otherwise accepted for retention in

the work, will be deducted from the dues to the contractor. The deductions will be worked out by the Architect/client and shall be final and binding on him.

Tolerance on various material and items of work shall be allowed laid down in the documents below and the order of precedence shall be:

- a) Relevant Indian Standards Specifications.
- b) CPWD norms.
- c) Manufacturer's Specifications.

In absence of above Architect's decision basing on the general practice being following shall be final.

16. TESTING OF CONCRETE:

The contractor shall make his own arrangements for testing of the concrete blocks at site or in any approved laboratory from time to time, as required by the Architects/ Employer and all the costs of testing and conveyance shall be borne by the Contractor. At least, six blocks of 150 x 150 x 150mm per 20 cum of RCC work or part thereof, for each day's work (subject to the condition that a minimum quantity of 0.5 cum of particular grade/type of concrete is laid on that day) must be taken in steel moulds as directed and tested. The Architect & Employer reserves the right to test the blocks at the cost of the contractor, in the event of the contractor failing to do so. It shall be contractor's sole responsibility to ensure that the blocks are cast, got tested from specifically approved laboratory/test house etc., in time and results reach the Architect, well before measurements for the corresponding work are to be recorded. For any failure in this regard, shall result in rejection of corresponding work (for which the blocks were not cast and or tested in time) and such work shall be dismantled fully along with linked up works and redone to required specifications/quality etc., EXCLUSIVELY at contractor's cost. Without any addition time beyond the stipulated/extended time for completion, as the case may be. Application of clauses 15 above in such cases shall EXCLUSIVELY rest within the discretion of the Architect.

17. SITE MEETINGS:

A senior representative of the contractor shall attend weekly meetings at works site; and in additions, meetings as and when arranged by Architect & Employer to discuss the progress of the work and sort out problems, if any, and ensure that the work is completed in the stipulated time.

18. CUSTODY AND SECURITY OF MATERIALS:

The contractor shall be responsible for the custody and security of all materials and equipment at site and he will provide full time watchman/watchmen to look after his materials, stores, equipments etc., including cement and steel at site and ensure that at no time unauthorised persons gains any access at works site.

19. CEMENT:

Cement shall be procured by the Contractor from the manufacturers only; however in case of urgency smaller quantity of cement say less than one lorry can be purchased from authorized dealers after getting the make and quality approved by the Employer and Architect. The brands shall be **ULTRATECH/BIRLA/LAFARGE/JK** or any other manufacturer as approved by Architect and the Bank. The contractor should purchase the cement in adequate quantity, quite in advance, in order to have sufficient stocks (not less than the requirement of next fortnight) at site all the time. He will construct cement storage shed of adequate capacity with water tight walls, floor, roof and secure locking arrangements and locking as required and directed. Empty bags will be contractor's property. Contractor's Site Engineer shall maintain cement account at site, showing cement received with details of invoices, etc., quantity used daily (with brief details of items/location of works on which used), and progressive consumption and balance at site. This register will be checked periodically by Architect & Employer representative. Actual cement consumption will be periodically checked with the theoretical cement consumption. 75% secured advance will be paid to the contractor in his corresponding interim bills, for the cement laying unused at site and in good condition. Damaged cement will not be allowed to be used in work. Transportation of cement, within the site, will be carried out by the contractor, as and when required, at not extra cost. The secured advance paid in any bill will be fully recovered in the next bill.

20. STEEL:

Steel shall be procured by the contractor from **SAIL/TISCO/JSW** or any other manufacturer as approved by Architect. The contractor shall produce necessary cash vouchers in support of the purchases and also test certificates, for conforming the quality. All wastages, rolling margins, site to site transportation shall be borne by the contractor. Contractor shall maintain at site, steel account showing – steel received at site (consignment wise and section wise) and steel used (section wise) for work corresponding to each of the bills, etc., which shall be subject to checking by client/Architect 75% of the value of the steel physically available at site in good condition and quantities limited to actual requirements of next 30 days (reckoned from date of corresponding bill) plus 1% for wastage and variation will be paid. This exercise is to be section-wise. Theoretical quantity of consumption of steel shall be actual quantities measured plus 10% towards wastages and variations (rolling margins) and on this basis, balance quantities at site may be provisionally arrived at. All scrap steel at site and unused steel at site to the extent not required on the work shall be contractor's property and contractor will be allowed to take it away after measurements/weight, and after getting necessary permission in writing from the Architect & Employer. In case of any discrepancy between the actual quantity of steel lying at site and the balance quantity as per record, the decision of the Architect/client shall be final and binding. The secured advance paid in any bill will be fully recovered in the next bill.

21. PRICE VARIATION ADJUSTMENT (PVA) FOR ALL MATERIALS

(INCLUDING CEMENT & STEEL) & LABOUR

(Applicable only for completion period beyond 12 months)

In partial modification of the provisions made elsewhere in this contract regarding rate quoted being not subject to any variations, price adjustments to the value of work payable to the Contractor at tendered rates shall be made towards variations in the prices of materials and labour in the manner specified hereunder: -

If, after written order to commence the work and during the operative period of this contract including any authorized extensions of the original stipulated completion period:-

- (a) There be any variation in the Consumer Price Index- General Index- for industrial workers (Base 1982=100) (source – data published from time to time Indian Labour Journal by the Labour Bureau, Government of India);

OR

- (b) There be any variation in the All India Wholesale Price Index for all commodities (Base 1993-94=100) (as published from time to time in the RBI Bulletin based on the date issued by the Office of the Economic Advisor to the Government of India);

Price Variation Adjustment (PVA) towards (1) Labour Component and (2) Material Component shall be calculated in accordance with the formula A and B respectively, given below, subject to stipulations herein under mentioned:-

FORMULA (A) FOR LABOUR:

$$VL = \frac{0.85P \times K1 \times (C1 - C0)}{100C0}$$

FORMULA (B) FOR MATERIALS:

$$VM = \frac{0.85X (P-Y) \times K2 \times (I1 - I0)}{100 I0}$$

Where-

VL = Amount of Price Variation Adjustment

Increase or decrease in rupees due to labour component

VM = Amount of Price Variation Adjustment

Increase or decrease in rupees on account of materials component

NOTE: Bill period (noted hereunder) signifies the period of actual execution and not date of measurement or preparation of bill.

P = Cost of work done during the period under consideration (bill period) excluding advances on materials and/or adjustments thereof.

Y = Cost of any other materials supplied/ arranged by the Bank at fixed price during the period under consideration (bill period)

K1 = Percentage of labour component calculated as indicated in Note (1) below

K2 = Percentage of materials component as indicated in Note (2) below.

CO = Consumer Price Index – General Index Number for industrial workers (Base 1982 = 100) referred to at (a) above, ruling on the last due date of receipt of tenders, and as applicable to the centre, nearest to the place of work, for which the index is published)

C1 = Average of above mentioned Consumer Price Index number during the period under consideration (bill period)

I0 = All India Wholesale Price Index number for all commodities referred to at (b) above, ruling on the last date for receipt of tenders and as applicable to the centre, nearest to the place of work for which the index is published.

I1 = Average of above mentioned monthly all India Wholesale Price Index numbers during the period under consideration (bill period)

NOTE (1) : K1 shall be taken as under:-

<u>Component of work</u>	K 1
a) Civil work including ancillary works and external work and RCC / tanks, septic tanks, etc. if any of sanitary and plumbing work	30
b) Sanitary and plumbing works including fittings and fixtures (internal work only)	20
c) Electrical installations work including fittings and fixtures (external and internal works)	20

NOTE (2) : K2 shall be taken as under:-

<u>Component of work</u>	K 2
a) Civil work including ancillary works as detailed under Note (1) (a) above	70
b) Sanitary and plumbing works including fittings and fixtures as detailed under Note (1) (b) above	80
c) Electrical installations work including fittings and fixtures as detailed under Note (1) (c) above	80

Stipulations:

- (i) PVA Clause is operative either way i.e. if the variations in above referred price indices are on the plus side. PVA shall be payable to the contractor and if they are on the negative side PVA shall be recoverable from the contractor for the respective bill period of occurrence of fluctuations.
- (ii) The rates quoted by the Contractor shall be treated as firm for the value of work required to be done in the first 12 months of the contract period from the date of written order to commence work and no PVA is admissible on the same on any grounds whatsoever. The value of work required to be done during the first 12 months of the contract period shall be taken as 80% of the value of work to be done on pro-rata basis in 12 months as compared to the total stipulated completion period. No PVA is admissible on the value of work required to be done in first 12 months as worked out above, even if this value of work is actually done in a period longer than 12 months. However, in case of any delay in the first 12 months due to genuine reasons which are not attributable to the contractor and which are beyond his control, such period of delay will be deducted from 12 months, and the value of work to be done will be 80% of the pro-rata value of work to be done in such reduced period on pro-rata basis.
- (iii) (a) For works where the original stipulated period of completion is not more than 12 months, no PVA whatsoever is permissible under this clause. However, if the period of completion is delayed beyond 12 months on account of genuine reasons which are not attributable to the contractor and which are beyond his control, PVA will be admissible on the value of work done only in excess of value of work required to be done on a prorata basis in the first 12 months minus the period of such genuine delay.

- (b) For purpose of admissibility of PVA all the cumulative period of extensions granted for reasons which are solely attributable to the contractor is excluded from the total extended period of the contracts and PVA shall not be admissible on the value of work done during such period of extensions, which are granted for keeping the contract current, but only due to reasons for which the contractor was solely responsible. Periods of extensions granted on account of genuine reasons which are not attributable to the contractor and which are beyond his control will however, be included in the period for which PVA is admissible.
- (c) Notwithstanding anything to the contrary mentioned in any other clause/ clauses of the contract, extensions of the contract period shall be granted by the Architect only with prior approval of the Bank. Extensions granted by the Architect without Bank's prior approval shall not bind the Bank for payment of PVA for work done in the concerned period of extensions. In case, extension of time granted by the Bank, the contractor shall not automatically be eligible for claiming PVA for the period of extension.
- (iv) (a) Where the total cost of work done beyond the value of work required to be done in the first 12 months (vide note (ii) and (iii) above does not exceed Rs.50 lacs the total amount of PVA worked out on the basis of provisions of foregoing stipulations will be limited to an upper ceiling of 10% of such value of work done in excess of value of work required to be done in the first 12 months, minus the cost of any materials issued/arranged by the Bank at fixed prices i.e. $P - Y$ (these terms being as per definitions given formulae A and B above).
- (b) Where the total value of work done beyond the value of work required to be done in the first 12 months exceeds Rs.50 lacs, the PVA on the first Rs.50 lacs will be calculated as provided for in the foregoing para and for the balance value of work done for which PVA is admissible subject to foregoing conditions, the PVA will have the upper ceiling of 10% but it will be worked out at a lower rate i.e. 80% of the amount worked out as per the formulae A and B referred to earlier.
- (v) In working out the amount of PVA as per all the foregoing stipulations, value of such extra items or such portions of extra items the rates of which are derived from the prevailing market rates of materials and labour will not be included in the value of work done . Value of only such extra items or such portions of extra items, rats of which are derived entirely from tendered rates will be included in the value of work on which PVA as calculated.
- (vi) For claiming the payment for PVA the contractor shall keep such books of accounts and other documents, vouchers receipts etc. as may be required by the Bank/Architect, for verification of the increased claims or reduction to be made as the case may be and he shall also allow Engineers and/or other duly authorized representatives of the Bank/Architects and furnish such information as may be

required or called for to enable verification of the claim within a week of such request.

(vii) The contractor is required to submit to the Bank, through the Architect, his claims for PVA separately for each running Bill for the individual bill periods for the work paid to him by the Bank. He will also be required to submit detailed calculations in support of the claims.

(viii) No claim will be entertained from the contractor for interest or any other grounds for non-payment or for any delay in payment of PVA due to late publication or non-availability of the necessary price indices or due to delay in preparation of the Running or Final Bills.

(ix) In view of adjustments for variations in process of materials and labor which have been covered in this clause no other adjustments for any reason whatsoever like statutory measures, taxes, levies, etc. will be allowed.

22. TREASURE TROVE:

Should any treasure, fossils, minerals, or works or art of antiquation interest be found during excavation or while carrying out the works, the same shall be the property of the Employer. The Contractor shall give immediate notice to the Architect & Employer about finding of any such treasure and hand over the same on demand to the Employer.

23. NOTICES:

The contractor shall give all notices and pay all necessary and relevant fees and shall comply with all Acts and Regulations, for the successful completion of the contract work.

Please refer clause 8 of General Conditions of Contract.

24. STATUTORY REGULATIONS:

The whole of the work including sanitation and electrical is to be complied with, as per the requirements and bylaws of the relevant statutory authorities, including Contract Labour (Regulation and Abolition) Act, 1970.

25. MEASUREMENT TO BE RECORDED BEFORE WORK IS COVERED UP:

The contractor shall take joint measurements with the Employer's representative

(Project Management Consultant or any Engineer identified by the Bank) and Architect's representative before covering up or otherwise placing beyond the reach of measurement any item of work. Should the contractor neglect to do so, 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.

Refer clause 20 of General Conditions of Contract.

26. WORKING AT NIGHT OR ON HOLIDAYS:

The contractor can carry out major work at night, only with prior permission of the Site Engineer of Employer/Architect and with proper supervision. However, all concrete work will be carried out only during the day light.

WORKS AT NIGHT:

If the contractor is required to do preliminary works at night, in order to complete the work within the Time Schedule, the contractor shall provide and maintain at his own cost necessary and sufficient barricades/lights etc., to enable the work to proceed satisfactorily without danger. Approaches to the site also shall be sufficiently lighted by the contractor.

27. WORKING ON HOLIDAYS:

No work shall be done on Sunday or other Bank holidays that may be notified by the Architect & Employer, without the specific sanction in writing of the Architect & employer or his representatives.

28. ACTION WHERE THERE IS NO SPECIFICATION:

In case of any item/class of work, for which there is no specification mentioned (either in part or full), the same will be carried out in accordance with the relevant CPWD specifications (only for the specifications missing in the contract) and if not available even there (either in part or full) in, relevant standards of BIS shall be followed (only for the portions of specifications missing in the contract specifications and CPWD specifications). Indian standard specifications, subject to the approval of the Architect & Employer.

29. REPORTING OF ACCIDENT TO:

The contractor shall be responsible for the safety of all persons employed by him on the works and shall report serious accidents to any of them, whenever and wherever occurring on the works, to Employer who shall make every arrangement to render all possible assistance. This shall be without prejudice to the responsibility of the Contractor, under the Insurance clause of the General Conditions. Contractor shall

take all the precautions as detailed in the safety code attached separately.

30. **CLEARING THE SITE ON COMPLETION/DETERMINATION OF WORKS:**

The contractor shall clear the site of works as per the instructions of the Architect. The site of works shall be cleared of all men, materials, sheds, huts etc., belonging to the contractor. The site shall be delivered in a clean and neat condition, as required by Architect, within a period one week after the job is completed. In case of failure by the contractor, the Employer, under advice to the Architect, have the right to get the site cleared to his satisfaction at the risk and cost of the contractor.

31. **POSSESSION OF BUILDINGS/WORK COMPLETED:**

The contractor shall hand over to the Employer possession of the completed works in stages, as and when required, and as directed by the Architect & Employer.

The Employer will take over the possession of completed works in stages as directed by the Architect, and defects liability period will commence only from the date of final handing over of all the work accordingly.

32. **TYPOGRAPHIC, CLERICAL AND OTHER ERRORS:**

The Architects/Employer's clarification regarding partially omitted particulars or typographical, clerical and other errors shall be final and binding on the contractors.

33. **INFORMATION TO BE SUPPLIED BY THE CONTRACTOR:**

The contractor shall furnish to the architect & Employer the following from time to time:

- a. Detailed industrial statistics regarding the labour employed by him, etc., every month (within 5th of succeeding month),
- b. The Power of Attorney, name and signature of his authorised representative, who will be in charge for the execution of work.
- c. The list of technically qualified persons (to be approved by the Architect) employed by him for the execution of the work within 15 days from date of start of work,
- d. The total quantity and quality of materials used for the works, every month within 5th of succeeding month.

- e. The list of plant and machinery employed for this work, every month. Copy of log books shall also be submitted every month (within 5th of succeeding month).

Failure to submit any of these details in time, shall be treated as a breach of the contract and likely to result in,

- i) Levying a fine of Rs.500 for each default for each month, and or
- ii) Withholding payments, otherwise due.
- iii) For the periods for which name of technically qualified persons are not given or for which such persons are not employed, recoveries shall be made at Rs.7,500/- per month for each month of default.

In all these matters the decision of the Architect shall be final and binding.

34. BENCH MARKS:

The contractor shall construct and maintain proper benches at different places at site as required and directed by the Architect, so that levels can be checked accurately at all times during the progress of work. In case benches are disturbed for any reason whatsoever, necessary rectification shall be carried out by the contractor at his cost as directed by the Architect & Employer.

35. FORCE MAJEURE :

Neither party shall be held responsible by the other for breach of any condition of this Agreement, attributable to any "Act of God", Act of State, Strike, lock-out or control or any other reason, beyond the control of the parties and any breach of clauses arising from such Force Majeure conditions as aforesaid shall not be regarded as breach of the provisions of this Agreement.

36. ARCHITECT'S DRAWINGS AND INSTRUCTIONS:

A set of major drawings, along with the contract documents shall be provided to the contractor. If any clarification or further drawings are required by the Contractor during or before the start of construction work, the contractor shall inform the Architects and the Bank sufficiently in advance in writing to provide the same. Working details will be given to the Contractor from time to time, during the progress

of work, as and when required. In case, any other drawing/detail is required by the contractor, he will give a minimum of fifteen days notice to the Architect.

37. COMPLETION OF WORK AND LIQUIDATED DAMAGES:

The work shall be completed in **18 months**, and reckoned as under:

(a) The day two weeks from the date of issue of work order.

or

(b) The day on which the contractor receives the possession of the site – whichever is later.

or

(c) The contractor is asked in writing to take over the possession of the site. Time is the essence of the Contract. The Contractor shall strictly adhere to the programme/chart agreed to. In case the contractor fails to complete the work as mentioned above, the liquidated damages may be imposed at the rate of 0.5% per each week (or part thereof) of delay, subject to a maximum of 5% of contract amount.

38. BILLS OF PAYMENTS:

The minimum value of work for interim payments will be Rs.75.00 lakhs, as stated in Appendix. The contractor shall submit interim bills, once a month on the basis of joint measurements recorded at site by the contractor's Employer's and the Architects representatives. The bill will be certified by the Architect within 15 working days from the date of submission of the bill by the contractor, and the Employer will make payment as stated in the Appendix to General Conditions of Contract. All such interim payments shall not be considered as an admission of the due performance of the contract or any part thereof in any respect and shall not preclude the requiring of bad unsound and imperfect or unskilled work to be removed and taken away and reconstructed or re-erected at contractor's cost, all as per Employer and Architect's instruction and directions.

39. WORKMANSHIP:

Quality of materials and workmanship shall conform strictly to specifications given/stipulated in the tender/contract, and contractor will ensure that the best quality of work will be done to the satisfaction of the Architect and Employer, with strict control on the materials, workmanship and supervision.

Refer clause 9 of General Conditions of Contract.

40. SCHEDULE OF QUANTITIES:

Quantities mentioned in the Schedule of Quantities, included in the contract, are approximate and are subjected to variations as per actual site conditions & requirements and as directed by the Architect & Employer. The work shall be executed and completed accordingly.

Refer clause 4, 5 and 6 of General Conditions of Contract.

41. SITE SUPERVISION:

The contractor shall appoint at his own cost competent and adequate number of qualified Engineers at site, for (1a) joint measurements and preparations of bills. (2b) for testing materials at site and outside laboratory. (c) for concreting and reinforcement work. (d) for other general supervision. Their appointment shall be approved by the Architect & Employer. The site engineers shall not be removed from the site without the written consent of the Architect & Employer.

See clause 33 above also.

42. ENGAGEMENT OF APPRENTICES:

The Contractor shall during the currency of the contract, when called upon by the clients, engage and also ensure engagement by sub-contractors and others employed by the contractor in connection with the works such number of apprentices in the categories mentioned in the act and for such period as may be required by the clients. The contractor shall train them as required under the Apprentice Act 1961 and the Rules made thereunder and shall be responsible for all obligations of the clients under the said Act, including the liability to make payment of apprentices, as required under the said Act.

43. RATES:

- It is Item rate tendering process
 - In case, the Lowest Tendered Amount (i.e. Item rate Bid quoted) of two or more contractors is same, such lowest contractors will again be asked to submit sealed / online "Revised I Item rate quotation) offers" but the revised amount quoted shall, in no case, be higher than the amount quoted during their initial offer for the project. The lowest tender shall be decided on the basis of revised offers.
 - The process of online re-bidding amongst Two or more contractors offering same rates shall continue till L-1 bidder is discovered
 - In case, any of such contractor(s) (quoted same tender amount during initial bidding or subsequent re-bidding) refuses to submit revised offer,

it shall be treated as "withdrawal of tender" by the Contractor before acceptance.

- In case all the lowest contractors those have quoted same tendered amount, refuse to participate in online revised bidding process for the project, the tenders shall be re-invited afresh for the project.
- The Contractor(s), who not submitted of revised offer, shall not be allowed to participate in the re-tendering process of the work given.
- The rate quoted shall be firm and shall include all costs, allowances, taxes, levies, etc. except GST. (GST will be paid extra as applicable)

44. INCOME TAX AND GST :

Income tax shall be deducted at source by the client from the contractor's interim and final bill payments as required by law. And GST Will be paid Extra.

45. EXTRA/SUBSTITUTED ITEM RATES:

Such items shall be executed as per directions/instructions of the Architects of the employer.

The work on extra/substituted items shall be started only after the receipt of written order from the client/Architect. Rates for additional/extra or substituted (altered) items of work, which are not covered in the contract cannot be derived from the contract item rates either in full or partly, shall be calculated on the basis of actual costs plus 15% for overhead and profit etc., only to the extent not derivable from the contract item rates.

46. SERVICES DRAWINGS/SHOP DRAWINGS/CATALOGUE:

After getting approval from the Architect & Employer, the contractor shall submit to the concerned local authorities necessary services drawings showing layouts etc., for getting approval of the schemes. On completion, the contractor shall arrange to get Drainage Completion Certificate and other Certificate necessary for obtaining Building Completion certificate. The contractor shall furnish completion drawings of all services in triplicate, showing the work as actual executed, along with levels. Contractor shall submit for approval 4 copies of shop drawings/ catalogue/ equipment characteristics/ manufacturer's specifications, drawings etc., as and when required and directed by the Architect & Employer. Costs of all these are deemed to have been included in the respective item rates quoted by the contractor and nothing extra shall be paid on account of any of these requirement/acts.

47. PAYMENT:

No payment whatsoever shall be made by the Employer, if the Contractor abandons the work, due to any site difficulties etc.,

48. PERMISSION:

The contractor shall also obtain necessary permission for using explosive (if required and specifically permitted by the Architect and Employer in writing), as per rules and regulations of relevant authorities, and all other approvals from the relevant authorities shall be obtained by the contractor at no extra cost.

49. MAINTAINING REGISTERS AT SITE:

The contractor shall maintain registers for consumption of various specials, testing of materials etc., in the proforma which shall be given by the Architect & Employer from time to time.

50. AGREEMENT:

The successful contractor shall be required to enter into an agreement in accordance with the Draft Agreement and Schedule of Conditions etc., within 15 days from the

date the contractor is advised by the Architect & Employer that his tender has been accepted. The contractor shall pay for all stamps and legal expenses incidental thereto. However, the written acceptance of the tender by the Employer, will constitute as a binding contract between the Employer and contractor, whose tender has been accepted, whether such formal agreement is or is not subsequently executed.

51. INSURANCE:

The contractor shall provide insurance in respect of damage to persons and property and firm insurance as per clause 27 and 28 of General conditions of contract. In addition he will also insure against riots and civil commotion. The insurance shall also cover third party and all the persons working at site and visitors including contractor's, worker's, Architect's and clients people, other contractor's workers etc. The contractor shall indemnify the Employer against any claim or compensation or mishaps of whatsoever nature at site during the progress of work.

The contractor shall prove to the Architect/Client from time to time that he has taken out all the insurance policies as required and directed and has paid the necessary premium for keeping the policies valid as per clause 27 & 28 of the General

Conditions of Contract.

In case of failure by the Contractor or sub-contractor to effect and keep in force the insurance policies, then the client, without being bound to, may pay such premiums as may be necessary and deduct the same from any money due or which may become due to the contractor or recover the same as a debt due from the contractor.

52. INDEBTEDNESS AND LIENS:

The contractor agrees to furnish the Employer from time to time, during the progress of the work as requested, verified statement showing the contractor's total outstanding indebtedness in connection with the work covered by the contract. Before final payment is made, the Employer may require the contractor to furnish the Employer with satisfactory proof that there are no outstanding debts or liens in connection with the contract. If during the progress of the work, the contractor shall allow any indebtedness to accrue to sub-contractor or other and shall fail to pay or discharge same within five (5) days after demand, then the Employer may withhold any money due to the contractor until such indebtedness is paid, or apply the same towards the discharge thereof.

53. WORK PERFORMED AT CONTRACTOR'S RISK:

The contractor shall take all precautions necessary and shall be responsible for the safety of the work and shall maintain all lights, guards, signs, barricades, temporary passages or other protection necessary for the purpose. All work shall be done at the contractor's risk and if any loss or damage shall result from fire or from any other cause, the contractor shall promptly repair or replace such loss or damage free from all expenses to the Employer. The Contractor shall be responsible for any loss or damage to materials, tools or other articles used or held for use in connection with the work. The work shall be carried on to Employer or of others and without interference with the operation of existing machinery or equipment, if any.

54. PHOTOGRAPHS:

The contractor at his own cost shall take photographs of site and individual buildings during the progress of the work as directed by the Architect/Client and submit two copies of each photograph with minimum size 20 cm x 15 cm to the client/Architect.

55. INSPECTION BY THE CHIEF TECHNICAL EXAMINERS (VIGILANCE):

The proposed work covered under this tender, during the progress and/ or after completion, can also be inspected by the Chief Technical Examiner/ Technical Examiner or Officers of the Central Vigilance Commission, Government of India, on behalf of Architect & Employer to ascertain that the execution of the work has been done with materials and workmanship all as stipulated in the contract and as directed.

Contractor shall afford all reasonable facilities to the above vigilance staff and also provide them with ladders, tapes, plumbob, level etc., as required and directed and also necessary labourers skilled/unskilled to enable them to complete their inspection/study/technical scrutiny and no extra shall be admissible to the contractor on this account.

56. SPECIAL CONDITIONS OF CONTRACT:

In the event of any discrepancy with clauses mentioned anywhere else in the tender with the clauses mentioned within special conditions of contract, the clauses mentioned within the special conditions of contract shall supersede there mentioned elsewhere.

57. BIS CODES

It is compulsory for the contractor to keep all the B.I.S. codes mentioned in this tender document at his cost at the site to ensure the proper supervision/quality of work and materials.

58. AS BUILT DRAWINGS: Not Applicable

59. ALL STATUTORY SANCTIONS FOR POST CONSTRUCTION WORKS.

The contractor shall obtain all sanctions required for building construction and occupancy i.e., **post construction (occupancy certificate)** approvals from such local authorities as are concerned such as Jaipur Development Authority (**JDA**) and any other departments etc., all as per existing rules relevant on the subject. All official payments would be made by Bank.

INDEX FOR SPECIFICATION FOR CIVIL WORK

MATERIALS GENERAL

- A. EXCAVATION/SOIL TREATMENT
- B. PLAIN, REINFORCED CEMENT/PRECAST CONCRETE
- C. BRICK MASONRY
- D. RUBBLE MASONRY
- E. CEMENT PLASTERING/CEMENT POINTING
- F. FLOORING
- G. WOOD WORK
- H. ALUMINUM DOORS AND WINDOWS
- I. WATER PROOFING
- J. PAINTING/POLISHING WORK

SPECIFICATIONS FOR CIVIL WORK
MATERIALS – GENERAL

- a. All the materials required in the construction shall conform to the relevant latest Indian Standards specifications unless otherwise indicated. For patented products, the specifications and instructions of the manufacturers will be followed. In case where there are no specifications, then Architects/Employers instructions will be followed. In Case of any discrepancy/dispute regarding specifications, Architect and Employer's decision will be final and binding.
- b. Materials shall be transported, landed and stored at the site or elsewhere in such a manner as to prevent any damage, deterioration, or contamination.
- c. The samples of all materials shall be got approved by the Architect and Employer prior to ordering and shall be kept at site office of the Architect & Employer. The materials brought to site shall conform in all respects to the approved samples. Any work executed, without approval for the materials, is liable to be rejected. Accordingly, it will be paid either at tender rates or reduced rates or not to be paid at all, at the discretion of Architect & Employer, whose decision will be final and binding.
- d. The Architect & Employer shall have an option to have any materials tested at the contractor's cost to find out whether they are in accordance with the specifications. All Bills, vouchers, test certificates shall be produced for inspection on demand by the Architect & Employer to ascertain the quality/ suitability of materials.
- e. The materials shall be stacked at site as directed by the Architect & Employer.
- f. Any materials rejected by the Architect & Employer, shall be removed by the contractor from the site within 24 hours at his own cost.
- g. The contractor shall include the elements of wastage of materials in his rates for various items.
- h. The Architect & Employer shall have the power to cause the contractors to purchase and use such material from any particular source at his opinion be necessary for proper execution of work.

A. EXCAVATION:

A – 1. EXCAVATION AND EARTH WORK:

Examination of the Site:

The contractor shall visit and ascertain the nature of the ground to be excavated and the works to be done and shall accept all responsibility for the cost of the work involved.

Setting out:

The contractor shall set out the center line of the building using Total Station or other involved works after clearing the site and get the same approved from Architect & Employer. It shall be the responsibility of the Contractor to install substantial reference marks, bench marks etc., and maintain them as long as required by the Architect & Employer. The Contractor shall assume full responsibility for proper setting out, alignment, elevation and dimension of each and all parts of the work.

Ground level and Site level:

Before starting the excavation, the requisite block levels of the entire plot shall be taken by the contractor, in consultation with the Architect & Employer, and a proper record of these levels kept, which shall be jointly signed by the contractor and the Architect & Employer. A block level plan showing all ground levels of the plot shall be prepared and shall jointly be signed by the contractor and the Architect & Employer. The levels shall be taken at intervals of 3M, or even less, as required and directed.

A.1.4(a) Excavation and Preparation of foundation for concreting:

Excavation shall include removal of all materials of whatever nature at all depths and whether wet or dry, necessary for the construction/foundation and sub-structure (including mass excavation for underground reservoirs, where applicable) exactly in accordance with lines, levels, grades and curves shown in the drawings or as directed by the Architect & Employer. The bottoms of excavation shall be levelled both longitudinally and transversely or sloped as directed by the Architect & Employer.

Should the contractor excavate to a greater depth or width than shown on the drawings, he shall at his own expense fill the extra depth or width in cement concrete in proportion as directed by Architect & Employer but in no case with concrete of mix leaner than 1:4:8 cement concrete, at no extra cost.

The contractor shall report to the Architect & Employer when the excavations are

ready to receive concrete. No concrete shall be placed in foundations until the contractor has obtained Architect and Employer's approval. In case, the excavations done through different strata of soil and if the same are payable as per provisions in the Schedule of Quantities, the contractor shall get the

dimensions/levels/ heights of each of the strata recorded/decided by the Architect & Employer for payment. If no specific provision is made for different strata in the schedule of quantities, it will be presumed that excavation shall be in all types of soil and the contractor's rate shall cover for the same viz., for all types of soil (only excluding hard rock, when so specifically provided for).

After the excavation is passed by the Architect & Employer and before laying the concrete, the contractor shall get the depth and dimensions of excavations and levels (and nature of strata as applicable as per Schedule of Quantities like hard rock, soft rock etc.,) and measurements recorded from the Architect & Employer.

Measurement of Excavation in Rock:

Excavated soft/disintegrated rock and hard rock should not be mixed up and shall be stacked separately for purpose of payment. (Even otherwise they shall be stacked separately, and not mixed up with soils). Minimum of the quantities arrived at from

- i) Levels/pit measurements for sheet rock.
- ii) Volume based on stack measurements reduced by 40% to account for voids in stacks for Builders/overcops.

shall be considered for purpose of payment.

A.1.4(b) The contractor shall be responsible for safe custody of these stacks, till the same are taken over by the Employer or completion of work, whichever is earlier. The rates quoted for excavation shall include costs of all these and nothing extra shall be paid towards the same.

A.1.5 **Shoring:**

The sides of the excavations should be timbered and shored in such a way as is necessary to secure them from falling in, and the shoring shall be maintained in position as long as necessary. The contractor shall be responsible for the proper design of the shoring to hold the sides of the excavation in position and ensure safety against injury to persons. The shoring shall be removed as directed after the items for which it is required are completed. In case the contractor wants to step/slope the sides of foundation suitably, in lieu of shoring, he should get prior approval for it from the Architect & Employer and nothing extra shall be paid for

same and as well for the additional back fill necessitated by it, viz., items of excavations and backfilling be limited to excavations as per plans only and no quantities involved in making slopes and consequent back filling will be paid for.

A.1.6. **Earthwork for leveling of the area:**

Before earthwork is started, the area coming under cutting and filling shall be cleared of shrubs, rank vegetation, site grass, brushwood and trees and saplings of all girths, and rubbish removed outside the periphery and as directed by the Architect & Employer. The roots of trees shall be removed to a minimum depth of 600mm below ground level or 300mm below formation level whichever is lower and the hollows filled up with approved earth, levelled and rammed to the satisfaction of the Architect & Employer.

Under no circumstances undermining or undercutting be allowed. The final surface shall be neatly dressed and compacted to the required levels. Any extra cutting done, shall be filled back with approved earth, duly consolidated at contractor's cost. During the execution of the work, the natural drainage of the area shall be maintained by the contractor.

The approved earth from cutting shall be directly used for filling as directed. The filling shall be done in layers of not more than 150mm, each layer watered and consolidated with roller, not less than 10 M.T. roller. The earth used for filling shall be free from all roots, rubbish, grass, and all lumps and clods shall be broken before filling. The top surface of finally finished area shall be neatly dressed and compacted.

Protection:

If instructed by the Architect & Employer all foundation pits, and similar excavations shall be provided with strong fence and marked with red lights at night to avoid accidents. Adequate protective measures shall be taken to see that the excavation does not affect or damage adjoining structures. All measures required for the safety of the excavations, the people working in and near the foundation trenches, property and the people in the vicinity shall be taken by the contractor at his own cost, he being entirely responsible for any injury and damage to property caused by his negligence or accident due to his constructional operations.

Stacking of excavated materials:

All materials excavated will remain the property of the Employer and rate for excavation includes sorting out of useful materials and stacking them on site as directed. Materials suitable and useful for back filling, plinth filling or leveling of the plot or other use shall be stacked in convenient places but not in such a way as

to obstruct free movement of men, animals and vehicles or encroach on the area required for constructional purposes.

Backfilling:

All shoring and formwork shall be removed after their necessity ceases and trash/slush of any sorts shall be cleaned out from the excavation. All space between foundation masonry or concrete and the sides of excavation shall be refilled to the original surface with approved excavated materials in layers, each not exceeding 150mm in thickness, watered and rammed. The filling shall be done after concrete or masonry is fully set and done in such a way as not to cause undue thrust on any part of the structure. Where excavated materials are to be used for refilling, it shall be brought from the place, where it is temporarily stacked, and used in refilling.

No excavation of foundations shall be filled in or covered up, until all measurements of excavations, masonry, concrete and other works below ground level are jointly recorded. Black cotton soil shall not be used for back filling or in plinth filling. In case back filling is done without recording measurements of foundation work, the contractor will have to remove back filling at his cost for taking measurements. Otherwise, the foundation work will not be measured and will be paid for.

Dewatering:

Rate for excavation shall including bailing or pumping out water, which may accumulate in the excavation during the progress of work either from seepage, springs, rain or any other cause whatsoever, and diverting surface flow, if any, by bunds or any other appropriate means. Pumping out water shall be done in such an approved manner as to preclude the possibility of any damage to the foundation trenches, concrete or masonry or any adjacent structure. When water is out water shall be from auxiliary pits of adequate size, dug slightly outside the building excavations, the depth of auxiliary pit shall be more than the working foundation trench levels. The auxiliary pit shall be refilling with approved excavation materials after the dewatering is over.

The excavation shall be kept free from water:

- a. During inspection and measurement.
- b. When concrete and/or masonry are in progress and till they come above the natural water level and
- c. Till the Architect & Employer consider that the concrete/mortar is sufficiently set.

Rates quoted for excavation shall include all these (A.1.1. to A.1.10) operations to the extent required for completing the work please see A.3 also, unless otherwise specifically provided for.

Surplus excavated materials:

The item of removal of surplus excavated materials shall only be undertaken by the contractor when specific instruction in this regard has been obtained from the Employer/Architect. The contractor must also secure the approval of the Architect & Employer regarding the quantity of surplus materials to be removed prior to commencement of this item of work. The contractor shall dispose of surplus excavated materials anywhere within the site as required and as directed. He will spread the same in layers of 150mm each and as directed. Contractor will take the decision of Architect & Employer for disposal of surplus excavated material and no extra will be paid for double handling of the same, if any.

Wherever surplus or unsuitable material is to be disposed off outside the site, it shall be dumped and spread at the places to be specifically approved and as directed by the Architect & Employer, with all leads and lifts (unless otherwise provided for), and shall be paid as a separate item, as stated in the schedule of quantities.

A – 2 **ROCK EXCAVATION:**

Ordinary Soft rock comprises of:

- a. Limestones, sandstones, laterite or disintegrated rock which can be split or be quarried with crow bars or wedges.
- b. Unreinforced cement concrete, stone masonry in cement mortar.

Hard rock comprises of:

- a. Any rock or cement concrete for the excavation of which the use of mechanical plant or blasting is required, or which cannot be removed with iron crow bars.
- b. Reinforced cement concrete below ground level.
- c. Where blasting is prohibited for any reasons, the excavation has to be carried out by chiselling, wedging or any agreed method.
- d. Rock which requires chiselling/blasting/compressor.

Hard rock encountered in excavation work shall be removed by chiselling or wedging as directed by the Architects/Employers and no blasting is permitted.

Rock excavation shall comply with the specifications for excavation, except that it shall be of soft or hard rock.

Rock excavation will be measured and paid for quantities computed from (i) pit measurement/levels or (ii) by stack measurements reduced by 40% to account for voids, whichever is less.

A –3 **RATES TO INCLUDE FOR EXCAVATION ITEMS:**

Apart from other factors mentioned elsewhere in this contract, rates for the item of excavation shall also include for the following:

Clearing the site of all bushes, grass, roots of trees etc., and carting away from the site.

Setting out works, profiles etc., as required.

Providing shoring and shuttering to avoid slipping/sliding of soil and to protect adjacent structures, and subsequently removing the same.

Bailing and pumping out water as required and directed.

Excavation at all depths (unless otherwise specified in the schedule of quantities) and removal of all materials of whatever nature, wet or dry, with all leads (unless otherwise provided for) and necessary for the construction, foundation, underground reservoir etc., preparing bed for laying concrete, for roads etc., and completing the work.

Sorting out useful excavated material and conveying beyond the structure and stacking them neatly on the site for back filling or reuse etc., as directed.

Necessary protection including labour, barricades, materials and equipments etc., to ensure safety and protection against all risks and accidents.

Please see A.1.11.

A – 4 **MODE OF MEASUREMENT:**

Excavation for foundation of columns, beams, walls, and the like shall be measured and paid net as per drawing, dimensions of concrete (bed concrete where so specified) at the lowest level. In regard to length and breadth and depth shall be computed from the concerned excavation levels and ground level taken before excavation. Any additional excavation required for working space, formwork, planking, dewatering and strutting etc., shall not be measured. Rates quoted for excavation

shall include for all these factors. No increase in bulk after excavation shall be paid for. Excavation beyond dimensions of mass concrete for foundation as per drawing or below required depth shall not be paid for. Any excavation beyond required level shall be filled back with cement concrete of mix not leaner than 1:4:8, at his cost.

Measurement for general excavation/filling in roads/areas shall be made on sectional measurement by taken levels jointly before starting the work and after completion of the work and shall be worked out on average area method. This will give the total quantity of excavation. Levels shall be taken at 3m intervals or closer as required and directed by the Employer & Architect.

A.4.3. In the case of filling by morrum brought from outside, the quantities will be worked out from levels, as stated above, and shall be calculated/checked with lorry measurements. In case of inadequate information regarding lorry measurement and/or number of lorry trips, Employers/Architect's decision will be final and binding.

In case of soft and hard rock, payments shall be limited to minimum of the quantities arrived at from levels or stack measurements (after deducting 40% for voids). The material shall be stacked on fairly level ground and places, as directed. All depressions over the required final levels will be made good by P.C.C. of mix not leaner than 1:4:8 as directed, at no extra cost.

The quantity of excavated materials disposed off outside the premises will be worked out on the basis of total quantity of excavation less follows:

Quantity of excavated (other than rock) materials used for filling (on the basis of levels).

Quantity of rock excavation (Stack measurements less 40% or level basis).

Quantity of excavated materials disposed of within the site (on the basis of levels).

The quantity worked out on these basis will be checked with lorry measurements, with deduction of 20% for looseness/shrinkage. In case of any discrepancy, Architect & Employer's decision will be final and binding.

Total quantity of excavation and filling will be finalised on the basis of levels only. The total quantity of excavation will be checked by adding quantities of the following items:

Material used for filling wherever required (on level basis).

Rock excavation minimum of quantity arrived from stack measurements with 40% voids) or based on levels.

Surplus/unsuitable material disposed within site on level basis (deducting 10% voids if consolidated, otherwise deducting 20%). In case of lock 40% voids will be deducted.

- do – disposed outside site (on lorry measurements and by deducting 20% for looseness/shrinkage if transported by lorries, otherwise on basis of levels and by deducting 10% voids if the fill is consolidated – otherwise 20% voids shall be considered.

In case of any discrepancy, the decision of Employer & Architect shall be final and binding for the above sub-divisions A.4.7.1, A.4.7.2, A.4.7.3 & A.4.7.4 as stated above.

Whenever the contractor is instructed to reuse the excavated rock for works such as masonry, soiling, filling etc., the measurement for such items shall be the same/equivalent as that of rock measured under excavation items earlier. The contractor will not be paid for double handling of such excavated materials.

A – 5 **SOIL TREATMENT:**

Soil treatment for pre-construction termite control shall conform to the following:

Chemicals	Concentration
ChlorophyriphosEmulsifiable Concentrate 20%	1% strength applied in oil solution or water emulsion.

A daily record shall be maintained by the contractor indicating quantities of chemical brought to site, used on work with location/stage of treatment (the quantum/ area of work done) and the upto date quantity of chemical consumed for the work and upto date balance at close of work on that day. This record book shall be property of the employer.

Conditions of formations:

Barrier shall be complete and continuous under the whole of the structure to be protected. All foundations shall be fully surrounded by and in close contact with barrier of treated soil. Each part of the area treated shall receive the prescribed dosage of chemical.

Time of Application:

Soil treatment should start when foundation trenches and pits are ready to take mass concrete in foundations. Laying of mass concrete should start when the

chemical emulsion has been absorbed by the soil and the surface is quite dry. Treatment should not be carried out, when it is raining or when the soil is wet with rain or subsoil water. The foregoing requirement applies also in the case of treatment to the filled earth surface within the plinth area before laying the sub-grade for the floor.

Disturbance:

Once formed, treated soil barriers shall not be disturbed. If, by chance treated soil barriers are disturbed, immediate steps shall be taken to restore the continuity and completeness of the barrier system.

The chemical emulsions shall be applied uniformly at the prescribed rate in all the stages of the treatment. A suitable hand operated compressed air sprayer or watering can should be used to facilitate uniform dispersal of the chemical emulsion. On large jobs, a power sprayer may be used to save labour and time.

In the event of waterlogging of foundation, the water shall be pumped out and the chemical emulsion applied when the soil is absorbent.

Guarantee : 10 years (as per form enclosed on requisite stamp paper)

In the unlikely event of any re-treatment becoming necessary subsequently during the guarantee period, necessary inspection and re-treatment, as required, shall be carried out, free of cost, by the contractor.

The rate to include:

The contractor should include in his rates given in schedule of quantities in Sq. meter area basis, all the stages of treatment, Viz., bottom of foundations, sides of trenches, underside of the floors, underside/damp proof courses, outer faces of external walls upto plinth protection, and around all pipe lines at ground level etc., and finally the back fill all around and in the building as per detailed specifications mentioned above. Where the rate of applications of the insecticide has not been specified clearly, the rates of application of chemical should be so governed that during the guarantee period, no trouble may arise. Payment will be made on the plinth area measurement of ground floor only, and the rate for the same should include all the stages of work as mentioned above and no extra on any account will be entertained.

B. PLAIN AND REINFORCED PRECAST CONCRETE WORK:

APPLICATION OF SPECIFICATIONS:

Notwithstanding what is stated in the specification herein, detailed architectural and structural drawings and notes appended there on shall be deemed to form part of the specifications and to supersede these, in case of any discrepancy.

GENERAL:

The structural and architectural drawings shall be studied thoroughly and any discrepancy in the dimensions on the drawings or any other point not clear to the contractor shall be brought to the notice of Architect & Employer well in advance, and got decided from them before further proceeding with the work.

B.2.2. No concrete works shall be carried out in the absence of authorised and qualified supervisor of the client/Architect.

MATERIALS:

General:

All the materials constituting the concrete shall conform to the relevant latest Indian Standard Specifications, unless otherwise indicated.

Materials shall be transported, handled and stored on the site or elsewhere in such a manner as to prevent damage, deterioration or contamination.

All the materials such as sand, coarse aggregates, cement and water shall be got tested at site or in any approved laboratory, as directed by the Employer & Architect, before starting the concrete work. During construction also all these materials will have to be tested, as often as deemed necessary by the Employer & Architect. On site arrangement must be made at site for Cube test, Sieve Analysis. slump test etc.

Cement:

Cement shall be ordinary Portland cement 43 grade and of approved brand confirming to IS 1812 – 1989 unless otherwise specified. The contractor shall procure cement of makes – **AMBUJA / ULTRATECH / LAFARGE** or any other manufacturer as approved by Architect. The contractor may use ordinary Portland Cement of 53 grade of the makes specified above by obtaining written permission from the Architects/Bank. It shall be stored by the contractor in a dry, watertight and properly ventilated structure as per specified conditions. The cement shall be stacked on a dry raised platform, 1'-0" above the floor level and shall be stacked in the sequence of receipt of consignments. Not more than 10 bags should be kept in one stack. Any cement which has deteriorated, caked or which has been damaged due to any reason whatsoever shall not be used. Cement, concerning which there is any doubt, shall be got tested by the contractor at his cost and used, only if found satisfactory. Condemned/damaged cement shall be

removed immediately from the site by the contractor at his cost.

Daily account of receipt and use of cement bags shall be maintained by the contractor in the proforma approved by the Architects/Employer and got

checked by the Employer's Engineer at site. Cement should be used in the order in which it is received at site. Cement stored for more than three months shall be got tested, before using it in the work.

Sand:

Sand shall be well graded, coarse in texture, clean, hard and free from salt, earth, clay or any other harmful material. Before starting the work, the contractor shall get samples of sand, locally available from different sources, if required, and the same shall be got tested as per latest relevant B.I.S. codes for concrete work and to get the final approval of Employer & Architect. During the course of the construction or for any reasons it is observed that the sand, procured by the Contractor from previously approved source, is not upto the approved standard or it is not available in sufficient quantity required for the entire project, then the contractor will have to make such alternative arrangements to procure the sand of approved quality from any other source, even with longer lead at no extra cost. Sand shall be screened and washed, if required, as directed by the Employer & Architect/at no extra cost. Field tests shall be carried out regularly and as directed, to ensure the suitability/quality of the same. Silt content should not exceed 8% by volume or 5% by weight, and should be free from other deleterious materials. When sand is mixed by volume, necessary allowance shall be made for bulkage, as required and directed to give correct mixture.

Coarse Aggregate:

Coarse aggregates shall consist of hard, dense, durable uncoated crushed Granite rock. It shall be free from soft, friable, thin or long laminated pieces. All aggregates should generally conform to IS 383 – 1970. For reinforced cement concrete, the maximum size shall be not more than 20mm and minimum shall not be less than 5mm and shall be uniformly graded to the approval of Employer & Architect. If locally available coarse aggregate is not suitable or is not sufficient in quantity, the contractor shall have to procure it from any other source, even with longer leads at no extra cost. As and when directed by Employer & Architect, aggregates shall be washed by approved methods at contractor's cost. Necessary tests shall be carried out, as and when required to ascertain about the suitability and grading of the aggregated, by the contractor at his cost.

Water:

Water shall be clean, fresh and free from organic or inorganic matters in solution

or suspension in such amounts, that may impair the strength or durability of the concrete. Water fit for drinking will generally be found suitable for use in concrete and plastering work. However water shall be tested periodically Every 3 months or change of source of water for its use in construction work.

Reinforcement:

Mild steel bars:

Mild steel reinforcement bars shall conform to I.S.432 – 1982 “Part I” Fe 410 – S, other qualities of steel shall not be acceptable.

High strength deformed bars:

Where deformed high strength reinforcement bars are specified, the contractor shall use tor steel, accompanied by a test certificate from the manufacturer, conforming to IS – 1786 – 1986 and shall be Fe 500 grade. Contractor shall bet steel reinforcement tested at his cost as and when required and directed by Employer & Architect.

Steel shall be from the main manufacturers i.e., **TATA , JINDAL , SAIL** or any other manufacturer as approved by Architect & Employer.

Cleaning of reinforcement:

Before steel reinforcement is placed in position, the surface of the reinforcement shall be cleaned of loose rust or scaling, dust, grease and any other objectionable substances as required and directed.

Bar bending schedule of reinforcement:

On receipt of structural drawings, contractor shall prepare bar bending schedules of reinforcement and shall get it approved by the Employer & Architect, in advance before starting the work.

Cutting and Reinforcement:

Before steel reinforcement bars are cut, the contractor shall study the lengths of bars required as per drawings and shall carry out cutting, only to suit the sizes required as per drawings so that the wastage is minimum.

Placing and Security:

Reinforcement bars shall be accurately placed and secured in position and firmly supported or wedged by precast cement mortar concrete blocks of suitable mix, thickness and size, at sufficiently close intervals, so that the bars will not sag between the supports or get displaced during the placing of concrete or any other operation of the work. It is most important to maintain reinforcement in its correct position without displacement and to maintain the correct specified cover. The contractor shall be responsible for all costs for rectification required in case the bars are displaced out of their correct position.

Binding wire:

The reinforcement shall be securely bound wherever bars cross/lap or whenever required with 2 strands of suitable length of 18 gauge soft annealed steel wire.

Welding:

Welding of bars, in place of splicing, shall not be carried out, unless specifically authorised in writing by architect & employer, and the welding shall be as per relevant I.S. code of practice. However, no extra payment shall be allowed for the same.

Bends etc:

Bends, cranks, curves, etc., in steel reinforcement shall be carefully formed and shall strictly conform to the drawings/requirements, care being taken to keep bends out of winding. Otherwise, all rods shall be truly straight. If any bend/crank shows signs of cracking, such rods/bars shall be removed immediately from the site. For bending of bars to any curvature, minimum radius of 9 times diameter of the bar shall be used, unless otherwise specified in the drawings. However, in respect of standard hooks, the radius of bends shall be two times the diameter of bar. Heating of reinforcement of bars to facilitate bending will not be permitted. The bars shall always be bent cold. In case of mild steel reinforcement bars of larger sizes, where cold bending is not possible, they may be bent by heating, but only with written permission of the Architect & employer. Bars when bent shall not be heated beyond cherry red colour, and after bending shall be allowed to cool slowly, without quenching. The bars damaged or weakened in any way in bending shall not be used on the work. High strength deformed bars shall in no case be heated to facilitate bending or cranking.

Inspection of Reinforcement:

No concreting shall be commenced until the Architect & Employer have inspected the reinforcement in position and their approval obtained. A notice of at least 72 hours shall be given to the Architect & Employer by the Contractor for inspection

of reinforcement. If in the opinion of the Architect & Employer any material is not in accordance with the specification or the reinforcement is incorrectly spaced/bend or otherwise defective, the contractor shall immediately remove such materials from the site and replace with new ones and rectify any other defects in accordance with the instruction of the Architect and Employer and to their entire satisfaction.

Net Measurement:

Reinforcements shall be placed as shown on the structural drawings and payment will be made based on and limited to the net measurements, as per drawings. Only such laps, dowels, spacers, chairs etc., in reinforcement specifically shown on drawings shall be paid for. The contractor shall allow in his quoted rates for all wastages and rolling margins, which will not be paid for. The measured length of all the bars shall be converted into weight, as per standard weights

given in latest I.S.Schedule. In case the weights of any bar/bars are less than the required weight (beyond rolling margins specified by B.I.S.) the same shall not be used on work. If used, the same shall be replaced with proper ones, at no extra cost.

Cover for Reinforcement:

Unless otherwise specified in drawings, cover shall be measured from outer surface of the main reinforcement and shall be as follows:

- a. For beams and lintels – 25mm or dia of the bar, whichever is higher.
- b. For slabs, chajjas, canopies, pardas – 15mm or dia of the bar, whichever is higher.
- c. Columns – 40mm, or dia of bar, whichever is higher.
- d. Footings – 50mm.
- e. Cover blocks shall be of (1:1½:3) P.C.C. and of thickness, not less than the cover specified. Cover blocks of 1:2 cement mortar may be allowed, if specifically permitted by the Architect. PVC cover blocks of required cover is also allowed.

Rates quoted for reinforcement, in addition to any factors mentioned elsewhere, shall also include for:

- a. Stock piling of reinforcement as described.

- b. Decoiling, straightening (coiled bars, bent bars).
- c. Removal of rust and every other undesirable substances, using wire brushes etc., as required/directed.
- d. Cutting to required lengths, labour for bending and cranking, forming hooked ends (if required), handling, hoisting, placing in position, tying binding with binding wire and everything necessary to fix reinforcement in work as per drawings/requirements.
- e. Cost of binding wire required as described.
- f. Fabricating and fitting reinforcement, in any structural member, irrespective of its location, shape, dimension and level.
- g. Cost of precast concrete/mortar cover blocks of proper size or nylon spacers to maintain cover and holding reinforcement in position.
- h. Work at all levels.

B – 4 **FORM WORK:**

Materials and design:

Contractor shall get the materials, sizes/arrangements and method of supports, details of joinery, and design of formwork for beams, slabs, columns etc., approved by Architect, before starting the formwork.

Design of Form work:

- i) Form work shall be adequately designed to support the full weight of workers, reinforcement, freshly placed concrete, effects of tamping/vibrating, etc., without yielding/settlement or deflection, and to ensure good and truly aligned concrete finish in accordance with the construction drawings.
- ii) The formwork shall be so designed that the sides of the beams can be first struck, leaving the soffit of beams and supporting props in positions. Props shall be designed to allow accurate adjustment and to permit of their being struck without jarring the concrete.
- iii) The design of form work shall be got approved from the Architect & Employer before starting this item of work.

B.4.2.1 The form work shall be of approved Fresh / New plywood (Marine or boiling

waterproof) and not less than 12mm thick and with proper supports as may be approved by Architect & Employer. As alternative sufficiently rigid steel shuttering with appropriate supports may be used, as may be approved by Architect & Employer at not extra cost. In every case, joints in the shuttering are to be such as to prevent loss of liquid from concrete. In case of steel shuttering, the joints must be perfectly close and sealed with craft paper or any other types of approved sealing materials. If any particular material or materials are specified in the Schedule of Quantities for form work, only such particular/ specified material or materials shall be used in the work. The form work shall be constructed so as to remain sufficiently rigid during placing and vibrating/tamping of the concrete. All shuttering and framing must be adequately stayed and properly supporting the concrete during period of hardening. The forms shall have sufficient strength and rigidity to hold concrete and withstand the forces/pressure of people and machinery working ramming and vibration, and more so when the concrete is tamped/vibrated. The surface of all forms in contact with concrete shall be clean, rigid, watertight, and smooth. Suitable devices shall be used to hold corners, adjacent ends and edges of panels of other forms together in accurate alignment.

The form work shall conform to the shape, lines and dimensions to suit the RCC members, as shown in the drawings and be so constructed. A camber of 6mm in all directions, for every 5 meter span, in shuttering for all slabs and beams shall be given to allow for unavoidable sagging, due to self weight (including concrete, workers, machinery etc)/compaction of other causes.

Temporary openings or windows shall be provided at the base of column forms, and at other points, where necessary to facilitate cleaning and observation, immediately before concrete is deposited. These shall be properly closed, before placing concrete in position.

Vertical centering/staging:

The vertical shuttering shall be carried down to such solid surface as is sufficiently strong to afford adequate support and shall remain in position until the newly constructed work is able to support itself. Props shall be steel tubes with extension pieces and securely braced against lateral displacement. The spacing of steel tubes shall be designed to carry loads imposed on it without undue deflection of the members, supported by the props. The spacing and sizes of props shall be approved by the Architect & Employer and any alterations suggested by them shall be carried out at contractor's expense. Pipe bracing shall be provided, as required/directed, without extra cost. The contractor shall allow in his rates for providing props and struts upto any height as shown in the working drawings issued to the contractor from time to time. Wooden props and bracing can only be allowed under special sanction of the Architect & Employer.

Design of form work:

- i) Form work shall be adequately designed to support the full weight of workers, reinforcement, freshly placed concrete, effects of tamping/vibrating, etc., without yielding/settlement or deflection, and to ensure good and truly aligned concrete finish in accordance with the construction drawings.
- ii) The form work shall be so designed that the sides of the beams can be first struck, leaving the soffit of beams and the support props in position. Props shall be designed to allow accurate adjustment and to permit of their being struck without jarring the concrete.
- iii) The design of form work shall be got approved from the Architect & Employer before starting this item of work.

Water tightness:

It is the contractor's responsibility to ensure that the forms are checked for water tightness during progress of shuttering work and also just before concreting operation starts and to make good deficiencies, if any. If instructed by the Architect & Employer, building paper will have to be used, without any extra charge for the same, viz., to have adequate water tightness.

Cleaning and treatment of forms:

All rubbish, particularly chippings, shavings and saw dust, etc., shall be removed from the interior of the forms, before the reinforcement is placed in position and as well before the concrete is placed. The form work to be in contact with the concrete shall be cleaned and thoroughly wetted or treated with an approved composition before placing concrete. Care shall be taken that such approved composition is kept out of contact with reinforcements. Interior of all mould sand boxes must be thoroughly washed (water) with hose pipe or otherwise so as to be perfectly clean and free from all extraneous matter before depositing of concrete. Prior approval of the form work should be obtained from Architect/Employer, before placing reinforcement on the form work.

Stripping:

Form shall be left in place until their removal is authorised by the Architect & Employer and shall then be removed with due care, so as to avoid injury to concrete and or workmen. In no circumstances the forms shall be struck, until the concrete develops strength of at least twice the stress, to which the concrete may be subjected to at the time of striking. The strength referred to shall be that of concrete, using the same cement and aggregates with the same proportions, and cured under conditions of temperature and moisture similar to these existing on the work. Where possible, the form work should be left longer, as it would assist in more effective curing.

Stripping time:

In normal circumstances (general where temperatures are above 20 degrees C and where ordinary Portland cement is used) forms shall be struck after expiry of the following periods, unless otherwise specifically directed at site by the Architect & Employer.

LOCATION	STRIKING TIME IN CLEAR DAYS (OPC) (AFTER THE DAY OF CASTING)
a. Vertical sides of walls slabs, beams and columns	4
b. Bottoms of slabs upto 4.5m span.	7
c. Bottom of slabs above 4.5m span/ bottoms of beams & arch rib bottoms upto 6m span.	14
d. Bottom of beams over 6m span and arch rib bottoms above 6m span.	21

Form work in lifts for continuous surfaces:

Where forms for continuous surface are placed in successive units, (as for example in columns or walls) the forms shall fit tightly over the completed surface so as to prevent any leakage of water/mortar from the concrete and to maintain accurate alignment of the surface.

Procedure while removing the form work:

All formwork shall be removed without shock or vibration, as otherwise it would damage the reinforced concrete. Before the soffit and struts are removed, the concrete surface shall be first exposed partly, where necessary, in order to ascertain that the concrete has sufficiently hardened. Proper precautions shall be taken to allow for the decrease in the rate of hardening that occur with cement, in cold weather. Wetting the surface before stripping is preferable, to avoid spalling of corners.

In case of structures with two or more floors, the weight of concrete, centering and shuttering of any upper floor being cast shall be suitably supported on one floor below the top most floor already cast. The rate quoted for reinforced concrete items is deemed to have included for these arrangements/supports.

Tolerance:

- a. All RCC work shall be executed to true lines and levels and plumb and to the final approval of Architect & Employer's representative.
- b. If work is not carried out within the reasonable tolerance the cost of all rectification measures of dismantling and reconstructing or as decided by the architect and Employer shall be borne by the Contractor. In case of work dismantled, the same will not be measured and paid for.

Concrete mix proportioning:

Concrete mix proportioning for all grades of concrete shall be as per IS 456 – 2000 clauses 8 & 9 and as per SP 23 – 1982 Section 6. The constituent materials to be used for concrete making namely cement, aggregates & water shall be as per clause 4 of IS 456 – 2000. The mix proportions shall be so selected as to ensure that the workability of the fresh concrete is appropriate/suitable for the conditions of handling and placing, so that after compaction it surrounds all reinforcements and completely fills the form work. When concrete is hardened, it shall have the required strength, durability and surface finish. The determination of the proportions of Cement, Aggregates and water to attain the required strengths shall be made as follows:

- a. By adopting nominal concrete mix, which is called 'nominal mix concrete'.

Batching:

In proportioning concrete the quantity of both cement and aggregate should be determined by mass. The mass of cement can be determined on the basis of mass of cement per bag. Water shall be measured by volume in calibrated containers/tanks or weighed.

In case of design mix of concrete, uniformity of the materials used for the concrete making has been established over a period of time, the proportioning may be done subsequently by volume batching, provided prior

approval of Architect & Employer is obtained for same and ensured that periodic checks are made on mass/volume relationships of materials. Where weigh batching is adopted, allowance shall be made for bulking in accordance with IS 2386 (part III) 1963.

The concrete shall be mixed in a Mechanical Mixer as per IS 4791 – 1968. Workability of the concrete should be controlled by direct measurement of water content. Workability should be checked at frequent intervals as per IS 1199 – 1959. The contractor is entirely responsible for the proportioning of concrete mixes of required strengths and must submit the procedure for such

proportioning of concrete mixes for the prior approval of Employer & Architect, whose decision shall be final in the matter.

- b. Alternatively, contractor may use suitable ready mix concrete at no extra cost and after obtaining written permission from Architects/Bank.

Transporting and placing concrete:

Immediately prior to placing the concrete, the shuttering shall be well watered and any water and rubbish lying removed.

The concrete shall be transported from mixer to the position of placing as rapidly as possible and in a manner that would prevent separation or bleeding or impair the quality of concrete. Equipment for transportation, pumping or pneumatically conveying concrete shall be of such size and design as to ensure a practically continuous flow of concrete at the delivery end, and without any separation of the materials. The chute shall be of metal or metal-lined wood with slopes neither less than 1 vertical to 3 horizontal nor more than 1:2. The discharge end of the chute shall be provided with baffle plates to prevent segregation.

Concrete shall not be dropped from a height in a manner, which will cause segregation. It shall be placed directly in its permanent position to avoid segregation due to rehandling. Rate of placing concrete shall be such as to avoid formation of planes of weakness in concrete being placed. No partly set or retempered concrete shall be used on the job.

Each layer of concrete being placed shall be consolidated by mechanical vibration supplemented by hand spreading, rodding and tamping as directed, to form dense concrete with all surfaces free from honeycombing and tolerably free from water and air holes or other blemishes. Vibrators shall in no case be used to work along the forms. Duration of vibration shall be so limited to reduce time necessary for satisfactory consolidation, without causing objectionable segregation. The vibrator shall not be inserted into a lower course, that has already been vibrated/compacted and begun to set.

The contractor shall be responsible for the co-ordination with sub-contractors or other contractors for incorporating necessary inserts, electrical conduit pipes, fixing boxes, blocks, chase holes, etc., as required. The contractor shall obtain approval from the Architect/Client as regards the above, before casting of the concrete. No holes or chases shall be made in the concrete, without prior approval of the Architect & Employer.

Concrete shall be placed continuously until completion of the work.

Accumulation of set concrete on the reinforcement shall be avoided. Before fresh

concrete is deposited upon or against any concrete which has already hardened, the surface of the hardened concrete shall be well roughened, if necessary by chipping, and all littance removed. The surface shall then be swept clean with wire brushes, thoroughly wetted and covered with a thin layer of rich cement mortar and or chemical additives, as may be directed by Architects.

In foundation trenches or in like positions, concrete shall be carefully laid and poured from less than over 1 meter height. If the height exceeds 1 meter, the concrete must be deposited through inclined spouts. The trenches shall be maintained free of water during concreting by proper diversion of water flow with dewatering as required and directed, at no cost and without washing over freshly deposited concrete.

Concrete footing shall be placed upon undisturbed clean and hard surfaces of specified bearing capacity.

Contractor's authorised Engineers/Supervisors/Foremen shall always be present for all concreting work carried out at site.

Protection of Concrete:

Newly placed concrete shall be protected by approved means from rain, sun and drying winds. Exposed vertical/inclined/curved faces of concrete shall be kept wet continuously for not less than a fortnight by covering with a layer of sack curing, invariably horizontal surfaces shall be kept covered with water pounded by means of bunds. Concrete placed below the ground shall be protected from falling earth during and after placing. Approved means shall be taken to protect immature concrete from damage due to debris, excessive loading, vibration, abrasion, ground-water, mixing with earth or other materials, flotation and other influences that may impair the strength and durability of the concrete.

Consistency:

Only minimum and sufficient water shall be added to the cement and aggregate during the mixing to produce a concrete having sufficient workability to enable it to be well consolidated and to be worked into the corners of the shuttering and around reinforcement, to give the specified surface finish, and to have the specified strength. When suitable and appropriate amount of water has been determined, the resultant consistency shall be maintained through the corresponding parts of the work and approved tests shall be conducted from time to time to ensure the maintenance of this consistency.

The exact determination of the slump for various members and water cement ratio shall be as directed by the Architect & Employer.

Slumps tests shall be made in accordance with the details given in IS 456 – 1978.

Finishing:

As soon as possible after the form work has been struck holes left by clamping bolts, air and water holes and other rough patches shall be filled in with cement and sand mortar 1:1 mix (sand passing 1/8" sieve) by working into the surface with a wooden float. Excess water shall be avoided. This should be done within 72 hours after removal of form work.

Unless instructed to the contrary the face of exposed concrete placed against shuttering shall be rubbed down immediately upon removal of the shuttering to remove fine or other irregularities. All surfaces which are required to be plastered shall be hacked properly.

All exposed faces of concrete members for which shuttering is not provided, shall be smoothed with a wooden float, when the concrete is green and setting has not started, to give a finish equal to that of rubbed down face where shuttering is provided. The top face of a slab, which is not intended to be covered with other materials, shall be levelled and floated while unset to a smooth finish to the levels of falls/slopes shown on the drawings or as instructed. The floating shall be done so as not to bring an excess of mortar to the surface of the concrete. Dentations in the surface of the concrete shall be formed, if specified/ordered, by approved implements to the depths and patterns described. The top face of a slab intended to be surfaces with mortar, granolithic or any other materials shall be finished rough (to receive final finish) and to the approval of the Architect & Employer.

Honey Combing:

- i) Where honey combed surfaces are noticed in the concrete, the contractor shall not patch up the same, until examined by the Architect & Employer and decision given regarding accepting the work with rectifications or rejections of the same. If the contractor patches up such defects without the knowledge of the Architect & Employer, the Architect & Employer will be at liberty to order demolition of the concerned concrete members to the extent they consider necessary. In such cases, the contractor shall reconstruct the demolished work. The cost of demolition and demolished work and disposal of debris shall not be measured and paid for.
- ii) If in the opinion of the Architect & Employer the honey combing is harmful to the structure and where so directed by the Architect & Employer, the full structural members affected by honey combing, as decided by Architect & Employer, shall be dismantled and reconstructed to Architect & Employer's approval. The cost of demolished concrete and as well cost of demolishing and

disposing the debris will not be measured and paid for.

- iii) Where in the opinion of the Architect & Employer the structural members containing honey combing can be allowed to be retained with rectification, the rectification shall be carried out as directed by the Architect & Employer by gunniting (with cement mortar 1:3 proportion) or epoxy bonding and plastering the areas concerned at the contractor's expense.
- iv) If such honey combed areas are not severe in the opinion of the Architect & Employer and where so directed shall be patched up with dry-pack cement mortar consisting of 1 part of cement and 3 parts of sand after removing defective concrete down to sound concrete to the satisfaction of Architect & Employer all at the expense of the contractor. Such works should be completed within 72 hours from deshuttering.
- v) Concrete faces to be finally concealed shall be left as from the shuttering, except that honey combed surface shall be treated as above (i), (ii), (iii) & (iv). Faces of concrete that are to be finished other than specified shall be prepared in an approved manner and as instructed.
- vi) The patched up areas shall be kept moist for 7 days and prevented from drying out too soon. Wherever required or instructed by the Architect & Employer, patching work shall be done using part white cement upto 30% of the total quantity of cement specified.

Construction joints:

Concreting shall be carried out continuously upto construction joints, if any, the position and details of which shall be predetermined by the Architects/Employers. Construction joints shall be provided as directed by the Architect. They shall be rebated and or of an approved shape for slabs, beams etc., and shall be provided in the positions described on the drawings or as directed by the Architects/Employer. Inclined "Feather" joints shall not be permitted. Shear keys not less than 2" deep and equal to 50% of the cross sectional area shall be provided to all construction joints. Reinforcing bars shall extend by not less than 60 times dia of respective bars for M:150, 50 times dia, for M:200, beyond construction joints, unless otherwise indicated.

The joints shall be kept only at places, where the shear force is minimum and these shall be at right angles to the direction of main reinforcement. In case of columns, the joints shall be horizontal and about 3" below the bottom of the deepest beam framing into the columns.

Structural joints:

Expansion joints, construction joints, hinges or other permanent structural joints shall be provided in the position and of the form described in the drawings or as directed by the Architects/Employers and shall be got approved before casting.

In no case shall the reinforcement corner protecting angles or other fixed metal items, embedded in or bonded into concrete, run continuously through the expansion joints. The placing of concrete on either side of the expansion joint shall be separated by suitable filler materials during continuous construction or alternately adequate space left during construction and filler materials placed in position later after an interval of at least seven days.

Cutting into concrete:

No concrete shall be neither cut into, nor shall it be interfered with in any way, without the prior approval in writing by the Architect & Employer.

No portion of the structure shall be subjected to any loading in excess of design loads, except with prior written permission of Architect.

Strength of Concrete:

The concrete mix shall be so made to produce the desired grade concrete having the required workability and characteristic strength not less than values given below:

Grade Definition	Specified Minimum Characteristic compressive strength at 28 days
M – 15	150 Kg/Sq.cm
M – 20	200 Kg/Sq.cm
M – 25	250 Kg/Sq.cm
M – 30	300 Kg/Sq.cm

Strength of concrete required for various situations have been clearly stipulated in the relevant item of the schedule of quantities and/or in the drawings. As required by the Architect, the water content and the water/cement ratio shall be determined from the results of tests of the materials proposed for use, in advance of construction. It is important to maintain constant water cement ratio at its correct value.

If the concrete produced at site does not satisfy the above strength requirements,

the Architect & Employer will reserve the right to require the contractor to improve the method of batching, the quality of the ingredients and the mix with increased cement contents, if necessary. The contractor shall not be entitled to claim any extra cost for the extra cement used or for the modifications, for fulfilling the strength requirements as specified. The able guide for the quality and for durability of concrete. It must also have an adequate cement content and as well a low water – cement ration, as given below, which is applicable for moderate weather conditions, as specified in I.S. 456 – 2000.

MINIMUM CEMENT CONTENT	MAXIMUM WATER – CEMENT RATIO
Moderate conditions 290 Kg/Cum	0.55

The minimum cement contents is based on 20mm aggregates. For 40mm aggregate it should be reduced by about 10% and for 12.5mm aggregate it should be increased by about 10%.

Strength tests during the work:

Samples should be taken from each 20 cum of concrete made during the progress of the work, or when a day’s concrete work does not amount to 20 cum, then from each day’s quota, and as required by Architects/Employers. Six samples of cubes of size 150 x 150 x 150mm shall be taken jointly each time in steel moulds, 3 of which shall be tested for 7 days strength and the remaining 3 shall be tested for 28 days strength on 7th and 28th day respectively, after the day of casting. Proper curing arrangements, as directed by Employers/Architects, shall be made at site by the contractor. Each cube shall be marked and numbered, and dated by the contractor.

The contractor shall maintain a register at site as directed by the Architect Employer, showing all particulars (date of casting, mix of concrete, location of concreting, water cement ratios, approximate concrete quantity represented by samples, no of cubes cast, date and results of testing, and remarks) and all the entries should be signed jointly by the contractor with Architect & Employer. 7 days strength shall not be less than 2/3rds of the 28 days strength. The results of the tests in any of the recognised laboratories and/or contractor’s laboratory at site shall be taken as final and binding on the contractor. The average strength shall be higher than the prescribed strength. The average strength of the specimens taken at a time, may be assumed as the compressive strength of concrete, provided the difference between the maximum and minimum strength of the three specimens does not exceed 15% of the average strength. Concrete test cubes shall be taken out and got tested as per time schedule for knowing 7 days and 28 days crushing

strength, at no extra cost, either at site or at an approved laboratory. Whenever for any set of cubes, if the 7 days crushing strength is found satisfactory, 28 days tests are not necessary. In cases, where 7 days strength is not satisfactory, tests for 28 days strength must be gone done WITHOUT ANY EXCEPTION.

In case the compressive strength obtained from the test samples of concrete at 28 days is less than the minimum specified characteristic compressive strength, the work is liable to be rejected at the sole discretion of Architect & Employer.

Employer's & Architect's decision regarding dismantling of such works or suitable rectifications or any alternative assessment by load test for allowing the corresponding work to be retained, shall be final and binding on the contractor. These shall be carried out at contractor's cost only. The condition of any test

does not guarantee acceptance of concrete covered by the test final decision regarding finally accepting/rejecting such works even after conducting those tests shall be made by the Architect & Employer only.

In case of concrete showing test results lower than the specified strength and in the opinion of the Architect & Employer such works could be allowed to remain, after due and satisfactory rectifications, if any, ordered and or load tests or even otherwise, then the rates quoted by the contractor, corresponding to those items, shall be reduced suitably for paying for that part of work. The Employer/Architect shall have full power in their absolute discretion to fix the actual rate payable after deduction, and it shall be binding on the contractor. If the strength is so low that in the opinion of Architect & Employer, the work has to be dismantled, then the contractor shall do so as directed at his own cost irrespective of the amount of loss, inconvenience and difficulties involved. Rejected/dismantled work shall not be paid for.

If in the opinion of the Architect & Employer/Engineer any load test or hammer test or any other test is necessary, the same shall be carried out by the contractor as directed and he shall bear the cost of the same. Based on the results of the tests, the Architect shall reduce rates/accept after rectification or modification/reject and order dismantling of concrete, and the decision shall be final and binding on the contractor.

The contractor shall pay all costs incurred in supplying the material for and in making, maturing, delivering and testing the cubes.

RECORD OF CONCRETING:

The contractor shall keep a daily record showing the date when each portion of concrete is poured in slab, beam, column footing etc., curing period, removal of formwork and test cubes results at 7 days and 28 days period and observations on the same.

The rates for concrete shall also include, apart from any other factors specified elsewhere in the tender, as follows:

All materials required for design/ nominal mix concrete, getting the designs for the design mix from an approved agency, labour, use of tools and plants, scaffolding, mixing, conveying, placing, ramming, vibrating, formwork, finishing, curing, hacking etc., complete as required and directed.

Rates for concrete items shall cover

- a. Any shape and size, and for doing at any height and depth (all lifts) as per drawings, providing cover blocks or nylon spacers etc.
- b. Fixing all inserts such as pipes, plugs, forming holes/pockets etc.
- c. Providing dowel bars, etc., through shuttering and forming drip molds to chajjas, sills etc., or at any other places as directed.

B.9.0 MODE OF MEASUREMENT:

Length of columns will be measured upto top of the slab.

Length of main beams will be measured between columns and depth below the top of the slab. For secondary beams length will be between main beams.

Slabs to be measured in Cum between beam to beam.

Chajjas will be measured in CUM. Width to be measured beyond lintel width.

For staircase, RCC steps, waist slab, beams will be measured in Cum.

PRECAST CONCRETE:

All provisions in the specifications for concrete shall apply to precast concrete except for the specific variations given herein below:

Aggregate:

For maximum size of aggregate shall not be larger than one third of the minimum dimension of the member.

Concrete Cover:

For all surfaces not exposed to weather, all reinforcement shall be protected by concrete equal to the nominal diameter of bars but not less than 15mm.

Concrete Cover:

For all surfaces not exposed to weather, all reinforcement shall be protected by concrete equal to the nominal diameter of bars but not less than 15mm.

Care:

The concrete in one precast piece shall be placed in one operation. No piece shall be removed from the mould or erected until sufficiently natured to ensure that no damage may occur to the piece.

Details:

All details of jointing, inserts, anchors and bearing widths etc., shall be as shown in the drawings.

Identification and Marking:

All precast concrete members shall be properly marked to indicate the top of the member and its location.

Transportation, Storage and Erection:

While handling, including loading/unloading, the members shall be supported/hung at such suitable points, so that the member may safely withstand all the loads/stresses etc., that may occur/develop. For this, suitable hooks/markings etc., shall be provided, while casting itself, as may be necessary and or as directed.

Units shall be stored, transported and placed so that they will not be over stressed/pressed or damaged.

Precast concrete units shall be adequately braced and supported during erection to ensure proper alignment and safety and such bracing and supports shall be maintained until there are adequate permanent connections.

C. MASONRY:

BRICK MASONRY:

Bricks:

- a. The bricks shall be of locally available quality(Class-1), and having the specified crushing strength, and shall be of quality approved by the Employer & Architect before placing orders for the same.

- b. They shall be sound, hard and well burnt. They must give a ringing sound when struck with a metal piece and shall have frog.
- c. They shall be free from cracks, flaws and nodules and also free from lime or stone pieces.
- d. All bricks when dry, shall have an average compressive strength not less than 35 Kg/Sqcm, unless otherwise specified.
- e. The bricks wherever specified as wire cut and or machine made, shall have compressive strength not less than 75 Kg/sq.cm, unless other wise specified. The crushing strength bricks of bricks which vary by more than 15% of average strength of that group of sample, must be omitted and average strength of balance bricks only shall be considered as representative of that lot of bricks.
- f. The contractor shall produce different brands of locally available bricks for approval by the Employer & Architect. If during the execution of the work, it is observed that the bricks of approved brand/quality are not sufficient in quantity or Manufacturer's have not maintained the same approved quality, then the contractor shall make alternate arrangements to procure bricks from any other source even with longer leads without any extra cost, after getting same approved in advance by the Architect & Employer, as done earlier.
- g. If the contractor executes the work, without approved quality of bricks, the same shall be liable for rejection or paid at reduced rates, at the sole discretion of the Employer & Architect, which shall be final and binding.

Mortar:

The sand should be only of approved quality and 'Coarse' unless otherwise specified. It will be screened and/or washed, if required and directed, without extra cost. Unless otherwise stated, cement mortar for brick work shall be of 1:6 (1 cement : 6 sand) proportion for walls of one brick thick and above. While for half brick walls or brick on edge work cement mortar shall be of 1:4 (1 cement :4 sand) proportion.

WORKMANSHIP:

Proportion and mixing of cement mortar:

Cement and sand shall be mixed in the specified proportion by volume by emptying cement bags on measured quantity of sand and thoroughly turning over the mixture in a dry state, till uniform colour is obtained. The mixture is made into

the form of a frustrum of a cone with a hollow at top centre, and then water added to it. The whole material is then thoroughly turned and mixed till mortar is homogeneous; and shall be mixed only for such quantities, which can be readily used. Not more than 30 minutes should pass between adding of water to the dry mixture and the actual placings of mortar in position.

Construction:

All brick work shall be set out and built to lines, levels, batters, curves and to any shape or position to dimensions, thickness and heights shown upon the drawings, and a good bond shall be preserved throughout the work both laterally and transversly. English bond shall be used throughout.

All bricks shall be thoroughly wetted before use in the manner that water penetrates to the full depth of brick stock, and every brick is fully soaked.

Single or double scaffolding of adequate strength shall be provided for all types of loads likely to come on them during construction. In case of single scaffoldings all the scaffolding holes shall finally be filled with cement concrete 1:3:6 (1 cement :3 coarse sand : 6 graded stone aggregate, 20mm nominal size) at contractor's cost.

All courses shall be laid truly horizontal and all vertical joints made truly vertical.

Where water is met within foundations, work space shall be kept free of water by the contractor while the brick work is in progress and until the mortar, pointing, plastering have properly set.

No half or quarter brick shall be used except as closures. The closures shall be horizontal and the walls shall be raised plumb. Not more than ten courses shall be raised in a day and no part of the work shall be raised more than one meter above another at any time.

Joints shall be uniform in thickness. All joints shall be adjusted to its final position in the wall while the mortar is steel soft and plastic. All vertical joints shall be full of mortar and well compacted with trowel and just sufficient water (so that cement/mortar does not flow out of the joints). No looseness/hollows in the mortar (in the joints) shall be permitted. Any unit, which is disturbed after mortar has stiffened or the mortar in the joints is loose or has hollows, shall be removed and re laid with fresh mortar.

All joint shall be raked out, while the mortar is still green, to a depth of 10mm (minimum) to ensure a good key for plastering.

Half brick walls shall be reinforced at every 4th bedded course with 25 x 1.5mm hoop iron reinforcement well in mortar, properly lagged etc., and as directed by the Architect. Alternatively, two 6mm dia bars be embedded in cement mortar in same

locations.

In brick arches or other circular work, the bricks shall be shaped to slope, joints radiating outward and correctly from the center, front to back of walls and joints shall be not more than 12mm thick.

All brick work shall be adequately watered atleast for three times as day, for ten days continuously.

During the rains and frosty weather, the work shall be carefully covered, without extra charge, so as to prevent any mortar being washed away etc. Should any brick work be damaged, the same shall be removed and rebuilt at the contractor's expense.

Chases and raked out joints shall be kept free from mortar or other debris. Spaces around door frames and other built-in items shall be solidly filled with cement mortar 1:3 (1 cement :3 coarse sand) or cement concrete 1:3:6 (1 cement :3 coarse sand : 6 hard stone aggregate of suitable size). Anchors, wall plugs, accessories, flashings and other items required to be built in with masonry shall be built in as masonry work progresses. Unfinished work shall be stepped back for jointing with new work. Tothing may be resorted to, only when specifically approved by the Architect. Before new work is started, all loose mortar shall be removed and the exposed joints shall be thoroughly cleaned before laying new work.

RATES TO INCLUDE:

Apart from other factors mentioned elsewhere in this contract, the rates for brick masonry shall also include following:

All materials, labour, tools/equipment used and other items intended for the satisfactory completion of brick masonry at all heights and depths.

Erecting and removing of all single or double scaffolding, (as may be directed/specified), ladders required for the execution of the work at any height and depth and shape as shown in drawings or as directed by the Architect & Employer, and as well cleaning everyday the surface of masonry executed on that day.

Cutting of brick work, raking out joints to received plaster, removing stains and mortar lumps, making required chases and openings and filling the chases with cement mortar not leaner than 1:4 (1 cement :4 coarse sand), all as specified/directed.

Reinforcement embedded in cement mortar, including cost of reinforcement, in half brick walls and brick on edge work.

Dewatering, wherever required.

MODE OF MEASUREMENT:

All brick work, except half brick work and brick on edge, shall be measured in cubic meters. Half brick and brick on edge will be measured in Sq.meters. Deductions shall be made for all openings, lintels, beams, chajjas/shelves bearings, and the like and columns etc., occupying full thickness of the walls.

No deductions will be made for ends only of

- i. Dissimilar materials like girders, beams, lintels, rafters etc., upto 500 Sq.cm. cross section, and for
- ii. Openings upto 0.1 Sq.m. in face area.

D.O. **RUBBLE MASONRY:**

MATERIALS:

Stones:

They shall be blue granite stones from an approved quarry.

They shall be tough, hard, dense, durable, sound, uniform in colour and texture and free from flaws, cracks, unjuries, veins, crystals, minerals, salt, cavities, skins (weathered surfaces) and other defects.

The stone shall not absorb water more than 5% of its dry weight, when immersed in water and tested as per I.S. 1224.

The contractor shall furnish a sample of stones which he intends to use on the works and get the same approved by the Architects, well before start of masonry.

All Royalties, Compensations, Taxes, Octroi, duties, etc., payable for securing stones shall be paid by the contractor and included in the rates quoted for respective items.

The mortar shall be as specified in the item or as shown on drawing. The sand shall be coarse and of approved quality and may be screened or washed, if required, without extra cost.

WORKMANSHIP:

Masonry:

The stones shall be hammer dressed, unless otherwise specified in the item, before they are laid in position. For masonry to be plastered, bushes on surfaces shall not exceed 12mm in thickness and for other (exposed) faces not more than 25mm.

The masonry shall consist of large stones flat bedded, properly selected for their places and carefully laid, with a suitable proportion of smaller stones and chips to fill up the interstices (but not on faces). No face joint shall exceed 20mm and shall also be not less than 10mm in width. The stones shall be wetted before laying in mortar. The work shall be hand set and solidly bedded in and surrounded with mortar fully and properly on every side except the face.

Flat stones shall not be less in breadth than in height and its length shall not be less than 1½ times its height.

Through stones or headers shall be laid in every course at a distance not exceeding 1.0 meter apart and shall be staggered. They shall be in one piece for walls upto 600mm width and shall be lap jointed (laps not less than 150mm) in case of greater thickness, if laps are desired by the contractor. In no case length of these stones shall be less than 400mm. Alternately headers may be of precast cement concrete blocks of cement concrete 1:3:6 (1 cement : 3 coarse sand: 6 hard stone aggregate 20mm nominal size) and in cross section, height shall be equal to the height of that course in the masonry. The face area of each header shall not be less than 0.05 sq.m. They shall be distinctly marked on their face.

Quoins shall have the same height as that of the course. They shall be laid header and stretcher alternatively. Faces of quoins shall be fair dressed. No quoin stone shall be less than 0.03 cum in content. Jambs or doors, windows and openings be formed with quoins only. They shall have uniform chisel draft of 40mm at the corner edges.

The masonry shall be laid to lines, levels, curves, and shapes as shown in the plans. The face of all masonry work shall be strictly in plumb. In the case of battered walls, the courses on the battered surface side shall be at right angles to the batter. All joints shall be raked out to a depth not less than 20mm, and

unless otherwise stated shall be flush pointed for all exposed surfaces with cement mortar of proportion (1 cement :3 fine sand). The width of pointing shall be uniform and constant.

The fixtures, plugs, frames etc., if any, shall be built in places as shown on plans, while laying the masonry, and not afterwards, by removing the stones already laid.

Bad work shall be pulled down, as directed by the Architect, and shall be rebuilt at the contractor's cost.

All masonry shall be washed down on completion and all stains and mortar removed from the faces as scaffolding is removed, on each day.

Holes of the required size and shape shall be preferably left during construction alone for fixing pipes, service lines etc. After the pipes are fixed in position the hollows if any, shall be filled in with 1:3 (1 cement : 3 coarse sand) cement mortar or 1:3:6 cement concrete (1 cement: 3 coarse sand: 6 graded stone aggregate 20/12.5mm nominal size as required). The face shall be neatly finished with matching stones. Iron and steel fixtures shall be embedded in cement mortar 1:5 91 cement :5 coarse sand).

In wet foundations, work space shall be kept free from water, while the masonry is in progress and until the mortar has sufficiently set.

Adequate single/double scaffolding as required and or directed for constructing masonry shall be provided and scaffolding holes filled with cement concrete (1 cement : 3 coarse sand : 6 graded stone aggregate 20mm nominal size) and finished to have surfaces matching with adjacent stones by the contractor at his expenses.

Coursed Rubble – Stone Masonry – Second Sort:

Exposed face stones shall be khandki dressed to have the vertical and horizontal sides perfectly straight, parallel at right angles to the adjacent sides. Where the interior face is to be plastered, the backing stones and hearting shall be as specified for uncoursed rubble masonry, chisel drafts of 37mm dia shall be provided at the external corners, when stone face is not chisel dressed.

Height of each course shall not be less than 150mm and all the stones in any course shall be of the same height. Unless otherwise stated, height of all courses shall be uniform. In no case the height of any course shall be more than any of the courses below it. The bed and joints shall be hammer or chisel dressed back from the face for 3” and 1½” width respectively. The faces of the stones shall be hammer dressed and bushings shall not be more than 10mm. Thickness of the joints shall not exceed 10mm. Stones shall break joints atleast half of the height of the course.

Quoins shall be atleast 0.5m long (limited to thickness of wall when single piece placed across the jamb), laid square on their levels and beds shall be fair dressed to a depth of atleast 10mm. Face joints shall not exceed 15mm.

Uncoursed Rubble Masonry:

Rubble stones shall be uncoursed blue granite stones from an approved quarry. They shall be tough, hard, dense, durable, sound, uniform in colour and texture and free from flaws, cracks, injuries, veins, crystals, minerals, salts, cavities, skins and other defects.

If ordered by the Architect & Employer, 75 x 75mm or of specified size weep holes shall be provided in the masonry without any extra cost, at spacings as directed by the Architect.

During the progress of the work, if necessary, diversion of the nalla shall be provided and maintained by the Contractor at his own cost.

In wet foundations, work space shall be kept free from water while the masonry is in progress and until the mortar has sufficiently set in. Dewatering shall be done bailing out water or pumping out water by the contractor at his own cost.

Adequate scaffolding required for constructing masonry walls shall be provided by the contractor at his expenses.

Flush cement pointing shall be done in cement mortar 1:3 (1 cement : 3 fine sand) unless otherwise specified. The width of pointing shall be constant and not varying.

Stones shall be hammer dressed. Nearly half the stones shall not be less than 0.01 cum each in content and 25% of stones shall tail back into the masonry by 40mm or more. The stones shall be so arranged to break horizontal joints atleast by 50mm and long vertical joints being carefully avoided.

Cement mortar shall be of (1:6) proportion, unless otherwise specified. For masonry to be plastered, bushes shall not exceed 12mm, in thickness.

Flat stones shall not be less in breadth than in height and its length shall not be less than 1½ times its height.

The masonry shall consist of large stones flat bedded, properly selected for their places and carefully laid with a suitable proportion of smaller stones and chips to fill up interstices (hearting). The stones shall be wetted before laying in mortar. The whole work shall be hand set and solidly bedded and surrounded well with compacted mortar on all sides, except the face.

Through stones or headers shall be laid in every course at a distance not exceeding 1m. apart and shall be staggered. They shall be in one piece for walls, upto 600mm width and shall lap atleast 150mm for thicker walls. Face area shall not be less than 0.05 Sqm. They shall be distinctly marked less than 400mm.

Alternately headers may be of precast cement concrete blocks of cement concrete 1:3:6 (1cement : 3 coarse sand : 6 hard stone aggregate 20mm nominal size) and in cross section, height shall be equal to the height of that course in the masonry.

Quoins shall have same height as courses and shall be laid alternatively header and stretcher. They shall be fair dressed and shall be less than 0.03 cum in content. Jambs of doors, windows and openings shall be formed with quoins. They shall have uniform chisel draft of 40mm at the corner edges.

The masonry shall be laid to lines, curves, levels and shapes as shown in drawings. The face of masonry shall be in plumb. In case of battered walls the courses on the battered side shall be at right angles to the batter.

All face joints shall be raked out for a depth not less than 20mm, and unless otherwise stated, shall be pointed sunk/raised/flush (as may be decided by the Architect) with cement mortar 1:3 (1 cement : 3 fine sand) in case of all exposed surfaces. The pointing shall be of uniform and constant width. The masonry shall be shaded from the sun and watered well for 10 days.

For the days work, all masonry shall be washed down, on completion of days work, of all stains; and mortar splashes removed from the face for the days work and before the scaffolding is removed.

The joints shall be uniform on the face and be not more than 20mm in width.

Random Rubble – First Sort:

Stones shall be roughly chisel dressed. They shall be so arranged as to break joints as much as possible, avoiding continuous lines of joints horizontal and vertical. Quoins shall be same as for coursed rubble second sort.

All stones shall be carefully fitted with uniform thickness of joints not exceeding 20mm. Face joints shall be chisel dressed for a depth not less than 25mm for fitting in position properly.

All other details shall be same as for coursed rubble stone masonry 2nd sort.

D.3.0 **MODE OF MEASUREMENT:**

Masonry work will be paid in Cu.m. All deductions shall be made specified for brick masonry work.

D.4.0. **STORM WATER DRAINAGE:**

Storm water drains shall be constructed as per drawings/directions, and on either one or both sides of the road, (unless the land beyond both the shoulders slopes

away adequately), to serve as catch water drains and or for continuing upstream drain. The dimensions and slopes shall be as detailed in the drawings and as required and directed. Bed concrete shall be of P.C.C. 1:3:6 (1 cement : 3 coarse sand :6 hard graded stone aggregate 40mm size) of 150mm thickness. Drains shall be constructed either in rubble masonry or brick masonry as required and shall be plastered in CM 1:6 (1 cement : 6 fine sand) or as specified/directed. The sides of drains may also be of cast-in-situ or precast with cement concrete 1:2:4 (1 cement :2 sand : 4 hard graded stone aggregate 20mm nominal size), if so specified. When the drain is provided by the side of road, adjoining the shoulder necessary stone masonry parapets shall be provided over the drain wall on the road side.

D.5.0. **DRY RUBBLE PITCHING:**

The rubble stones for pitching shall be sound, hard and durable and fairly regular in shape. The average depth of the stones shall be not less than the specified thickness of pitching (and depth of any individual stone shall generally be less by more than 25mm) and each stone shall generally be not less than 0.01 cum or as ordered by the Architect & employer. The smaller size stones shall be brought to site only for the purpose of packing and wedging.

The slopes of the bank shall be made up with morrum and trimmed to the required slope and properly compacted in layers (each not more than 200mm) after adequately watering profile shall be put up with pegs and strings at required intervals for the pitching, to ensure that it is done true to line, curves, levels, thickness and slopes.

Toe wall as shown and directed shall be provided at the toe to support the pitching and shall be measured along with the slope of pitching. The pitching shall be commenced at the toe and laid course by course up the slope. The stones shall be laid closely in position on the prepared bed, and firmly set. The pitching shall be laid to line, levels, curves and slope as indicated in the plans or as ordered by the Architect & Employer. Each stone shall cover the full depth of pitching and shall be perpendicular to the sloping bed. The stones shall be laid with breaking joints as far as possible. Additional morrum, bedding, if required, for proper slope shall be laid out simultaneously, watered and well rammed. The joints between stones shall be filled in with spalls of proper size and wedged in with hammers to ensure tight packing or filled with CM 1:5 (1 cement :5 coarse sand) for depths not less than 75mm or as specified and directed. The item includes repairing disturbed pitching, if any, as and when required and directed.

Flush pointing shall be done in cement mortar 1:3 (1 cement :3 fine sand), if so specified/directed.

E. CEMENT PLASTERING/CEMENT POINTING:

MATERIALS:

Cement, sand and water constituting the materials for the work shall conform to the specifications laid down for the concrete work. Fine sand shall be used as per IS Code.

Lime required for neeru finish shall be of approved variety fat lime.

Mortar shall be in proportions specified in the bills of quantities.

WORKMANSHIP:

General:

Adequate single scaffolding (if specifically permitted) shall be provided by the contractor at his expense and the scaffolding holes shall be filled in with cement concrete 1:3:6 (1 cement : 3 coarse sand: 6 hard graded stone aggregate 20mm size) compacted well and plastered over before lowering the scaffolding just below, if any, without any extra cost. In case double scaffolding is done, nothing extra shall be paid.

Dewatering the foundation if required, shall be done by the contractor at his own cost.

The surfaces to be plastered shall be first cleaned and watered well in advance and thoroughly wetted before plastering.

Smooth surfaces of concrete, old plaster etc., shall be suitably roughened or removed to provide necessary bond for the plaster. All dirt, spots, oil paint etc., which prevents proper bond with plaster, shall be removed.

Patches of plaster 150 x 150mm shall be put on about 3 meter apart as gauges, to ensure even plastering in one plane.

All plaster work will be done to lines levels and plumb and to the satisfaction of Architect & Employer.

For walls, columns and beams, thickness will be minimum 20mm for external faces and 15mm thick for internal faces, while for ceiling it shall be average 10mm, unless otherwise specified in bill of quantities.

The thickness specified shall be average and measured from the proud part of the surface.

Unless otherwise stated in Bill of Quantities, cement mortar shall be in 1:4 (1 cement :4 fine

sand) proportion.

Plaster with Neeru Finish:

The surface thus rendered shall then be finished with good quality of lime neeru. Neeru may be prepared at site out of the best quality of fat lime slaked at site

with fresh water and sifted as specified. The slaked and sifted lime shall be reduced to a fine paste by grinding in a mortar mill (150 turns). Only sufficient quantity which can be used within 10 days only, shall be prepared at a time. Chopped hessain or jute fibre in the required quantity may also be added to neeru, if directed by the Architect & Employer. Otherwise ready madeneeru of approved quality can be used. If required, plastered surfaces should be finished smooth with junction of skirting and plaster, if any, shall be finished as directed at no extra cost. All door/window jambs shall be finished as directed.

Plaster work shall proceed from top to bottom. An entire unobstructed surface shall be plastered in one operation. All exposed angles and junctions of walls and doors etc., shall be carefully flushed so as to furnish a neat and even surface. Before the base coat sets the neeru finish shall be applied and finished smooth. The entire plaster shall be surfaced truly vertical and horizontal. In case thickness item, no extra will be paid to the contractor.

All mouldings as shown on drawings or as directed shall be worked true to the template and drawn neat, clean and level, at no extra cost.

Bad work shall be pulled down as directed by the Architects/clients and shall be rebuilt by the contractor at his cost.

All plaster work shall be cured atleast for 7 days and to the entire satisfaction of the Architect & Employer. The curing shall be so done that damage to plaster with the impact of splashing water is avoided.

The contractor shall be responsible for making good any portion of plaster, which requires redoing, at his cost.

Rough cast Cement plaster:

The surface shall be cleaned as specified under cement plaster with neeru finish.

First coat comprising of cement and sand mortar 1:4 (1 cement :4 fine sand) with approved water proofing compound as per manufacturer's instruction, shall be applied uniformly with a trowel and flat board to exact plumb with thickness not less than 15mm and allow it to set for not less than half an hour.

While this is still green, the surface shall be roughened with wire brush. The surface shall be

cured for 4 days.

All loose particles shall be dusted and a second coat of average 6mm thick cement mortar 1:3 (1 cement :3 fine sand) shall then be applied. Sand used shall be screened through a mesh not less than 1/16” and not more than 1/8” size and thoroughly washed, if required. The finished surfaces shall be lightly pressed with close pricked wooden board or a wet sponge to bring the sand particles into prominence.

General workmanship, curing etc., shall be all as specified for cement plaster with neeru finish.

Water proof cement plaster:

This shall be all as specified herein before for cement plaster work except for the following:

- a) No neeru finish shall be applied over the rendered surface, but the rendered surface itself shall be finished smooth by steel trowelling.
- b) In the preparation of cement sand mortar, cement shall be mixed with an approved waterproofing compound such as pudlo, CICO No.1 water lock, impermo, composeal or of any other standard manufacturer as per the manufacturer’s instructions and as directed by the Architects.

Rate to include:

Apart from other factors mentioned elsewhere in the contract, rates for plastering shall also include following:

All materials, labour, use of tanks/implements for satisfactory completion of the work.
Erection, dismantling and removing single/double scaffolding.

Preparing all the surfaces to secure plaster.

Providing cement plaster of specified average thickness (measured from the proudest part of BB/stone work) and proportion at all heights and depths and to any shape as directed.

Curing for 7 days.

Chicken mesh of approved gauge shall be provided at all the junctions of concrete, masonry, timber and grouting of chases made for electrical/plumbing or other prupose as directed at no extra cost. Prover V-grooves must be made at all junctions of walls and slabs/beams/columns etc., at no extra cost.

Any moulding, bends, arisers, gooves/drip mould, rounding/Vatas, chamfering, soffits of

arches, and also making good damaged plaster after their (Contractor's) all the sub contractor or nominated sub contractors have done their work.

Mode of Measurement:

All plastering will be measured in square metre, unless otherwise described, as per relevant I.S. code.

Walls:

The measurement of walls plastering shall be taken between the walls or partitions for the length and from top of floor or skirting upto the ceiling bottom for the height. The dimensions before plastering shall be taken.

Ceiling:

Ceiling shall be measured between walls or partitions and the dimensions before plastering shall be taken. Ceilings with projected beams shall be measured over beam and the plastered side of the beam shall be measured and added to plastering on ceiling.

For jambs, soffits, sills, etc., for openings not exceeding 0.5 sq.m. each in area, ends of joists, beams, posts, girders, steps etc., not exceeding 0.5 sq.m each in area and openings not exceeding 3 sq.m each., deductions and additions shall be made in the following manner.

No deduction shall be made for ends of joists, beams posts etc., and openings, not exceeding 0.5 sq.m. each, and no addition shall be made for reveals, jambs, soffits, sills, etc., of these openings no for finishing the plaster around ends of joists, beams, posts, etc.

Deductions for openings exceeding 0.50 sqm but not exceeding 3 sqm each shall be made as follows and no addition shall be made for reveals, jambs, soffits, sills,etc., of these openings.

Deductions for openings exceeding 0.50 sqm but not exceeding 3 sqm each shall be made as follows and no additions shall be made for reveals, jambs, soffits, sills, etc., of these openings.

When both faces of wall are plastered with the same plaster, deduction shall be made for one face only.

When two faces of wall are plastered with different plasters or if one face is plastered and the other pointed, deduction shall be made from the plaster or pointing, on the side of frames for doors, windows, etc., on which the width of reveals is less than that on the other side, but not deduction shall be made on other

side.

In case of openings of area above 3 sq.m each, deductions shall be made for the openings, but jambs, soffits and sills shall be measured.

CEMENT POINTING:

Materials:

Cement, sand and water shall conform to the specifications laid down for the concrete work, fine sand to be used as per ISI code.

Workmanship:

Dust and mortar powder shall be brushed out of all joints. The surface shall then be washed with water and kept wet before pointing is commenced.

In case of dry rubble pitching, the cement mortar 1:4 (1 cement : 4 sand) proportion shall be well pressed into the joints with a pointed trowel and rubbed smooth. It shall not be spread over the corners, edges and face of the masonry. All superfluous mortar, if any, shall be removed, with a trowel. All joints shall be generally uniform in size.

The pointing shall be kept wet for atleast ten days. It shall be suitably protected from sun, rain and other factors during the period of curing.

E.4. **Mode of Measurement:**

Pointing work shall be measured in Sq.meters. Deductions for openings exceeding 0.5 sq.m. will be made, same as for plaster.

F. FLOORING:

GRANITE FLOORING SKIRTING AND FACING:

Materials:

Granite stone slabs shall of the thickness and type mentioned in the item and of the colour and quality approved by the Architects. Slabs shall be hard, dense, uniform and homogeneous in texture. They shall have even crystallized grain and be free from defects and cracks. The surface shall be mirror polished to an even and perfectly plain surface and edge machine cut, true and square.

No slab shall be thinner than the specified thickness, at its thinnest part. The dimensions of the slab shall be as specified in the item. A few specimens of approved finished slabs shall be deposited by the Contractor in the Architect's office for reference.

All the Granite slabs brought to site shall be got approved by the Architect & Employer, before using them in the work. Sizes of Granite slabs for floorings, steps/raisers and dado etc., shall be got approved by Architect & Employer, before ordering for the same.

Workmanship:

F.5.2.1 They shall be laid to the pattern shown in the drawings or as directed by the Architects.

The surface on which the Granite slabs are to be laid shall be cleaned of all dust and saturated with water.

The Granite slabs shall be set in cement slurry over cement mortar bedding as specified and tamped with wooden mallet. The joints shall not exceed 1mm. In thickness and shall be grouted/flushed with white cement mixed with pigment of suitable colour, if required, to match the shade/colour of slabs, and cured for 10 days.

GLAZED TILE IN FLOORS, DADOS & SKIRTING:

Materials:

glazed tiles shall be of first quality and of approved make and 5.5 mm in thickness. They shall be sound, hard and well and evenly glazed with fine and sharp edges, and free from twists. The rear face shall be grooved and recessed or suitably moulded, in parts, to provide necessary cessed or suitably moulded, in parts, to provide necessary key for mortar. They shall generally conform to I.S.777:1988 (Second revision). The tiles shall be of sizes 150mm x 150mm or 100mm x 100mm or as specified/directed.

Workmanship:

The tiles to be used for floor and dado shall be of the same manufacture and of first quality, as per approved sample.

Tiles shall be immersed in water for atleast 6 hours prior to their end use.

Cement sand mortar 1:4 (1 cement :4 coarse sand) bed (average 20mm thick for flooring and 12mm thick for skirting finished to proper levels and falls. After the surface has hardened sufficiently, it shall be roughened, cleaned and well set to receive a thin cement slurry of honey like consistancy. Tiles with their under side also smeared with cement slurry of honey like consistancy shall then be laid over the bedding and tamped into position properly to have the top surfaces in a true plane and level or to falls as directed.

For skirting/dado, the surfaces shall be plastered with cement mortar 1:4 (1 cement : 4 coarse

sand) to make the surface even and in plumb. The surface of the plaster shall be scarified with brush for getting a good bond between the back of the tiles shall be battered with cement paste and pressed on the plastered surface as per flooring and tapped in position.

Joints shall be thin, uniform, even and straight. The joints shall be cleaned off gray cement and pointed with white cement paste with pigment, if required, to match the shade of the tiles. The work shall be cured for 7 days. After curing, the surface shall be washed clean with water and oxalic acid. The finished floor skirting/dadoo shall not sound hollow, when tapped with a wooden mallet.

MODE OF MEASUREMENT:

All flooring work will be measured in Sq.metre basis and shall be measured between unplastered wall surfaces. Skirting and dado will be measured in Sq.meters and the height above flooring will be measured, length between the finishes of adjoining walls, if any.

- F.7. The ceramic flooring shall be of first quality and of approved make and 7.5mm in thickness. They shall be sound, hard and tough as per manufacturers specification. The rear face shall be groove and recessed or) suitably manholed in part to provide necessary key for mortar. The tiles shall be of sizes 12" x 12", 8" x 8" (or) as specified/directed.

G. WOOD WORK:

MATERIALS:

Unless otherwise stated the timber used in this project will be second class teakwood and shall be got approved from the Employer & Architect before using it in work. The timber shall be well seasoned and free from shakes, fissures, cracks, large/loose knots or other major defects. It shall also be free from spongy, brittle, flaky wood, sapwood and all such defects, which will affect its strength, durability, appearance or usefulness for the purpose for which it is required. Any effort such as plugging, painting or using any adhesives, to hide any defects, shall render the timber liable to rejection by the Employer & Architect. No individual hard and sound knot shall be more than 40mm dia and the aggregate area of all the knots shall not exceed 1.5% of area of the piece for purposes of acceptance. It should confirm to relevant I.S.I003.

Any timber rejected for any reason whatsoever, shall at once be removed from the site of work.

Glue: Organic type shall comply with specification I.S. 852 –1957 and synthetic type shall comply with I.S.851 – 1957 in all respects.

Nails, screws, ties, straps, bolts, etc., shall be of the material, make and pattern as approved

by the Architect. Unless otherwise specified, they must be of mild steel and be of such sections and design, such that they serve the purpose adequately.

The Contractor shall get all the wood approved by Architect & Employer, before taking permission of the Architect to apply paints, oils or otherwise treats wood work in anyway whatsoever.

All embedded parts of wood work shall be well painted with two coats of hot boiled tar or creosoted, as approved by the Architects/Employers.

WORKMANSHIP:

All the wood work shall be neatly and truly finished as per tender item dimensions with not more than 3mm, planning margin. Unless otherwise specified, the exposed wood work shall be accurately planned to the required dimensions, within planning tolerance, smooth and to lines, planes, curves or shapes as required.

All the necessary joinery work shall be carefully done as per normal standard practice and Architects instructions. All framed joinery for external work shall

be put together with white lead and joints pinned with hardwood or Fevicol. For internal work, unaffected by moisture, the joints may be glued and pinned or joined with fevicol as directed.

Framed/Fabricated wood work includes all sawing, cutting, planing, jointing, framing, supply and use of all straps, bolts, holdfasts, nauls, trensils, spikes, screws, etc., as may be necessary to complete the work and for fabricating/framing and or fixing. Fabricating/framing and trussing shall be done in the best possible manner and as shown on the drawings or as directed by the Architects/Employers.

The contractor shall provide labour, scaffolding, ladders and tackle necessary for hoisting and fixing wood work in position and afford facilities for its inspection during construction. The contractor shall be responsible for the safety of the work, workmen and for any action or compensation that may arise in this connection.

All iron work connected with wood work and going to be embedded in masonry shall, before erection, receive 2 coats of solignum/creosote. If it is to be painted, it shall be given one coat of red oxide primer and one coat of finishing paint on the ground, before being fixed in position and afterwards second coat of finishing paint.

All wood shall be got inspected and passed by the Architect & Employer before being put into work. The architect defective quality, despite his having previously passed the same before it was worked upon. In no case the wood work shall be painted or otherwise, before it is inspected and approved by the Architect.

After fixing the wood work in position, if any defects, including damaged edges of the frames, are noticed by the Architect & Employer during the execution of work or in the defects liability period, the contractor shall have to rectify the same or remove and replace the defective work, as directed and to the satisfaction of Architect & Employer, at no extra cost.

Any cutting and waste of timber, that may be incidental in carrying out an item, shall not be paid for extra, but shall be included in the rate for the item.

T.W.DOORS AND WINDOWS:

Timber used for this work, shall be locally available second class teakwood, unless otherwise specified, and of approved quality and as per the sample approved by the Employer and Architect. As specified in the item, all the doors shall have teakwood door frames or pressed steel frames of approved make, quality and size, with three numbers holdfasts on each leg. Teakwood beading/cover moulding will be provided wherever necessary and at no extra cost. Hold fasts shall be embedded in concrete blocks, as shown in drawings or as directed.

For flush doors, shutters to be used shall be solid core of best approved make (BWP quality) with ISI mark, 30mm thick (unless otherwise specified) inclusive of either commercial ply, veneer or formica of approved shade and design/pattern on one or both sides as specified and shown in the drawings and shall be bonded with phenol Formaldehyde synthetic resin. If so specified, all flush shutters shall have teak wood lipping on all four sides, as directed, which shall be fixed at site. All solid core shutters shall generally conform to IS 2202 (Part I) & (Part 2) :1983.

For full panelled doors, the shutters shall be of best quality factory made with ISI marking and to be approved by the Employer and Architect and having panels of 19mm thick best approved make and quality marine ply, unless otherwise specified, and as shown in drawings or as directed.

The fixtures and fittings required for all the doors and windows shall be got approved from the Employer and Architect before placing the order. Any fixture found damaged or missing at the time of handing over shall be replaced by the contractor and surface of joinery made good as directed at no extra cost.

All the timber work including pressed steel frames shall be painted with 3 coats of synthetic enamel paint (including primer coat) of best approved make and shade as directed. In case of teak ply or decorative ply veneered shutters, they shall be French polished/wax polished, as per specifications and as directed.

GLASS:

All glass used in the doors, windows and ventilators etc., shall be of the best quality, free from specks, bubbles, smoke, veins, airholes, blisters and other defects. The kind

of glass and its thickness shall be as mentioned in the item or a shown in detailed drawings or as ordered by the Architect. The glass shall generally conform to I.S.1765.

Sheet glass shall be best quality of approved make plain/ground/frosted, and either 4mm or 5.0mm thick, as specified. For Bath/W.C. windows 3.8 to 4mm thick frosted glass shall have to be used as directed.

Plate glass shall be polished patent plate glass of best quality. It shall have both surfaces flat and parallel and polished to give clean undistorted vision. All mirrors shall be of plate glass and give clear undistorted reflection. The thickness of the glass shall be as mentioned in the item or shown in the detailed drawings or as directed by the Architect. Minimum thickness of plate glass shall be 4mm to 5.5mm.

Float glass, wherever specified shall be “Bronze tinted” manufactured by FLOAT GLASS INDIA LIMITED to thickness as specified.

Obscured or ground glass:

This glass transmits lights, but the vision is partially or almost completely obscured. Principal types are plain, rolled, double rolled, figured, ribbed, fluted, frosted (on one or both sides) and rough cast. The thickness shall be as specified in the item or as mentioned in the drawings or as directed by the Architect.

MODE OF MEASUREMENT FOR DOORS AND WINDOWS:

Payment will be made for the area of opening in the masonry as per relevant ISI. The height of the door shall be measured from finished floor level to the bottom of lintel on the top.

ALUMINIUM DOORS, WINDOWS & VENTILATORS:

All aluminium doors shall be procured from approved manufacturer. Aluminium section shall be extruded tubular hollow sections confirming to latest I.S. specifications. All sections shall be approved by the Architect & Employer before placing the order. All extruded sections shall have minimum 1.8mm wall thickness. The aluminium sections shall be anodised in natural matt finish and the anodize film shall be 15 microns, unless otherwise specified.

Openable windows shall be double weather-stripped. One weather-strip shall be provided in the outer frame and the other weather-strip in the shutter frame. The weather-strip shall be of extruded neoprene and of a size to make the windows completely weather tight. The weather strip shall be dovetailed into the window

section. The hinges of openable windows shall be strong. Pin of the hinges shall be of stainless steel with nylon/PVC washers. In case the windows are projected type, the hinges shall be provided with brass pivots sliding on stainless steel guides. Concealed type friction stays shall be provided to keep the windows open in any desired position. The window shall be provided with handle for two-point locking or single point 4mm thick or 5.5mm thick float glass of first quality and approved make, free from scratches, waviness, bubbles etc., all as shown in drawing or as specified and directed.

SLIDING WINDOWS: As per latest specification of CPWD

All sections of aluminium doors windows & ventilators shall be as per standard sections as approved by the Employer/Consultant.

I.O. **WATER PROOFING TREATMENT:**

Water Proofing Treatment for Terraces

- a. Providing & applying one coat of UV resistant polymer cement based waterproofing slurry coating of approved make and quality on concrete or plastered surface as per specifications including preparation of surface by cleaning brushing and dust removing, filling of cracks and making the surface leak proof by mixing one part of chemical with 2 parts of cement and 2 parts of water (covering area 1.86 Sq.M/Kg of chemical) including cost of cement, labour, tools & plant, scaffolding if necessary etc., complete as directed by Engineer in Charge.

Note: Undulations/cracks found on the surface should be rectified with Cement Motor before application and the same will be included in the quoted rate. Clear horizontal measurements (in plans between the parapet walls) will only be paid vata will neither be measured nor be paid separately). Specialized water proofing agency will have to furnish 5 years guarantee on requisite stamp paper for the work as per the Performa approved by the Architect.

- b. Providing including gola 75x75 mm in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 stone aggregate 10mm and down gauge) including finishing with cement mortar 1:3 (1 cement : 3 fine sand) as per standard design.
- c. Making khurras 450 x 450mm with average minimum thickness 50mm cement concrete 1 : 2:4 over P.V.C. Sheet 1 Mtr. x 1 Mtr. x 40micron finished with 12mm cement plaster 1 : 3 and one coat of neat cement, rounding edges and making and finishing the out let complete. A bank guaranty of equivalent amount has to be deposited for a period of 5 years.

Water Proofing Treatment for toilets & bath rooms:

The surface shall be cleaned to remove all dust, foreign matters, loose materials or any deposits of contamination by scarifying, grinding, water blasting or by any other approved method. All concrete surfaces shall be thoroughly pre-wetted prior to the application of CICO TAPECRETE P-151 coating by pouring water on flat surface or by spraying water on vertical/inclined surfaces. The surface needs to be damp only with no standing water. Apply Tapecrete

polymer mix (mixed with neat cement in ratio 1:2 by weight) in two coats. First coat should be allowed to dry for 5 hours. After maximum period of 6 hours after the final application, moist curing shall be done for the next 24 hours by spraying/sprinkling of potable water. Following moist curing the application is allowed to air dry for 2 days and subsequently should be tested for water leakage by submerging in water for 24 hours. The item includes laying 15 mm plaster in the ratio 1: 4 (Cement: Sand) admixed with CICO Super @ 100ml per 50 kg cement on treated horizontal surface and carried upto treatment on vertical portion (walls).

Packing & Sealing of the out let pipes & Holes.

Packing and grouting pipe crossing in and of toilets sunken and beams. Preparing, shuttering ,supplying,mixing,applying finishing, grouting and cutting the pockets holes left for pipe line crossing in the slabs and beams by using GP2 sealant or equivalent as per manufacture specification.

J. PAINTING/POLISHING WORK:

LIME WASHING AND COLOUR WASHING:

The materials for preparing the lime wash shall be freshly burnt fat lime of good quality free from unburnt stone and other foreign matter.

This shall be dissolved in sufficient quantity of water (about 4-5 litres/Kg of lime), stirred thoroughly and strained through a clean coarse cloth. Alternately, ready made whiting, complying with I.S.63-1950, may also be used. Clean gum dissolved in hot water shall then be added in suitable proportion of 2 gm. of gum-arabic to a litre of lime, to prevent lime wash coming off easily when rubbed.

Colour wash shall be lime wash prepared as above, to which a solution of water, lime and fast pigment, boiled if directed, shall be gradually added and stirred until the required shade/tinge is obtained.

As required, single or double scaffolding or ladder shall be used, without damaging or scratching the wall/plastered surfaces/floors.

The surfaces to be painted shall be prepared by removing all mortar droppings and foreign matter and thoroughly cleaned with wire or fibre brush. All holes or depressions shall be stopped with mortar and cured and surfaces made even and smooth before painting.

Colour/lime wash shall be applied with a brush. The first stroke of brush shall be from top downwards, next from bottom upwards over the first stroke and further a stroke over the earlier brushing before it dries. This will form one coat. Each coat must be allowed to dry and shall be subject to inspection before the next coat is

applied. When dry, the surface shall not show signs of cracking and shall present a smooth and uniform finish, free from brush marks, and it shall not come off easily, when rubbed with a finger. Patchy or streaky work will be rejected and shall have to be re-executed at the contractor's own expense. Unless otherwise specified, 3 coats of lime wash or colour wash shall be applied.

Doors, windows, floors and other articles of furniture etc., shall be protected from being splashed upon. Splashing and droppings, if any, shall be removed and surfaces cleaned.

J.2. **CEMENT WASH:**

Dry Distempering:

Material:

Powdered dry distemper shall be of approved make, colour and shade and manufactured by approved manufacturers. It shall generally conform to IS:427 – 1965.

Scaffolding:

This shall be double or single as required and directed.

Preparing the surface:

The surface to be distempered shall be cleaned well and all cracks, holes and surface defects shall be repaired with gypsum and allowed to set hard. All irregularities shall be sand papered smooth and wiped clean. The surface so prepared must be completely dry and free from dust before distempering is commenced. In the case of newly plastered walls, special care shall be taken to see that it is completely dry before any treatment is attempted. For old surfaces, which has earlier been distempered, the surface shall be cleaned well of grease, dust etc. The flaking of previous coating, if any, shall be removed/ taken off.

All cracks, holes and surface defects shall be repaired with gypsum and allowed to set hard and then sand papered and wiped clean. But in case the surfaces were colour or white washed, the wash must be removed thoroughly first.

Priming Coat:

The priming coat shall be applied over complete dry surface in the manner recommended by the manufacturer in case of patent distemper. When no priming coat is specified by the manufacturer, finely powdered chalk mixed with a thin solution of glue shall be applied to prepare a good hard background. This coating, when dry, shall be sand papered as close and smooth as possible.

Application of Distemper:

The instructions of the manufacturer shall be followed, regarding the preparation of the surface and application of priming and finishing coats. Distemper shall not be mixed in quantities larger than is actually required for a day's work. Hot water may be used to prepare the mixture. Distempers shall be applied in dry weather with broad stiff brushes in long parallel strokes. The treated surface shall be allowed to dry and harden. Second or succeeding coats shall not be applied until the preceding coat has passed by the Employer & Architects. Two more coats of distemper shall be given in exactly the same manner as the first one but only after the earlier coat laid has thoroughly dried. All the operations (strokes of brush) for one coat of white/colour wash will give two coats in case of distemping.

Rates to be inclusive of:

The rates shall include all labour, materials, equipment and tools for carrying out the following operations:

- i) Providing and mixing the primer and distemper separately.
- ii) Scaffolding.
- iii) Preparing the surface to receive the priming and finishing coats.
- iv) Applying the priming coats.
- v) Each coat to be completed in all parts of one building and got approved, before starting next coat in that building, and shall not be done room wise or floor wise.
- vi) Applying the distemper in 3 coats minimum, including primer coat. If a proper even surface is not obtained to the satisfaction of the Employer & Architects in 3 coats contractor shall carryout additional coats of distemper to approval, at contractor's own expense.

ACRYLIC WASHABLE DISTEMPER:

Washable acrylic distemper shall be conforming to IS 2395 – 1 – 1966 and shall be of approved make and shade.

As required, single or double scaffolding shall be used. Ladders, if used, shall be tied with old gunny bags at top to prevent damage or scratches to the walls/floors etc.

The instructions of the manufacturer shall be followed regarding preparation of the manufacturer shall be followed regarding preparation of the surface and application of priming and finishing coats.

Where the specifications of the manufacturer are not available, the following instructions shall be carried out:

The surface shall be cleaned and all clears, holes and surface defects shall be repaired with gypsum and allowed to set hard. All irregularities shall be sand papered smooth and wiped clean. The surface so prepared shall be completely dry and free from dust before distempering is commenced. In case of newly plastered surfaces/walls, special care shall be taken to see that it is completely dry before treatment is attempted.

The old surfaces which had earlier been distempered, shall be cleaned of grease and dust etc. All cracks, holes and surface defects shall be repaired with plaster of Paris and allowed to set hard and then sand papered smooth and wiped clean. The flakings of previous coatings, if any, shall be taken off. But in case the surfaces are colour or white washed, the wash must be removed thoroughly first.

The priming coat shall be applied over complete dry surfaces as recommended by the manufacturers or patent distemper.

Distemper shall be applied in dry weather with a broad stiff brush in long parallel strokes. This shall be allowed to dry thoroughly before the next coat is applied. All the operations (strokes of brush) for one coat of white colour wash will give tow coats in case of distempering.

Rates to be inclusive of: The rates shall include all labour, materials, equipment and tools for carrying out the following operations:

- i) Providing and mixing the primer and distemper separately.
- ii) Scaffolding.
- iii) Preparing the surface to receive the priming and finishing coats.
- iv) Applying the priming coats.
- v) Each coat to be completed in all parts of one building and got approved, before starting next coat in that building, and shall not be done room wise or floor wise.

- vi) Applying the distemper in 3 coats minimum, including priming coat. If a proper even surface is not obtained to the satisfaction of the Employer and Architects in 3 coats contractor shall carryout additional coats of distemper to approval, at contractor's own expense.

WATERPROOF CEMENT PAINT:

The waterproof cement paint shall be of Super Snowcem or of any approved manufacture and it shall be of approved colour and shade. It shall be brought to site in original air tight containers with seals intact.

Double scaffolding and ladders shall be provided, if necessary, without damaging the wall surfaces to be painted.

The preparation of surface, mixing of paint and application shall be done as specified by the manufacturer. In the absence of manufacturer's specifications, the following shall be followed:

The surfaces shall be thoroughly cleaned free from dirt, dust, etc., by brushing and washing down with clean water. Any grease, oil paint or other foreign material shall be removed by approved method.

Colour/Lime wash and or distemper shall be thoroughly removed by washing, brushing and if necessary the accumulated coats of oil paint shall be removed by thoroughly brushing or scraping and washing and a clean even surface obtained.

Rough cast plaster and pebble dash surfaces shall be thoroughly brushed and washed to remove dust and dirt.

Dry cement paint shall be thoroughly mixed with clean fresh water to produce paint of required consistency. It shall be strained through a paint strainer. The paint shall be kept stirred thoroughly and applied within the specified time. Hardened or damaged paint shall not be used.

The paint shall be applied by brush. Each paint coat shall be properly cured and got inspected and approved by the Architects/Employer before the next coat is applied. Minimum 2 coats will be applied but if the work is not satisfactory, more coat/coats shall be applied as directed at no extra cost.

Absorbent surfaces shall be evenly damped so as to give even suction in dry weather, freshly painted surfaces shall be kept damp for atleast two days.

For smooth surfaces one coat of primer shall be applied as per manufacturer's specifications and three more coats of cement paint of approved shade shall be applied. All operations (strokes of brush) for one coat of white (colour wash will give two coats of cement painting).

Rates to be inclusive of: The rates shall include all labour, materials, equipment and tools for carrying out the following operations:

- i) Providing and mixing the primer and waterproof cement paint distemper separately.
- ii) Scaffolding.
- iii) Preparing the surface to receive the priming and finishing coats.
- iv) Applying the priming coats.
- v) Each coat to be completed in all parts of one building and got approved, before starting next coat in that building, and shall not be done room wise or floor wise.
- vi) Applying the waterproof cement paint in 3 coats minimum, including primer coat. If a proper even surface is not obtained to the satisfaction of the Employer & Architect in 3 coats, contractor shall carryout additional coats of work to approval, at contractor's own expense.

vii) Water repellent silicon liquid paint:

Multipurpose protective coating.

PIDICOTEW – 100 is a protective coating system designed for vertical walls, and acts as a one-way membrane, allowing moisture to escape to the surface but prevents moisture ingress into the treated structure.

Application Areas:

- External wall surface for durable insulation effect.
- For wall surfaces, can be used as protective coating in the desired colour.
- For protecting industrial as well as residential structures from weathering effect.

Coverage:

- 10 to 12 Sq-m/lit of PIDEBIND P – 100 on smooth surface once the area is covered properly with primer coat then, apply one coat of PIDICOTEW – 100 with a coverage rate of 5 sqm/lit.

- After 1 hour of drying of first coat, second coat of PIDICOTEW – 100 shall be applied with the coverage rate of 5 sqm/lit.

MODE OF MEASUREMENT (FOR J1 TO J5):

For all the above painting items, Mode of measurement shall be same as that of plastering and shall be in Sq. Meters. No extra payment shall be made for painting rough cast surfaces or sandfaced surfaces.

ENAMELLED PAINTING:

Materials:

The paint shall be of the specified colour and shade and of an approved make by the Architect & Employer. The paint shall comply in all respects with relevant Indian Standard Codes.

The make and brand of the paint to be used on the work shall first be got approved by the Architects/Employer. The material shall be obtained directly from the approved manufacturers or authorized dealers and brought to the site in the manufacturers drums etc., with seals unbroken.

Paint for undercoating and finishing coat shall be ready mixed. Mixing by contractor is not permissible except with prior written approved of the Architects/Employer, in which case the preparations of ingredients and their quality shall be strictly maintained as per manufacturer's instructions and relevant I.S. codes.

All the materials shall be kept properly protected when not actually in use. Lids of containers shall be kept closed and surfaces of paint in open shall be covered with a thin layer of turpentine to prevent formation of a skin.

In case of doubt regarding the quality, the paint supplied by the contractor shall be got tested in an approved laboratory as described in I.S. 101 – 1964, if considered necessary by the Architect. The cost shall be borne by the client, if the results are satisfactory, and by the contractor if otherwise. The rejected paint shall be removed from the site of work forthwith.

PREPARATION OF SURFACE:

Plastered Surfaces:

New plaster shall not be primed or painted till it is completely dry and hard. The surface shall be carefully rubbed smooth and thoroughly cleaned. The surface shall be dry, smooth, clean and free from dirt.

Steel work (NEW):

Degreasing shall be done by either proprietary brands of approved solvent cleaner or by mineral turpentine or petroleum and other petroleum solvents, like trichloroethylene alkali solutions or detergents as directed by the architects.

The de-rusting shall be done by manual scraping (by wire brushes, fine steel wool scraper, sand paper etc.) and/or mechanically by sand blasting, shot blasting or flame cleaning or chemical methods as approved by the Architects.

Steel work (Old):

For repainting necessitated due to any specified reason the relevant instructions given in I.S. 1447:1966 shall be followed. If necessary and ordered by the Architect, the surface shall be cleaned completely as for new steel.

Wood Work:

The surface to be painted shall be thoroughly dry, clean and smooth. It shall be sand papered with coarse medium grade sand papers and the finished surface shall be free from scratches.

Before applying primer, knots, if any, shall be covered with preparation of red lead made by grinding red lead in water and mixing with glue sized and used hot. The surface prepared for painting shall be dry before paint is applied. The holes and indentation on the surface shall be stopped with putty. Stopping shall not be done before the priming coat is applied.

Application:

All brushes, tools, etc., used shall be cleaned of all foreign matter at the beginning of different operations being undertaken.

Paint may be applied by spraying or brushing. Unless otherwise specified, paint shall be applied with brushes. Brushes of appropriate size shall be either round or oval shaped and they shall be maintained carefully throughout the work so as to be pliable and free from bristles.

The contents of the drum and tins shall be well stirred with a small clean and smooth stick before using and occasionally during use to prevent sedimentation at the bottom of the container.

Painting shall be carried out as far as possible in dry and warm weather.

Single or double scaffolding shall be used as necessary, by the contractor at his

cost. Ladders, if used, shall be tied with old gunny bags at top to prevent damage or scratches to the walls, floors etc.

The primer coat shall be applied as soon as the surface has been cleaned and before deterioration of surface by rust and contamination of the surfaces by dust, dirt or any other foreign material.

Sufficient time shall be allowed for each coat of paint to dry before the next is applied.

Painted surface shall be protected from sun, rain, condensation, contamination or surface damage, till it is completely dry. 'Wet paint' shall be put, when necessary.

Preparation of surfaces, priming coat, undercoat and finishing coats shall be applied as specified or recommended by the manufacturer. Where no specifications are available, the following specifications will be followed.

Primer Coat: Plastered surface:

Priming coat shall consist of equal parts of white and red lead mixed in boiled linseed oil to the required consistency applied uniformly over the surface. When this coat is dry, all cracks, holes and other such defects shall be filled with a mixture of one part of white lead and 3 parts of ordinary putty. After drying, the surface shall be rubbed with sand paper and dusted clean. An undercoat shall be applied thinly so that plaster may be thoroughly saturated. One or more undercoats with putty shall be applied as required and directed to obtain thoroughly saturated surface to the satisfaction of Architect & Employer.

Steel Work:

The primer coat be of red lead conforming to I.S.102 – 1962. Undercoating and puttying shall be done, if necessary. For old painted surfaces and new surfaces already primer with red lead/red oxide, the surface shall be cleaned thoroughly and primed with red lead/ red oxide, at some places, where necessary or over the whole surface as directed by the Architects.

Wood Work:

The primer coat shall consist of red lead, white lead, raw and boiled linseed oil and patent driers.

After priming coat, all small holes, cracks, open joints and other minor defects shall be stopped with putty made from whitening mixed to proper consistency with raw linseed oil and little white lead to help hardening of putty. The surface shall then be lightly rubbed down smooth with sand paper. One or more undercoats, with putty shall be applied as required and directed to obtain thoroughly saturated surface to the satisfaction of Architect & Employer.

Finishing coats:

Unless otherwise specified in the item, the finishing shall be done with atleast two coats of paint of approved make and shade conforming to the latest I.S. codes. The last coat of paint shall give a matt/flat, semi-glossy or glossy finish as specified for each item of painting or as directed by the Architect & Employer. Striple finish shall be given at no extra cost, if required, by the Architect & Employer. The finished surface shall be of the required shade and present an even appearance. It shall not show any brush marks. If required, final coat will be applied with rollers at no extra cost.

ENAMEL PAINT:

General specifications, preparation of surface and priming coat shall be same as specified for oil painting. Finishing shall be done in two coats or more as required with synthetic enamel paint of approved make and shade and shall generally conform to relevant I.S.codes.

RATE FOR ALL PAINTING WORKS TO INCLUDE:

Apart from other factors mentioned elsewhere in this contract, the rate for painting shall also include.

Providing all the materials/labour and equipment that is required to execute the work as specified.

Scaffolding (single/double) erection and removal.

Preparing the surfaces before painting.

Applying three coats of approved paint including priming coat. If proper & even surface or shade is not acquired, then extra cost/coats shall be applied as directed and to the final approval of the Architect & Employer, at no extra cost.

Applying additional priming coat/coats to obtain thoroughly saturated surface and filling the putty as required and directed.

No extra coat shall be paid for painting smooth/rough surfaces such as precast concrete pardis, rough cast plaster, sand faced plaster etc.

Curing the cement paint as directed for minimum 7 days.

Doors, windows, floors and other materials of furniture etc., shall be protected from being splashed upon. Splashing and droppings, if any, shall be removed and

the surfaces cleaned as directed.

If any cracks develop in the plaster, before or after final painting, the same will have to be filled in by suitable putty and the surface painted again as directed to give an even surface to the approval of Architect & Employer at no extra cost. If neeru surface is damaged due to any reason before painting, then the surface shall be redone by using plaster of paris as directed, at no extra cost.

MODE OF MEASUREMENT FOR OIL, ENAMEL PAINT, POLISHING ETC:

Measurement of painted/polished surfaces shall be in Sq.m and as per plaster work.

For measurement of polishing/painting to joinery and steel work etc., multiplying coefficients, as in standard table shall, be as follows:

S.NO.	DESCRIPTION OF WORK	HOW MEASURED	COEFFICIENT
I.	<u>Wood Work – doors and windows</u>		

	<u>etc:</u>		
1	Panelled doors/windows.	Measured flat including frame.	1.30 (for each side).
2	Flush doors	- do -	1.20 (for each side).
3	Partly panelled and partly glazed or glazed doors/windows (for glazed portions only – for panelled portions as per 1 above).	- do -	
4	Fully venetioned or louvered doors/windows.	- do -	1.00 (for each side).
			1.80 (for each side).
S.N O.	DESCRIPTION OF WORK	HOW MEASURED	COEFFICIENT

II.	<u>Steel Work – Doors and Windows:</u>		
1	Fully glazed doors & windows.	Measured flat including frame.	0.50 (for each side).
		- do -	
2	Plain sheeted steel door,	Measured flat.	1.10 (for each side)
	windows. Collapsible gate.		
3		-do- jamb guides	1.50 (for painting all over)
	Rolling shutters of interlocked laths.	bottom rails, locking arrangement included (top cover shall be measured separately)	1.10 for each side.
4			
III.	<u>General work:</u>		
1	Expanded metal, M.S. grill work, grating in guard bars, ballustrades, railing and partitions.	Measured flat.	1(for painting a
	R.C.C. grill.	- do -	1(for each side).

The table given above is as per C.P.W.D. specification.

FRENCH SPIRIT POLISHING:

Materials:

French spirit polish shall be of an approved make conforming to I.S.348:1968 and shall be approved by the Architects. If it is to be prepared, the polish shall be made by dissolving 0.7 Kgs of best shellac in 4.5 litres of spirit or wine without heating. To obtain required shade, approved pigment shall be added and mixed in required proportions.

Workmanship:

Preparation of Surface:

The surface shall be cleaned. All unevenness shall be rubbed down smooth with sand paper and well dusted. Holes and indentations of the surface shall be filled with putty made of whiting and linseed oil. The surface shall be given a coat of filler made of 2.25 Kg of whiting and 1.5 litre of methylated spirit. When it dries, the surface shall again be rubbed down perfectly smooth with sand paper and wiped clean.

Application:

A piece of clean fine cotton cloth or cotton wool made into the shape of a pad shall be used to apply polish. The pad shall be moistened with polish and applied sparingly but uniformly and completely over the entire surface. It shall be allowed to dry and then only another coat is applied in the same way. To finish off, the pad shall be covered with a fresh piece of clean fine cotton cloth, slightly dampened with methylated spirit and rubbed lightly and quickly with a circular motion. The finished surface shall have a uniform texture and high gloss. Irrespective of number of coats, this will be carried out to the entire satisfaction of Architect & Employer.

POLISHING:

Materials:

This shall be of approved quality and make and brought to site in sealed containers as marketed by the manufacturers.

Workmanship:

J.12.2.1 Preparation of Surface:

Woodwork to be treated, shall be finished smooth. It shall then be stopped and rubbed down perfectly smooth with different grades of sand paper. (The final rubbing shall be done with sand paper which has been slightly moistened with linseed oil and rubbed one over the other for a few seconds).

J.12.2.2. Application:

The mixture of the polishing shall be applied evenly, with a clean cloth pad in such a way that no blank patches are left, and rubbed continuously for half an hour. When the surface is quite dry, a second coat shall then be applied and rubbed for two hours or more if necessary, until the surface has assumed a uniform gloss and is quite dry, showing no signs of stickiness when touched. Irrespective of number of coats, this will be carried out to the entire satisfaction of Architect & Employer.

MEASUREMENT:

Measurement for French/wax polishing and or polishing with ready made polish will be as per schedule stated herein before and the explanatory note on coefficient shall be as per C.P.W.D. specifications.

For all painting and polishing works (J.1. to J.12):

- (i) Detailed register shall be maintained, by the contractor, showing daily account of receipts, consumption and balance of different materials showing materials received and their consumption with location, and shall be checked by Employer & Architect as their discretion.
- (ii) Each coat of work shall be done in one building at a time and got approved before starting next coat in that building; and shall not be done room wise or floorwise.

Note: Any item not specified in this tender has to be executed as per latest standard CPWD specification or as per manufacturers specification.

INDEX FOR SPECIFICATIONS FOR WATER SUPPLY AND SANITARY WORKS

WATER SUPPLY:

1. CPVC pipes and Socket etc.

DRAINAGE:

1. SWR PVC soil and waste pipes etc.
2. Cement Concrete pipes
3. Manholes, Inspection chambers etc.
4. Soil, Waste, Rainwater, Vent, etc.
5. Eco Drainpipes
- “A” Cutting, Patching and Making good
- “B” Equipment, Material & Workmanship, Tests “C” Cleaning, Operation and Tests
6. Sanitary Fixtures and Fittings
7. Mode of Measurement
- “C” Tools and materials and storage General & Applicable for all types

“D” Safety codes of work costs of these shall be included in the rates quoted.

SPECIFICATIONS FOR WATER SUPPLY & SANITARY WORKS

1. **WATER SUPPLY:**

CPVC Pipes

Supply and fixing as per IS 15778 – 2007

1.3. **FITTINGS:**

CPVC Pipes and fittings as per IS 15778 – 2007

General:

The brass or gun metal fittings shall be of heavy quality and of approved manufacture and pattern, with screwed or flanged ends, as specified. The fittings shall in all respects comply with Indian Standard specifications No. I.S. 778 – 1957 and I.S. 781 – 1959. The standard size of brass or gun metal fittings shall be designated by the nominal bore of the pipe outlet to which the fittings are attached. A sample of each kind of fittings shall be got approved from the Architect & Employer and all supplies made according to the approved samples.

All cast fittings shall be sound and free from pits, blow holes and projections. Both internal and external surfaces shall be clean, smooth and free from sand etc. Burning, plugging, stopping or patching of the casting shall not be permissible. The bodies, bonnets, spindles and other parts shall be truly machined so that when assembled the parts shall be axial, parallel and cylindrical, with surfaces smoothly finished. The area of the water way of the fittings shall not be less than the area of the nominal bore.

The fittings shall be fully examined and cleaned of all foreign matter before being fixed. The fittings shall be fitted in the line in a workman like manner. The joints between fittings and pipes shall be made leak-proof, when tested to a pressure of 6 Kg/sq.cm as described in para 1.1.6, and the defective fittings and joints shall be replaced or redone without any extra cost.

Brass bib cock and stop cock:

A bib cock (bib tap) is a draw off tap with a horizontal inlet and free outlet and a stop cock (stop tap) is a valve with a suitable means of connections for insertion in

a pipe line for controlling or stopping the flow. They shall be of specified size and shall be of screw down type. The closing device should work by means of a disc carrying renewable non-metallic washer which shuts against water pressure on a seating at right angles to the axis of the threaded spindle which operates it. The handle shall be either crutch or butterfly type, securely fixed to the spindle. Valve shall be of the loose leather seated pattern. The cocks (taps) shall open in anti-clock wise direction.

The bib cock and stop cock shall be polished bright. The minimum finished weights of bob tap (cock) and stop tap (cock) as given in the I.S. specifications are reproduced below:

Size mm	Minimum finished weight	
	Bib Tap Kg.	Stop Tap Kg.
8	0.25	0.25
10	0.30	0.35
15	0.40	0.40
20	0.75	0.75

When the bib cocks or stop cocks are required to be chromium plated, the chromium plating shall be of grade B type conforming to I.S. 1068 – 1958. The chromium shall never be deposited on brass unless a heavy coating of nickel is interposed. In case these are required to be nickel plated, the plating shall be of the first quality with a good thick deposit of silvery whiteness capable of taking high polish, which will not easily tarnish or scale.

In finish and appearance, the plated articles, when inspected shall be free from plating defect such as blisters, pits, roughness and unplated areas and shall not be stained or discolored. Before a cock is plated, the washer plate shall be removed from the fittings. The gland packing shall be protected from the plating solution.

Gun metal bib cock and stop cock:

These shall be of gun metal screw down pattern of the size as specified. So far as the general requirements of material are concerned, these shall be similar to those as described in para 1.4.2. The weight of these shall be the same as for brass bib cocks and stop cocks as described in para 1.4.2.

Brass full way valve:

Full way valve is a valve with suitable means of connection for insertion in a pipeline for controlling or stopping the flow. The valve shall be of brass, fitting with a cast iron wheel and shall be of gate valve type, opening full way of the size as specified.

The valve shall be of best quality as approved by the Architect & Employer.

Gun metal full way valve with wheel:

These shall be of the gun metal fitted with wheel and shall be of gate valve type opening full way and of the size as specified. These shall generally conform to I.S. 778 – 1978.

1.6. **Ball valve:**

The ball valve shall be of high pressure or low pressure class and shall be of sizes as specified and directed.

The nominal size of a ball valve shall be that corresponding to the size of the pipe to which it is fixed. The ball valve shall be of gun metal as specified with standard valve shall be of gun metal as specified with standard polyurethane float. The float shall be spherical in shape, the jointing of the float shall be made by efficiently finished, lapped and soldered seam or by brazing. Polyurethane floats shall be used as specified.

The ball valve shall generally conform to I.S. specification No.1703 : 1977. The weight of ball cock and the size of ball be as per table given below:

Both low pressure and high pressure ball valves are designed for use on mains having pressures upto 17.5 Kg/cm².

Ball valve size in mm			Total Wt. H.P.	Total Wt. L.P.
Dia	15	-	524 gms	481 gms
	20	-	986 gms	867 gms
	25	-	1549 gms	1411 gms
	32	-	2120 gms	1873 gms

	40	-	2646 gms	2303 gms
	50	-	4454 gms	3959 gms

1.0 **CAST IRON AND SPUN IRON PIPES AND FITTINGS:**

2.1 **MATERIALS:**

Pipes and Specials:

The cast iron pipes shall conform to I.S. 1537 – 1967, while spun iron pipes shall conform to I.S. 1537 – 1967, while spun iron pipes shall conform to I.S. 1536 – 1976. The pipes shall be either with spigot and socket ends or flanged ends. The cast iron pipes shall be vertically cast, either class A or class B, as specified.

The spun iron pipes, shall be of cast iron casted centrifugally and shall be of class LA, class A and class B, as specified in the item.

Specials:

The specials shall conform to I.S. 1538 (Parts 1 to 23): 1976 and shall be of medium or heavy class, as specified, depending on their thickness.

All cast iron pipes shall be capable of easily worked with a drill or file. Pipes and specials should be sound with smooth inner and out surfaces, neatly dressed and carefully selected, free from laps, pinhole, and other imperfections, and shall ring clearly when struck with a light hammer. The ends of the pipes and specials shall be reasonably square to their axis.

All pipes and specials, before they are affected by rust, shall have been coated with an approved anti-corrosive treatment or by heating and dipping in Dr.Angus Smith’s solution at the factory.

Stacking:

The pipes and specials shall be handled with sufficient care to avoid damage to them. These shall be lined up on one side of the alignment of the trench, socket facing uphill or in the direction of flow of water.

2.2 **TRENCHES FOR C.I. PIPES AND SPECIALS:**

The trenches for the pipes shall be excavated to lines and levels as directed. The bed of the trench shall have to be truly and evenly dressed throughout from one

change of grade to next.

The gradient is to be set out by means of boning rods and the required depth be excavated at any point. The trench shall be excavated as directed by the Engineer/ Architect. The depth of the trench shall not be less than 1 meter, measured from the top of the pipe to the surface of the ground under roads crossing, and not less than 0.75m. elsewhere.

The width of the trench shall be the nominal diameter of the pipe plus 40 cm but it shall not be less than 80 cm. in case of all kinds of soils excluding rock and not less than 0.55 metres in case of rock.

The bed of the trench, if in soft or made up earth, shall be well watered and rammed before laying the pipes and the depressions, if any, shall be properly filled with earth and consolidated in 20 cm layers.

If the rock is met with, it shall be removed to 15 cm, below the level of the pipe and the trench shall be refilled with excavated materials (soil) and consolidated.

The excavated materials shall not be placed within 1 meter or half of the depth of the trench, whichever is greater, from the edge of the trench.

The materials excavated shall be separated and stacked so that in refilling they may be relaid and compacted in the same order to the satisfaction of the Architect & Employer. The trench shall be kept free of water. Shoring and timbering shall be provided wherever required. Excavation below water table shall be done after dewatering the trenches.

After the excavation of the trench is completed, hollows shall be cut at the required positions to receive the sockets of the pipes and these hollows shall be of sufficient depth to ensure that the barrels of the pipes shall rest throughout their entire length on the solid ground and that sufficient space is left for jointing to underside of the pipe joint. These socket holes shall be refilled with sand after jointing the pipe.

Where the pipe line or drain crosses an existing road, the road crossing shall be excavated half at a time, the second half being commenced after the pipes have been laid in the first half and the trench refilled. Necessary safety measures for traffic, as directed, shall be adopted. All types of pipes, water mains, cables etc., met within the course of excavation shall be carefully protected and supported. Care shall be taken, not disturb the electrical and communication cables.

2.3 **Laying of pipes and specials:**

Before being laid, the pipes shall be examined to see that there are no cracks or defects, as described in para 1.7.1. above. Subject to the approval of the Architect

& Employer, the damaged portion of the cracked pipe may be cut at a point not less than 15 cm beyond the visible extremity of the crack.

The pipe shall be thoroughly cleaned of all dust and dirt and special care shall be taken to clean the inside of the socket and outside of the spigots.

The pipes shall be lowered into the trench by means of suitable pulley blocks, shear legs, chains, ropes etc. In no case the pipes shall be rolled and dropped into the trench. After lowering, the pipes shall be so arranged that the spigot of one pipe shall be carefully laid central to the socket of the next pipe, and pushed to the full distance that it can go. The pipe line shall be laid to the levels required. Specials shall also be laid in their proper position as stated above.

Where so directed, the pipes and specials may be laid on masonry or concrete pillars. The pipe laid on the level ground, shall be laid with socket facing the direction of the flow of water. In all other cases, the sockets shall be laid facing up hill.

Any deviation either in plan or elevation less than $1\frac{1}{4}$ degree shall be effected by laying the straight pipes round a flat curve, of such radius that minimum thickness of lead at the face of the socket shall not be reduced below 6mm or the opening between spigot and socket increased beyond 12mm at any point. A deviation of about $2\frac{1}{4}$ degree can be affected at each joint in this way. At the end of each day's work, the last pipe laid shall have its open ends securely closed with a wooden plug to prevent entry of water, soil, rats and any other foreign matter into the pipe.

Cement concrete thrust blocks of suitable design as approved by the Architect & Employer shall be provided at 45 degrees and 90 degrees bends of the pipes and also at places where there is likelihood of thrust so as to withstand the dynamic and static forces developed due to water in the pipe line. The thrust blocks shall be made after the joints have been caulked with lead.

Lead caulked joints:

Lead caulked joints with molten lead:

This type of lead chalking is generally done in providing joints in water but not in case of wet conditions.

- a. Materials : Pig lead and spun yard.

Pig lead shall be of uniform quality, clean and free from foreign materials. It shall be of uniform softness and capable of being easily caulked or driven. It shall conform to I.S. 782 – 1978 for caulking lead.

Spun yarn shall be of clean hemp and of good quality. It shall be soaked in hot coal tar or bitumen and cooled before use.

The approximate depth of pig lead for various diameters of C.I. pipes and specials shall be given below with a tolerance of plus or minus 5 percent.

Nominal size of pipe mm (1)	Lead per joint Kg (2)	Depth of lead joint mm (3)
80	1.8	45
100	2.2	45
125	2.6	45
150	3.4	50
200	5.0	50
250	6.1	50
300	7.2	55
350	8.4	55
400	9.5	55
450	14.0	55
500	15.0	60
600	19.0	60
700	22.0	60
750	25.0	60

Note:

1. The quantity of lead given in the table are on average basis and a variation of 10 percent is permissible.
2. Before pipes are jointed on large scale, three or four sample joints shall be made and the average consumption of lead per joint shall be got approved by the Engineer-in-charge.

Just sufficient quantity of spun yarn shall be put so as to give the specified depth of lead.

b. Jointing:

Preparing the joint: The interior of the socket and exterior of the spigots shall be thoroughly cleaned and dried. The spigot end shall be inserted into the socket right upto the back of the socket and carefully entered by two or three laps of treated spun yarn, twisted into ropes of uniform thickness, well caulked into the back of the socket. No piece of yarn shall be shorter than the

circumference of the pipe. The jointed pipe line shall be at required levels and directions.

Leading: The leading of pipes shall be made by means of ropes covered with clay or by using special leading rings. The lead shall be melted so as to be thoroughly fluid and each joint shall be filled in one pouring.

The following precautions shall be taken for melting lead:

- a. The pot and the ladle in which lead shall be put shall be clean and dry.
- b. Sufficient quantity of lead shall be melted.
- c. Any scum which may appear on the surface of the lead during melting shall be skimmed off.
- d. Lead shall not be overheated, as it is not desirable to overheat it.

Caulking: After the lead has been run into the joint, the lead shall be thoroughly caulked. Caulking of joints shall be done after a convenient length of the pipes has been laid and leaded. The leading ring shall first be removed and any lead outside the socket shall be removed with a flat chisel and then the joint chalked round three times with caulking tools of increasing thickness and hammer 2 to 3 kg weight. The joints shall not be covered till the pipe line has been tested under pressure though the rest of the pipe line should be covered upto prevent expansion and contraction due to variation in temperature.

Lead caulked joints with lead wool yarn: This type of lead caulking is generally done when it is inconvenient or dangerous to use molted lead for joints, for example in cases such as inverted joints or in wet trenches or in exceptional cases. In such cases, the joints shall be made with lead wool or yarn. Caulking with lead, wool or yarn shall however be carried out, only after detaining the prior permission of Architect & Employer in writing.

Materials:

Lead wool or yarn and spun yarn:

Sub para (a) materials of para 1.7.4.1. shall apply except that the approximate weights and depths of lead wool or lead yarn required for each joint of various dia of C.I. pipes and specials shall be as given in the following table. Just sufficient quantity of spun yarn shall be put so as to give specified depth of lead wool.

Diameter of pipe in m.	Wt. of lead wool or lead yarn in Kgs.	Depth of lead wool or lead yarn in mm.
80	0.80	19
100	0.90	19
125	1.25	20
150	1.60	23
200	2.05	23
250	2.95	25
300	3.50	25
350	4.65	29
400	5.70	31
450	6.70	32
500	8.30	33
600	10.00	35
700	11.80	36
750	13.60	38
800	15.40	40
900	16.80	40

An allowance of five percent variation in the specified weight and depths shall be permissible.

Jointing:

The spun yarn shall be first inserted and caulked into the socket as described under jointing with pig lead. Lead wool or yarn shall then be introduced in the joint in strings not less than 6mm thick and the caulking shall be repeated with each turn of lead wool or yarn. The whole of the lead wool or yarn shall be compressed into a dense mass. The joint shall then be finally finished flush with face of the socket.

2.4.2. **Testing of joints:**

Para 1.1.6 shall apply.

REFILLING OF EXCAVATED EARTH IN TRENCHES:

The excavated earth shall be spread in layers of 200mm thickness and shall be compacted after proper watering. Initially, only thin filling shall be done, such that the joints remain completely open for working. Rest of the filling shall be done in the same manner, after the line is satisfactorily tested. The excavated material such as brick bats, asphalts cakes etc., shall be properly arranged in the top most layer of 23 cm only and shall be consolidated thoroughly. The excess materials shall be spread over the surrounding ground within a radius of 1.5 kilometers from the point of excavation at his own cost. If extra earth, for complete filling, will be necessary, the same shall be brought from other places by the contractor at his

own cost, and the same shall be filled up into the trench as per the manner shown above.

2.5 **MEASUREMENTS:**

The lengths of pipes shall be measured complete as laid or fixed in running meter correct to a cm, excluding specials which shall be enumerated separately. The lengths of pipes shall however not include the portion of spigots within the sockets of specials and pipes at the joints.

Excavation, refilling, shoring and timbering in trenches, masonry or concrete pillars and thrust blocks, wherever required, shall not be measured separately by included in the item if so specified and provided for in bill of quantities, excavation in hard rock shall be measured and paid separately (on stack measurement basis after deducting 40% for voids).

Lead caulked joints shall be enumerated separately or may be clubbed with the item laying of pipes.

RATE:

The rate shall include the cost of all the materials and labour etc., involved in all the operations described above.

MASONRY CHAMBERS:

General:

All masonry chambers for stop cocks, shall be built as per supplied drawings.

Excavation:

The excavation for chambers shall be done true to dimension and levels as indicated on plans or as directed by the Architect & Employer.

Bed Concrete:

This shall be of cement concrete 1:3:6 (1 cement :3 fine sand : 6 graded stone aggregate 40mm nominal size) and 100mm thick. In case of chambers for stop cocks, thickness can be 75mm.

Brick work:

This shall be with 2nd class bricks (average crushing strength not less than 35 Kg/sqcm) with cement mortar 1:6 (2 cement :6 fine sand) and one brick thick.

Plastering:

Plastering not less than 12mm thick shall be done in cement mortar 1:4 (1 cement : 4 coarse sand). It shall be finished with a floating coat of neat cement for inner surfaces only.

Surface Box:

This shall be of cast iron, well made and free from casting and other defects. All sharp edges shall be removed and finished smooth. The shape and dimensions for surface boxes for stopcocks, water meters etc., shall be as given in drawings.

Drawing for this shall be supplied as a typical drawing and the item 1.8.1. to 1.8.5 to be checked to tally with drawings.

The C.I. Surface box shall be fixed on the top of masonry chamber in plain or reinforce cement concrete 1:2:4 (1 cement : 2 coarse sand: 4 grades stone aggregate 20mm, normal size).

The C.I. surface box shall be fixed on the top of masonry chamber in plain or reinforce cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm, normal size).

Measurements:

Masonry chambers shall be enumerated under the relevant items as per sizes.

Rate:

The rate shall include the costs of all materials and labour involved in all the operations described above, including excavation in all soils, morrum, soft rock, boulders or decomposed rock, hard rock and disposal as directed. If so specified and provided for in bill of quantities the excavation in hard rock will be measured and paid for separately on stack basis after 40% deduction for voids.

B. DRAINAGE:

SWR PVC SOIL AND WASTE PIPES:

All pipes shall conform to IS 13592-1992 and shall be of grade “B”. These shall be sound, free from visible defects such as cracks or hair cracks etc.

The pipes shall be handled with sufficient care, to avoid damage to them.

Laying of pipes:

The pipes shall be carefully laid to the alignments, levels and gradients shown on the plans and sections. The pipes between two manholes shall be laid truly in a

straight line without vertical or horizontal undulations. The pipes shall be laid with socket up the gradient.

Jointing:

Jointing shall be done with rubber ring and good quality lubricant for shafts and with solvent cement for drainage lines as per IS: 14735

Testing of joints : Hydraulic tests:

The assembly of pipes and fittings shall be tested for water tightness pressure of 0.5mpa for a period of 15 minutes and there should be no leakage of any point.

Refilling of trenches:

Relevant Para under water supply shall apply.

In case where pipes are not bedded on concrete, special care shall be taken in refilling trenches, to prevent the displacement and subsequent settlement at the surface, resulting in uneven surfaces and dangers to foundations etc. Initially, the back filling materials shall be packed by hand under and around the pipe and rammed with a shovel and light tamper. This method of filling will be continued upto the top of pipe. The refilling shall then rise evenly on both sides of the pipes and continued upto 60 cm above the top of pipes, so as not to disturb the pipes. No tamping should be done within 15 cm of the top of pipe. The remainder of backfill shall not be done until 7 days have elapsed for brick sewers and 14 days for concrete sewers, unless local conditions or materials are suitable for earlier placing of loads on the pipes. The tamping shall become progressively heavier, as the depth of the backfill increases.

Measurements:

The lengths of pipes shall be measured in running meters nearest to a cm, as laid or fixed from inside of one manhole to the inside of the other manhole. The length shall be taken along the center line of the pipes, over all fittings such as bends, junctions etc., which shall not be measured separately.

Excavation, shoring, timbering, backfilling in trenches and cement concreting, wherever required, is clubbed with the item only if so specified and provided for in bill of quantities, excavation in hard rock will be paid for separately, based on stack measurement basis, after deducting 40% towards voids.

Rate:

The rate shall include the cost of all materials and labour involved in all the operations described above, including excavation in all soils, morrum, soft rock, boulders or decomposed rock, hard rock and disposal as directed. If so specified

and provided for in bill of quantities the excavation in hard rock will be measured and paid for separately on stack basis after 40% deduction for voids.

S.W.Gully Trap:

Gully traps shall conform to IS:651-1980. These shall be sound, free from visible defects, such as fire cracks or hair cracks. The glaze of the traps shall be free from crazing. They shall give a sharp clear note when struck with light hammer. There shall be no broken blisters.

The size of the gully trap shall be as specified and all dimensions will be as per drawing.

Each gully trap shall have one C.I. grating of square shape corresponding to the dimensions of inlet of gully trap. It will also have a water tight C.I. cover with frame, inside dimensions 300 x 200mm and the cover weighing not less than 2.72 Kg. The cover and frame shall be of sound and good casting and shall have truly square machined seating faces.

Excavation:

The excavation for gully traps shall be done true to dimensions and levels as indicated on plans or as directed by the Architect & Employer.

Fixing:

The gully trap shall be fixed on cement concrete foundation 600 x 600 cm square and not less than 10 cm thick. The mix for the concrete will be 1:5:10 (1 cement : 5 fine sand: 10 graded stone aggregate 40mm nominal size). The jointing of gully outlet to the branch drain shall be done similar to jointing of S.W. pipe as directed in 2.1.3.

Brick masonry chamber:

After fixing and testing gully and branch drains, a brick masonry chamber 300 x 200 (inside) in best quality locally available bricks of strength not less than 35 Kg/Sqcm in cement mortar 1:5 (1 cement : 5 fine sand) shall be built with a 10 cm. thick brick work round the gully trap from the top of the bed concrete upto ground level. The space between the chamber walls and the trap shall be filled in with cement concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stones aggregate 400mm nominal size). The upper portion of the chamber i.e., above the top level of the trap shall be plastered inside with cement mortar 1:4 91 cement : 4 coarse sand), finished with a floating coat of neat cement. The corners and bottom of the chamber shall be rounded off as to slope towards the grating and or a hopper.

C.I. cover with frame 300 x 200mm (inside) shall then be fixed on the top of the brick masonry with cement concrete 1:2:4 (1 cement : 2 coarse sand: 4 graded stone aggregate 20mm nominal size and rendered smooth. The finished top of cover shall be left about 4 cm above the adjoining ground level so as to exclude the surface water from entering the gully trap.

Measurements:

The work shall be enumerated including excavation.

Rate:

The rate shall include the costs of all materials and labour involved in all operations described above, including excavation in all soils, morrum, soft rock, boulders or decomposed rock, hard rock and disposal as directed. If so specified and provided for in bill of quantities the excavation in hard rock shall be measured and paid for separately on stack basis after 40% deduction for voids.

B.1A.0 DROP CONNECTION:

B.1A.1. In cases where branch pipe sewer enters the manhole of main pipe sewer at a level higher than the main sewer by more than 600mm, a drop connection should be provided. A typical drawing for drop connection shall be supplied to the contractor.

For 150 and 250mm main lines, if the difference in levels between the main – sewer water line (peak-flow-level) and the invert level of branch line is less than 60 cm, a drop connection may be provided within the manhole by giving a ramp. If the difference in level is more than 60 cm., the drop should be provided externally.

B.1A.1.1. The Excavation:

The excavation shall be done for the drop connection at the place where the branch line meets the manhole. The excavation shall be carried upto the bed concrete of the manhole and to the full width of the branch.

B.1A.1.2. Laying:

At the end of branch sewer line a stoneware “T” shall be fixed to the line, which shall be extended through the wall of the manhole by a horizontal piece of C.I.pipe to form an inspection or cleaning eye. The open end shall be provided with a chain and lid. The stone ware drop pipe shall be connected to the tee at the top and to

the S.W.bend at the bottom. The bend shall be extended through the wall of the manhole by a piece of C.I. pipe, which shall discharge into the channel. Necessary channel shall be made with cement concrete 1:2:4 (1 cement : 2 fine sand : 4 graded stone aggregate 20mm nominal size) finished smooth (with a floating coat of neat cement), to connect the main channel. The joints between S.W. pipes and C.I./S.W. fittings shall be cement jointed. The joint between S.W. tee and S.W. branch line shall be made with cement mortar 1:1 (1 cement : 1 fine sand) as per para B.1.3. for S.W.pipes. The exposed portion of the drop connection shall be encased all round with a single brick work in C.M. 1:4 and pointed. The holes made in the walls of the manholes shall be made good with brick work in cement mortar 1:6 (1 cement : 6 coarse sand) and plastered with cement mortar 1:4 (1 cement : 4 coarse sand) on the inside of the manhole wall. The excavated earth shall be backfilled in the trench in level with the original ground level.

B.1A.2. **Measurements:**

Prop connections shall be enumerated. The “depth” beyond 60 cm shall be measured in running meters correct to a cm under relevant items.

B.1A.3. **Rates:**

The rates shall include the cost of labour and materials involved in all the operations described above but excluding the cost of excavation and refilling.

B.2.0 **CEMENT CONCRETE PIPES:**

The pipes shall be with or without reinforcement as required and of the class as specified. These shall conform to IS: 458 – 1961. The reinforced cement concrete pipes shall be manufactured by centrifugal (or spun) process. All pipes shall be true to shape, straight, perfectly sound and free from cracks and flaws. The external and internal surfaces of the pipes shall be smooth and hard. The pipes shall be free from defects resulting from imperfect grading of the aggregate, mixing or moulding. The pipes shall be of R.C.C. light duty, NP2 type, unless otherwise specified.

Trenches for concrete pipe:

Para 2.2 “Trenches for C.I. pipes and specials” shall apply. Where the pipe shall be bedded directly on soil, the bed shall be suitably rounded to fit the lower part of the pipe; the cost of this operation shall be included in the rate for laying the pipe itself.

Laying of pipes:

Loading, transporting and unloading of concrete pipes shall be done with due care.

Handling shall be such as to avoid impact. Gradual unloading by inclined plane or by chain pulley block is recommended. All pipe sections and connections shall be inspected carefully before being laid. Broken or defective pipes or connections shall not be used. Pipes shall be lowered into the trenches carefully. Mechanical appliances may be used. Pipes shall be laid true to lines and grades as specified. Laying of pipes shall proceed up grade of a slope.

If the pipes have spigot and socket joints, the socket end shall face upstream. In case of pipes with joints to be made with loose collars, the collars shall be slipped on, before the next pipe is laid. Adequate and proper expansion joints shall be provided where directed.

In cases, where the foundation conditions are unusual such as in the proximity of trees or holes, under existing or proposed manholes etc., the pipes shall be encased around in 15 cm thick cement concrete 1:5:10 (1 cement : 5 fine sand:10 graded stone aggregate 40mm nominal size) or compacted sand as per directions of the Architect.

In cases, where the natural foundation is inadequate, the pipes shall be laid either in concrete cradles supported on proper foundations or on any other suitably designed structures as specified. If a concrete cradle bedding is used, the depth of concrete below and the bottom of the pipes shall be at least $\frac{1}{4}$ of the internal dia and not less than 100mm thick, and shall extend on the sides of the pipe at least to a distance of $\frac{1}{4}$ th of the outside diameter for pipes 300mm and over in dia and 75mm in case of lesser diameter pipes. The pipes shall be laid on this concrete bedding, before the concrete has set. Pipes laid in trenches in earth shall be bedded evenly and firmly and initially filled up as far the haunches of the pipes, as to safely transmit the load expected from back-fill through the pipe to the bed. This shall be done either by excavating the bottom of the trench to fit the curve of the pipe or by compacting the earth under around the curve of the pipe to form an even bed. Necessary provision shall be made for joints, wherever required.

When the pipes is laid in trench in rock, hard clay, shale or other hard material, the space below the pipe shall be excavated and replaced with an equalizing bed of concrete or sand. In no place, shall pipes be laid directly on such hard material.

When the pipes are laid completely above the ground, the foundations shall be made even and sufficiently strong to support the pipes lines without any material settlement. Alternatively, the pipelines shall be supported on P.C.C. or similar saddles blocks. Similar arrangement shall be made to retain the pipe line in proper alignment, such as by shaping the top of the supports to fit the lower part of the pipe. The distance between the supports shall in no case exceed the length of a pipe. The pipes shall be supported as far as possible, close to the joints. In no case, shall the joints come in centre of the span. Care shall be taken to see that superimposed loads, greater than the total load equivalent to the weight of the pipe when running full shall not be permitted.

Jointing of pipes:

Joints are generally of rigid type.

Spigot and socket joints (rigid):

The spigot of each pipe shall be slipped home well into the socket of the pipe previously laid and adjusted in the correct position. The opening of the joint shall be filled with stiff mixture of cement mortar in the proportion of 1:1 (1 cement : 1 fine sand), which shall be rammed with a caulking tool.

After a day's work, all extraneous materials shall be removed from the inside of the pipes and the newly made joints shall be cured thoroughly for 7 days.

Collar joint (Rigid):

The two adjoining pipes be butted against each other and adjusted in correct position. The collar shall then be slipped over the joint, covering equally both the pipes. The annular space shall be filled with stiff mixture of cement mortar 1:1 (1 cement : 1 fine sand), which shall be rammed with a caulking tool.

After a day's work all extraneous material shall be removed from the inside of the pipe and the newly made joints shall be cured thoroughly for 7 days.

Testing of joints, refilling of trenches, measurements and rate:

Para B.1.4. to B.1.7 shall apply for stoneware and concrete sewers.

MANHOLES, INSPECTION CHAMBERS, STORM WATER GULLIES ETC.

Inspection Chambers:

Where depth of sewer is less than 1.5m rectangular chambers shall be used having size as specified. Usual sizes are 450 x 900 or 600 x 900. These shall be constructed in the sewer line at such places and levels and dimensions as indicated on the drawing. Sizes specified shall be clear internal dimensions of the chamber.

Manholes:

Where depth of sewer exceeds 1.5m circular conical manholes shall be provided. Various types and sizes of manholes are specified for different depths. Typical drawing of various types of manholes shall be supplied to the contractors. In the absence of such drawings the standard drawings of the MCH sewerage department of local body if available shall be followed.

Manholes and inspection chambers are provided on roads or where heavy vehicular traffic is

expected are provided with “heavy duty” C.I. airtight frame and cover.

For those built on foot paths carriage drives and cycle tracks “medium duty” covers are provided. For locations within domestic premises or areas not subjected to wheel traffic loads they shall be provided with “light duty” covers.

Construction of manholes, inspection chambers and gullies:

Excavation:

This shall be done to dimensions and levels on the drawing.

Bed concrete:

Base of the manhole shall be constructed in P.C.C. 1:4:6 may fulfil this as specified, and of thickness as specified and shown on drawings or as directed.

Brick work:

Brick work shall be in CM 1:6 constructed with second class bricks of crushing strength not less than 35 Kg per sqcm. Brick masonry in arches and arching over the pipes shall be in CM 1:3. Walls shall be generally built in 230mm thickness for inspection chambers and manholes upto a depth of 2.1m and 350mm thick for depths over 2.1m. However the exact thickness shall be based on structural design and shall be specified by the Architect & Employer.

B.3.3.4 Plastering:

Walls of manholes shall be plastered inside with 12mm thick cement plaster 1:4 and finished smooth with a floating coat of neat cement. Where ground water table is high external surfaces of manholes shall also be plastered in CM 1:4.

Vatas:

75mm fillet shall be made with CM 1:3 all round the external joints between the bed concrete and brick masonry walls for manholes.

Benching:

Channels and benching inside the manhole or inspection chamber shall be done in CC 1:2:4 and rendered smooth with neat cement. Depth of channels and benching shall be as per the table given below:

Size of drain in mm	Top of channel at center in cm. above bed concrete	Depth of benching at side walls in C.M. above bed concrete.
100	15	29
150	20	30
200	25	35
250	30	40
300	35	45

P.C.C.Cap:

PCC M 150 cap of 150mm thickness shall be provided on top of manholes for fixing the manhole frame.

Footrests:

Footrests shall be of C.I. rings, weighing 5.41 Kg each and made up of 20mm dia M.S. square of round bars, as specified. These shall be embedded in 1:3:6 cement concrete and properly secured. Footrests shall be placed 300mm apart vertically and 375mm horizontally in staggered fashion. First footrest shall be 450mm below top. Foot rests shall be painted with coal tar or bituminous paint and the portion embedded shall be painted with thick cement slurry before fixing.

Manhole frames and covers:

Approximate weights for various dimensions of frames and covers of various duties shall be as specified in the respective items.

Covers shall have raised chequered design on the top surface to provide adequate non slip grip. The cover shall be capable of easy opening and closing, and it shall be fitted in the frame in a workmanlike manner. Covers shall be gas and water tight. Size of the cover shall be the clear internal dimensions of frame. 2½% variation in weights shall be permissible. Covers and frames shall be coated with a black anticorrosive paint of bituminous composition. The coating shall be smooth and tenacious. The covers shall be so fixed as to be flush with ground surface. After completion, the manhole covers shall be sealed by means of grease.

Testing:

Manhole after it is raised above highest expected sub soil water level in the monsoon, shall be tested for water tightness. The mouths of all pipes entering the manhole shall be suitably plugged with brick masonry or wooden or any other type of plug. Manhole under test shall then be filled with water upto general sub-soil water level and the level observed for one hour. If the level does not drop by

more than 50mm in one hour, it shall be deemed as water tight. During testing the pit around shall be kept free of water, and contractor shall observe the places where leakages takes place and take steps to correct the same.

Measurements:

Manholes, Inspection Chambers, gullies etc., shall be enumerated under relevant items in the schedule of quantities. Depth shall be measured from top of C.I. cover to the invert level of channel. Depth shall be measured to correct centimeter. The extra depths shall be measure as an extra, over the depth specified under enumerated item, and paid for running meter, under a separate item, following the main item.

Rate:

The rate shall include the cost of materials and labour involved in all operations from (2) to (9) under B.3.3. above, upto specified depth in the item. Payment for extra depths shall be paid separately under relevant item. Excavation and refilling is clubbed with the item of manhole Para 2.8.8 of “Water Supply” shall apply. If the duty of the cover in the item is changed during execution by the Architect & Employer, amount due to difference in weight of the cover shall be paid extra or deducted, as the case may be.

SOIL, WASTE, RAIN WATER, VENT AND ANTI-SIPHONAGE PIPES AND FITTINGS:

All soil, waste, rain water, vent and anti-siphonage pipes and fittings used within sunken floor areas or within plumbing shafts vertical run, shall be send cast iron socket and spigot type pipes conforming to IS 1729 – 1964 or its subsequent revision. All cast iron pipes and fittings shall be of the best approved Indian make of soil variety and free from flaws, air bubbles, cracks, sand-holes and other defects and truly cylindrical and uniform in thickness. They shall not be brittle, but shall allow for heavy cutting, chipping and drilling and shall not be less than the diameter, mentioned in the schedule of quantities, and shall be of the largest length available, and shall be fixed against the wall with special “U” clamps – 25mm wide, 3mm thick and hot dip galvanized, by means or round headed flat nails on brickwalls.

Jointing shall be carried out with molten lead. The spigot of the pipe or fitting must be forced well home into socket of next pipe or fitting (as may be the case) and must be centered, so that the joint may be of even thickness around. Atleast, one complete lap of clean white hemp spun yarn without being forced through the joint. As many laps as may be needed, to leave a space of not less than 25mm for the lead shall then be placed in the joint and caulked tight. The joints shall then be run with molten lead in sufficient quantity so that after being caulked, the lead may project about 1/8” beyond the face of the socket, against the outside of the spigot, but

must be flush with the outside edge of the socket.

The joints, if so specified in the respective items, shall be done in cement mortar in place of lead. In case of cement jointing, the joints shall be done as specified in b.5.2, but after the hemp soaked in thick cement slurry is forced in the socket for one complete lap, a stiff mixture of cement mortar in proportion 1:1 (1 part of cement to 1 part of clean fine sand) is filled in the remainder of the socket. When the socket is filled, a fillet shall be formed round the joint, with a trowel and finished smooth cured well.

Clean outs at the head of C.I. S/S horizontal pipes running under the floor shall be of cast brass screwed in type. Floor and wall cleanouts shall be of cast brass screwed type. The connecting pipes shall be G.I. threaded coupling to suit the cleanout with lead caulked joint.

Inspection chambers, gully traps, etc., within the building shall be of approved make cast iron chambers with bolts, nuts to close the cover, all to be fabricated as per actual requirement.

Supports, pedestals and base for inspection chambers, gully traps and pipes shall be in 1:2:4 cement concrete mix.

Pipe sleeves and inserts, etc., through RCC walls either external or internal shall be of C.I. or M.S. provided with water bar flange.

During installation, open ends of pipes shall be plugged with wood cut into required shape and gunny bags and to be maintained to be free from dirt.

G.I. waste pipes and fittings shall be of "C" class I.T.C. or equivalent with G.I. unions, tall pieces reducers and connections to be provided between joints with either lead or C.I. pipes.

The sizes of branch waste pipe for different fittings shall be as follows: Lavatory Basin

-	32 dia	
Urinal	-	40 dia
Sink	-	40 dia
Nahani trap	-	75 dia

W.C. pan connectors shall be to suit the requirements as per drawing, with 40mm dia vent horn for connection to the antisiphonage pipe and with pan connector of C.I. or lead.

Connection to the sewage or storm water collection sumps to be perfectly water tight.

Rain water flashing shall be with C.I. dome shape grating and extension piece as specified in the item.

All rainwater pipes and fittings shall be soil type variety conforming to I.S. 1729 – 1964 or equivalent. This shall apply to pipes outside buildings or within the buildings or for separate shafts.

The floor traps for toilet blocks shall be of cast iron with C.I./brass grating, bolted down design. The traps shall be ‘P’ type and of dimensions as given in table 26 of IS 1729 – 1979 (clause 7.1).

Where toilet slabs are sunk, the floor trap shall be of 100 x 75mm heavy duty type with C.I. “P” trap and C.P. brass grating of bolted down design.

Bathroom C.P.gratings shall be of bolted down design out of heavy cast brass, with chromium plating of best approved standard.

Cast iron grating shall be flat with perfect edges and of best quality procurable and of the specified width and thickness and in the available lengths.

Spigotted and socketed 75mm, 100mm and 150mm C.I. pipes shall be of heavy pattern for the portions below the floor and embedded and laid over 150mm cement concrete 1:2:4 with width of concrete being

For 75mm dia pipes	-	320mm wide
For 100mm dia pipes	-	400mm wide
For 150mm dia pipes	-	450mm wide
For 200mm dia pipes	-	600mm wide.

The pipes shall be laid to a slope of minimum 1 in 100 and preferably to 1 in 50, and connected to the drain. On no account should lime or lime concrete come in direct contact.

B.4.19 Measurements:

All pipes shall be measured along their lengths, including length over the fittings and be paid under relevant items. Alternatively, straight pipes shall be laid measured along their lengths along centre line, excluding length, over fittings and fittings shall be enumerated and paid per number. Whatever method of measurements is to be followed for the to item in the schedule, the description of respective items in the schedule shall be worded accordingly. Traps, clean outs etc., shall be enumerated separately and paid separately per number.

B.4.20. Rate:

The rate shall include the costs of all materials and labour involved in all the

operations described above, including excavation in all soils, morrum, soft rock, boulders or decomposed rock, hard rock and disposal as directed. If so specified and provided for in bill of quantities the excavation in hard rock will be measured and paid for separately on stack basis after 40% deduction for voids.

B.5. ECO – DRAIN PIPES :

Nu-drain pipes are made as per IS 15328 and marked with ISI mark. These pipes are available in different stiffness classes as given in the table below. Pipes up to 250mm sizes are available with plain and socketed ends. Pipes supplied with socket ends are available both in solvent weld and rubber ring. Separate coupler with unique design of click ring and rubber-sealing rings are available up to 250mm sizes which makes the system absolutely watertight. 315 and 400mm size pipes are supplied only with plain end and solvent weld type coupler. The pipes are available in 3m and 6m lengths.

Dimensions and Stiffness class of U-Drain pipes as per – IS 15328

Nominal Ring Stiffness SN (KN/M ²)	2	4	8
SDR	51	41	34
OD mm (D)	Wall thickness in mm (t)		
110	-	-	3.2+0.5
125	-	3.2+0.5	3.2+0.7
160	3.2+0.5	4.0+0.6	4.7+0.7
200	3.9+0.6	4.9+0.7	5.9+0.8
250	4.9+0.7	6.2+0.8	7.3+1.0
315	6.2+0.8	7.7+1.0	9.2+1.2
400	7.9+1.0	9.8+1.2	11.7+1.4

Dimensions and Stiffness Class of Eco-Drain Pipes as per IS:16098

Nominal Ring Stiffness SN (KN/M ²)	4	8
OD mm (D)	Wall thickness in mm (t)	
110	-	3.50
160	4. 30	---
200	5. 60	---
250	6. 50	---
315	8. 00	---

Eco – drain pipes are not solid wall pipes but have a unique wall structure i.e with a number of “holes” in the wall thickness in longitudinal direction. As a result, the eco-drain pipes are noticeably lighter and less expensive than any existing PVC pipe of similar stiffness and many times lighter than a concrete pipe, with equivalent load carrying capacity. Because of numerous advantages these pipes are widely accepted and used in several European countries. These pipes are available in 110mm to 315mm sizes and meet the requirements of International Standards, (comply to IS-15328) and have equivalent stiffness and flexibility in combination with a weight reduction from 10% to 35%, depending on size. These pipes are interchangeable with solid wall pipes and are compatible with regular PVC fittings. They are made available in different stiffness classes. In addition to UPVC pipes, PE pipes in 63 to 450mm as per IS 14333 are also available.

6. SANITARY FIXTURES AND FITTINGS:

Unless otherwise specified, the sanitary fixtures shall conform to following specifications:

Water closets (European type) shall be of vitreous china of approved pattern, quality and colour. The closet shall be fixed with C.P.brass screws in floor for floor mounted type, and mounted on C.I. chair brackets with bolts for wall mounted type and shall be provided with solid plastic seat and cover with chrome-plated pillar brass hangers as specified.

Indian pattern shall be of similar quality of specified above. The pan shall be 675/575mm in length with “S” or “P” trap of materials same as that of the pan. The W.C. with the trap shall be fitted and fixed in position and built round solid with brick and cement, to required level after all connections are made. The finished floor of the water closet shall be of 25mm below the level of the room or passage in front of it.

Both types of closets should conform to the requirements of IS 771 (Part I): 1979 for glazed vitreous china sanitary appliances.

The flushing cisterns shall conform to the requirements of I.S.774 – 1984. High level cisterns shall be of cast iron, unless other specified. Low level cisterns shall be of the same material as the water closet. The cisterns shall be mosquito proof and shall fulfill the requirements of the local authority.

The flush pipes shall be 32mm dia and of lead if concealed, and if exposed brass/C.I.

Where flush valves are specified, there shall be of the best approved quality procurable with C.P. control valve and C.P. flush pipe. Prior approval of Architect shall be obtained before placing orders.

7. MODE OF MEASUREMENT:

All drain pipes shall be measured in linear lengths along the centre line of the drainage line

laid. Deductions shall be made for chambers and fittings lengths etc. The rate shall include all work as specified in the respective items.

Stoneware or cast iron, bends, junctions, sewer traps etc., shall be measured in numbers and paid separately, only if item for pipe works does not specifically include "Fittings/Fixtures".

All cast iron spigots and sockets or flanged pipes for water supply, shall be measured in linear lengths along the centre line of completed work. Deductions shall be made for fittings lengths if fittings/ specials etc., are provided for separately in the schedules/bill of quantities. The rate shall include lead caulking or jointing with nut and bolts, rubber gaskets, etc., complete as specified in the respective items.

7.15. Same rate shall be applicable for pipes of same size and material laid in any building at any level or floor.

7.4. Cast iron fittings such as spigot and socket fittings, flanged fittings like tees, bends, tapers, cross etc., shall not be measured in numbers and paid for separately unless otherwise provided for in the bill of quantities/schedules.

The rock cutting shall be measured in cum of the stacks of excavated rock. Deduction for voids will be 40% of the gross stack volume. Only the rock which is removed by chiseling or blasting etc., shall be measured for this item of work, boulders shall not be considered as a rock. The excavated rock will become the owner's property.

All cast iron pipes, such as soil, waste, vent and rain water shall be measured in linear lengths along the centre line, to nearest cm as completed including length over fittings. The rates shall include all joints and clamps, etc., as specified in the respective items.

Length over cast iron fittings, for soil, waste, vent or rain water pipes like single or double waves of various degrees, bends, cowls etc., shall be measured in

meters, as extra over the item for 7.6 above, if so provided for in the schedule/bill of quantities. Otherwise, the rate for these shall be same as for respective pipe work.

Plan cement concrete for supports and for encasement or bedding etc., shall be measured as specified in the respective items in the schedule of quantities.

Lead pipes shall be measured in linear length and shall be of weights as per specifications of the respective item in installation work. The rate shall include making of necessary offsets, bends etc.

All sanitary fittings and fixtures shall be measured in numbers, only if so provided in the Schedule/bill of quantities, and the rate shall include all the work specified and described under item in the schedule of quantities.

All G.I. pipes shall be measured in linear lengths along the centre line of the pipe, including G.I. fittings. The rate for pipe line upto and including 50mm dia shall be inclusive of all G.I. fittings. In the case of pipe line of dia above 50mm dia G.I. fittings will be measured in nos., pipe lengths will be measured after deducting the lengths over fittings from linear measurements only if provided in the schedule/bill of quantities. The rates, in all cases, will be inclusive of all work as specified in the respective items. Lengths over valves shall be excluded.

All peet valves, ball valves, non-return valves, sluice valves, pressure reducing valves etc., shall be measured in numbers after excluding them from linear measurement, and paid for separately.

The diameters of pipes and fittings mentioned in the specification are the inside nominal diameters in all cases, unless otherwise stated. H.D P.E. pipes shall be specified as outside diameter and class.

In case fittings of C.I., G.I or stoneware of unequal bore, the largest bore shall be measured if paid separately.

Same rate shall be applicable for pipes of same size and material laid in any building at any level or floor.

D. TOOLS AND MATERIALS AND STORAGE:

- a. The contractor at his own cost and charge shall provide all materials, tools, tackles, scaffolding, labour and water, necessary for execution and completion of the whole work in all respects.
- b. The contractor shall pay the fees for testing the materials and bear the costs of the samples, and as well of packing and despatching/delivering in the respective laboratories/test houses, if tests are directed by the Architects, local authorities or any other statutory authorities.
- b. The contractor at his cost shall obtain, from time to time various permissions and the completion certificates as per rules of all local and statutory authorities.
- c. The contractor shall arrange proper and adequate storage facilities at site for all materials.

- d. Any materials, brought at site, shall not be removed without the written authority of the architects/employer. Materials either damaged or rejected shall be immediately removed from the site. Materials, paid in the interim bills as on site but not used, shall be the property of the Employer and the contractor only shall be liable for any loss or damage thereto.
- e. All the brackets and hangers for pipes shall be fixed to the walls or RCC, using “Dash” fasteners, wherever necessary.
- f. Surplus material from the site shall be carted away by the contractor without any cost to the employer. On complete of work, storage “space” provided to the contractor shall be handed over to the Employer, clear and fit for occupation.

SPECIFICATIONS FOR LAYING OF CONDUITS

1.1 RIGID NON METALLIC CONDUIT PIPES

Rigid non – metallic conduit pipes as per IS 9537 Part – 3 , 1976 are to be used for the wiring Installation and accessories for the pipes are to be in accordance to Indian Standards IS 3419 – 1976.

In case at DB Junction point if junction box is required junction box is to be provided and the same is to be fixed at free of cost.

Jointing of conduits should be done with suitable size of couplers and the same are to join with good quality adhesive.

Fixing of Conduit pipe should be done with Base Saddle and clamps at an interval of 60 cm.

All civil works and patch works indicated for providing electrical installations should be well finished to the satisfaction of the civil authorities. A certificate from them should be obtained to the effect that the civil and patch work done is to the satisfaction of civil authorities. It will be the responsibility of the electrical contractor to obtain such certificate from the civil engineer. Unless such certificate is produced this office will have right to with held the bill.

List of Number of wires that are to be carried out in rigid non metallic conduit pipes is given below and the work is to be carried out in accordance with the same. The

minimum thickness of the conduit pipe must be 1.6 mm and diameter should be 20

mm .

Size of table		SIZE OF CONDUITS, MM													
Normal cross Sectional area mm ²	No, an d diameter of wires mm			20		25		32		40		50		63	
		Number of Cables, Max													
				S	B	S	B	S	B	S	B	S	B	S	B
1.0	1/1.12*			7	5	1	1	2	1	-	-	-	-	-	
1.5	1/1.40			7	5	1	1	2	1	-	-	-	-	-	
2.5	1/1.80 3/1.06			0	5	1	8	1	1	-	-	-	-	-	
4.0	1/ 2.24 7/0.38			4	3	7	8	1	1	-	-	-	-	-	
6.0	1/ 2.80 7/1.06*			3	2	6	5	1	3	-	-	-	-	-	
10.0	11/3.55+ 7/1.40*	-	-	-	5	4	3	7	-	-	-	-	-	-	
16.0	7/1.70	-	-	-	-	2	-	4	3	7	6	-	-	-	
25.0	7/2.24	-	-	-	-	-	-	3	2	5	4	8	6	9	
38.0	7/2.50	-	-	-	-	-	-	2	-	4	3	7	5	8	
50.0	7/3.00+ 19/1.80	-	-	-	-	-	-	-	-	2	-	5	4	6	

“*” for copper conductors only. “+” for aluminum conductors only.

Inspection type conduits fittings such as inspection boxes, draw boxes, bends, elbows and tees shall be so installed that they remain accessible for such purposes as withdrawal of existing cables or installation of additional cables.

LIST OF MATERIALS OF APPROVED BRAND OR MANUFACTURER AND SPECIALISED AGENCIES

(CIVIL) APPENDIX ‘A’

The contractor shall so quote for items to cover cost of the materials, as specified below. The contractor shall obtain prior approval from Architect/Client before placing order for the specific materials/agencies. In case of non-availability of any of the approved/ specified

materials/ Agency, during the execution of the work, the Architects and Employer may approve suitable equivalent brand/ Agency and his decision shall be final and binding on the contractor and the price variations, if any, shall be adjusted accordingly.

S.NO.	DESCRIPTION	LIST OF PREFERRED MAKES
1.	CEMENT	AMBUJA / ULTRATECH / LAFARGE / JK
2.	REINFORCEMENT	TATA , JINDAL, SAIL
3.	AERATED BLOCKS	AEROCON/ ASCOLITE/ ULTRATECH INDIA LIMITED / AEROTUFF
4.	WATER PROOFING	SIKA , CICO , PIDILITE , DR. FIXIT
5.	1 st QUALITY COOL ROOF TILES	KAJARIA, SOMANY, SIMPHOLO, JOHNSON, RAK, NITCO
6.	1 st QUALITY PARKING TILES	KAJARIA, SOMANY, SIMPHOLO, JOHNSON, RAK, NITCO
7.	GRANITE SLAB	JET BLACK
8.	PLATIC EMULSION PAINT / TEXTURED PAINT	ASIAN PAINTS , NEROLAC , BERGER, DULUX
9.	EPOXY GROUT MIX	ARDEX / ENDURA
10.	ALUMINIUM WORK	JINDAL
11.	EXTERNAL BOARD FOR FLUSH DOOR SHUTTERS	PREMIUM GRADE GREENLAM , CENTURY , MERINO
12.	UPVC SLIDING DOOR & WINDOW	FENESTA , ELITE , VEKA, ALUPLAST, PRIZMA
13.	STAINLESS STEEL	TATA , JINDAL PANTHER, SAIL
14.	POLISH & VANNER	GREENLAM , CENTURY , MERINO
15.	DECORATIVE ELEMENTS	RAMJIWAL , RKT , BASHIDHAR
16.	KERB STONES	KAPTIM, ALCOCK, VYARA, PAVIT
17.	PAVER BLOCKS	K S TILES, HINDUSTAN TILES,SOBHA, BASANT BETONS, PAVCON
18.	CEMENT BASED WALL PUTTY	BIRLA WALL CARE/ J.K.WAL L PUTTY/ ASIAN PAINTS
19.	HARDWARE & FITTINGS	DORMA/ DORSET/ HARDWYN
20.	CLIP & LOCK TILES	WELSPUN
21.	1st quality Full body Vitrified homogenous tile	KAJARIA, SOMANY, SIMPOLO, JOHNSON, RAK, NITCO
22.	1st quality MAT & GLOSSY finished ceramic tile	KAJARIA, SOMANY, SIMPOLO, JOHNSON, RAK, NITCO
23.	1st quality MAT (antiskid) finished Ceramic Floor Tile	KAJARIA, SOMANY, SIMPOLO, JOHNSON, RAK, NITCO
24.	BALL BEARING / CHAINS	DORMA/ HAFELE/ GEZE
25.	PLYWOOD	CENTURY , MERINO , GREEN,
26.	MIRROR	SAINT GOBAIN , ASAHI , MODIGUARD
27.	HINGES & FITTINGS	HETTICH , HAFELE
28.	SANITARY WARES	HINDWARE/ JAQUAR/CERA
29.	TOILET ACESSORIES	HINDWARE/ JAQUAR/CERA
30.	FAUCETS , CISTREN	HINDWARE/ JAQUAR/CERA

31.	CPVC PLUMBING PIPES & FITTINGS	ASTRAL / ASHIRWAD
32.	VALVES	LEADER
33.	FOAM CORE DRAINAGE PIPE	ASTRAL / EC
34.	STRUCTURAL STEEL	TATA , SAIL , JINDAL
35.	FRP POTS	CREDO
36.	CHIMNEY	FABER
37.	ROADSIDE DRAIN CHANNEL	ASTRAL / HAURATON / ULMA / EC
38.	PVC PIPES	ASTRAL / ASHIRWAD / SUPREME
39.	SITC of ISI mark(IS:8472) self priming capacitor start mini monoblock pump set	
40.	SITC OF HOT WATER RECIRCULATION PUMP SET	SERVO
41.	SITC of 3-phase 15 kw tankless geyser	
42.	SITC of Pressure boosting pump	
43.	SKIRTING	WELSPUN
44.	PLASTICIZERS	FOSROC, SIKA, MC-BAUCHEMIE
45.	POLYMER MODIFIED ADHESIVE MORTAR	ULTRATECH, MYK LATICRETE, MAGICRETC, BIRLA AEROCON
46.	GYPSUM PUNING	GYPROC, INDIA GYPSUM, JK LAKSHMI
47.	READY MIX PLASTER	BIRLA AEROCON, ULTRATECH READI PLASTER, AMBUJA PLASTO, MAGICRETE
48.	GUPSUM PLASTER	SAKARNI, SAINT GOBAIN, JK GYPSUM
49.	WATER PROOFING GP2 SEALANT	FOSROC, CICO, SIKA, Dr. FIXIT
50.	CICO TAPECRETE WATER PROOFING	CICO, SIKA, Dr. FIXIT
51.	CHEMICAL WATER PROOFING	CICO, SIKA, Dr. FIXIT
52.	1 ST QUALITY COOL ROOF SRI TILES	JHONSON , KAJARIA , RESTILE CAN BE USED ONLY IF TECHNICAL SPECIFICATIONS ARE EQUIVALENT
53.	ALUMINIUM ROLLING SHUTTER	ALULUSE, AVIANS, DEBESTO
54.	SHOWER CUBICLE	JAQUAR, CERA
55.	SANITARY FITTINGS	AS PER TENDER ITEMS
56.	CP FITTINGS	AS PER TENDER ITEMS
57.	RAINWATER HARVESTING SYSTEM	BANTAIR, AMRICHAMC, AMRITABUILDTECH
58.	PVC CONDUIT	PRECISION/BEC/ NORPACK/AKG

SPECIALISED AGENCIES:

1. Water proofing work : Work to be executed through authorized/ specialist agencies of ARDEX ENDURA /PIDILITE/ FOSROC/ CICO/SIKA/DR FIXIT WITH prior approval of Architects/ Bank.
2. Anti termite treatment : Pest Control (India) Pvt. Or any other equivalent.

GENERAL NOTE:

Any item/specification where in it is stated as equivalent means it should be equal in respect of quality and cost. While opting any “Equivalent” make, prior written approval of Architects and Bank shall be obtained.

LIST OF APPROVED MAKE OR BRANDS – W.S. AND SANITARY WORK

APPENDIX – ‘B’

21Note: The contractor shall so quote for items to cover the costs of the materials as specified below with ISI mark wherever applicable. The materials for which ISI mark is not available for any of the ‘Makes’ listed below, the best of these makes shall be provided and the decision of Architect & Employer shall be final in deciding which brand is the best quality. The contractor shall obtain prior approval from the Architect/client before placing order for the specific materials/agencies. In case of non-availability of any of the approved/specified materials/Agency, during the execution of the work, the Architect & Employer may approved suitable equivalent brand/Agency and his decision shall be final and binding on the contractor and the price variations if any, shall be adjusted accordingly.

- 1a) C.P.V.C pipes : Astral, Aashirwad or equivalent.
- b) SWR UPVC pipes : Supreme, Astral, Ashirwad equivalent
2. C.I.pipes for water supply : Electrolux or equivalent.
3. Eco-drain pipes : Supreme
4. S.W.G. pipes : Indo or equivalent.

5.	A.C.pipes	:	Everest or equivalent
6.	Brass & gun metal globe gate valves feet valves.	:	Leader, Zoloto, Audco or equivalent
7.	Sanitary fixtures	:	American Standard, Kohler , ROCA
8.	Sanitary Fixtures (Servant Toi.)	:	Hindware/Cera (for servant toilet only)
9.	C.P.fittings	:	Grohe/Jaquar Arteze.
10.	C.P.Accessories	:	Grohe/Jaquar Arteze
11.	Sinks	:	Nirali, Neelkanth, Hindware
12.	RCC hume pipes	:	Indian Hume Pipes
13.	Storage water tank	:	Sintex / Vectus

Note: Minimum quantity give above is the quantity of work which warrants conduction of respective tests.

1. Cost of samples, testing and transport will be borne by the contractors only.
2. Any other materials shall also be got tested by contractors at his own cost as per the instructions of Architects/Employer from time to time.
3. Frequency stated above is minimum and the contractor may have to test materials with any other frequency, as instructed by Architect/Client, without any costs.

SAFETY CODE

Suitable scaffolds should be provided for workman for all the works that cannot safely be done from the ground or from solid construction, except in cases of short duration works, which can be done safely from ladders. When a ladder is used, an extra mazdoor shall be engaged for holding the ladder and if the ladder is used for carrying materials as well, it shall be of rigid construction made either of good quality wood or steel. The steps shall have a minimum width of 450mm and a maximum rise of 300mm. Suitable foot and hand holds of good quality wood or steel shall be provided and the ladder shall be given an inclination not

steeper than 1 in 4 (1 horizontal to 4 vertical).

Scaffolding or staging more than 300mm above the ground or floor, swung or suspended from an overhead support, shall be erected with stationery supports and shall have guard rails properly attached, bolted, braced and otherwise secured and atleast 900mm high above the floor or platform of such scaffolding or staging and extending along the entire length of the outside and ends there of with only such openings as may necessary for the access of persons and delivery of materials. Such scaffolding or staging shall be so fastened as to prevent it from swaying from the building or structure.

Working platform, gangways and stairways should be so constructed that they should not sag unduly or unequally and if the height of the platform or the gangway or the stairway is more than 3-6m above ground level or floor level, they should be closely boarded, should have adequate width and should be suitably fastened, as described in (ii) above.

Every opening in the floor of a building or in a working platform be provided with suitable means to prevent the fall of persons or materials by providing suitable fencing or railing, whose minimum height shall be 900mm.

Safe means of access shall be provided to all working platforms and other working places. Every ladder shall be securely fixed. No portable single ladder shall be over 9 M in length while the width between side rails in ring ladder shall be in no case be less than 300mm. For longer ladders, this width should be increased atleast 6mm for each additional foot of length. Spacing of steps shall be uniform and shall not exceed 300mm.

Adequate precautions shall be taken to prevent danger from electrical equipment. At the work site, no materials shall be so stacked or placed as to cause danger or inconvenience to any person or the public. The contractor shall also provide all necessary fencing and lights to protect the public from accident, and shall be bound to bear the expenses of defence of every suit, action or other proceedings at law that may be brought by any person for injury sustained owing to neglect of the above precautions and to pay damages and costs, which may be awarded in such suit, action or proceedings to any such persons or which may with the consent of the contractor be paid to compromise any claim by any such person.

I. Excavation and Trenching:

All trenches, 1.2m or more in depth, shall at all times be supplied with atleast one ladder for each 30m in length or fraction thereof. Ladder shall be extended from bottom of the trench to atleast 900mm above the surface of the ground. The side of the trenches which are 1.5m or more in depth shall be stepped back to give suitable slope or securely held by timber shoring, so as to avoid any danger to sides collapse. The excavated material shall not be placed within 1.5m of the edge of the trench or half of the depth of the trench, whichever is more. Cutting shall be done from top to bottom. Under no circumstances undermining or under cutting shall be done.

II. Demolition:

Before any demolition work is commenced and also during the progress of the work.

- a. All roads and open areas adjacent to the work site shall either be closed or suitably protected.
- b. No electric cable or apparatus which is liable to be a source of danger over a cable or apparatus used by the operator shall remain electrically charged.
- c. All practical steps shall be taken to prevent danger to persons employed, from the risk of fire or explosion or flooding. No floor, roof or other part of the building shall be so over- loaded with debris or materials, so as to render it unsafe.

III. All necessary personal safety equipments as considered adequate by the Architects should be kept available for the use of the persons employed on the site and maintained in a condition suitable for immediate use and the contractor should take adequate steps to ensure proper use of equipment by the concerned.

- a. Workers employed in mixing asphaltic materials, cement and lime mortars shall be provided with protective footwear and protective gloves.
- b. Those engaged in white washing and mixing or stacking of cement bags or any materials which is injurious to the eyes shall be provided with protective goggles.
- c. Those engaged in welding works shall be provided with welder's protective (eye) shields.
- d. Stone breakers shall be provided with protective goggles and protective clothing and seated at sufficiently safe intervals.
- e. When workers are employed in sewers and manholes, which are in use, the contractor shall ensure that the manhole covers are opened and are ventilated atleast for an hour before the workers are allowed to get into the manhole and the manholes so opened shall be cardoned off with suitable railing and provided with warning signals or boards to prevent accidents to the public.
- f. The contractor shall not employ men below the age of 18 years and women on the work of painting with products containing lead in any form. Wherever men above the age of 18 years are employed on the work of lead painting, the following precautions should be taken.
 - i) No paint containing lead or lead products shall be used except in the form of paste or ready made paint.

- ii) Suitable face masks should be supplied for use to the workers when paint is applied in the form of spray or a surface having lead paint is rubbed and scrapped.
 - iii) Overalls shall be supplied by the contractors to the workers and adequate facilities for washing shall be provided to the working painters during and on cessation of work.
- IX. When the work is done near any place, where there is risk of drowning, all necessary equipment should be provided and kept ready for use and all necessary steps taken for prompt rescue of any person in danger and adequate provisions should be made for prompt first aid treatment of all injuries likely to be sustained during the course of the work.
- X. Use of hoisting machine and shackle including their attachments, in charge and supports shall conform to the following standards or conditions.
 - 1.a. These shall be of good mechanical construction, sound material and adequate strength and free from any patent defects and shall be kept in good working order.
 - b. Every rope used in hoisting or lowering materials or as a means of suspension shall be of durable quality and adequate strength and free from patent defects.
 - 2. Every crane driver or hoisting appliance operator shall be properly qualified and no person under the age of 21 years should be in charge of any hoisting machine including any scaffolding or give signals to the operator.
 - 4. In case of every hoisting machine and of every chain, ring hook, shackle swivel and pulley block used in hoisting or lowering or as means of suspension, the safe working load shall be ascertained by adequate means. Every hoisting machine and all gear referred to above shall be plainly marked with the safe working load. In case of a hoisting machine having a variable safe working load, each safe working load and the condition under which it is applicable shall be clearly indicated. No part of any machine or any gear referred above in this paragraph shall be loaded beyond the safe working load except for the purpose of testing.

In case of departmental machines, the safe working load shall be notified by the clients. As regards contractor's machines the contractor shall notify the safe working load of the machines to the consultants, whenever he brings any machinery to site of work and get it verified by the consultants.
- XI. Motors, gearing, transmission, electric wiring and other dangerous parts of hoisting appliances should be provided with efficient safeguards. Hoisting appliances should be provided with such means as will reduce and minimise the

risk of accidental descent of loads. Adequate precautions should be taken to reduce to the minimum risks of any part of a suspended load becoming accidentally displaced. Sleeves and boots as may be necessary should be provided, whenever workers are employed on electrical installations. The workers should not wear any rings, watches and carry keys or other materials, which are good conductors of electricity.

- XII. All scaffolds, ladders and other safety devices mentioned or described herein shall be maintained in safe condition. No scaffold, ladder, or equipment shall be altered or removed while it is in use. Adequate washing facilities should be provided at or near place of work.
- XIII. To ensure effective enforcement of the rules and regulations relating to safety precautions, the arrangements made by the contractor shall be open to inspection by the clients or the Architect.
- XIV. These safety provisions should be brought to the notice of all concerned by display of a notice board at a prominent place of the workspot. The person, responsible for compliance of the safety code, shall be named therein by the contractor.
- XV. Notwithstanding the above clauses for (i) to (xiv), there is nothing in these to exempt the contractor from the operation of any other Act or Rules in force in the Republic of India.

LABOUR LAWS AND RULES

The Site Engineer shall ensure that the contractor maintains relevant records and fulfils all conditions and requirements in accordance with

- a. The payment of Wages Act
- b. Employer's Liability Act
- c. Workmen's Compensation Act
- d. Contract Labour (Regulations & Abolition) Act 1970 and Central Rules 1971.
- e. Apprentices Act 1961.
- f. Any other Act or enactment relating thereto and rules framed thereunder from time to time.

The Site Engineer shall refrain from involving himself and the supervisors under him by comments/advice/attempts at mediation in any kind of labour dispute at site. His job is only to report to his superiors any happenings of the this sort in an objective manner.

EMPLOYER'S RESPONSIBILITY – CONTRACT LABOUR (REGULATIONS AND ABOLITION) ACT 1970 AND RULES 1971

With a view to ensuring that the provisions of the Act are not contravened, the Site Engineer should give particular attention to the following points and see that all the provisions of the Act are enforced:

1. Principal Employer (Banks) is registered as per the Act.
2. Contractor holds a licence under the Act from the Local Labour Commissioner for the appointment of Contract labour.
3. Required notice boards, registers and records as provided in section 29 of the Act are maintained by the contractor.
4. Payment of proper wages as per the rules are effected within the prescribed time limits by the contractor.
5. Prescribed facilities and amenities are provided by the contractor.
6. Proper efforts are made by the contractor to set right contravention of law, as soon as the notice pointing out the same is received from the Labour Enforcement

Officer, and reports “on action taken” are sent to the Labour Enforcement officer at the earliest with copies to the Employer

**FORMAT OF GUARANTEE TO BE EXECUTED BY THE FIRM/CONTRACTOR
IN RESPECT OF THE WORK OF PRE-CONSTRUCTION ANTI TERMITE
TREATMENT**

This agreement made this _____ day of _____ Two thousand _____ between _____ (Name of Bank) a body corporate constituted under the _____ (Name of the Act) Act 19 having its Head Office at _____ (herein after called ‘The Employer’) of the one part and _____ (Name of Firm/ Contractor) (Hereinafter called the Guarantor) of the other part.

WHEREAS THIS AGREEMENT is supplementary to a contract (hereinafter called the contract dated _____ and made between the Employer of the one part and the Guarantor of the other part) where by the Firm/Contractor interalia understood to render the building/structure completely free from any infestation of termites. And whereas the Guarantors agreed to give guarantee to the effect that the said building/structure shall remain free from any infestation of termites for a minimum period of ten years from the date of completion of pre-construction anti termite treatment carried out as per the relevant I.S. code.

Now the Guarantor hereby agrees to make good all defects and render the building/ structure free from any infestation of termites, during this period of guarantee and to the satisfaction of the Employer. The guarantor also agrees to take up such rectification work at his own cost, and within one week from the date of issue of notice from the Employer, calling upon him to rectify the defects. The decision of the Employer as to the cost payable by the Guarantor will be final and binding, in case the guarantor fails to commence the work as per above notice and the work is got done through some other contractor. That if the Guarantor fails to execute the pre-construction anti-termite treatment of commits breach thereunder, then the Guarantor will indemnify the principal and his successors against all loss, damage,

costs, expenses or otherwise, which may be incurred by him by any reason of any default on the part of the guarantor in performance and observance of this agreement. As to the amount of loss and or damage and/or costs incurred by the Employer, the decision of the Employer will be final and binding.

In witness where of these presents have been executed by the obligation _____ and by _____ and for on behalf of the employed on the day, month and year first above written.

Signed and delivered by _____(Bank) by the

hands of Sri _____in the presence of _____

_____.

Signed, and delivered by the hand of _____(Contractor) in the presence of _____.

Signed, and delivered by _____(Bank) by the hands of Sri

_____ in the presence of _____.

Signed and delivered by the hand of _____

_____ (Contractor) in the

presence of _____.

FORM OF GUARANTEE FOR WATERPROOFING

Name of the Project:

Free Maintenance Guarantee – Water

proofing work by _____

We _____ hereby guarantee that the surfaces treated by us for waterproofing in the above work, for M/s _____ the general building contractor for the above work, shall remain entirely water tight. Should, however, due to any unforeseen defect left out in the work carried out by us during the period of Five years from the date of virtual completion of the work i.e. from _____ to _____ the same shall be rectified by us without any extra cost to the _____ (name of the Bank).

However, we shall not be responsible in any way if our work is tamper with or if the body of the structure is damaged due to sinking, cracking and/or by any other act of God beyond our control.

Signature of the
Waterproofing Contractor

Signature of the General
Building Contractor

PRE-CONTRACT INTEGRITY PACT

State Bank of India hereinafter referred to as “The Principal”.
And hereinafter referred to as The Bidder / Contractor”

Preamble

The Principal intends to award, under laid down organizational procedures, contract/s forThe Principal values full compliance with all relevant laws of the land, rules, regulations, economic use of resources and of fairness/transparency in its relations with its Bidder(s) and /or Contractor(s).

In order to achieve these goals, the Principal will appoint an Independent External Monitor (IEM), who will monitor the tender process and the execution of the contract for compliance with the principles mentioned above.

Section 1- Commitments of the Principal.

1. The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles: -
 - a. No employee of the principal, personally or through family members, will in connection with the tender for, or the execution of a contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.
 - b. The principal will during the tender process treat all Bidder(s) with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential/additional information through which the Bidder(s) could obtain an advantage in relation to the process or the contract execution.
 - c. The Principal will exclude from the process all known prejudiced persons.
2. If the Principal obtains information on the conduct of any of its employees which is a criminal offence under the IPC/PC Act, or it there be a substantive suspicion in this regard, the principal will inform the Chief Vigilance Officer and in addition can initiate disciplinary actions.

Section 2 – Commitments of the Bidder(s)/ Contractor(s)

1. The Bidder(s)/Contractor(s) commit himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the tender process and during the contract execution.

a. The Bidder(s) / contractor(s) will not, directly or through any other persons or firm, offer promise or give to any of the Principal employees involved in the tender process or the execution of the contract or to any third person any material or other benefit which he/she is not legally entitled to, in order to obtain in exchange any advantage or during the execution of the contract.

The Bidder(s)/Contractor(s) will not enter with other Bidders into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.

c. The Bidder(s)/Contractor(s) will not commit any offence under the relevant IPC/PC Act; further the Bidder(s) /Contractors will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.

d. The Bidder(s)/Contractor(s) of foreign origin shall disclose the name and address of the Agents/representatives in India, if any. Similarly, the bidder(s)/contractor(s) of Indian Nationality shall furnish the name and address of the foreign principals, if any.

Further details as mentioned in the “Guidelines on Indian Agents of Foreign Suppliers” shall be disclosed by the Bidder(s)/Contractor(s). Further, as mentioned in the Guidelines all the payments made to the Indian agent/representative have to be in Indian Rupees only.

e. The Bidder(s)/Contractor(s) will, when presenting his bid, disclose any and all payments he has made, is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.

2. The Bidder(s)/Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.

Section 3: Disqualification from tender process and exclusion from future contracts: If the Bidder(s)/Contractor(s), before award or during execution has committed a transgression through a violation of Section 2, above or in any other form such as to put his reliability or credibility in question, the Principal is entitled to disqualify the Bidder(s)/Contractor(s) from the tender process or take action as per the procedure mentioned in the “Guidelines on Banning of business dealings”.

Section 4 : Compensation for Damages

1. If the Principal has disqualified the Bidder(s) from the tender process prior to the award according to Section 3, the Principal is entitled to demand and recover the damages equivalent to Earnest Money Deposit/Bid Security.
2. If the Principal has terminated the contract according to Section 3, or if the Principal is entitled to terminate the contract according to Section 3, the Principal shall be entitled to demand and recover from the Contractor liquidated damages of the Contract value or the amount equivalent to Performance Bank Guarantee.

Section 5 : Previous Transgression

1. The Bidder declares that no previous transgressions occurred in the last three years with any other company in any country conforming to the anti-corruption approach or with any other public sector enterprise in India that could justify his exclusion from the tender process.
2. If the bidder makes incorrect statement on this subject, he can be disqualified from the tender process for action can be taken as per the procedure mentioned in "Guidelines on Banning of business dealings".

Section 6: Equal treatment of all Bidders/Contractors/Subcontractors.

1. The Bidder(s)/Contractor(s) undertake(s) to demand from all subcontractors a commitment in conformity with this Integrity Pact, and to submit it to the Principal before contract signing.
2. The Principal will enter into agreements with identical conditions as this one with all bidders, contractors and subcontractors.
3. The Principal will disqualify from the tender process all bidders who do not sign this Pact or violate its provisions.

Section 7: Criminal charges against violation Bidder(s)/Contractor(s)/Subcontractor(s)

If the Principal obtains knowledge of conduct of a Bidder, Contractor or Subcontractor, or of an employee or a representative or an associate of a Bidder, Contractor or subcontractor which constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal will inform the same to the Chief Vigilance Officer.

Section 8: Independent External Monitor/Monitors

- (1) The Principal appoints competent and credible Independent External Monitor for this Pact. The task of the Monitor is to review independently and objectively, whether and to what extent the parties comply with the obligations under this agreement.
- (2) The Monitor is not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the Chairman, SBI.
- (3) The Bidder(s)/Contractor(s) accepts that the Monitor has the right to access without restriction to all project documentation of the principal including that provided by the Contractor. The Contractor will also grant the Monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his project documentation. The same is applicable to Subcontractors. The Monitor is under contractual obligation to treat the information and documents of the Bidder(s)/Contractor(s)/ Subcontractor(s) with confidentiality.
- (4) The principal will provide to the Monitor sufficient information about all meetings among the parties related to the Project provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the Monitor the option to participate in such meetings.
- (5) As soon as the Monitor notices, or believes to notice, a violation of this agreement, he will so inform the Management of the Principal and request the Management to discontinue or take corrective action, or to take other relevant action. The monitor can in this regard submit non-binding recommendations. Beyond this, the Monitor has no right to demand from the parties that they act in a specific manner, refrain from action or tolerate action.
- (6) The Monitor will submit a written report to the Chairman, State Bank of India within 8 to 10 weeks from the date of reference or intimation to him by the Principal and, should the occasion arise, submit proposals for correcting problematic situations.
- (7) Monitor shall be entitled to compensate on the same terms as being extended to / provided to Independent Directors on the SBI Board.
- (8) If the Monitor has reported to the Chairman SBI, a substantiated suspicion of an offence under relevant IPC/PC Act, and the Chairman SBI has not, within the reasonable time taken visible action to proceed against such offence or reported it to the Chief Vigilance Officer, the Monitor may also transmit this information directly to the Central Vigilance Commissioner.
- (9) The word Monitor“ would include both singular and plural.

Section 9 – Pact Duration

This pact begins when both parties have legally signed it. It expires for the Contractor 10 months after the last payment under the contract, and for all other Bidders & months ---- the contract has been awarded. If any claim is made / lodged during this time, the same shall be binding and continue to be

valid despite the lapse of this pact as specified above, unless it is discharged / determined by Chairman of State Bank of India.

Section 10 – Other provisions

- This agreement is subject to Indian Law, Place of performance and jurisdiction is the Registered Office of the Principal Employer, i.e., Jaipur (Rajasthan)
- Changes and supplements as well as termination notices need to be made in writing. Side agreements have not been made.
- If the Contractor is a partnership or a consortium, this agreement must be signed by all partners or consortium members.
- Should one or several provisions of this agreement turn out to be invalid, the remainder of this agreement remains valid. In this case, the parties will strive to come to an agreement to their original intentions.

For & on behalf of the Principal Employer
(Office Seal)

For & On behalf of Bidder/ Contractor
(Office Seal)

Place :

Date :

Witness 1: (Name & Address) _____

Witness 2: (Name & Address) _____

Particulars of IEMs

Sr No	Name of IEM	e-mail address of IEM
1	Smt. Rashmi Verma	rashmi.naveenverma@gmail.com
2	Shri Satyajit Mohanty	Satyajitmohanty88@gmail.com

**CONSTRUCTION OF PROPOSED 24 Nos OF RESIDENTIAL FLATS IN STILT + 4 FORMAT AT
BANK'S OWN PLOT AT, LK-3, LAL KOTHI SCHEME, NEAR JYOTI NAGAR, JAIPUR.****LIST OF ARCHITECTURAL DRAWINGS**

S.No	Drawing No.	Drawing Title
1	TENDER DRAWING - 1	SITE PLAN
2	TENDER DRAWING - 2	STILT FLOOR PLAN
3	TENDER DRAWING - 3	TYPICAL FLOOR PLAN
4	TENDER DRAWING - 4	TERRACE FLOOR PLAN
5	TENDER DRAWING - 5	SECTIONS & ELEVATIONS
6	TENDER DRAWING - 6	ELEVATIONS
7	TENDER DRAWING - 7	FOOTING LAYOUT
8	TENDER DRAWING - 8	FOOTING DETAILS
9	TENDER DRAWING - 9	COLUMN SCHEDULE
10	TENDER DRAWING - 10	PLINTH FRAMING PLAN
11	TENDER DRAWING - 11	STILT FLOOR ROOF FRAMING PLAN
12	TENDER DRAWING - 12	STILT FLOOR SLAB & BEAM DETAILS
13	TENDER DRAWING - 13	TYPICAL FLOOR SLAB BEAM DETAIL