



**SURAT MUNICIPAL CORPORATION
SOUTH ZONE-A (UDHANA)**

Name of work: Annual Rate Contract For Repairing, Maintenance and new work of footpath & watertable, divider, chainlizer, traffic island, activity area, P.C.C and laying cement concrete Guard Stone and Setting/Resetting stone paving/ Pever block work in Sub Zone-3 & 4 in South Zone-A (Udhana),(2nd Attempt).

E- Tender

Tender (On Line) Notice No. DMC/SZ-A/03/2026-27

WORK NO.02

VOLUME-I : TECHNICAL BID

DOWNLOAD OF TENDER DOCUMENTS FROM website smc.nprocure.com	:	From 19/06/2026 to 09/07/2026 upto 18.00 hrs.
DATE OF PRE-BID CONFERENCE	:	-
LAST DATE OF SUBMISSION OF ONLINETENDER(soft copy)	:	On or Before 09/07/2026 upto 18.00 hrs
LAST DATE OF SUBMISSION OF TENDER FEES, EMD AND OTHER DOCUMENTS IN HARD COPY	:	Upto 18/07/2026 , to Chief Accountant, SMC,Muglisara, Surat by R.P.A.D./Speed Post upto 18.00 hrs.
Opening of Online technical bid	:	Dt. 10/07/2026 ,11.00 hrs. (probable date)
Opening of tender fee, EMD and other documents etc. in hard copy	:	19/07/2026 , (probable date)
ESTIMATED AMOUNT	:	Rs.77,84,318.45
E.M.D.	:	Rs.78,000/-
DOCUMENT FEES	:	Rs.2400/- + 18% G.S.T.= Rs. 2832/-
CLASS	:	"D"

TENDER TO BE SUBMITTED TO:
THE CHIEF ACCOUNTANT,
SURAT MUNICIPAL CORPORATION, MUGLISARA
SURAT – 395 003.
SURAT MUNICIPAL CORPORATION

TENDER DOCUMENT
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SURAT MUNICIPAL CORPORATION

1.0 NOTICE INVITING TENDER

(A) RECEIPT AND OPENING OF TENDER :

Online Tenders will be received from the established and reliable contractors **From 19/06/2026 to 09/07/2026** upto 18.0 hours on website smc.nprocure.com. The tender received after due time and date specified will not be accepted.

(B) **Annual Rate Contract For Repairing, Maintenance and new work of footpath & watertable, divider, chainlizer, traffic island, activity area, P.C.C and laying cement concrete Guard Stone and Setting/Resetting stone paving/ Pever block work in Sub Zone-3 & 4 in South Zone-A (Udhana),(2nd Attempt).**

1. ESTIMATED COST : Rs. **77,84,318.45**
2. EARNEST MONEY DEPOSIT : Rs. **78,000.00**
3. TIME LIMIT : **12 (Twelve) months (Excluding monsoon)**
4. Document Fee : **Rs. 2400/- + 18% G.S.T. = Rs. 2832/-**
5. Registration required : 'D' class

(C) OPENING OF TENDERS:

The tenders will be opened online in presence of bidders and opening authority subject to receipt of **Tender Fees & EMD in hard copy in account department (Main Office). But tenderer has to upload relevant documents as required /mentioned in the technical bid in Soft Copy (By Scanning)**. The tenders will be opened in two stages i.e Technical Bid and Commercial Bid.

(D) PURCHASE OF TENDER DOCUMENTS :

Tender Documents can be downloaded from smc.nprocure.com from **Dt. 19/06/2026 to 09/07/2026** up to 18.00 hrs.

Tender documents fees of **Rs. 2400/- + 18% G.S.T. = Rs. 2832/-** per set which is required for submission of tender towards the cost of tender documents in cash, pay order or by demand draft of any nationalized bank, in favour of "The Commissioner, Surat Municipal Corporation" payable at Surat and shall be submitted along with EMD and other documents. The cost of the Tender Documents will not be refunded in any circumstances. The Surat Municipal Corporation shall not be liable for any postal delay in any case.

- **Demand Draft for E.M.D. & Tender (Bid) fee shall be submitted in electronic format through online mode (by scanning) while uploading the bid. This submission shall mean that E.M.D. & tender fee are received for purpose of opening of the bid. Accordingly, offer of those shall be opened whose E.M.D. & tender (bid) fee is received electronically. However, for the purpose of realization of D.D. bidder shall send the D.D. in original through RPAD / Speed post as per to reach to Chief Accountant, SMC within 7 days from the last date of online submission of the bid as per tender notice.**
- **Penaltative action will be taken for not submitting original Demand Draft in the account department of Surat Municipal Corporation within 7 days from the last date of online submission of the bid for the first time as mentioned below.**

Sr. No.	Tender Amount	Penalty Amount in Rs.
1.	Up to Rs. 1 Crore	Rs. 10,000/-
2.	More than Rs. 1 Crore and Upto Rs. 10 Crore	Rs. 20,000/-
3.	More than Rs. 10 Crore and Upto Rs. 50 Crore	Rs. 30,000/-
4.	More than Rs. 50 Crore and Upto Rs. 100 Crore	Rs. 70,000/-
5.	More than Rs. 100 Crore	Rs. 1,00,000/-

- If bidder will not submit the penalty amount within 10 days to Surat Municipal Corporation and/or bidder will not submit the demand draft in original for the second time and after, Penaltative action shall be taken for abeyance of registration and cancellation of E-tendering code for 6 (six) months.

- Any documents in supporting of bid shall be in electronic format only through online (by scanning) & hard copy will not be accepted separately.

(E) CONTRACT PERIOD :

The total contract period is hereby fixed as **12 (Twelve) months (Excluding monsoon)** from the 10th Day of issuance of work order.

(F) Tenderer must comply with and agree to all instructions & requirements in the Notice and in the Instructions to Tenderers, including requirements in the Contract Documents.

- All tenders must be submitted in the prescribed Tender form.
- Each Tender must be accompanied by the completion Schedule.
- Each tender must be accompanied by the Tender Security (Earnest Money Deposit) **Rs.78,000/-**
- The successful tenderer shall execute the Contract Agreement within ten days after the date of Notice of award.
- The successful Tenderer will be required to furnish a performance bond (Security Deposit) of and amount equal to (2%) Two percent of the tendered amount.
- The successful Tenderer shall furnish insurance in accordance with the contract documents.
- The Surat Municipal Corporation may withhold issuance of the Notice of proceed for a period not exceeding fifteen days after the date of execution of the contract agreement.
- The tender and tender guarantee bond (Earnest Money Deposit) shall be submitted by the Agency in whose name tender has been issued. Transfer of tender documents to any other party is prohibited.
- All intending tenderers will have to purchase digital signatures in order to participate in the online bidding process.
- All the applicant contractors are required to have their own employers code number under EPF Act, 1952 and are required to comply the applicable provisions of said statute regularly and totally.
- Further the contractors for services are required to produce the certified copies of paid challans in respect of employees/workers employed by said contractor in respect of work allotted by Surat Municipal Corporation, along with copies of Pay Roll and Muster Roll. If the same are not produced, the bills will not be released.

(G) RECEIPT OF TENDER DOCUMENTS :

The following details are to be submitted online on smc.nprocure.com :

- Document fees and EMD Details
- Commercial Bid
- Annexure I to II along with all necessary supporting documents
- Bank solvency

- e. Pan Card
- f. GST Registration
- g. Power of attorney
- h. Partnership deed in case of Partnership firm.
- i. Affidavit of Annexure A on Non Judicial Stamp Paper of Rs.300/-
- j. Under Taking By The Tenderer For Not Black Listed Non Judicial Stamp Paper of Rs300/-

The following details shall be submitted in hard copy at prescribed address :

- a. Tender fees in prescribed format
- b. Earnest Money Deposit in prescribed format
- c. Affidavit of Annexure A on Non Judicial Stamp Paper of Rs.300/-
- d. Under Taking By The Tenderer For Not Black Listed Non Judicial Stamp Paper of Rs300/-

Demand Draft for E.M.D & Tender fee shall be submitted in electronic format only through online (by scanning) while uploading the bid. This submission shall mean that E.M.D. & tender fee are received for purpose of opening the bid. Accordingly offer of those shall be opened whose E.M.D. & Tender fee is received electronically. However for the purpose of relization of D.D bidder shall send the D.D in original through RPAD/ speed post so as to reach to Account department (Main Office) within 7 days from the last date of uploading. Penaltativeaction for not submitting D.D in original to Account Department (Main Office) by bidder shall be initiated and action shall be taken for abeyance of registration & cancellation of E-Tendering code for 1 year. Any documents in supporting of bid shall be in electronic format only through online (by scanning) and electronic format only through online (by scanning) will not be accepted separately

Please note that commercial bid shall not be submitted in hard copy under any circumstances. This will hold the tender liable for rejection

(H) Tender Validity Period :

The validity period of the tender submitted for this work shall be of **one hundred twenty (120) calendar days from last date of submission of tenderfor this work** and the Tenderer shall not be allowed to withdraw or modify the tender offer on his own during the validity period.

(I) Rights Reserved :

Without assigning any reason, The Surat Municipal Corporation reserves the right to reject the lowest or any other or all tenders or part of its. To waive any informality or irregularity in any tender, which in the opinion of the Surat Municipal Corporation does not appear to be in its best interest and the tenderer shall have no cause of action or claim against the Surat Municipal Corporation or its officers, employee, successors or assignees for rejection of this tender.

The Surat Municipal Corporation further reserves the right to withhold issuance of the notice to proceed, after execution of the contract agreement by the successful Tenderer. The Surat Municipal Corporation is not obliged to give reasons for any such action.

During Tender validity period, if any Tenderer withdraws or makes any modifications or additions in the terms and conditions on his own in this tender, then The Surat Municipal Corporation shall without prejudice to any right or remedy be at liberty to reject the tender and forfeit the Earnest Money Deposit in full. Such Tenderer may be disqualified from tendering for further works under the jurisdiction of The Surat Municipal Corporation.

The Surat Municipal Corporation reserves the right to increase or decrease the scope of work and split the tender in two or more parts without assigning any reason even after the award of contract.

Executive Engineer,
South Zone-A (Udhana)
Surat Municipal Corporation.

Signature of the Contractor With seal

ANNEXURE-I TO II FOR PRE-QUALIFICATION
TO BE FILLED IN BY TENDERER
ANNEXURE-I

Performa for list of works of similar nature already completed by the Tenderer during last 7 years.

Sr. No.	Name of work and Place	Cost on Completion	Time taken in months to complete the work	Client name	Date of completion
1	2	3	4	5	6

Note: Bidder shall give completion certificate from client. In absent of such completion certificate, experience shall not be considered for evaluation. If completion certificate covers "Similar work (as per IT-04) with other work" then bidders shall have to submit copied of final bill indicating similar work or certificate of amount including "Similar work" from relevant authority.

Please Fill above details attached separate sheet.

Signature of the Contractor
With seal.

Place:

Date

7
ANNEXURE-II

Performa for declaration regarding work on hand with the tender:

Sr. No.	Name of work with place	Estimated Cost	Date of Issue of work order	Stipulated period of completion	Amount of work done	Brief details of delay if any	Name of client
1	2	3	4	5	6	7	8

Present liability = Total of column 3 - Total of column-6

Signature of the Contractor
with seal

Place

Date:

Note: Amount of work done in Column 6, should be given up to the month previous to the month in which tender are invited.

Please Fill above details attached separate sheet.

ANNEXURE-A**AFFIDAVIT**

Name of Work: _____

- I, the undersigned, do hereby certify that all the statements made in the required attachments are true and correct. I also understand that in case of wrongful/false information, corporation is entitled to take any civil & criminal punitive action against me / us.
- The undersigned also hereby certifies that neither our firm M/s _____ nor any of its constituent partners have abandoned any work in India nor any contract awarded to us has been rescinded during last five years, prior to the date of this bid.
- The undersigned hereby authorize(s) and request(s) any bank, person, authorities, government or public limited institutions, firm or corporation to furnish pertinent information deemed necessary and requested by the SMC to verify our statements of our competence and general reputation etc.
- The undersigned understands and agrees that further qualifying information may be requested, and agrees to furnish any such information at the request of the SMC.
- The SMC and its authorized representatives are hereby authorized to conduct any inquiries or investigations to verify the statements, documents, and information submitted in connection with this bid and to seek clarification from our bankers and clients regarding any financial and technical aspects. This Affidavit will also serve as authorization to any individual or authorized representative to any institution referred to in the supporting information, to provide such information deemed necessary and requested by representative of Surat Municipal Corporation to verify statements and information provided in the Tender or with regard to the resources, experience and competence of the Applicant.

Signed by the Authorized signatory of the firm

Title of the office

Name of the firm

Date:

Note:- The affidavit format as indicated above to be furnished on non-judicial stamp paper of Rs.300 and duly notarized

ANNEXURE- B**UNDER TAKING BY THE TENDERER FOR NOT BLACK LISTED**

I/We Address
 Solemnly affirm
 and state that on oath that..... (Name of Tenderer) has not been black listed by any
 Government/Semi Government/Public Sector Undertaking/Public limited and not has been banned/suspended
 business dealings with the said firm.
 The information given above is true to the best of my knowledge.
 I/We agree that if any notice in future, my/our bid/tender shall be rejected/terminated

SIGNATURE AND SEAL OF THE CONTRACTOR:

Name:

Address:

.....

Date :

Place :

Note:- The affidavit format as indicated above to be furnished on non-judicial stamp paper of Rs.300 and duly
 notarized

SURAT MUNICIPAL CORPORATION
SOUTHZONE-A(UDHANA)

CONTRACTOR TO PLEASE READ THIS CAREFULLY

- (1) If the tender is taken in favour of the company, a company of attorney in favour of the person who may have signed the tender for the company, must accompany the tender.
- (2) Solvency certificate of current year Bank or a Revenue Officer of an amount upto 20% of the tender cost plus works on the hand still to be executed will have to be produced by the contractor.
- (3) Voucher for earnest money must accompany the tender. Tenderer may pay earnest money in form of a crossed demand draft of a local Bank drawn in favour of the Municipal Commissioner. Earnest Money by cheque shall not be accepted.
- (4) In view of the latest circular of IT Department IT clearance certificate is not required. However the contractor shall give zerox copy of the PAN card. Also provide GST Number and necessary documents as per Govt resolution.
- (5) **Copies of certificate as regards previous experience of Govt. or Semi Govt. Dept., if any must accompany the tender.**

An attested copy of registration with MES, Various department of State Govt., Surat Municipal Corporation, CPWD etc.

- (6) Declaration showing all works on hand with the contractor and the value of works that remains to be executed in each case must accompany the tender.
- (7) All pages of Schedule: 'A & B' & specification should be initialed by the contractor.
- (8) All corrections, errasures & over writing should be initialed by the contractor.
- (9) Descripancies and adjustment of errors:-Any error in quantity or amount in Schedule-'B' showing item of words to be carried out shall be adjusted in accordance with the following rules:-
 - (a) In the event of a discrepancy between description in works and figures quoted by a tenderer in the 'rates' column, the descriptions in words shall prevail.
 - (b) In the event of and error occuring in the amount column of the Schedule- 'B' showing items of works as a result of wrong multiplication of the unit rate and quantity, the units rate shall be regarded as firm and multiplication shall be amended on the basis of the rate.
 - (c) All the errors in totalling in amount column and in carrying forwarded total shall be corrected.
 - (d) Any rounding of amounts against item' or in totals' shall be ignored.

The tendered sum so altered shall, for the purpose of the tenders, be substituted for the sum originally tendered and considered for accetpance.

- (10) (i) It may please be noted that the tender shall be considered as invalid specially, if the requirements as per insiruction No.1 to 9 above are not compleied with before submitting the tender. Also please read carefully the face sheet and "General Rules and Direction for the suidence of contractor" of his form.
(ii) Right is reserved to reject any or all tender (s) without assigning any person (s) thereof.
- (11) In addition to the above the tender will also be liable to rejected outright if :-
 - (i) The tenderer proposes any alteration in the works specified or in the time allowed for carryin out the work or any conditions or correction made in any code or made of Schedule-'B' or specifications.
 - (ii) Any of the page or pages of the tender is removed or replaced.
 - (iii) All corrections, additions or pasted slips are not initialed by the tenderer.
 - (iv) Any erasures is made by him in the tender
 - (v) The tenderer or in the case of a firm, each partner or person holding the power of attorney thereofdoes not signed or the signature/s is/are not attested by awitness on page-9 of the tender in the spacefor the purpose
- (12) In respect of the tenders from the co-operative society, a solvency certificate of an amount equal to 20% of the amount of the work put to tender will have to be produced alongwith the

tender or a certificate regarding the borrowing capacity if the society issued by the legal Assistant, Directorate of Cottage Industries will have to be produced along with the tender.

- (13) (1) The several documents forming the contract are the essential part of the contract and requirement occurring in one is as binding as through occurring in all, they are intended to be mutually explanatory and complementary and to describe and provide for a complete work.

(2) In the event of any discrepancy, the several documents forming the contract or in any the document, the following order or precedence should apply:-

(a) Dimension & quantities :-

- (i) Drawings.
- (ii) Schedule-B of the tender form.
- (iii) Specification.

On drawings, figures, dimensions, unless obviously incorrect will be followed in preference to stated dimensions.

(b) Description :

- (i) Schedule-B of the tender form.
- (ii) Drawings.
- (iii) Specifications.

In case of defective description or ambiguity, the Engineer-in-charge should issue further instructions direction in what manner the work is to be carried out it being understood that the best modern practice is to be followed. The contractor should forthwith comply with such instructions.

(3) The contractor should take no advantage of any apparent error or omission in drawings or specification and the Engineer in charge shall make such corrections and interpretation as necessary to fulfil the intent of the Plans and specifications.

(4) Notwithstanding that all proper precautions may have been taken by contractor at all the times during the progress of the work, the contractor shall be held responsible for all damages whether to the work under execution or to any other property or to lives of persons during the progress of the work and the period of maintenance.

(5) Plans are for rough guidance only when detailed plans are received from the Architect of corporation during the course of execution the same will supersede previous plans

- (14) The contractor should appoint a qualified engineer and he must remain present on site during working hours.
- (15) The Quantity mentioned in the scheduled "B" is Tentative (indicative) for each item. Tenderer shall have to execute the concerned work/item as per the site condition and payment shall be made accordingly as per the actual measurement of the particular item.

Executive Engineer
South Zone-A (Udhana)
Surat Municipal Corporation.

Contractor

DECLARATION FORM

(1) I/We hereby declare that I/We have visited the site and fully acquainted myself/ourselves with the local situation regarding materials, labour and other factors pertaining to the work before submitting this tender.

(2) I/We hereby declare that I/We have carefully studied the conditions of contract, specifications and other tender documents of this work and agree to execute the same accordingly.

Executive Engineer,
South Zone-A (Udhana)
Surat Municipal Corporation.

Contractor Signature with
Address:
Date :

INSTRUCTION TO TENDERERS

IT-01 GENERAL :

The Contract documents may be secured in accordance with the notice Inviting Tender for the work called. The work shall include supply of materials necessary for construction of the work.

IT-02 INVITATION TO TENDER: The Surat Municipal Corporation hereinafter referred to as the Corporation will receive tenders for the work **Annual Rate Contract For Repairing, Maintenance and new work of footpath & watertable, divider, chainlizer, traffic island, activity area, P.C.C and laying cement concrete Guard Stone and Setting/Resetting stone paving/ Pever block work in Sub Zone-3 & 4 in South Zone-A (Udhana),(2nd Attempt).** as per the specifications in the tender documents. The tenders shall be opened in presence of opening authority Surat in the presence of tenderers or their representatives who are present. The Corporation reserves the right to reject the lowest or any other or all tenders or part of it which in the opinion of the Corporation does not appear to be in its best interest, and the tenderer shall have no cause of action or claim against the corporation or its officers, employees, successors or assignees for rejection of his tender.

IT-03 LANGUAGE OF TENDER :

Tenders shall be submitted in English, and all information in the tender shall also be in English, Information in any other language shall be accompanied by its translation in English. Failure to comply with this may make the tender liable to reject.

IT-04 QUALIFICATIONS OF TENDERERS:-

(A) Tenderer shall be required to submit the enlisted documents along with Technical Bid, E.M.D. and tender fees. If documents are insufficient or it does not match the required criteria mentioned below, then the Price Bid of the tenderer shall not be opened.

Mainly tenderer shall fulfill following the pre-qualification.

(a) QUALIFYING CRITERIA OF BIDDER

Sr. No.	Criteria	Documents required for complete submission
1.0 Financial		
1.1	Average Annual financial turnover during the last 3 years, ending 31/03/2025 , should be at least 30% of the estimated cost (Rs.77.84 lacs) (i.e. 30% of Estimate Amount i.e, 23.35 lacs) An attested copy of annual turnover for last 3 years should be enclosed.	Copy of certificate from Chartered Accountant along with copy of Balance sheets.
1.2	Solvency Certificate Recent/Fresh Solvency certificate from bankers of schedule bank / nationalized bank. Minimum value of solvency shall be 20% of estimated cost (Rs.77.84 lacs) of the Tender (i.e. 20% of Estimate Amount i.e, 15.57 lacs)	from bankers of schedule bank / nationalized bank
	Tenderer has to submit higher amount of bank solvency if so desired by Commissioner. (Solvency certificate should not be older than One year from Last date of online Tender submission.)	
2.0 Registration		
2.1	Minimum "D" class" Registration Class with any government, semi government organization	Registration Certificate
2.2	power of attorney, partnership deed or registration deed.	Attested copy should be

		submitted
Sr. No.	Criteria	Documents required for complete submission
3.0 Relevant Experience		
3.1	Similar works during last 7 years	Attested copies of certificates from head of the office concerned for completion of the works. Only Govt. or Semi Govt. Works shall be considered for Similar Works.
3.1.1	Three similar completed works, each costing not less than amount equal to 40% of the estimated cost(Rs.77.84 lacs) put to the tender (i.e. 40% of Estimate Amount i.e, 31.13 lacs)	
	Or	
3.1.2	Two similar completed works, each costing not less the amount equal to 50% of the estimated cost (Rs.77.84 lacs)put to the tender (i.e. 50% of Estimate Amount i.e, 38.92 lacs)	
	Or	
3.1.3	One similar completed works, each costing not less the amount equal to 80% of the estimated cost(Rs.77.84 lacs) put to the tender. (i.e. 80%of Estimate Amount i.e,62.27 lacs)	
4.0 Other details		
4.1	Black list. The Bidders shall note that in case the Bidder is blacklisted / stated as defaulter / barred participating in tenders by any of government agencies / semi government agencies or any other equivalent agencies during last 5 years then in that case, the Bidders will be disqualified and will not be allowed to participate in the bidding process, though bidder satisfies all the qualification conditions mentioned above. In this regard, the decision of the Surat Municipal Corporation will be final and binding to Bidder.	AFFIDAVIT
4.2	Works on hand & Litigation The Bidder including any Member shall provide details of all their on-going projects along with stage of litigation, if so, against the Employer / Governments.	ANNEXURE-I & II

NOTE:-(1) Similar work shall mean Fixing of Paver Block Works, Excavation, Soil Filling work, Compaction work, laying of GSB Work etc and any type of Paver Block work.

- (a) Turnover during last 3 years, ending 31st March of previous financial year should be atleast **RS.23.35 lacs**. An attested copy of annual turnover for last 3 years should be enclosed.
- (b) Solvency certificate from bankers of schedule bank / nationalized bank for the **RS.15.57 lacs**. Tenderer has to submit higher amount of bank solvency if so desired by Commissioner. **(Solvency certificate should not be older than One year from Last date of online Tender submission.)**
- (c) An attested copy of registration with MES, Various department of State Govt., Surat Municipal Corporation, CPWD etc.
- (d) List of the works already completed in last 7 years in prescribed proforma as per Annexure-I

and attested copies of certificates from head of the office concerned for completion of the works.

Following enhancement factors will be used for the cost of works executed and financial figures to amount base for the value of the works completed in India.

Cut of month shall be considered from month of tender submission.

Financial Year	Multiplying factor
Immediate last year of the assessment year*	1.10
Second	1.21
Third	1.33
Fourth	1.46
Fifth	1.61
Sixth	1.77
Seventh	1.95

- Here assessment year shall be reckoned from year and month in which tender is submitted.
- Bidder should indicate actual figures of cost and the amount for the work executed in Statement-A without accounting for the above mentioned factors.

(e) Declaration regarding the work on hand with the tenderer should also be given in prescribed performa as per Statement-B. Attested copies of work orders, interim certificates if any shall also be attached as supporting documents.

(f) Attested copy of partnership deed, power of attorney etc.

(g) Application Received from joint venture / consortium shall not be considered.

- attested copy of partnership deed, power of attorney etc.
- passport size photographs of partner / all partners on relevant page of technical bid.
- Tenderer shall submit only one tender for the work put to this tender.
- Tenderer shall submit the certificate of Employers code number under EPF Act.

(h). Even though the Bidder meets the above criteria, they are subject to be disqualified if they have

- Made misleading or false presentations in the forms, statements and attachments submitted in proof of the qualification requirements; and /or
 - During verification if it is found from client that of poor performance such as abandoning the works, for financial failure or abnormal delay in work etc.
 - Regarding Litigation, in case where Bidder is involved in illegal practice like any activities of corruption, coercive practice or debarred/blacklisted in last 05 years by Any Govt. / Organization in respect of performance of Bidder, SMC authority requires that bidders under this contracts, observe the highest standard of ethics during the procurement and execution of such contracts.
1. Will reject a proposal for award if it determines that the bidder has engaged in any corrupt or fraudulent practices in competing for this contract or in past history and
 2. Will reject a proposal if it found debarred/blacklisted by any State Govt. /Govt. of India/ Semi Government/ PSU in last 05 years.

IT-05 TENDER DOCUMENTS :

Printed and online documents and set of drawings shall comprehensively be referred to as Tender documents. The several sections forming the documents are the essential parts of the contract and a requirement occurring in

one shall be binding as though occurring in all. They are to be taken as mutually explanatory and describe and provide for complete works.

IT-06 EXAMINATION BY TENDERERS :

- A. At his own expenses and prior to submitting his tender, each tenderer shall (a) examine the contract Documents, (b) visit the site and determine local conditions which may effect the work including the prevailing wages and other pertinent cost factors, (c) familiarize himself with all CENTRAL, State and local laws, ordinance, rules, regulations and codes affecting the material supply including the cost of permits and licenses required for the work and (d) correlate his observations, investigations, and determinations with the requirements of the Tender Documents.
- B. The tender quantity is approximate and may increase or decrease. Any increase or decrease in quantity will not entitle tenderer to claim any extra over the quoted rate.
- C. Tender Documents be completed by legible ink, checked in a responsible manner, signed, stamped and returned together with the Tender Security Bond by the stipulated date, which shall form the Tender.

The Tenderer is required to complete :

- (h) The form of tender, including the Appendices thereto Tender Security Bond and the Tender summary duly signed and stamped.

All the pages in which entries are required to be made by the tenderer are contained in the tender documents and the tenderer shall not take out or add to or amend the text of any of the documents except in so far as may be necessary to comply with any addenda issued pursuant to Clause IT-17 hereof.

IT-07 EARNEST MONEY DEPOSIT:

A. The Tender shall be accompanied by of Earnest Money Deposit **Rs.78,000/-**-The tenderer shall pay Earnest Money Deposit by pay order/demand draft issued in favour of Commissioner, Surat Municipal Corporation, Surat of below mentioned banks only. The Earnest Money Deposit in the form of FDR or cheque shall not be accepted. The tenderer shall have to mention details of Earnest Money Deposit on the seal cover of Earnest Money Deposit. The tender received without Earnest Money Deposit shall be out rejected.

The instruments for A. The Tender shall be accompanied by of Earnest Money Deposit **Rs. 78,000/-**-The tenderer shall pay Earnest Money Deposit by pay order/demand draft issued in favour of Commissioner, Surat Municipal Corporation, Surat of below mentioned banks only. The Earnest Money Deposit in the form of FDR or cheque shall not be accepted. The tenderer shall have to mention details of Earnest Money Deposit on the seal cover of Earnest Money Deposit. The tender received without Earnest Money Deposit shall be out rejected.

The instruments for Earnest Money Depository shall be issued by or payable/encashable at Surat Branch of the said banks only.

- (A) Guarantees issued by following banks will be accepted as SD/EMD on permanent basis

- All Nationalized Banks

- (B) Gaurantees issued by following Banks will be accepted as SD/EMD for the period up to March 31, 2026 as per GR NO. FD/MSM/c-file/04/2024/2859/D.M.O. Dt. 01/05/2025. The Validity cut-off date in the GR is with respect to the date of issue of Bank Guarantee irrespective of the date of termination of Bank Guarantee.

- (1)Axis Bank
- (2) A U Small Finance Bank
- (3) Bandhan Bank
- (4) Barclays Bank
- (5) City Union Bank
- (6) CSB Bank
- (7) DBS Bank India Limited
- (8) DCB Bank
- (9) Equitas Small Finance Bank
- (10) ESAF Small Finance Bank

- (11) FEDERAL Bank
- (12) HDFC Bank
- (13) HSBC Bank
- (14) ICICI Bank
- (15) IDBI Bank
- (16) IDFC First Bank
- (17) Jammu and Kashmir Bank
- (18) Jana Small Finance Bank
- (19) Karnataka Bank
- (20) Karur Vysya Bank
- (21) Kotak Mahindra Bank
- (22) South Indian Bank
- (23) Standard Chartered Bank
- (24) Tamilnadu Mercantile Bank
- (25) Utkarsh Small Finance Bank
- (26) YES Bank
- (27) Ahmedabad Mercantile Co-Op. Bank
- (28) Nutan Nagrik Sahakari Bank Ltd.
- (29) Rajkot Nagrik Sahakari Bank Ltd.
- (30) Saraswat Co-Operative Bank Ltd.
- (31) SBPP Co-operative Bank Ltd.
- (32) SVC Co-Operative Bank LTD.
- (33) The Cosmos Co-op Bank Ltd.
- (34) The Gujarat State Co-Operative Bank
- (35) The Mehsana Urban Co-Op. Bank
- (36) The Surat District Co-Operative Bank
- (37) The Surat Pepole's Co-Op. Bank Ltd.
- (38) The Kalupur Commercial Co-Op. Bank
- (39) The Panchmahal District Co-operative Bank
- (40) The Baroda District Co-operative Bank
- (41) Baroda Gujarat Gramin Bank
- (42) Saurashtra Gramin Bank

B. The Earnest Money Deposit (Tender guarantee) will be forfeited in the event, the successful tenderer fails to accept the contract and fails to submit the Performance Guarantee Bond

to the owner as stipulated in this tender documents within ten days after receipt of notice of award of contract. In such case owner may disqualify the tenderer from tendering for

further works, under the jurisdictions of the Corporation (S.M.C.).

C. The Earnest Money Deposit of the successful tender shall be returned after the performance guarantee bond, as required, if furnished by the contractor.

D. No interest shall be paid by the owner on any tender guarant.

IT-08 INCOME TAX CLEARANCE CERTIFICATE

In view of the latest circular of IT Department IT clearance certificate is not required. However the contractor shall give zerox copy of the PAN card.

IT-09 PREPARATION OF TENDER DOCUMENTS :

Tenderers are requested to note the following while preparing the Tender Documents:

- A. Technical bid, EMD and Tender fees shall be submitted on the Tender Form bound herein in English. All tender items and statements shall be properly filled in. Numbers shall be stated both in words and in figures where so indicated, and signatures of all persons signing shall be in longhand.
- B. Technical Bid shall be accompanied by the prescribed tender security bond and other required documents and drawings. All witnesses and sureties shall be persons of status and probity and their full names,

occupations and address shall be stated below their signatures. All signatures in the Tender Documents shall be dated.

- C. Variations to the Contract Documents requested by the tenderer may be affixed to the Tender Document in the space available and duly signed and stamped. Such variations may be approved or refused by the Engineer at the time of adjudications of Tenders, and in either case the Engineer is not obliged to give reasons for his decisions.
- D. Delivery of Tenders shall comply with Notice inviting tenders as to place, date and time.
- E. Price Bid shall be submitted online. Tenderers are requested to quote for all four parts of the tender.

IT 10 SUBMISSION OF TENDERER DOCUMENT

Following documents shall be submitted in hard copy to Surat Municipal Corporation:

- Earnest Money Deposit as mentioned in the Tender.
- Tender Fees as mentioned in the tender
- Affidavit of Annexure A on Non Judicial Stamp Paper of Rs.300/-
- Addenda-Corrigendum (if any) duly signed by Contractor.

Technical bid and price bid are not to be submitted in physical form. Please note that non submission of Technical Bid as well as price bid does not absolve the bidders from any liability created from the bid condition and bidding process. Technical-Bid and Price Bid in hard copy shall be submitted by Successful bidder upon intimation from Surat Municipal Corporation.

Note :-

As per City Engineer Shri Note No. 61, Dt. 05/02/2025

• **Demand Draft for E.M.D. & Tender (Bid) fee shall be submitted in electronic format through online mode (by scanning) while uploading the bid. This submission shall mean that E.M.D. & tender fee are received for purpose of opening of the bid. Accordingly, offer of those shall be opened whose E.M.D. & tender (bid) fee is received electronically. However, for the**

purpose of realization of D.D. bidder shall send the D.D. in original through RPAD / Speed post as per to reach to Chief Accountant, SMC within 7 days from the last date of online submission of the bid as per tender notice.

Penaltative action will be taken for not submitting original Demand Draft in the account department of Surat Municipal Corporation within 7 days from the last date of online submission of the bid for the first time as mentioned below.

Sr. No.	Tender Amount	Penalty Amount in Rs.
1.	Up to Rs. 1 Crore	Rs. 10,000/-
2.	More than Rs. 1 Crore and Upto Rs. 10 Crore	Rs. 20,000/-
3.	More than Rs. 10 Crore and Upto Rs. 50 Crore	Rs. 30,000/-
4.	More than Rs. 50 Crore and Upto Rs. 100 Crore	Rs. 70,000/-
5.	More than Rs. 100 Crore	Rs. 1,00,000/-

If bidder will not submit the penalty amount within 10 days to Surat Municipal Corporation and/or bidder will not submit the demand draft in original for the second time and after, Penaltative action shall be taken for abeyance of registration and cancellation of E-tendering code for 6 (six) months.

Any documents in supporting of bid shall be in electronic format only through online (by Scanning) & hard copy will not be accepted separately.

1 COVER-1 : Technical Bid

1.E.M.D and Tender Fees for the work of **Annual Rate Contract For Repairing, Maintenance and new work of footpath & watertable, divider, chainlizer, traffic island, activity area, P.C.C and laying cement concrete Guard Stone and Setting/Resetting stone paving/ Pever block work in Sub Zone-3 & 4 in South Zone-A,(Udhana) (2nd Attempt).**along with other Documents in Hard Copy upto **Dt. 29/12/2025 to 19/01/2026**18:00 hrs. Also mention the name of tenderer, address, tender notice number etc. on the cover.

2.(ii) PRICE BID Price bid for the work of **Annual Rate Contract For Repairing, Maintenance and new work of footpath & wa7tertable, divider, chainlizer, traffic island, activity area, P.C.C and laying cement concrete Guard Stone and Setting/Resetting stone paving/ Pever block work in Sub Zone-3 & 4 in South Zone-A(Udhana),(2nd Attempt).**shall be submitted online.

3.The name of work to be written on cover shall be **Annual Rate Contract For Repairing, Maintenance and new work of footpath & watertable, divider, chainlizer, traffic island, activity area, P.C.C and laying cement concrete Guard Stone and Setting/Resetting stone paving/ Pever block work in Sub Zone-3 & 4 in South Zone-A(Udhana),(2nd Attempt).**..Also mention the name and the address of tenderer, tender notice number on the cover and to be submitted to the **Chief Accountant, Surat Municipal Corporation, Muglisara, Surat – 395 003.**

2 Tenderer shall be required to submit the enlisted documents as mentioned below in Cover-1. If necessary document founds insufficient then the Price Bid of the tenderer shall not be opened.

(a) The tender shall be accompanied by Earnest Money Deposit of **Rs.78,000=00** The tenderer will pay **Earnest Money Deposit by Pay Order/Demand Draft** issued in favour of "Commissioner, Surat Municipal Corporation, Surat" by Nationalized Bank.

(b) A covering letter detailing various considerations considered in tender shall invariably be given.

(c) Passport size photographs of all the partners (incase of partnership firm) to be fixed on relevant Page of the tender documents.

3. (a) List of tools, plants and equipments with tenderer in detail.

(b) Technical establishment/staff of the tenderer in required Performa with their names, qualifications and experience.

(c) Tenderer shall furnish along with the tender, information regarding Income tax circle of the district in which he is assessed for income tax with PAN No.

4. Submission of a tender by a tenderer shall mean that he has read this notice and contract documents and has made himself aware of the scope and specifications of the work to be done and of conditions and nature of required quantities of Materials stores, tools and plants etc.that may be required by him in carrying out the work and of local conditions and laws and bylaws of the Government, Surat Municipal Corporation and other factors bearing influence on the execution and cost of the works.

5. E.M.D., Tender Fee and other necessary document in hard copy shall be received by Registered Post A.D. or by Speed Post through Postal Authority only by the "Chief Accountant, Surat Municipal Corporation, Muglisara, Surat-395003 upto **18/07/2026up to 18:00 hrs.**

The same will be opened probably on the **10/07/2026, 11:00 hrs.(Technical Bid- Soft Copy) (Probable) & 19/07/2026(Technical Bid-Hard copy) onwards (Probable)** in the presence of the tenderers, who shall remain present in the office of "Tender opening officer, Surat Municipal Corporation, Surat. Late tenders (i.e. tenders received after the specified time of opening), delayed tender (i.e. tenders received before the time of opening but after due date and the time of receipt of tender) shall not be considered at all. Tenders received by Registered Post A.D./ Speed Post after the time and the date specified in the tender notice shall not be received by the client from the postman. Such tenders if received will not be opened and will stand rejected.

6. Tender shall stand rejected if:
 1. Any eraser is made in the tender unauthenticated or any page or pages is/are removed or replaced.
 2. The tenderer shall submit the tender which satisfied each and every conditions laid down in the notice tender documents, failing which the tender will be liable for rejection.
 3. Tenderer's tender/quotation containing conditions shall be liable for rejection out rightly without assigning any reason for the same.
 4. Stipulates the validity period less than what is stated in the form or tender.
 5. Stipulates his own conditions.
 6. Does not quote his rates inclusive of Octroi duty and other terminal or sales tax or CENTRAL taxes in his rates.
 7. Does not disclose the full names and address of all his partners in the case of partnership firm.
 8. Does not pay the Earnest Money Deposit by Demand Draft/Pay order and Tender Fees with Technical Bid (Cover-1).
 9. Does not submit the tender before the stipulated time and specified date in the Account Office as directed.
 10. Does not attached the document mentioned.
 11. The tenderer proposes any alteration in the work specified in the tender or in the time limit allowed for carrying out the work or any other condition.
7. All corrections, additions or posted slips to be initialed by the tenderer.
8. All page of tender documents including specifications should be initialed by the contractor.
9. The tenderer shall submit the tender which satisfies each and every conditions laid down in this notice and tender documents failing which the tender is liable for rejection.
10. Notice of inviting tenders shall be a part of the contract documents.
11. Acceptance of tenderer/quotation will rest with the competent authority of Surat Municipal Corporation who does not bind himself to accept the lowest and reserves the right to accept or to reject any or all quotations/tenders and no reasons will be given for acceptance or rejection thereof.
12. The contractor shall also attach list of machineries, tools, plants, equipments which he propose to deploy for this work.
13. All octroi duty and other taxes chargeable by the Municipal Corporation shall be payable by the Contractor.
14. Tender once accepted shall be binding on the contractor even if the formal agreement is not signed.
15. Tender once offered can not be withdrawn except with the permission of head of the concerned department, Surat Municipal Corporation, Surat.
16. The successful tenderer shall be required to enter in to agreement with Municipal Corporation after placing the work order for the said work from SMC.
17. The successful tenderer may be required to furnish surety of 20% of the contract value on stamp paper if so desired by the Municipal Commissioner.
18. The tenderers are requested to give complete specification of work quoted.
19. Unless specifically mentioned by the tenderer for the extra payment of taxes on price quoted by them it will be presumed the prices quoted are inclusive of the all taxes and no claim will be entertained for payment of extra taxes on the bills submitted by them.
20. The Price-bid will be opened only after technical clarifications are clarified.
21. Surat Municipal Corporation reserves the right to open or not to open any or all Price-bid without assigning any reason thereof.

IT-11 TENDER VALIDITY PERIOD :

The validity period of the tender submitted for this work shall be of one hundred twenty (120) Calendar day from last date of submission of tender and that the tenderer shall not be allowed to withdraw or modify the tender offer on his own during the validity period. The tenderer will not be allowed to withdraw the tender or

make any modifications or additions in the terms and conditions of his own in his tender. If this is done then the owner shall, without prejudice to any right or remedy, be at liberty to reject the tender and forfeit the Earnest Money Deposit in full.

IT-12 SIGNING OF TENDER DOCUMENTS :

If the Tender is made by an individual it shall be signed with his full name above his current address. If the tender is made by a Proprietary firm it shall be signed by the proprietor above his name and the name of his firm with his current address.

If the tender is made by a firm in partnership it shall be signed by all the partners of the firm above their full names and current addresses, or by a partner holding the power of attorney for the firm signing the Tender in which case a certified copy of the power of attorney shall accompany the Tender. A certified copy of the partnership deed, current addresses of all the partners of the firm shall also accompany the tender.

If the tender is made by a limited company or a limited Corporation, it shall be by a duly authorised person holding the power of attorney for signing the Tender in which case a certified copy of the power of attorney shall accompany the Tender. Such limited company or Corporation may be required to furnish satisfactory evidence of its existence before the contract is awarded.

All witnesses and sureties shall be persons of status and probity and their full names, occupations and addresses shall be stated below their signatures. All signatures in the Tender document shall be dated.

IT-13 WITHDRAWAL OF TENDERS :

If, during the Tender validity period, the Tenderer withdraws his Tender, the Tender Security (Earnest Money) shall be forfeited and the Tenderer may be disqualified from tendering for further works under the jurisdiction of SURAT MUNICIPAL CORPORATION

IT-14 INTERPRETATIONS OF TENDER DOCUMENT :

Tenderers shall carefully examine the tender documents and fully inform themselves as to all the conditions and matters which may in any way effect the work or the cost thereof. Should a tenderer find discrepancies or omission from the specifications or other documents, or should be in doubt as to their meaning, he should at once address query to the Divisional Head provided for concerned authority as referred in the Tender Document in Clause GC-01 (Definitions and interpretations) of the (General Condition of Contract). Any resulting interpretation of the Tender documents will be issued to all Tenderers as an addenda corrigendum. Verbal clarification and / or information given by the SMC / Consulting Engineer shall not be binding on the Municipal Corporation.

IT-15 ERRORS AND DISCREPANCIES IN TENDERS :

In case of conflict between the figures and words in the rates, the rates expressed in words shall prevail and apply in such cases.

IT-16 MODIFICATION OF DOCUMENTS :

Modification of specifications and extension of the closing date of the tender, if required, will be made by an addendum. Copies of each addendum will be sent to all tenderers. These shall be Signed and shall form a part of tender. The tenderer shall not add to or amend the text of any of the documents except in so far as may be necessary to comply with any addenda.

IT-17 ADDENDA

Addenda form part of the contract documents & full consideration shall be given to all addenda in the preparation of tenders. Tenderers shall verify the number of addenda issued, if, any and acknowledge the receipt of all Addenda in the Tender. Failure to acknowledge may cause the Tender to be rejected.

A. The Engineer of the owner may issue Addenda to advise Tenderers of changed requirements. Such addenda may modify previously issued Addenda.

B. No Addendum may be issued after the time stated in Notice Inviting Tenders.

IT-18 TAXES AND DUTIES ON MATERIAL

The Contractor shall be liable to payment of all the Central/ State/Local Bodie's Levies,/ GST/ taxes or duties etc. The SMC shall neither bear it nor reimburse at any time but will ensure deduction of Central/State/Local levies/GST and taxes at Source at the rate provided under the relevant statutes from time to time inforce.

1% Construction Cess will be deducted from respective R.A. Bill and Final bill in accordance with the prevailing norms of Govt. of Gujarat.

GST CLAUSE FOR CONSTRUCTION / ERECTION / COMMISSIONING / INSTALLATION / REPAIRS / MAINTENANCE / RENOVATION / FABRICATION OF STRUCTURE INCLUDING BUILDING (MEANS ALL WORKS CONTACT / TURN KEY PROJECTS / SUPPLY OF MATERIAL / GOODS)

GST (Goods & Service Tax) has come in existence from 1 July 2017. Contract / Successful Bidder is bound to pay any amount of GST prescribed by the Govt. of India as per the Terms of Contract agreed upon during the course of execution of this Contract.

During the course of execution of contract, if there is any change in Rate of GST (Goods & Service Tax) by the Government the same shall be reimbursed / recovered separately by SMC subject to the submission of Original Receipt / proof for the amounts actually remitted by the successful Tenderer / Contractor to the competent authority along with a certificate from Chartered Accountant of Contractor / Successful Bidder certifying that the amount of GST paid to the Government and the same shall be intimated / submitted / claimed within 30 Days from the date of payment Remittance of GST within stipulated period shall be the sole responsibility of the Successful Bidder / Contractor failier which SMC and decision of Municipal Commissioner shall be final and binding on the Contractor / Successful Bidder in this regard Further the nonpayment of GST to the Government may lead to the termination of contract and forfeiture of security Deposit / Performance Guarantee Amount.

If imposition of any other new Taxes / Duties / Levies / Cess or any other incidentals etc. or any increase in the existing Taxes / Duties / Levies / Cess or any other incidentals etc. (Excluding GST) are imposed during the course of the contract the same shall be borne by the Contractor / Successful Bidder only in no case SMC shall be liable for the same.

IT-19 EVALUATION OF TENDERS :

As per IT (04), Experience of the Contractor shall be considered for Similar kind of works.

IT-20 EVALUATION OF TIME REQUIRED FOR COMPLETION :

The time required for completion of work shall be considered as indicated by the tenderer in the completion schedule attached with the tender. The completion period mentioned in this schedule is to be reckoned from **11th day** from the date of work order to proceed. Total completion period is calendar months from **11th day** from date of issue of work order and tenderers should adhere to this delivery time.

IT-21 POLICY FOR TENDER UNDER CONSIDERATION :

Tenders shall be termed to be under consideration from the opening of the tender until such time an official announcement of award is made. While tenders are under consideration, tenderers and their representative or other interested parties are advised to refrain from connecting by any means Municipal Corporation or representatives on matters related to the tenders under study. The Engineer's representative if necessary will obtain clarification on tenders by requesting information from any or all the tenderers either in writing or through personal contact, as may be necessary. The tenderers will not be permitted to change the substance of his tender after price submission. Non-compliance with this provision shall make the tender liable for rejection.

IT-22 PRICES AND PAYMENTS :

The tenderer must understand clearly that the price quoted are for the total works or the part of the total works quoted for and include all costs due to materials labour, equipment, supervisions, other services, royalties and Octroi etc. and to include all extras to cover the cost. No claim for additional payment beyond the prices quoted will be entertained and the tenderer will not be entitled subsequently to make any claim on any ground excepting for the condition laid down in GC-35 (Price Adjustment).

IT-23 PAYMENT TERMS :

The terms of payment are defined in the General Conditions of Contract. The Municipal Corporation shall not under any circumstances relax, their terms of payment and will not consider any alternative payment terms. Tenderers should therefore in their own interest note this provision to avoid rejection of their tenders.

IT-24 AWARD :

Award of the Contract or the rejection of tenders will be made during the Tender validity period stated in the Notice Inviting Tenders.

- A. After all contract contingencies are satisfied and the Notice of Award is issued, the successful Tenderer shall execute the Contract Agreement within the time stated in the Notice Inviting Tenders and shall furnish the Bond as required herein. The Contract Agreement shall be executed in the form stipulated by the owner. A copy of the required form is included in the contract documents.
- B. If the Tenderer receiving the Notice of Award fails or refuses to execute the Contract Agreement within the stated time limit or fails or refuses to furnish the Bond as required herein, the SMC may annul his award and declare the tender security forfeited.
- C. A Corporation, Partnership firm or other consortium acting as the Tenderer and receiving the Award shall furnish evidence of its existence and evidence that the officer signing the Contract Agreement & Bonds for the Corporation, partnership firm or other consortium acting as the Tenderer is duly authorised to do so.

IT-25 SIGNING OF CONTRACT :

The successful tender shall be required to pay the security deposit and to execute the contract within 10 days of receipt of intimation to execute the contract, failing which the Municipal Corporation will be entitled to annul the award and forfeit the Earnest Money Deposit. The person to sign the contract document shall be person detailed in Article IT-12.

IT-26 DISQUALIFICATION :

A tender shall be disqualified and will not be taken for consideration if:-

- (a) The outer envelope does not show on the outside the reference of bid and thus get opened before the due date of opening (as per Article IT-10 i.e. Submission of Tender Document).
- (b) The tender Security Deposit is not deposited in full and in the manner i.e. Earnest Money Deposit.
- (c) The tender is in a language other than English or does not contain its English Translation in case of other language adopted for tender preparation.
- (d) The tender documents are not signed by an authorised person.
- (e) The general performance data for qualification not submitted fully.
- (f) The tenderer does not agree to deposit security amount as specified (as per Article IT-25 i.e. Signing of Contract).
- (g) The tenderer does not agree to payment terms defined as per Article IT-23 i.e. Payment Terms.)
- (h) Conditional tender.

A. Tenderer may further be disqualified if :

- (a) Price variation is proposed by the Tenderer on any principles other than provided in the Tender Documents.
- (b) Completion schedule offered is not consistent with the completion schedule defined and specified in tender documents.
- (c) The validity of tender is less than that mentioned in Article IT-11 i.e. Tender Validity Period.
- (d) Any of the page or pages of tender is/are removed or replaced.
- (e) All corrections or pasted slips are not initialed by tenderer.
- (f) Any erasure is made in the tender.

IT-27 PERFORMANCE GUARANTEE (SECURITY DEPOSIT)

As a contract security the tenderer to whom the award is made shall furnish a performance guarantee (Security Deposit) for amount equal to Two percent (2%) of the contract price to guarantee the faithful performance completion and maintenance of the works of the contract in accordance with all the conditions and terms specified herein and to the satisfaction of the Engineer and ensuring the discharge of all obligations arising from the execution of contract, in one of the forms mentioned below.

- (a) Initial Security Deposit of 2% (Shall be Released after completion of final bill as well as on completion of audit related procedure)
- (b) 7% Retention money (2% SD + 5% Additional retention Money) deposit to be deducted from running bills (Shall be released with final bills)

Note: 2% Initial Security deposit shall be deposited in the form of Cash/DD/Pay order only.

Security deposit shall be paid in time and if it is paid after ten (10) days from the date of preliminary work order then the penalty of 0.065 % per day of the amount of security deposit shall be recovered from the

contractor while receiving the security deposit. On due performance and completion of the contract in all respects, the performance guarantee (security deposit) will be returned to the contractor after the defect liability period and on completion of audit related procedure. It is clarified that the amount of security deposit shall be collected on the basis of Contract Price and not on the basis of estimated amount put to tender. As initial Security Deposit Two percent (2%) of the tendered amount accepted by the competent authority shall have to be paid towards security deposit at the time of execution of agreement. This will be known as initial security deposit which will be released after the total completion of contract after completion of final bill as well as defect liability period & on completion of audit related procedure.

Seven percent (7%) shall be deducted from running bills as retention money.

IT-28 STAMP DUTY :

The successful tenderer shall have to enter into an agreement on a non-judicial stamp paper of **Rs.4.90%** of S.D. Amount, if S.D. Amount in FDR and otherwise as per the form of the agreement approved by the Municipal Corporation, Surat.

The agreement shall be executed on stamp paper worth **Rs.4.90%** of S.D. Amount.

The surety shall be executed on stamp paper worth **Rs. 300/-**

IT-29 BRAND NAMES :

Specific references in the specifications to any materials by tender's name, or catalogue number shall be construed as establishing a standard or quality and performance and not as limiting competition and the tenderer in such cases, may at their option freely use any other product, provided that it ensures an equal or higher quality than the standard mentioned and meets Municipal Corporation approval.

IT-30 NON-TRANSFERABLE :

Tender documents are not transferable.

IT-31 COST OF TENDERING :

The owner will not defray expenses incurred by Tenderers in tendering.

IT-32 DEFECT OF TENDER :

The Tender for the work shall remain open for a period of 120 calendar days from the date of receipt of the tenders for this work and that the tenderer shall not be allowed to withdraw or modify the offer on his own during the period. If any tenderer withdraws or makes any modifications or additions in the terms and conditions on his own, then the Municipal Corporation, shall without prejudice to any right or remedy, be at liberty to reject the tender and forfeit the earnest money in full.

IT-33 CHANGE IN A QUANTITY :

The Surat Municipal Corporation reserves the right to waive any informality in any tender and to reject one or all tenders without assigning any reasons for such rejections and also to vary quantities of items or group as specified in the Schedule of price as may be necessary. Claim whatsoever by the contractor on the basis of variation of quantities shall not be entertained.

IT-34 NEW EQUIPMENT AND MATERIAL ;

All materials, equipment and spare parts thereof shall be new, unused and originally coming from manufacturer's plant to the Corporation. The rebuilt or overhauled equipment/materials will not be allowed to be used on work.

IT-35 RIGHTS RESERVED ;

The SMC reserves the right to reject any or all tenders, to waive any informality or irregularity in any tender without assigning any reasons. The SMC further reserves the right to withhold issuance of the notice to proceed, after execution of the contract agreement, for the period of time stated in the notice inviting tenders and no additional payment will be made to the successful tenderer on account of such withholding. The SMC is not obliged to give reasons for any such action.

IT-36 Municipal Commissioner reserves the right to reduce the scope of work and split the tender in two or more parts without assigning any reason even after the award of contract.

IT-37 No mobilisation advance or advance on machinery will be given.

IT-38 The scope of work is clearly mentioned in the tender documents. The contractor shall have to carry out the work in accordance with the details specifications. No conditions will be accepted. The conditional tender will be liable to be rejected.

- IT-39** The surplus excavated earth, after backfilling the trenches shall have to be removed from the site as directed. After compaction and consolidation, if any short fall of earth is found then contractor has to bring the same to the required quantity in order to meet shortfall at his own cost. More over, if any settlement of road after reinstatement is observed during the defect liability period of the work. Contractor shall be fully responsible for the defective work and patches/ depression / settlement shall be repaired with quarry spoil or metal at contractor's own cost. If contractor fails to repair the patches / depression / settlement in time, corporation will repair it at all risk and cost of contractor. Surplus earth shall not be disposed off in a way that leads to nuisance to the public or SMC

IT-40 TAXES

GST CLAUSE FOR CONSTRUCTION / ERECTION / COMMISSIONING / INSTALLATION /

REPAIRS / MAINTENANCE / RENOVATION / FABRICATION OF STRUCTURE INCLUDING BUILDING (MEANS ALL WORKS CONTRACT / TURN KEY PROJECTS / SUPPLY OF MATERIAL / GOODS).

GST (Goods & Service Tax) has come in existence from 1st July, 2017. Contractor / Successful Bidder is bound to pay any amount of GST prescribed by the Govt. of India as per the Terms of Contract agreed upon during the course of execution of this Contract.

During the course of execution of Contract, if there is any change in Rate of GST (Goods & Service Tax) by the Government, the same shall be reimbursed / recovered separately by SMC, subject to the submission of Original Receipt / Proof for the amounts actually remitted by the Successful Tenderer / Contractor to the Competent Authority along with a Certificate from Chartered Accountant of Contractor / Successful Bidder certifying that the amount of GST paid to the Government and the same shall be intimated / submitted / claimed within 30 (Thirty) Days from the date of payment. Remittance of GST within stipulated Period shall be the sole responsibility of the Successful Bidder / Contractor, failing which, SMC may recover the amount due, from any other payable dues with SMC and decision of Municipal Commissioner shall be final and binding on the Contractor / Successful Bidder in this regard. Further, the non-payment of GST to the Government may lead to the termination of contract and forfeiture of Security Deposit / Performance Guarantee Amount.

If imposition of any other new Taxes / Duties / Levies / Cess or any other incidentals etc. or any increase in the existing Taxes / Duties / Levies / Cess or any other incidentals etc. (Excluding GST) are imposed during the course of the contract, the same shall be borne by the Contractor / Successful Bidder only, in no case SMC shall be liable for the same.

The Contractor will submit the invoice to the SMC having GSTIN of SMC mentioned therein and the taxes shall be shown separately on the face of the Invoice so as to claim as ITC by SMC.

- IT-41** No escalation charge/rates shall be paid by SMC in anycase.
- IT-42** Contractor must be submitted The cement/steel/Chemical Bill (Original Bill) billwise.
- IT-43** Contractor must be submitted royalty pass (zerex).
- IT-44** All the taxes should be bear by agency & it should be applicable as per government resolution (of change periodically) & No compensation/Reimbursement should be given to the agency.

IT-45 TAX INVOICE FOR PAYMENT OF WORK (AS PER GST RULES)

The contractor shall submit all bills on the Prescribed format, include in Tender for purpose of payment of the work to the office of the Engineer-in-charge.

IT-46 TESTING OF CEMENT AND STEEL

It should be specifically noted that the cement and steel brought by the contractor at site of work shall be used only after the same is tested at the approved laboratory as per the direction of the Engineer-in-charge. Such approved laboratory may be located at Surat, Baroda, and Ahmedabad or Mumbai.

All the charge for the transport and testing of the samples shall have to be borne by the contractor. The frequency of testing such material shall be in accordance to the relevant Indian Standards as directed by Engineer-in-charge.

Executive Engineer,
South Zone-A (Udhana)
Surat Municipal Corporation

SIGNATURE OF THE CONTRACTOR.

SURAT MUNICIPAL CORPORATION
PERCENTAGE RATE TENDER & CONTRACT FOR WORKS

GENERAL RULES AND DIRECTIONS FOR THE GUIDANCE OF CONTRACTORS :-

- (1) All work proposed to be executed by contract shall be notified in a form of invitation to tender pasted on a board hung up in the office of the Engineer & signed by the Engineer.

This form will state the work to be carried out as well as the date/or submitting and opening tenders and the time allowed for carrying out work, also the amount of earnest money to be deposited with the tender and the amount of the Security Deposit to be paid by the successful tenderer and the percentage, if any, to be deducted from bills. It will also state whether a refund of quarry fees, royalties, octroi dues and ground rent will be granted. Copies of the specifications, designs and drawings and estimated rated scheduled rates and any other documents required in connection with the work which shall be signed by the Engineer- in-charge for the purpose of identification shall also be open for inspection by contractors at the office of the Engineer-in- charge during office hours.

Where the work are proposed to be executed according to the specifications recommended by a contractor and approved by a competent authority on behalf of the corporation, such specifications with designs and drawings shall form part of the accepted tender.
- (2) In the event of the tender being submitted by a firm, it must be signed separately by each partner thereof, or in the event of the absence of any partner, it shall be signed on his behalf by a person holding a power of attorney authorising him to do so.
- (3) Receipts for payments made on account of any work, when executed by a firm, shall also be signed by all the partners, except where the contractor are described in their tender as a firm, in which case the receipts shall be signed in the name of the firm by one of the partners or by some other persons having authority to give effectual receipts for the firm.
- (4) Any persons, who submit tender shall fill up the usual printed form including the 'Column' total according to estimated quantities, stating at what rate he is willing to undertake the each item of the works, Tenders which proposal any alterations in the work specified in the said form of invitation to tender or in the time allowed for carrying out the work or which contain any other conditions of any short, will liable to be rejection No. single tender include more than one will liable to be rejection No. single tender include more than one work but contractors who wishes to tender for each. Tender shall have (to which they refer) written outside the envelope.
- (5) The Commissioner or his duly authorised assistant shall open tender in the presence of any intending contractors who have submitted tender or their representatives who may be present at the time. In the event of a tender being accepted, the contractor shall there upon for the purpose of identification, sign the copies of the specifications and other documents mentioned in this tender. In the event of the tender being rejected, the divisional officer shall authorised the accountant to refund the amount of earnest money deposited to the contractor making the tender on his giving a receipt for the returned of the money.
- (6) The officer competent to dispose of the tender shall have the right of rejecting all or any of the tenders.
- (7) No receipts for any payment alleged to have been made by a contractor in regard to any matter to this tender shall be valid and binding on corporation unless it is signed by the Engineer-in- charge.
- (8) The memorandum of work to be tendered for and the schedule of materials to be supplied by the concern department and their rates shall be filled in and completed by the officer of the Engineer- in-charge before the tender form is issued. If a form issued an intending tenderer has not been so filled in and completed, he shall request the said officer to have this done before he completes and delivers his tender.
- (9) All works shall be measured net by standard measure and according to the rules and customs of the Public Works Department without reference to any local custom.
- (10) Under no circumstances shall any contractor be entitled to claim enhanced rates for any items in this contract.
- (11) Every contractor Instructed to provide, a solvency certificate of his financial stability from the bank maintained in this tender.
- (12) All corrections and additions or pasted slips should be initiated.
- (13) The measurement of work will be taken according to the usual method in use in the public works department and no proposals to adopt alternative methods will be accepted. The Engineer-in-charge decision as to what is "the usual method in use in the public works department" will be final.

- (14) A.The Insurance Company's bond will not be accepted against the Security Deposit.
- (15) The contractor shall have to attach to his tender Income Tax Clearance Certificate to be obtained from the Income Tax Officer.
- (16) The Contractor will have to construct a shed for storing control and valuable materials issued to him under Schedule-'A' of the agreement at work site having double locking arrangement. The materials will then be taken for use in the presence of the department person. No materials will be allowed to be removed from the site of work except with the written permission from Engineer- in-charge.
- (17) No foreign exchange will be released by the Corporation for the purpose of plant and machineries required for the execution of the work contracted for.
- (18) Controlled materials (Essentiality certificate)
 - (i) As regard controlled materials the Corporation will help to arrange for the permit as far as possible and help the contractor in securing for the permit as far as possible and help the contractor in securing the same. All incidental charges met with in procuring these materials shall be borne by the contractor himself. Though the Corporation will help to arrange for the permit as far as possible and help the contractor in obtaining the materials it shall not accept any responsibility for any delay or loss on account of delay caused to the contractor while obtaining the same.
 - (ii) The contractor shall submit to Engineer-in-charge on Close of every calender months, the monthly returns in the prescribed forms as to the receipt and actual use of the controlled materials during the month.
 - (iii) The contractor shall permit the Engineer- in- charge or his representatives to inspect the stock of the controlled materials stored by him at any time, whenever the Engineer-in- charge or his representatives so desired (s).
- (19) The tender for work shall remain open for a period of 120 days from the date of opening of the price bid for this works and that the tenderer shall not be allowed to withdraws or modify the offer on his own during this period. If any tenderer withdraws or makes any modifications or addition/s in the terms and conditions of his tender, not acceptable to the corporation then the corporation shall without prejudice to any right or remedy be at liberty in full the said earnest money absolutely (in figures as well as in words). This Blank Space should be filled in while preparing the draft tender papers.
- (20) The contractor shall employ only such labourer who shall produce a valid certificate of having been vaccinated against small pox within a period of last 3 years.
- (21) Tenderer should submit True Copy of the Certificate of Registration alongwith the tender without which the tender will not be considered.
- (22) The contractor shall have to give in writing the date completion of the work within a fortnight from the date of work completed by him. Otherwise the date noted on the record by the department shall be reawakened as final and no excuse or representation in that behalf shall be entertained at later date.
- (23) "What ever sales tax is levied by the Government on works contract and if paid by the contractor in the first instance, shall be refunded to the concerned contractor by Corporation.

Executive Engineer,
South Zone -A (Udhana)
Surat Municipal Corporation ,

Contractor Signature with
Address:
Date

GENERAL CONDITION OF CONTRACT**SECTION-I****GC-01 DEFINITIONS AND INTERPRETATIONS**

1.0 In the contract documents, as herein defined the following words and expression used shall, unless, repugnant to the subject or context thereof, have the following meanings assigned to them.

1.1 The "Owner/Municipal Corporation, Surat represented by Municipal Commissioner/Add.City Engineer/Dy.Municipal Corporation any officer authorised by the Municipal Corporation.

1.2 The "Contractor" shall mean the person or the persons, firm of company whose tender has been accepted by the owner and includes his legal representative successors and permitted assigns.

1.3 The "Engineer-in-charge" shall mean the person designated as such by the owner from time to time and shall include those who are expressly authorised by the Municipal Corporation to act for and on its behalf for the operation of this contract.

1.4 "Engineer - in - charge's Representative" shall mean any Engineer or Asstt. to the Engineer-in-charge designated from time to time by the Engineer-in-charge to perform duties set forth in the Tender documents whose authority shall be notified in writing to the Contractor by the Engineer-in-charge.

1.5 "Tender" The offer or proposal of the Tenderer submitted in the prescribed form setting forth the prices for the work to be performed, and the details thereof.

1.6 "Contract Price shall mean total money payable to the Contractor under the contract documents.

1.7 "Addenda" shall mean the written or graphic notices prior to submission of tender which modify or interpret the contract documents.

1.8 "Contract Time" - The number of consecutive calendar months for the completion of work as stated in the executed contract agreement.

1.9 "Contract" shall mean agreements between the parties for the execution of works including therein all contract documents.

1.10 "Tender document" shall mean Designs, Drawings, specifications, agreed variations, if any, and such other documents constituting the tender and acceptance thereof.

1.11 "The Sub-Contractor" means any person, firm or company (other than the contractor) to whom any part of the work has been entrusted by the Contractor with the written consent of the Engineer-in-charge and the legal personnel representative, successors and permitted assigness of such person, firm or company.

1.12 "The Specifications" shall mean all directions' the various technical specifications provisions and requirements attached to the contract which pertain to the method and manner of performing the work to the quality of the work and the Materials to be furnished under the contract for the work and any order(s) or instruction (a) thereunder. It shall also mean the latest Indian Standards Institution Specifications for or relative to the particular work or part thereof, so far as they are not contrary to the Tender specifications or I.S.I. specifications, and in absence of any tender specifications, the specifications of any other country applied in India as a matter of Standard Engineering practice and approved in writing by the Engineer-in-charge with or without modifications.

1.13 The "Drawing" shall include maps, plans, tracings or prints thereof with any modifications approved in writing by the Engineer-in-charge and such other drawings, as may, from time to time, be furnished or approved in writing by the Engineer-in-charge in connection with the work.

1.14 The "Work" shall mean the works to be executed in accordance with the context or the part thereof as the case may be and shall include extra, additional altered or substituted works as required for the purpose of the Contract. It shall mean the totality of the work by expression or implication envisaged in the contract and shall include all material, equipment and labour required for or relative or incidental to or in connection with the commencement, performance and completion of any work and/or for incorporation in the work.

- 1.15 The "Permanent work" means works which will be incorporation in and form part of the work to be handed over to the owner by the contractor on completion of the contract.
- 1.16 The "Temporary Work" shall mean all temporary works of every kind required in or about the execution, completion and maintenance of the work.
- 1.17 "Site" shall mean the land and other place on, under, on or through which the work is to be carried out and any other lands or places provided by the Municipal Corporation for the purpose of the Contract together with any other places designated in the Contract as forming part of the site.
- 1.18 "The Construction Equipment" means all appliance/equipments of whatever nature required in or for execution, completion or maintenance of work or temporary works (as hereinafter defined) but does not include Materials or other things intended to form or forming part of the permanent work.
- 1.19 "Notice in Writing or Written Notice" means a notice written, types or printed form delivered personally or sent by Registered post to the latest known private or business address at Registered Office of the Contractor.
- 1.20 The "Alteration/Variation order" means an order given in writing by the Engineer-in-charge to effect additions to or deletion from and alterations in the work.
- 1.21 "Final Test Certificate" shall mean the final test Certificate issued by the owner within the provisions of the Contract.
- 1.22 The "Completion Certificate" shall mean a certificate to be issued by the Engineer-in-charge when the work has been completed to his satisfaction.
- 1.23 The "Final Certificate" shall mean the final certificate issued by the Engineer-in-charge after the work is finally accepted by the owner.
- 1.24 "Defect Liability Period" shall mean the specified period between the issue of completion Certificate and the final certificate as specified in the tender.
- 1.25 "Approved" shall mean approved in writing including subsequent modification in writing of previous verbal approval and "Approval" means approved in writing including as aforesaid.
- 1.26 "Letter of Acceptance" shall mean an intimation by a letter to tenderer that the tender has been accepted in accordance with provisions contained therein.
- 1.27 "Order" and "Instruction" shall respectively mean any written order or instruction given by the Engineer-in-charge within the scope of his powers in terms of the Contract.
- 1.28 "Running Account Bill" shall mean a Bill for the payment of "On Account" money to the contractor during the progress of work on the basis of work done and the non-perishable Materials to be incorporated in the work supplied by the Contractor.
- 1.29 "Security Deposit" shall mean the deposit to be held by the owner as security for the due performance of contractual obligations.
- 1.30 "The appointing authority" for the purpose of Arbitration shall be the Municipal Commissioner, Surat Municipal Corporation, Surat.
- 1.31 Retention Money shall mean the money retained from R.A. Bill for due completion of "NET WORK".
- 1.32 Unless otherwise specifically stated, the masculine gender shall include the feminine and natural genders and vice-versa and the singular shall include the plural and vice-versa.

GC-02 LOCATION OF SITE AND ACCESSIBILITY

The site of works is within the limits of Surat Municipal Corporation. It is served by all weather roads and Western Railway Broad Gauge line, Government Irrigation Canal Crossing. The intending Tenderer should inspect the site and make himself familiar with site conditions and available communication facilities. Non availability of access/roads shall in no case be the cause to condone any delay in the execution of the work or be the cause for any claims or extra compensation.

GC-03 SCOPE OF WORK

The scope of work is defined broadly in the special conditions of Contract and specifications. The Contractor shall provide all necessary Materials equipment and labour etc. for the execution and of the work till completion. All Materials that go with the work shall be approved by the Engineer-in-charge prior to procurement and use.

Owner at his discretion may endeavour to provide water to the Contractor at the owner's source of supply at one point at the rate charged for such works.

The contractor shall make his own arrangement for the distribution pipe net works from the source of supply after getting prior permission for the same from the Engineer-in-charge. Supply of water shall not be free and the necessary charges as fixed by the Local Body shall have to be paid by the contractor.

However,owner does not guarantee the supply of water and this does not relieve the contractor of his responsibility in making his own arrangements and for the timely completion of the work as stipulated.

POWER SUPPLY

The Contractor shall have to make his own arrangement for power supply.

LAND FOR CONTRACTOR'S FIELD OFFICE, GODOWN & WORKSHOP

Owner will not be a position to provide land required for Contractors shall have to make his own arrangement for the same. No land will be provided by S.M..C. to the contractor for constructing his labour and supervisory comp and other service facilities.

GC-04 RULLING LANGUAGE

The language according to which the contractor shall be constructed and interpreted shall be English. All entries in the contract documents and all correspon-dence between the contractor and the Municipal Corporation or the Engineer shall be in English. All dimensions for the Materials shall be given in metric units only.

GC-05 INTERPRETATION OF CONTRACT DOCUMENT

1. The provisions of the General Conditions of Contract and special conditions of contract shall prevail over those of any other documents of the contract unless specifically provided otherwise. Should there be any discrepancy, inconsistency error or ommission in the several documents forming the contract, the matter may be referred to the Engineer-in-charge for his instructions and decision. The Engineer-in-charge's decision in such case shall the final and binding to the contractor.
2. Works shown upon the drawings but not described in the specifications of described in the specific specifications without showing on the drawings shall be taken as described in the specifications and shown on the drawings.
3. The heading and the marginal notes to the clauses of those general conditions of contract or to the specifications or to any other part of tender documents are solely for the purpose of giving a concise indication and not a summary of contents thereof or be used in the interpretation or construction thereof of the contract.
4. Unless otherwise stated specifically, in this contract documents the singular shall include the plural and vice versa wherever the context so requires. Works implementing persons shall include relevant incorporated companies/ registered associations / body of individual / firm of partnership.
5. Not with standing the sub-divisions of the documents into separate sections and volumes every partof each shall be supplementary to and complementary of every other part and shall be read with and into the context so far as it may be practicable to do so.
6. Where any portion of the General Conditions of contract is repugnant to or ar variance with any provisions of the special conditions of contract, then, unless a different intension appears, the provisions of the special conditions of contract shall be deemed to override the provisions of General conditions of Contract and shall to the extent of such repugnancy or variance prevail.

7. The Materials, Design and Workmanship shall satisfy the relevant I.S.S. and Codes referred to. If Additional requirements are shown in the specifications, the same shall be satisfied over and above I.S.S. and Codes.

8. If the specification mentions that the contract shall perform certain work or provide certain facilities, it will mean that the contractor shall do so at his own cost.

9. The correctness of the details given in the tender documents is not guaranteed. The contractor shall independently obtain all necessary information for making the tender. The contractor shall be deemed to have examined the Contract Documents, to have generally obtained his own information in all matters that might affect the carrying out of the work or the Tenderer's rates. Any error in description of quantity or commission therefrom shall not vitiate the contract or release the contractor from executing the work comprised in the contract according to the Drawings and specifications at the tendered rates. He is deemed to have known the scope, nature and magnitude of the work and the requirements of Materials and labour involved and as to what all works he has to complete in accordance with the contract whatsoever be the defects, omissions, or errors that may be found in the contract documents. The contractor shall be deemed to have visited the site and the surroundings, to have satisfied himself to the nature of all existing structures, if any, and also as to the nature and the conditions of railways, roads, bridges and culverts, means of transport and communications, whether by land, air or water and as to possible interceptions thereto and the access and egress from the site, to have made inquiries, examined and satisfied himself as to the sites for obtaining sand, stones, bricks and other Materials, the sites for disposal of surplus Materials, the available accommodation as to whatever required, the depots and such other buildings as may be necessary for executing and completing the work, to have local independent inquiries as to the subsoil, subsoil water and variation thereof, storms, prevailing winds, climatic conditions and all other similar matters affecting the work. He is deemed to have acquainted himself as to his liability for payment of Government taxes, custom duty and other charges.

Any neglect or failure on the part of the contractor in obtaining necessary and reliable information upon the foregoing or any other matters affecting the contract shall not relieve him from any risks or liabilities or the entire responsibility from completion of the work at the tendered rates and time in strict accordance with the contract documents.

No verbal agreement or inference from conversation with any officer or employee of the owner either before or after the execution of the Contract Agreement shall in any way effect or modify any of the terms of obligations herein contained.

GC-06 CONTRACTOR TO UNDERSTAND HIMSELF FULLY

The contractor by tendering shall be deemed to have satisfied himself, as to consideration and circumstances affecting the tender price, as to the possibility of executing the works as shown and described in the contract and to have fixed his prices according to his own view on these matters and to have understood that no additional allowances except as otherwise expressly provided, will be made beyond the contract price. The contractor shall be responsible for any misunderstanding or incorrect information given in writing by the Engineer.

GC-07 ERROR IN SUBMISSION

The contractor shall be responsible for any errors or omissions in the particulars supplied by him. Whether such particulars have been approved by the Engineer or not, provided that such discrepancies, errors or omissions be not due to inaccurate information or particulars furnished in writing to the Contractor by the Municipal Corporation or the Engineer.

GC-08 SUFFICIENCY OF TENDER

The Contractor shall be deemed to have satisfied himself before tendering as to the correctness of the tender rates which rates shall, except as or otherwise provided for, cover all the Contractor's liabilities and obligations set forth or implied in the contract for the proper execution of work for compliance with requirements of Article GC-19 thereof.

GC-09 DISCREPANCIES

The drawings and specifications are to be considered as mutually explanatory of each other, detailed drawings being followed in preference to small scale drawings and figures dimension in preference to

scale and special conditions in preference to general conditions. Special direction or dimensions given in the specifications shall supersede all else. Should any discrepancies however, appear or should any misunderstanding arise as to the meaning and intent of the said specifications or drawings, or as to the dimensions or the quality of the Materials or the due and proper execution of the works, or as to the measurement or quality and valuation of the works executed under this contract or as extra there upon the same shall be explained by the Engineer-in-charge and his explanation shall subject to the final decision of the Additional City Engineer, in case reference be made to him, be binding upon the contractor shall execute the work according to such explanation (subject to aforesaid) and without addition to or deduction from the contract and shall also do all such works and things necessary for the proper completion of the works as implied by the Drawings and specifications, even though such works and things are not specially shown and described in said specifications. In cases where not particular specifications are given for any article to be used under the contract, relevant specifications of the Indian Standard Institution shall apply.

GC-10 PERFORMANCE GUARANTEE : (Security Deposit)

The total Security Deposit is 4% (Four) percent of contract value and shall be as under:

The successful tenderer shall have to pay initial security deposit at 2% (two) percent of the tendered amount.

- Initial Security Deposit (2%) shall be paid in form Demand Draft/ Pay Order if the Tender Amount of work is **less than Rs. 2.00 crore**.
- Initial Security Deposit (2%) shall be paid in form Demand Draft/ Pay Order / bank Guarantee (encashable at Surat city)/ FDR if the tender Amount of work is **more than Rs. 2.00 crore & 2.00 crore**.

The person/persons whose tender may be accepted [here-in after called the Contractor, which expression shall unless excluded by or repugnant to the context include his heirs, executors, administrators and assignees shall (within 15 days of the receipt by him of the notification of the acceptance of his tender) deposit with Municipal Commissioner cash or Government securities endorsed to the Commissioner sum sufficient which will make up the full security deposit specified in the tender.

If the amount of the security deposit to be paid in lump sum within the period specified above is not paid the tender contract already accepted shall be considered as cancelled. The security deposit lodged by Contractor shall be refunded after the expiry of the Defects Liability period as shown in the attached Memorandum after deducting dues, if any, which become liable to be recovered from the Contractor under the terms and conditions of this Agreement.

Regarding remittance and release of Security Deposit (SD), Retention money deposit (RMD) following clause will supersede over and above all the clauses depicted in the tender document.

Tender costing Less than Rs.2.00 Crore.

(a) Remittance of SD/RMD

(i) The total security deposit shall be recovered at the rate of 4% from contractor. Out of which, 50% of amount as Initial Security Deposit shall be payable at the rate of 2% of approved tender cost in form of Cash or Demand Draft/ Pay Order of any Nationalised Bank (encashable at Surat city).

(ii) 7% Retention money (remaining 2% SD + 5% Additional retention Money) deposit to be retained from each running account bill.

(b) Release of SD/RMD

- (i) Initial Security Deposit of 2% (Shall be Released after completion of final bill as well as on completion of audit related procedure)
- (ii) 7% Retention money (2% SD + 5% Additional retention Money) deposit to be deducted from running bills (Shall be released with final bills)

Tender costing Rs.2.00 Crore. & more than Rs.2.00 Crore.

(a) Remittance of SD/RMD

- (i) The total security deposit shall be recovered at the rate of 4% from contractor. Out of which, 50% of amount as Initial Security Deposit shall be payable at the rate of 2% of approved tender cost in form of in Cash or Demand Draft/ Pay Order / FDR / Bank Guarantee of any Nationalised Bank (encashable at Surat city).
- (ii) The remaining amount of the Security Deposit i.e. 2% to be deducted from each running account bill.
- (iii) 5% Retention money deposit (RMD) to be retained from each running account bill.

(b) Release of SD/RMD

- (i) The 2% Initial security deposit shall be released after clearance of Final bill by Audit Dept.
- (ii) Whereas, the 2% security deposit recovered from the each running account bills Shall be released only after clearance of Final bill by Audit Dept. & completion of defect liability period.
- (iii) 5% Retention money deposit (RMD) to be released along with final bill.

The amount recovered from the running bills as security deposit shall not be allowed to be transferred in the form of Bank Guarantee. However, the remaining 50% (2% of Security Deposit) of the amount so, deducted from running bills will be allowed for conversion in the form of interest bearing fixed deposit receipt, (FDR) issued in favour of the Municipal Commissioner, Surat Municipal Corporation, Surat by a Nationalized Bank located at Surat only. Additional stamp duty payable as per government prevailing rule shall be paid by contractor for remittance of this FDR.

It is clarified that the amount of security deposit shall be collected on the basis of contract price and not on the basis of Estimated Amount put to tender. As initial Security Deposit as mentioned above, accepted by the competent Authority shall have to be paid toward Security Deposit at the time of execution of agreement.

Interest will be payable on FDR (that is deducted from Running Bill and converted in to FDR for initial SD) for One year, after completion of work. After that no further interest shall be paid for any extended period what so ever.

If the Security Deposit is not paid within 10 days from the date of L.O.I. / Work Order than penalty at the rate of 0.065% per day of the amount of Security Deposit will be charged. If the Security Deposit is not paid within one month with interest, necessary actions as per condition of contract will be taken.

If initial Security deposit is paid in form of Fixed Deposit, additional stamp paper amounting As per government's prevailing rule of Security Deposit shall be used to execute the agreement.

The undertaking shall be executed on stamp paper worth Rs. 300/-.

The Surety shall be executed on stamp paper worth Rs. 300/-.

GC-11 INSPECTION OF WORK

1. The Engineer in charge will have full power and authority to inspect the work at any time wherever in progress either on the site or at the contractor's any other manufacturers workshops or factories wherever situated and the contractor shall afford for Engineer-in-charge every facility and assistance to carry out such inspection. Contractor or his authorised representative minimum (B.E Civil) shall, at all time during

the usual working hours and all other times when so notified or rehabilitation work in progress ,(no work allowed without engineer from contractor and also without engineer from department) , contractor engineer remain present to receive orders and instructions, orders given to Contractor's representative shall considered to have the same force as if they had been given to the contractor himself. Contractor shall give not less than 7 days notice in writing to the Engineer-in-charge before covering up or otherwise placing beyond reach of inspection and measuring any work in order that the same may be inspected and measured. In the event of breach of the above, the same shall be recovered at Contractor's expenses for carrying out such inspection or measurement.

2. No material shall be despatched from contract store on site of work before obtaining approval in writing of the Engineer-in-charge, Contractor shall provide at all time during the progress of work and maintenance period proper means of access with ladders, gangways, etc. and the necessary attendance to move and adopt as directed for inspection or measurement of work by Engineer-in-charge.

GC-12 DEFECT LIABILITY

1. Contractor shall guarantee the work for a period of 12 months from the date of issue of completion certificate. Any damage or defect that may arise or that may remain undiscovered at the time of issue of completion certificate connected in any way with the equipment or Materials supplied by him or in the Workmanship be rectified or replaced by contractor at his own expenses as desired by Engineer-in-charge or in default may cause the same to be made good by other agency and deduct expenses of which the certificate of Engineer-in-charge shall be final from any sums that may then or any time thereafter become due to contractor of sale thereof or of a sufficient portion thereof.

2. From the commencement to completion of work contractor shall take full responsibility for the case of the work including all temporary works and in case any damage, loss or injury shall happen to work or any part thereof or to any temporary works from any cause whatsoever and shall at his own cost repair and make good the same so that at completion work shall be in good order and in conformity in every respect with the requirements of contract and as per the instructions of the Engineer-in-charge.

3. If at any time before the work is taken over, the Engineer-in-charge shall -

(a) Decide that any work done or Materials used by the contractor are defective or not in accordance with contract or that work of any portion thereof is defective or do not fulfill the requirements of contract (all such Materials being hereinafter called defects in this clause and (b) as soon as reasonably practicable given to contractor notice in writing of the said defect specifying particulars of the defects alleged to exist or to have occurred, then contractor shall at his own expenses and with all speed make good the defects so specified.

(b) In case contractor fails to do so, owner may take at the cost of the contractor, such steps as may in all circumstances, be reasonable to make good such defects. The expenditure so incurred by S.M.C. will be recovered from the amount due to contractor. The decision of Engineer-in-charge with regard to the amount to be recovered from contractor will be final and binding on the contractor.

GC-13 POWER OF ENGINEER TO GIVE FURTHER INSTRUCTIONS

The Engineer shall have the power and authority from time to time and at all times to give further instructions and directions as may appear to him necessary or proper for the guidance of contractor and the works and efficient execution of the works according to the terms of the specifications, and the contractor shall receive, execute, obey and be bound by the same, according to the true intent and meaning thereof, as fully and effectually as though the same had accompanied or had been mentioned or referred to in the specifications. No work which radically changes the original nature of the contract shall be ordered by the Engineer and in the event of any deviation being ordered, which in the opinion of the contractor changes the original nature of the contract, the shall nevertheless carry it out and any disagreement as to the nature of the work & the rate to be paid thereof shall be resolved. The time of completion of works, in the event of any deviations, resulting in additional cost over the contract sum being ordered, then be extended or reduced reasonable by the Engineer. The Engineer's decision in the case shall be final and binding.

GC-14 PROGRAMME

The time allowed for execution of works shall be essence of the contract. The contract period shall commence from date of Notice of intimation to proceed. The tenderer at the time of submitting his tender shall indicate the construction or pipeline schedule, the month-wise programme, daily work schedule or bar chart required for the execution of the works and shall confirm the same within fourteen (14) days of the acceptance of his Tender. The contractor shall provide to the Engineer-in-charge a detailed programme of time schedule for execution of the works in accordance with the specifications & the completion date. The entire programme to be finalised by the Contractor, has to confirm to the execution period mentioned alongwith the Bill of Quantities in the Tender Documents. The Engineer upon scrutiny of such submitted programme by contractor, shall examine suitability of it to the requirement of contract and suggest modifications, if found necessary.

GC-15 SUBLETTING OF WORKS

No part of the contract nor any share or interest thereon shall in any manner or degree be transferred, assigned or sublet by the contractor directly or indirectly to any firm or Corporation whatsoever except as provided for in the succeeding subclause without the consent in writing of the owner.

GC-16 SUB-CONTRACTORS FOR TEMPORARY WORKS ETC.

The owner may give written consent to sub-contractors for execution of any part of the work at the site being entered upon by the contractors provided each individuals contractor is submitted to the Engineer-in-charge before being entered into and in approved by him. List of Sub-Contractors is to be supplied. Not with standing any subletting with such approval as aforesaid and not with standing the Engineer-in-charge shall have received copies of any sub-contractors, the contractors shall be and shall remain solely responsible for the quality and proper expenditures and execution of the works and the performance of all the conditions of contract in all respects as if such submitting or sub-contracting had not taken place and as if such work had done directly by the Contractor.

GC-17 TIME FOR COMPLETION

1. The work covered under this contract shall be commenced from the date of contract is served with a notice to proceed with the work and shall be completed before the date as mentioned in the time schedule of work. The time is the essence of the contract and unless the same is extended as mentioned in clause No. GC-18 (Extension of time) the contractor will be penalised for the delay.
2. The general time schedule for work is given in the tender document. Contractor shall prepare a detailed weekly or monthly programme of work in consultation with Engineer-in-charge soon after the agreement and the work shall be strictly executed accordingly. The time for as construction of road given includes, the time required for testing, rectification if any, retesting and completion in all respects to the entire satisfaction of the Engineer-in-charge.

GC-18 EXTENSION OF TIME

Time shall be considered as the essence of the contract. If however, the failure of the Contractor to complete the work as per the stipulated dates referred to above arises from delays on the part of Municipal Corporation in supplying the Materials of equipment it has undertaken to supply under the contract or from delays in handing over sites or from increase in the quantity of work to be done under the contract, or force Majeure an appropriate extension of time will be given. The Contractor shall request such extension within one month of the cause of such delay and in any case before expiry of the contract period.

GC-19 CONTRACT AGREEMENT

The successful tenderer shall when called upon to do so, enter into and execute the Contract Agreement within (10) Ten days of the Notice of Award, in the form shown in tender documents with such modifications as may be necessary in the opinion of the Municipal Commissioner. It should be incumbent on the contract to pay the stamp duty and the legal charges for the completion of the contract agreement.

GC-20 A. PENALTY FOR DELAY

If the contractor fails to complete the work within the stipulated completion date for the work or he shall pay liquidated damages at one tenth of Two percent of contract value per day of delay in completion and handing over the work or part thereof as the case may to the Municipal Commissioner. The amount of

liquidated damages shall, however, be subjected to a maximum of ten (10) percent of the contract value. Delays in excess of one hundred days will be a cause for termination of the contract and forfeiture of all security for performance.

B.BAR CHART

~~The successful tenderer shall have to submit the progress bar chart within Ten days after the contract, and the contractor should work as per the approved bar chart, failing the contractor shall have to pay the compensation for delay as per the decision of Municipal Commissioner.~~

GC-21 FORFEITURE OF SECURITY DEPOSIT

Whenever any claim arises against the contractor for the payment of a sum of money out of or under the contract, the owner shall be entitled to recover such sum by appropriating in part or whole, the security deposit of the contractor. In case the Security deposit is insufficient the balance recoverable shall be deducted from any sum then due or which at any time thereafter may become due to the contractor shall pay to the owner on demand may balance remaining due.

GC-22 ACTION OF FORFEITURE OF SECURITY DEPOSIT

In any case in which under any clause or clauses of the contract, the contractor shall have forfeited the whole of his Security deposit or have committed a breach of any of the terms contained in this contract, the owner shall have power to adopt any of the following courses as he may deem best suited to his interest -

- (a) To rescind the contract (of which rescission notice in writing to the contractor under the hand of the owner shall be conclusive evidence) in which case, the security deposit of the contractor shall stand forfeited and be absolutely at the disposal of the owner.
- (b) To employ labour and to supply Materials to carry out the balance work debiting contractor with the cost of labour employed and the cost of Materials supplied for which a certificate of the Engineer-in-charge shall be final and conclusive against the contractor and 10% costs on above to cover all departmental charges and crediting him with the value of work done at the same rates as if it has been carried out by the contractor under the terms of his contract. The certificate of Engineer-in-charge as to the value of the work done shall be final and conclusive against the contractor.
- (c) To measure up the work of the contractor and to take such part hereof as shall be unexecuted out of his hand to give it to another contractor to complete. In this case the excess expenditure incurred than what whole have been paid to the original contractor, if the work had been executed by him, shall be earnest and paid by the original contractor and shall be deducted from any money due to him by the owner under the contract or otherwise and for the excess expenditure, the certificate of the Engineer-in-charge shall be final and conclusive.

In the event any of the above course being adopted by the owner, the contractor shall have no claim to compensation for any loss sustained by him by reason of his having purchased or procured any Materials or entered into any agreement so or made by advance on account of or with a view to the execution of the work of the performance of the contract. In such case the contractor shall not be entitled to recover or be paid by sum for any work actually performed under this contract unless the Engineer-in-charge will certify in writing the performance of such work and the value payable in respect thereof and the shall only be entitled to be paid the value so certified. In the event of the owner putting in force the powers as stated in a, b, c, above vested in him under the preceeding clause, he may, if he so desire, take possession of all or any tools and plant, Materials and stores in or upon the work or the site thereof belonging to the contractor, or procured by him and intended to be used for the execution of the work or any part thereof paying or allowing for the same in account at the contract rates to be certified by the Engineer-in-charge whose certificate thereof shall be final otherwise the Engineer-in-charge may give notice in writing to the contractor or his representative requiring him to remove such tools plant Materials or stores from the premises within the time specified in the notice and in if the contractor fails to comply with any such notice, the Engineer-in-charge may remove them at the Contractor's expenses or sell them by auction or private sale on account of the contractor and his risks in all respects without any further notice as to the date, time to place of the sale and the certificate of Engineer-in-charge as to the expenses of any such removal and the amount of the proceeds and the expenses of any such sale shall be final and conclusive against the contractor.

GC-23 NO COMPENSATION FOR ALTERATION IN OR RESTRICTION OF WORK

If at any time from the commencement of work, the owner shall for any reasons whatsoever not require the whole or part thereof as specified in the tender to be carried out, the Engineer-in-charge shall give notice in writing to the contractor, who shall have no claim to any payment or compensation whatsoever on account of any profit or advantage which he might have derived from execution of work in full, but which he did not derive in consequence of the full amount of the work not having been carried out. Neither shall he have any claim for compensation by reason of any alterations having been made in original specifications, drawings, designs and instructions which shall involve any curtailment of the work as originally contemplated.

When the contractor is a partnership firm, the prior approval in writing of the S.M.C. shall be obtained before any change is made in the constitution of the firm, where the contractor is an individual or a Hindu Undivided Family business concern, such approval as aforesaid shall, likewise be obtained before subcontractor enters into any agreement with other parties whereunder the reconstituted firm would have the right to carry out the work hereby undertaken by the contractor. In either case if prior approval as aforesaid is not obtained, the contract shall be deemed to have been allotted in contravention of sub-letting clause hereof and the same action may be taken and the same consequence shall ensue as provided in the sub-letting clause.

GC-24 IN EVENT OF DEATH OF CONTRACTOR

Without prejudice to any of the rights or remedies under the contract, if the contractor dies, the owner shall have the option of terminating the contract without compensation to the contractor.

GC-25 MEMBER OF THE OWNER NOT INDIVIDUALLY LIABLE

No official or employee of the owner shall in any way be personally bound or liable for the acts or obligations

of the owner under the contract or answerable for any default or omission in the observance or performance of the acts, matters or things which are herein contained.

GC-26 OWNER NOT BOUND BY PERSONAL REPRESENTATIONS

The contractor shall not be entitled to any increase on the Schedule of rates or any other rights or claims whatsoever by reason of representation, explanation or statement or alleged representation, promise or guarantees given or alleged to have been given to him by any person.

GC-27 CONTRACTOR'S OFFICE AT SITE

The Contractor shall provide and maintain an office at the site for the accommodation of his agent and staff and such office shall be opened at all reasonable hours to receive instructions, notice or other communications.

GC-28 CONTRACTOR'S SUBORDINATE STAFF AND THEIR CONDUCT

1. The contractor on award of the work shall name and depute a qualified Engineer, having experience of carrying out work of similar nature, to whom equipments, Materials, if any, shall be issued and instructions for work given. The contractor shall also provide to the satisfaction of Engineer in-charge sufficient and qualified staff to superintend the execution of the work, competent sub-agents, foremen and leading hands including those specially qualified by previous expeditions to supervise the type of works comprised in the contract in such manner as will ensure work of the best quality and expeditions working. It, in the opinion of the Engineer-in-charge, additional properly qualified supervision staff is considered necessary, it shall be employed by the contractor without additional charge on account thereof. The contractor shall ensure to the satisfaction of the Engineer-in-charge that sub-contractors, if any, shall provide competent and efficient supervision over the work entrusted to them.

2. If and whenever any of the contractor's or sub-contractor agents, sub-agents, assistance, foremen or other employees shall, in the opinion of Engineer-in-charge, be guilty of any misconduct or be incompetent or

insufficiently qualified or intelligent in the performance of their duties or that in opinion of the owner or Engineer-in-charge, it is undesirable for administrative or any other reason for person or persons to be employed in the works, the contractor, if so directed by the Engineer-in-charge, shall at once remove person or persons from employment thereon. Any person or persons so removed shall not again be reemployed in connection with the works without the written permission of the Engineer-in-charge. Any person so removed from the works shall be immediately replaced at the expenses of the contractor by acqualified and competent substitute. Should the contractor be required to repatriate any person removed from the works he shall do so and shall bear all costs in connection therewith.

3. The contractor shall be responsible for the proper behaviour of all the staff, foremen, workmen and others shall exercise proper control over them and in particular and without prejudice to the same. Generally, the contractor shall be bound to prohi-bit, and prevent any employee from trespassing or acting in any way detrimental or prejudicial to the interest of the community or of the properties or occupiers of land and properties in the neigh-bourhood and in the event of such employees so trespassing, the contractor shall be responsible therefore and relieve the owner of all consequent claims, actions for damages or injury or any other grounds whatsoever. The decision of the Engineer-in-charge upon any matter arising under this clause shall be final.

4. If and required by the owner, the contractor's personnel entering upon the owner's premises shall be properly identified by badges of a type acceptable to the S.M.C. which must be worn at all times on owner's premises.

GC-29 TERMINATION OF SUB-CONTRACTOR BY OWNER

If any sub-contractor engaged upon the works at the site executes any work which in the opinion of Engineer-in-charge is not in accordance with the contract documents, the S.M.C. may give written notice to the contractor request his to terminate such sub-contract and the contractor upon the receipt of such notice shall terminate such sub-contract and the letter shall forthwith leave the works failing which the owner shall have the right to remove such sub-contractors from the site.

No action taken by the owner under the above clause shall relieve the contractor of his liabilities under the contract or give rise to any right to compensa-tion, extension of time or otherwise.

GC-30 POWER OF ENTRY

If the contractor shall not commence the work in the manner previously described in the contract documents or if he shall, at any time, in the opinion of Engineer-in-charge.

- (i) Fail to carry out works in conformity with the documents or
- (ii) Fail to carry out the works in accordance with the time schedule.
- (iii) Substantially suspend work or the works for a period of fourteen days without authority from Engineer-in-charge or
- (iv) Fail to carry out and execute the work to the satisfaction of the Engineer-in-charge or
- (v) Fail to supply sufficient or suitable construc-tion plant temporary works, labour Materials or things or
- (vi) Commit breach of any other provisions of the contract on his part to be performed or observed or persist in any of the above mentioned breached of the contract for fourteen days after notice in writing shall have been given to the contractor by the Engineer-in-charge requiring such breach to be remedied or
- (vii) Abandon the work or
- (viii) During the continuance of the contract becomes bankrupt, make any arrangement or compromise with his creditors, or permit any execution to be levied or go into liquidation whether compulsory or voluntary not being merly a voluntary liquidation for the purpose of amalgamation or reconstruction then in any such case.

The owner shall have the power to enter upon the works and take possession thereof and of the Materials, temporary works, constructional plant and stock therein, and to revoke the contractor's licence to use the

same and to complete the works by his agents, other contractor or workman or to relate the same upon any terms and to such other person, firm or corporation as the owner in his absolute discretion may think proper to employ, and for the purpose aforesaid to use or authorise the use of any Materials, temporary works, constructional plant, and stock as aforesaid, without making payment or allowance to the Contractor for the said Materials other than such as may be certified in written by the Engineer-in-charge to be reasonable and without making any payment or allowance to the contractor for the use of said temporary works, constructional plant and stock or being liable for any loss or damage thereto. If the owner shall be reason of his taking possession of the works or of the work being got completed by other contractor incur excess certified by the Engineer-in-charge shall be deducted from any money which may be due for the work done by the contractor under the contract and not paid for. Any deficiency shall forthwith be made good and paid to the owner by the contractor and the owner shall have power to sell in such manner and for such price as he may think fit all or any of the constructional plant, Materials etc. constructed by or belonging to and recoup and retain the said deficiency or any part thereof out of the proceeds of the sale.

GC-31 CONTRACTOR'S RESPONSIBILITY WITH THE OTHER CONTRACTOR & AGENCIES

Without repugnance to any other condition, it shall be the responsibility of the contractor executing the work of civil construction to work in close co-operation and co-ordinate the work with other contractors or their authorised representative and the contractor will put a joint scheme with the concurrence of other contractors showing the arrangements for carrying his portion of the work to the Engineer-in-charge and get the approval. The Engineer-in-charge before approving the joint scheme will call the parties concerned and modify the scheme if required. No claim will be entertained on account of the above. The contractor shall conform in all respects with the provisions of any statutory regulations, ordinances or by laws of any local or locally constituted authorities or public bodies which may be applicable from time to time to works or any temporary works. The contractor shall keep the owner indemnified against all penalties and liabilities of every kind arising out of non-adherence to such statutes, ordinance, laws, rules, regulations, etc.

GC-32 OTHER AGENCIES AT SITE

The Contractor shall have to execute the work in such place and condition where other agencies will also be engaged for other works, such as site grading, filling and levelling, electrical and mechanical engineering works, etc. No claim shall be entertained for works being executed in the above circumstances.

GC-33 NOTICES

Any notice under this contract may be served on the contractor or his duly authorised representative at the job site or may be served by registered post direct to the official address of the contractor proof of issue of any such notice could be conclusive of the contractor having been duly informed of all contents therein.

GC-34 RIGHT OF VARIOUS INTERESTS

The owner reserves the right to distribute the work between more than one contractor. Contractor shall co-operate and afford reasonable opportunity to other contractors for access to the works for the carriage and storage of Materials and execution of their works.

Wherever the work being done by any department of the owner or by other contractor employed by the owner is contingent upon work covered by this contract, the respective rights of the various interests shall be determined by Engineer-in-charge to secure the completion of various portions of the work in general harmony.

GC-35 PRICE ADJUSTMENT

No Price adjustment in price shall be paid.

GC-36 TERMS OF PAYMENT

The payment of Bills shall be made progressively according to the rules and practice followed by the Municipal Corporation. The progressive payment unless otherwise provided in the Contract Agreement or subsequently agreed to by the parties, shall be made generally monthly on submission of a bill by the Contractor in prescribed form in an amount according to the value of the work performed less the aggregate of previous progressive payments and as required by clause GC-37 (Retention money) herein. All such progressive payment shall be regarded as payment by way of advance against final payment.

Payment for the work done by the contractor will be based on the measurement at various stages of the work, in accordance with the conditions at Clause GC-77 (Measurement of Work in Progress)

GC-37 RETENTION MONEY

Pursuant to Clause GC-36 Terms of Payment on all money due to the contractor for work done, **Municipal Corporation will hold retention money as per clause IT -27.** The retention money will not normally be due for payment until the completion of the entire work and till such period the work has been finally accepted by the Municipal Corporation and completion certificate issued by the Municipal Corporation in pursuant to Clause No.GC-83 (Completion Certificate).

However,after the assurance of completion certificate, and Municipal Commissioner may at its own discretion and having considered the Contractor's performance and diligence during the contract time allow the retention money to converted into a Bond as stipulated in the Clause GC-10 (Performance Bond Security Deposit).

GC-38 PAYMENT DUE FROM THE CONTRACTOR

All costs, damages or expenses, for which under the Contract the Contractor is liable to the Municipal Corporation deducted by the Municipal Corporation from any money due or becoming due to the Contractor under the contract or from any other contract with the Municipal Corporation or may be recovered by action at law or other-wise from the Contractor.

GC-39 CONTINGENT FEE

1. The Contractor warrants that he has not employed any person to solicit or secure the contract upon any agreement for a commission, percentage, brokerage or contingent fee. Breach of this warranty shall give the Municipal Commissioner the right to cancel the contract or to take any other measure as the Municipal Commissioner may deem fit. The warranty does not apply to commissions payable by the contractor to establish commercial or selling agent for the purpose of securing business.
2. No officer, employer of the Municipal Corporation be admitted to any share or part of this contract or to any benefit that may rise therefrom.

GC-40 BREACH OF CONTRACT BY CONTRACTOR

If the contractor fails to perform the work under the contract with due diligence or shall refuse or neglect to comply with instruction given to him by the Engineer-in-charge in accordance with the contract, or shall contravene the provisions of the contract, the S.M.C. may give notice in writing to the contractor to make good such failure, neglect or contravention. Should the Contractor fail to comply with such written notice within twenty eight (28) days of receipt, if the Municipal Commissioner shall think fit, it shall be lawful for the Municipal Corporation, without prejudice to any other rights, the contractor may have under the contract, to terminate the contract for all or part of the works, and to make any other arrangements it shall deem necessary to complete the work outstanding under the contract at the time of termination. In this event Article GC-15 (Subletting of work)and GC-16 (Sub-Contracts for Temporary Works etc.)hereof shall be invoked and the performance Bond shall immediately become due and payable to the Municipal Commissioner the value of the work done on the date of termination and not paid for shall stand forfeited to the Municipal Corporation and the Municipal Corporation shall have free use of any works which the contractor may have at the site at the time of termination of the contract.

GC-41 DEFAULT OF CONTRACTOR

1. The Municipal Corporation may upon written notice of default to the contractor terminate the contract in circumstance detailed hereunder :
 - (a) If in the judgement of the Municipal Corporation the contractor fails to make completion of works within the time specified in the completion schedule or within the period for which extension has been granted by the Municipal Corporation /Engineer to the Contractor.
 - (b) If in the judgement of the Municipal Corporation the contractor fails to comply with any of the provisions of this contract.

2. In the event the Municipal Commissioner terminates the contract in whole or in part as provided in Article GC-48 (Termination of Contract), the Municipal Corporation reserves the right to purchase upon such terms and in such manner as it may deem appropriate, plant similar to that terminated and the contractor will be liable to the Municipal Corporation for any additional costs for such similar and / or for liquidated damages for delay until such reasonable time as may be required for the final completion of works.

3. If this contract is terminated as provided in this paragraph GC - 30 (Power of entry) (1) the Municipal Corporation in addition to any other rights provided in this clause, may require the Contractor to transfer title and deliver to the Municipal Corporation under any of the following cases in the manual and as directed by the Municipal Corporation. (a) Any partially completed information and contract rights as the contractor has specifically produced or acquired for the performance of the contract so terminated.

4. In the event the Municipal Corporation does not terminate the contract as provided in the paragraph GC- 48 (Termination of Contract) the Contractor shall continue performance of the contract, in which case the shall be liable to the Municipal Corporation for liquidated damages for delay until the works are accepted.

GC-42 BANKRUPTCY

If the Contractor shall become bankrupt or insolvent or have a receiving order made against him, or compound with the creditors, or being the Municipal Corporation commence to be wound up, not being a member's Voluntary winding up for the purpose of amalgamation or reconstruction, or carry on its business under a receiver for the benefit of his creditors or any of them, the owner shall be at liberty to either (a) terminate the contract forthwith by giving notice in writing to the contractor or to the receiver or liquidator or to any person or organisation in whom the contract may become vested and to act in the manner provided in Article GC-41 (Default of Contractor) as though the last mentioned notice had been the notice referred to in such Article of (b) to give such receiver liquidator or other person in work the contract may become vested the option of carrying out the contract subject to his providing a satisfactory guarantee for the due and faithful performance of the contract subject to his providing a satisfactory guarantee for the due and faithful performance of the contract upto an amount to be agreed. In the event that the Municipal Corporation terminates the Contract in accordance with this article, the performance Bond shall immediately become due and payable on demand to Municipal Corporation.

GC-43 OWNERSHIP

Works supplied pursuant to the Contract shall become the property of the Municipal Corporation from whichever is the earlier of the following times, namely,

- (a) When the works are completed pursuant to the Contract.
- (b) When the Contractor has been paid any sum to which he may become entitled in respect thereof pursuant to clause GC-36 (Terms of Payment).

GC-44 DECLARATION AGAINST WAIVER

The condonation by the Municipal Corporation of any breach or breaches by the stipulations and conditions contained in the contract shall in no way prejudice or effect to the constructed as a waiver of the Municipal Corporation rights, powers and remedies under the contract in respect of any breach or breaches.

GC-45 LAWS GOVERNING THE CONTRACT

The contract shall be constituted according to and Subject to the laws of India and the State of Gujarat and under the jurisdiction of the courts of Gujarat at Surat.

GC-46 OVER PAYMENT AND UNDER PAYMENT

Whenever any claim for payment of a sum to the Municipal Corporation arises out of or under this Contract against the contractor the same may be deducted by the Municipal Corporation from any sum then due or which at any time thereafter may become due to the contractor under this contract and failing that under any other contract with the Municipal Corporation or from any sum due to the contractor with the Municipal Corporation (which may be available with Municipal Corporation), or from his retention money, or he shall pay the claim on demand. The Municipal Corporation reserves the right to carry out post payment audit and technical examination of the final bill including all supporting vouchers, abstracts, etc.

The Municipal Corporation further reserves the right to enforce recovery of any over payment when detected notwithstanding the fact that the amount of the final bill may be included by the Contractor.

If as a result of such audit and technical examination any over payment is discovered in respect of any work done by the Contractor or alleged to have been done by him under the contract, it shall be recovered by the Municipal Corporation from the contractor by way of all the means prescribed above or if any under payment is discovered by the Municipal Corporation, any amount due to the contractor under this contract or under payment may be adjusted against any amount then due or which may at any time thereafter become due before payment is made to the contractor from him to the Municipal Corporation on any other contract account whatsoever.

GC-47 SETTLEMENT OF DISPUTES

Except or otherwise specifically provided in the contract, all disputes concerning question of fact arising under the contract shall be decided by the Engineer-in-charge, subjected to a written appeal by the Contractor to the Engineer and these decisions shall be final and binding on the parties hereto. Any disputes or difference including those considered as such by only one of the parties arising out of or in connection with this contract shall be to the extent possible settled amicably between the parties. If amicable settlement cannot be reached then all dispute issues shall be settled as provided in (a).

(a) DISPUTES OR DIFFERENCE TO BE REFERRED TO:

If at any time, any question, disputes or differences of any kind whatsoever shall arise between the Engineer-in-charge and the Contractor upon or in relation to or in connection with this contract, either party may forthwith give to the other, notice in writing of the existence of such question, dispute or difference as to any decision, opinion, instruction, direction certificate or evaluation of the Engineer.

The question or difference shall be settled by the Municipal Commissioner, who shall state his decision in writing and give notice of same to the Engineer and to the Contractor such decision shall be final and binding upon both parties to the contract and work on contract if not already breached or abandoned shall proceed normally unless and until the same shall be revised (or upheld) due to any judicial proceeding.

Should the Municipal Commissioner fail to give a decision within three (3) calendar months after issuance of notice of a question, dispute or difference or if the Contractor is dissatisfied with any such decision of the Municipal Commissioner, then the matter may be referred to Standing Committee. Then also, if the said question of difference or dispute remains unsolved / unsettled and if the contractor is dissatisfied with any such decision of the Standing Committee, then the matter may be referred to the court of law subject to SURAT JURISDICTION.

GC-48 RIGHT OF THE CORPORATION TO DETERMINE/TERMINATE CONTRACT

- i The Corporation shall, at any time, be entitled to determine and terminate the contract, if in the opinion of the Corporation the cessation of the work becomes necessary owing to paucity of funds or for any other cause whatsoever, in which case the cost of approved materials at the site as verified and approved by the Engineer-in-charge and of the value of the work done to date by the contractor shall be paid for in full at the rate specified in the contract. A notice in writing from the Corporation to the Contractor of such determination and the reason, thereof shall be the conclusive proof of the fact that the contract has been so determined and terminated by the Corporation.
- ii Should the contract be determined under sub-clause (I) of this clause and the contractor claims payments to compensate expenditure incurred by him in the expectation of completing the whole of the work, the Corporation shall consider and admit such claims as are deemed fair and reasonable and are supported by vouchers to the satisfaction of the Engineer-in-charge. The decision of the Commissioner on the necessity and propriety of any such expenditure shall be final and conclusive and binding on the contractor.

GC-49 CHANGES IN CONSTITUTION

Where the contractor is a partnership firm, the prior approval in writing of the Municipal Commissioner shall be obtained any change is made in the constitution of the firm. Where the contractor is an

individual or an undivided family business concern such approval as aforesaid shall like wise be obtained before the contractor enters into any partnership agreement whereunder the partnership firm would have the right to carry out the works hereby undertaken by the contractor. If prior approval as aforesaid is not obtained the contract shall be deemed to have been assigned in contravention of Article thereof.

GC-50 SUB-CONTRACTUAL RELATIONS

All work performed for the contract by sub-contractor shall be pursuant to an appropriate agreement between the contractor and sub-contractor which shall contain provisions to :

- a) Protect and preserve the rights of the Municipal Corporation and the Engineer with respect to the work to be performed under the sub-contract so that the sub-contractor thereof will not prejudice such rights.
- b) Require that such work be performed in accordance with requirements of the Contract documents.
- c) Require under such contract of which the contractor is a party, the submission to the contractor of application for payment and claims for additional costs, extension of time, damages for delay or otherwise with respect to the sub-contracted portions of the work in sufficient time, that the contractor may apply for payment and comply in accordance with the contract Documents for like claim by the Contractor upon the Municipal Corporation.
- d) Waive all rights the contracting parties may have against one another for damages caused by fire or other perils covered by the property insurance except such rights as they may have to the proceeds so such insurance held by the Municipal Corporation as trustee and,
- e) Obligate each sub-contractor specifically to consent to the provisions of this Article.

GC-51 LIEN

If, at any time, there should be evidence of any lien or claim for which owner might have become liable and which is chargeable to the contractor, the owner shall have the right to retain out of any payment then due or thereafter to become due an amount sufficient to completely indemnify the owner against such lien or claim or if such lien or claim be valid the owner may be or become due and payable to the contractor. If any lien or claims remaining, unsettled after all payments are made, the contractor shall refund or pay to the owner all money that the latter may be compelled to pay in discharging such lien or claim including all cost and reasonable expenses.

GC-52 EXECUTION OF WORK

The whole work shall be carried out in strict conformity with the provisions of the Contract Documents, detailed drawings, specifications and the instructions of the Engineer-in-charge from time to time. The Contractor shall ensure that the whole work is executed in the most substantial, proper and best Workmanship using Materials of best quality in strict accordance with the specifications to the entire satisfaction of the Engineer-in-charge.

GC-53 WORK IN MONSOON

When the work continues in monsoon, the contractor shall maintain minimum labour force required, for the work and plan and execute the construction and erection work according to the prescribed schedule. No extra rate will be considered for such work in monsoon. During monsoon and entire constructing period the contractor shall keep the site free from water at his own cost.

GC-54 WORK CLOSED ON SUNDAYS & HOLIDAYS & BETWEEN SUNSET AND SUNRISE

No work shall be carried out on Sundays and Corporation Holidays and no work shall be carried out between sunset and sunrise. Except with the special permission of Engineer-in-charge in writing perviously obtained and with holding such permissions shall be no ground of complaint on the part of contractor or cause for compensation to them. Working period shall be maximum eight (8) hours per days.

GC-55 EXTRA SUPERVISION CHARGES TO BE BORNE BY CONTRACTOR

Further to clause No.GC-54 when Engineer-in-charge feels necessary to give permission to contractor for carrying out work for period of more than Eight hours working period in a day and/or to continue work on Sunday and Corporation holidays. Extra Supervision charges arising due to overtime working of Corporation's staff shall be borne by the contractor at prevailing rates from time to time. Such extra supervision charges shall be deducted by Corporation from the running bill/s of the contractor at Surat Municipal Corporation's description.

GC-56 DRAWING TO BE SUPPLIED BY THE OWNER

The drawings attached with the tender documents shall be for general guidance of the contractor to enable him to visualize the type of work contemplated and scope of work involved. Detailed working drawings according to which the work is to be done shall be furnished from time to time as the work progresses. The contractor shall study the drawings thoroughly in connection with other connected details and discrepancy if any bring to the notice of the Engineer-in-charge before actually carrying out the work.

GC-57 DRAWINGS TO BE SUPPLIED BY THE CONTRACTOR

Where drawings, date are to be furnished by the contractor they shall be as enumerated in special condition of contract and shall be furnished within the specified time. Where approval of drawings has been specified it shall be the Contractor's responsibility to have these drawings got approved before any work is taken up with regard to the same. Any changes becoming necessary in these drawings during the execution of the work shall have to be carried out by the contractor at no extra cost. All final drawings shall bear the certification stamp as indicated below duly signed by both the contractor and Engineer-in-charge.

"Certified true for _____ project Agreement

No. _____ Signed _____
Contractor Engineer-in-charge Drawings will be approved within three (3) weeks of the receipt of the same by the Engineer-in-charge.

GC-58 SETTING OUT WORK

The contractor shall set out the work on the site handed by the Engineer-in-charge and shall be responsible for the correctness of the same. The work shall be carried out to the entire satisfaction of Engineer-in-charge. The approval thereof or partaking by Engineer-in-charge in setting out work shall not relieve contractor of any of his responsibilities.

The contractor shall provide at his own cost all necessary level posts, pegs, bamboos, flage, ranging, rods, strings and other Materials and labourers required for proper setting out of the work. The Contractor shall provide, fix and be responsible for the maintenance of all stakes, temples level marks profiles and similar other things and shall take necessary precautions to prevent their removal or disturbance and shall be responsible for the consequence for such removal or disturbance. The contractor shall also be responsible for the maintenance of all existing Survey Marks, Boundary Marks, Distance Marks and Centre line marks either existing or fixed by the Contractor. The Centre, longitudinal or face lines and cross lines shall be marked by small masonry pillars. Each pillar shall have distance mark at the centre for setting up the theodolite. The work shall not be started unless the setting out is checked by Engineer-in-charge in writing but such approval shall not relieve the contractor of his responsibilities. The contractor shall provide all Materials, labour and other facilities necessary for checking at his own cost.

Pillars bearing geodetic marks on site shall be protected by the Contractor. On completion of the work the contractor shall submit the Geodetic documents according to which the work has been carried out.

GC-59 RESPONSIBILITIES OF CONTRACTOR FOR CORRECTNESS OF WORK

The contractor shall be entirely and exclusively responsible for the correctness of every part of the work and shall rectify completely and errors thereon at his own cost when so instructed by Engineer-in-charge.

1. Materials to be supplied by Contractor

Contractor shall procure and provide all the Materials required for the execution and maintenance of work including M.S. rods, all tools, tackle, construction plant and equipment except the Materials to be supplied by the owner detailed in the contract documents and for the transport thereof, owner, shall made recommendations to the respective authorities if designed by the contractor but assumes no responsibility or

any nature. Owner shall insist for procurement of Materials with ISI Marks supplied by reputed firms on the DGS & D List. 2. If however the Engineer-in-charge feels that work is likely to be delayed due to contractor's inability to procure the Materials, the Engineer-in-charge shall have the right to procure Materials from the market and the contractor will accept these Materials at the rates decided by Engineer-in-charge

GC-60 MATERIALS TO BE SUPPLIED BY THE OWNER

1. If the contract provides certain Materials or stores to be supplied by the S.M.C. such Materials and stores shall be transported by the contractor at his cost from S.M.C's stores or Railway Station. The sum due from contractor for the value of Materials supplied by the owner will be recovered from the R.A. Bill on the basis of actual consumption of Materials in the work covered and for which R.A. Bill has been prepared. After completion of the work contract has to account for the full quantity of Materials supplied to him.

2. The value of store Materials supplied by the S.M.C. to the contract shall be charged at rates shown in the contract document and in case any other material not listed in the schedule of Materials is supplied by the S.M.C., the same shall be charged at cost price including carting and other expenses incurred in procuring the same. All Materials so supplied shall remain the property of the owner and shall not be removed from the site on any account. Any material remaining un-used at the time of completion of work or termination of contract shall be returned to S.M.C.'s store or any other place as directed by the Engineer-in-charge in perfectly good condition at contractor's cost. When Materials are supplied free of cost for use in work and surplus and unaccounted balances thereof are not returned to the Municipal Corporation, recovery in respect of such balance will be effected at double the applicable issue rate of the Materials or the market rate whichever is higher.

GC-61 CONDITIONS OF ISSUE OF MATERIALS BY THE S.M.C.

a) The Materials specified to be issued by the S.M.C. to the contractor shall be issued by the S.M.C.'s store or at Railway Station and all expenses for its shifting to site shall be borne by the contractor. The Materials will be issued during working hours and as per rules of S.M.C. from time to time.

b) Contractor shall bear all expenses for storage and safe custody at site of Materials issued to him before use in work.

c) Material shall be issued by the S.M.C. in Standard/non-standard sizes as obtained from manufacturer.

d) Contractor shall construct suitable godowns at site for storing the Materials to protect the same from damage due to rain, dampness, fires, theft etc.

e) The contractor should take the delivery of the Materials issued by the S.M.C. after satisfying himself that they are in good conditions. Once the Materials are issued, it will be the responsibility of the Contractor to keep them in good condition and in safe custody. If the Materials get damaged or if they are stolen, it shall be the responsibility of the contractor to replace them at his own cost according to the instructions of the Engineer-in-charge.

f) For delay in supply or for non supply of Materials to be supplied by the S.M.C., on account of natural calamities, act of enemies, other difficulties beyond the control of the S.M.C., the S.M.C. carries non-responsibilities. In no case the contractor shall be entitled to claim any compensation for loss suffered by him on this account.

g) None of the Materials issued to the contractor, shall be used by the Contractor for manufacturing items which can be obtained from manufacturer. The Materials issued by the owner shall be used for the work only and no other purpose.

h) Contractor shall be required to execute indemnity bond in the prescribed form for the safe custody and account of Materials issued by the owner.

i) Contractor shall furnish sufficiently in advance a Statement of his requirements of quantities of Materials to be supplied by the S.M.C. and the time when the same will be required for the work, so as to enable Engineer-in-charge to make arrangements to procure and supply the Materials.

j) A daily account of Materials issued by the owner shall be maintained by the Contractor showing

receipt, consumption and balance in head in the form laid down by Engineer-in-charge with all connected paper and shall be always available for inspection in the site office.

k) Contractor shall see that only the required quantities of Materials are got issued and no more. The contractor shall be responsible to return the surplus Materials in good condition at S.M.C.'s store at his own cost.

GC-62 MATERIALS PROCURED WITH ASSISTANCE OF THE OWNER

Notwithstanding anything contained to the contrary in any of the clauses of this contract, where any Materials for the execution of the contract are procured with the assistance of the S.M.C. either by issue from S.M.C. stock or purchase made under orders or permits or licences issued by the Government, the contractor shall hold the same Materials as trustees for owner and use such Materials economically and solely for the purpose of contract and not dispose them off without the permission of S.M.C. and return, if required by Engineer-in-charge, all surplus or unserviceable Materials that may be left with him after the completion of the contract or at its termination for any reason whatsoever on his being paid or credited such prices as Engineer-in-charge shall determine having due regard to the conditions of the Materials. The price allowed to contractor shall not exceed the amount charged to him excluding the storage charges if any. The decision of Engineer-in-charge shall be final and conclusive in such matters. In the event of breach of the aforesaid condition, the contractor shall in terms of licence of permits and/or for criminal breach of trust be liable to compensate S.M.C. at double rate or any higher rates. In the event of these Materials at that time having higher rate or not being available in the market then any other rate to be determined by the Engineer-in-charge and his decision shall be final and conclusive.

GC-63 MATERIALS OBTAINED FROM DISMANTLING

If the contractor, in the course of execution of work is called upon to dismantle any part for reasons other than on account of bad or imperfect work, the Materials obtained from dismantling will be the property of the S.M.C. and will be disposed of as per instruction of Engineer-in-charge in the best interest of the S.M.C.

GC-64 ARTICLE OF VALUE OR TREASURE FOUND DURING CONSTRUCTION

All gold, silver and other minerals of any description and all precious stones, coins, treasures, relics, antiquities and other similar things which shall be found in under or upon site shall be the property of the owner and the contractor shall properly preserve the same to the satisfaction of Engineer-in-charge and shall hand over the same to the owner.

GC-65 DISCREPANCIES BETWEEN INSTRUCTIONS

If there is any discrepancy between the various stipulations of the contract documents or instructions to the contractor or his authorised representative or if any doubt arises as in the meaning of such stipulation or instructions, the contractor shall immediately refer in writing to the Engineer-in-charge whose decision shall be final and conclusive and no claim for losses caused by such discrepancy, shall in any event be admissible.

In case there is any discrepancy in measurements shown in drawing and specifications, the same shown in drawing shall be considered as final and will be binding upon the contractor.

GC-66 SCHEDULE OF QUANTITIES AND EXTRA ITEMS

Schedule of Quantities

Variations in the quantities of work in schedule of quantities shall not vitiate the contract. The rates quoted for the individual items shall apply for the quantities of work increased or decreased by not more than twenty percent for each of the items, should the quantities of work actually involved under any item vary by more than twenty (20%) percent, the rate for such item of work shall be revised in accordance with the procedures indicated under clause "Extra Items". The payment for the items will, however, continue to be at the original rate till the revised rate decided.

B. Extra Items

Extra Items of work shall not vitiate the contract. The contractor shall be bound to execute extra items of work as directed by the Engineer-in-charge. The rates for extra items shall be derived from

the S.O.R.(R&B Division) Year 2024-25 and quoted premium of tender. If the rate of extra item is not available in S.O.R. it will be derived on prevailing market rate.

GC-67 ACTION WHEN NO SPECIFICATION IS ISSUED

In case of any class of work for which no specification is supplied by the S.M.C. in the tender documents, such work shall be carried out in accordance with I.S.S. do not cover the same, the work should be carried out as per standard Engineering practice subject to the approval of Engineer-in-charge.

GC-68 ABNORMAL RATES

Contractor is expected to quote rate for each item after careful analysis of cost involved for the performance of the completed item considering all specifications and conditions of contract. This will avoid loss of profit or gain in case of curtailment or change or specification for any item. In case it is noticed that the rates quoted by a tenderer for any item is usually high or unusually low, it will be sufficient cause for rejection of tender unless the S.M.C. is convinced about the reasonableness of the rates on scrutiny of the analysis for such rate to the furnishing by the tenderer or demand.

GC-69 ASSISTANCE TO ENGINEER-IN-CHARGE

Contractor shall make available to Engineer-in-charge free of cost all necessary instruments and assistance in checking of any work made by the contractor for taking measurement of work.

GC-70 TEST OF QUALITY OF WORK

1. All Workmanship shall be of the best kind described in the contract document and in accordance with the instructions of Engineer-in-charge and shall be subjected from time to time to such test at contractor's cost as the Engineer-in-charge may direct at the place of manufacture of fabrication or on site or at any such place. Contractor shall provide assistance, instruments, labour and Materials as are normally required for examining measuring and testing any work. Workmanship as may be selected and required by Engineer-in-charge.
2. All tests will be necessary in connection with the execution of work as decided by Engineer-in-charge shall be carried out at an approved laboratory at contractor's cost.
3. The contractor shall furnish to Engineer-in-charge for approval when requested or if required by the specification adequate samples of all Materials and finished goods to be used in work and sufficiently in advance to permit test and examination thereof. All Materials furnished and finished goods applied in work shall be exactly as per the approved samples.
4. All the testing charges shall be borne by the Contractor.

GC-71 ACTION AND COMPENSATION IN CASE OF BAD WORKMANSHIP

If it shall appear to the Engineer-in-charge that any work has been executed with Materials of inferior description, or quality or are unsound or with unsound imperfect or unskilled Workmanship or otherwise not in

accordance with the contract shall, no demand in writing from Engineer-in-charge or his authorised representative specifying the work, Materials or articles complained of, not with standing that the same may have been inadvertently passed, certified and paid for forthwith rectify or remove and reconstruct the work, specified and in the event of failure to do so within a period to be specified by Engineer-in-charge in his aforesaid demand, contractor shall be liable to pay compensation at the rate of one (1) percent of the tendered cost of work for every Ten (10) days limited to a maximum of Ten (10%) Percent of the value of work while his failure to do so continue and in the case of any such failure the Engineer-in-charge may on expiry of the notice period rectify and remove and re-execute the work or remove and replace with other at the risk and cost of the Contractor. The decision of the Engineer-in-charge as to any question arising under this clause shall be final and conclusive.

GC-72 SUSPENSION OF WORK

Contractor shall, if ordered in writing by Engineer-in-charge or his representative temporarily suspended the work or any part thereof for such time (not exceeding two months) as ordered and shall not after receiving such written order proceed with the work until he shall have received a written order to proceed therewith the contractor shall not be entitled to claim compensation for any loss or damage sustained by him by reason of temporary suspension of work as aforesaid. An extension of time for completion of work will be granted to the contractor corresponding to the delay caused by such suspension of work if the applied for the same provided the suspension was not consequent upon any default or failure on the part of the contractor.

GC-73 OWNER MAY DO PART OF THE WORK

When the contractor fails to comply with any instructions given in accordance with the provisions of this contract, the S.M.C. has the right to carry out such parts of work as the S.M.C. may designate whether by purchasing Materials and engaging labour or by the agency of another contractor. In such case the S.M.C. shall deduct from the amount which otherwise might become due to contractor the cost of such work and Materials with Ten (10%) percent added to cover all departmental charges and should the total amount thereof exceed the amount due to contractor, contractor shall pay the difference to S.M.C.

GC-74 POSSESSION PRIOR TO COMPLETION

The Engineer-in-charge shall have the right to take possession of or to use any completed or partly completed work or part of work, such possession or use shall not be deemed to be an acceptance of any work completed in accordance with the contract. If such prior possession or use by Engineer-in-charge delays the progress of work, equitable adjustment in the time of completion will be made and the contract shall be deemed to be modified accordingly.

GC-75 Deleted

GC-76 SCHEDULE OF RATES

1. The price/rates quoted by the contractor shall be remain firm till the issue of final certificate and shall be subject to price ADJUSTMENT CLAUSE GC-35. Schedule of rates shall be deemed to include and cover all costs expenses and liabilities of every description and all risks of every kind to be taken in executing, completing and handling overwork to owner by contractor. Contractor shall be deemed to have known the nature, scope, magnitude and the extent of work and Materials required through contract documents may not fully and precisely furnish them. He shall make such provision in the schedule of rates as he may consider necessary to cover the cost of such items of work and Materials as may be reasonable and necessary to completion work. The opinion of Engineer-in-charge as to the item of work shall be final and binding on Contractor although the same may be not shown on or described specifically in contract documents.
2. The Schedule of rates shall be deemed to include and cover the cost of all constructional plant, temporary work, pumps, Materials, labour and all other Materials in connection with each item in schedule of rates and the execution of work or any portion thereof furnished complete in every respect and maintained as shown or described in the contract document or as may be ordered in writing during the continuance of the contract.
3. The Schedule of rates shall be deemed to include and cover the cost of all royalties and free for the articles and processes, protected by letters patent or otherwise incorporated in or used in connection with work, also all royalties, and other payments in connection with Materials of whatsoever kind for work and shall include an indemnity to owner which contractor hereby gives against all action, proceeding, claims, damages, costs and expenses arising from the incorporation in use of work of any such articles, processes or Materials. Octroi of other Municipal or Local Board charges if levied on Materials equipment of machineries to be brought to site for use on work shall be borne by the contractor.
4. No exemption or reduction of custom duties excise duties, sales-tax or any other taxes or charges of the Central or State Government any local body whatsoever will be granted to be obtained. All of such expenses shall be deemed to have been included in and covered by schedule of rates. Contractor will also obtained and pay for all permits or other privileges necessary to complete work.

5. The schedule of rates shall be deemed to include and cover risk on account of delay or interference with contractor's conduct of work which may occur from any cause including orders of S.M.C. in the exercise of his power and no account of extension of time granted due to various reasons.

6. For work under unit rate basis no alteration will be allowed in the schedule of rates by reason of work or any part of them being field, altered extended, diminished or omitted.

GC-77 PROCEDURE FOR MEASUREMENT OF WORK IN PROGRESS

1. All measurements shall be in metric system. All the work in progress will be jointly measured by the representative of Engineer-in-charge and contractor's authorised agent. Such measurements will be got recorded in the measurement book by the Engineer or his authorised representative and signed by contractor or his authorised agent in token of acceptance. If the contractor or his authorised agent fails to be present when even required by the Engineer-in-charge for taking measurements for any reasons whatsoever, the measurement will be taken by the Engineer - in - charge or his authorised representative notwithstanding the absence of contractor and these measurements will be deemed to be correct and binding on contractor.

2. Contractor will submit a bill in approved proforma in duplicate to the Engineer - in - charge of the work giving abstract and detailed measurements of various items executed during a month as mutually agreed. The Engineer-in-charge shall verify the bill and the claim, far as admissible, adjusted if possible, within 10 days of presentation of the bills.

3. In case of Tenders for completed items of work, contractor may be allowed 'Secured Advance' on the Security of Materials brought to site for execution of the constructed items of work the extent of 75% of the value of Materials of unperishable nature and an agreement bedrawn up with contractor under which the owner secured a lien on these Materials and is safe guarded against losses due to any reasons whatsoever. Recoveries of advance paid would not be post-poned till the whole work is completed but shall be adjusted from his work done or the Materials used, the necessary deductions being made when the items of work in which they are used and are billed for. When the mode of measurement is not covered by contract for any item of work it shall be as per latest I.S.I.

GC-78 RUNNING ACCOUNT PAYMENT TO BE RECOVERED AS ADVANCES

1. All running account payments shall be regarded as payments by way of advance against the final payment only and not as payment for work actually done and completed and shall not preclude the requiring of bad, unsound and imperfect or unskilled work to be removed and taken away and reconstructed or to be considered as an admission of the due performance of contract or any part thereof.

GC-79 NOTICE FOR CLAIM FOR ADDITIONAL PAYMENT

If the contractor considers that he is entitled to extra payment or compensation or any claim whatsoever in respect of work, he shall forthwith give notice in writing to the Engineer-in-charge about his extra payment and/or compensation. Such notice shall be given to the Engineer-in-charge within Ten (10) days from the happening of any event upon which contractor basis such claims and such notice shall contain full particulars of the nature of such claim with full details and amount claimed. Failure on the part of the contractor to put forward any claim with the necessary particulars as above within the time above specified shall be an absolute waiver thereof. No commission by S.M.C. to reject any such claim and no delay in dealing therewith shall be waiver by S.M.C. of any rights in respect thereof.

GC-80 PAYMENT OF CONTRACTOR'S BILL

1. The price to be paid by the S.M.C. to contractor for the work to be done and for the performance of all the obligations under taken by the contractor under contract shall be based on the contract price and payment to be made accordingly for the work actually executed and approved by the Engineer-in-charge.

2. No payment shall be made for work costing less than Rs.5,000/- till the work is completed and a certificate of completion given. But in case of work estimated to cost more than Rs.5,000/- contractor on submitting the bill thereof will be entitled to receive a monthly payment, proportionate to the part thereof, approved and passed by Engineer-in-charge whose certificate of such approval and passing of the sum so payable shall be final and conclusive against contractor. This payment will be made after making necessary deductions as stipulated elsewhere in the contract documents for Materials, security deposit, etc. The payment shall be released to the contractor within Thirty (30) days of submission of the bill in

case of running bill and within two (02) months in case of final bill, contractor shall present the bill duly pre-receipted on proper revenue stamp.

Payment due to Contractor shall be made by the by crossed Accounts payee cheque in Indian currency forwarding the same to the registered office of the contractor. Owner shall not be responsible if the cheque is mislaid or misappropriated by unauthorised person.

GC-81 FINAL BILL

The final bill shall be submitted by Contractor within two (02) month of the date of physical completion of work, Otherwise the Engineer-in-charge certificate of the measurement and of total amount payable for work shall be finalised binding on all parties.

GC-82 RECEIPT FOR PAYMENT

Receipt for payment made on account of work when executed by a firm must be signed by a person holding power of attorney in this respect on behalf of contractor except when described in the tender as a limited company in which case the receipt must be signed in the name of the company by one of its principal officers or by some other person having authority to give effectual receipt for the Company.

GC-83 COMPLETION CERTIFICATE

1. When the contractor fulfil his obligation as per terms of contract he shall be eligible to apply for completion certificate. Contractor may apply for separate completion certificate in respect of each such portion of work by submitting the completion documents alongwith such application for completion certificate.

The Engineer-in-charge shall normally issue to contractor the completion certificate within 2 (Two) month after receiving an application thereof from contractor after verifying from the complete documents and satisfying himself that work has been completed in accordance with and as set out in the construction and erection drawings and the contract document. Contractor after obtaining the completion certificate is eligible to present the final bill for work executed by him under the terms of contract.

2. Within 2 (Two) month of completion of work in all respect contractor shall be furnished with a certificate by the Engineer-in-charge of such completion but no certificate shall be given nor shall work be deemed to have been executed, until all (1) scaffolding, surplus Materials and rubbish is clearing off site completely (2) until work shall have been measured by the Engineer-in-charge whose measurement shall be binding and conclusive and (3) until all the temporary works, labour and staff colonies etc. constructed are removed and the work site cleaned to the satisfaction of the Engineer-in-charge. If contractors shall fail to comply with the requirements as aforesaid or before date fixed for the completion of work, the Engineer-in-charge may at the expenses of contractor remove such scaffolding, surplus Materials and rubbish and dispose of the same he thinks fit.

3. The following documents will form the completion documents :

- (a) Technical documents according to which work was carried out.
- (b) Construction drawings showing therein the modifications and corrections made during the course of execution signed by Engineer-in-charge.
- (c) Completion certificate for "Embedded" or "Covered" up work.
- (d) Certificate of final levels as set out for various works.
- (e) Material appropriation statement for the Materials issued by owner for work and list of surplus Materials returned to S.M.C.'s store duly supported by necessary documents.

4. Upon expiry of the period of defects liability and subject to Engineer-in-charge being satisfied that work

Has been duly maintained by contractor during the defects liability period as fixed originally, or as external subsequently and the contractor has in all respects made up by subsidence and performed all his obligations under contract, the Engineer-in-charge shall (without prejudice to the rights of owner in any way) give final certificate to that effect. The Contractor shall not be considered to have fulfilled the whole of his

obligation until final certificate shall have been given by the Engineer-in-charge notwithstanding previous entry upon and taking possession, working or using of the same or any part thereof by owner.

5. Final Certificate only Evidence of Completion

Except the final certificate no other certificate or payments against a certificate or an general account shall be taken to be an admission by owner of the due performance of contract or any part thereof or of occupancy validity of any claim by the contractor.

GC-84 TAXES, DUTIES, OCTROI, ETC.

The Contractor shall be liable to payment of all the Central/ State/Local Bodie's Levies,/ GST/ taxes or duties etc. The SMC shall neither bear it nor reimburse at any time but will ensure deduction of Central/State/Local levies/GST and taxes at Source at the rate provided under the relevant statutes from time to time inforce.

1% Construction Cess will be deducted from respective R.A. Bill and Final bill in accordance with the prevailing norms of Govt. of Gujarat.

GC-85 INSURANCE

Contractor shall at his own expenses carry and maintain with reputable Insurance Companies to the satisfaction of owner as follows :

1. Employees State Insurance Act

Contractor agrees to and does hereby accept full and exclusive liability for compliance with all obligations imposed by the Employees' State Insurance Act 1948, and Contractor further agree to defend, indemnify and hold owner harmless from any liability or penalty which may be imposed by the Central or State Government of Local authority by reasons of any asserted violation by contractor or Sub-Contractor of the Employees' State Insurance Act, 1948 and also from all claims, suits or proceedings that may be brought against owner arising tender, growing out of or by reasons of the work provided for by this contract whether brought by employees of Contractor, by third parties or by Central or State Government authority or any administrative Sub-division thereof. Contractor agrees to fill in with the Employees State Insurance Corporation, the declaration from and all forms which may be required in respect Contractor's or Sub-contractor's employees these aggregate remuneration is Rs. 400/-p.m.or less and who are employed in work provided for or those covered by E.S.I from time to time under the agreement. The Contractor shall deduct and secure the agreement of the Sub-contractor to deduct the employees' contribution as per the first Schedule of the Employees' State Insurance Act from wages. Contractor shall remit and secure the agreement of Sub-contractor to remit to the State Bank of India Employees' State Insurance Corporation Accounts, the employees contribution as required by the Act Contractor agrees to maintain all cares and record as required under the Act in respect of employees and payments and contractor shall secure the agreements of the sub-contractors to maintain such records, any expenses incurred for the contributions or maintaining records shall be to contractor's or sub- contractor' account. Owner shall retain such sum as may be necessary from the contract value until contractor shall furnish satisfactory proof that all contribution as required by the Employees' State Insurance Act 1948 have been paid.

2. Workman's Compensation And Employees Liability Insurance

Insurance shall be effected for all contractors employees engaged in the performance of this contract. If any part of work is sublet, contractor shall require the sub-contractor to provide workmans' compensation and employer's liability insurance which may be required by owner.

3. Other Insurance required under law or regulation by owner

Contractor shall also carry and maintain any and all other insurance which may be required under any law or regulation from time to time. He shall also carry and maintain any other insurance which may be required by

owner.

GC-86 DAMAGE TO PROPERTY

1. Contractor shall be responsible for making good to the satisfaction of owner any loss of and any damage to all structures and properties belonging to owner or being executed or Procured by owner or of other Agencies within the premises of all work of owner, if such loss or damage is due to fault and / or the negligence or will full act or omission of contractor, his employees, agent representatives or Sub- contractors.
2. Contractors shall indemnify and keep owner harmless of all claims for damage to properties other than S.M.C's property arising under or by reasons of this agreement if such claims result from the fault and / or negligence or wilful act of omission of contractor,his employees, agents, representatives or sub-contractors.

GC-87 OUR LAWS AND REGULATIONS

- 1.The contractor shall be responsible for the strict compliance of and shall ensure strict compliance by his sub contractor employees and agents of all labours and others laws, rules or regulations having the force of law affecting the relationship of employer and employee between the contractor/ sub-contractor and their respective employees.
- 2.No labour below the age of eighteen (18) year be employed on work.
- 3.Contractor shall pay to the labours engaged on work according the law.
4. The Contractor and sub-contractors o f the contractor shall obtain proper authority designated in this behalf under any application law, rules or regulations (including but not restricted to the factories Act and Contract Labour Abolition and Regulation Act 1970,) in so far as applicable) any and all such licences, consents, Registration and / or other authorisation as shall from time to time be or become necessary for relatint to the execution of work or any part of portion thereof or the storage or supply of any Materials or otherwise in connection with the performance of the contract and shall at all times observance by the sub- contractors, employees and agents of all terms and conditions of the said licences,consents, regulation and other authorisa- tion and laws, rules and regulations applicable thereto.

GC-88 CONTRACTOR TO INDEMNIFY OWNER

1. The Contractor shall indemnify and keep indemnified the owner and every member, officer and employee of owner from and against all action, claims, demands and liabilities whatsoever and in respect of the breach of any of the above clauses and/or against any claim, action or demand by any workman/ employee of the contractor or any sub-contractor and or from any liability and way to any workman / employee of the contractor or any sub-contractor under any law, rule or regulations having the force of law, including but not limited to claims against the owner under the workman compensation Act 1923. The employees' Provident Funds Act 1952 and/or the Contract Labour (Abolition and Regulations) Act, 1970.

2. Payment of claims and damages

If owner has to pay any money in respect of such claims or demands as aforesaid, the amount so paid and the cost incurred by the owner shall be charged to and paid by contractor without any dispute notwithstanding the same may have been paid without the consent or authority of the Contractor.

3. In every case in which by virtue of any provision applicable in the workman's Compensation Act 1923 or any other Act, be obliged to pay compensation to workman employed by Contractor the amount of compensation so paid, and without prejudice to the rights of S.M.C. under sec.(12) Sub-section (2) of the said Act, S.M.C. shall be at liberty to recover such amount from any surplus due to the contractor or the security deposit. S.M.C. will not be bound to contest any claim made under section (12) Sub-section (2) of the said Act except or written request of Contractor and upon the contesting of such claim.

4. The Contractor shall protect adjoining sites against structural decorative and other damages that could be caused to adjoining premises by the execution of these works and made good at his cost, any such damage, so caused.

GC-89 IMPLEMENTATION OF APPRENTICE ACT 1964

Contractor shall comply with the provisions of the Apprentice Act 1964 and the orders issued thereunder from time to time. If the fails to do so, it will be a breach of contract. Contractor shall also be liable for any particular liability arising on account of any violation of the provisions of the Act by him.

GC-90 HEALTH AND SANITARY ARRANGEMENTS FOR WORKERS

Contractor shall comply with all the rules and regulations of the local sanitary authorities or as framed by owner from time to time for the protection of health and sanitary arrangements of all labour directly or indirectly employed on the work of this contract.

GC-91 SAFETY CODE

GENERAL

Contractor shall adhere to safe construction practice and guard against hazardous and unsafe working conditions and shall comply with owner's safety rules and set forth herein.

1. First Aid and Industrial Injuries

1.1 Contractor shall maintain first aid facilities for its employees and those of his sub-contractor.

1.2 Contractor shall make outside arrangements for ambulance service and for the treatment of industrial injuries. Name of those providing these services shall be furnished to Engineer-in-charge prior to start of construction, and their telephone numbers shall be prominently posted in contractor's field office.

1.3 All injuries shall be reported promptly to Engineer-in-charge, and a copy of Contractor's report covering each personal injury requiring the attention of a physician shall be furnished to owner.

2. General Rules

2.1 Carrying, striking, matches, lighters inside the project area & smoking within the job site is strictly prohibited. Violators of smoking rules shall be discharged immediately. Within the operation area, hot work shall be permitted without valid gas safety, fire permits. The Contractor shall also be held liable and responsible for all lapses of his sub-contractors/ employees in this regard.

3. Scaffolding

3.1 Suitable scaffolding shall be provided for workmen for all works that can not safely be done from the ground or from solid construction except such short period work as can be done safely from ladders. When a ladder is used, an extra mazzdoor shall be engaged for holding the ladder and if the latter is used for carrying Materials as well, suitable foothold and handholds shall be provided on the ladder and the same shall be given inclination not steeper than 1 to 4 (1 horizontal and 4 vertical).

3.2 Scaffolding or staging more than 3.6 M (12') above the ground or floor, swing or suspended from an overhead support or erected with stationary support shall have a guard rail properly attached, bolted, braced and otherwise fixed at least 1.0 M (3') high above the floor or platform of scaffolding or staging and extending along the entire length of the outside ends thereof with only such openings as may be necessary for the delivery of Materials. Such scaffolding or staging shall be so fastened as to prevent it from swaying from the building or structure.

4. Maintenance of Safety Devices

4.1 All scaffolds, ladders and other safety devices mentioned or described herein shall be maintained in some conditions and 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.

5. Display of Safety Instructions

5.1 These safety provisions should be brought to the notice of all concerned by display on a notice board at a prominent place at the work-spot. The person responsible for compliance of the safety code shall be named therein by the Contractor.

6. Enforcement of Safety Regulations

6.1 To ensure effective enforcement of the rules and regulations relating safety precautions, the arrangements made by the contractor shall be open to inspection by the welfare Officer, Engineer-in-charge of safety Engineer of the owner or their representatives.

7. No Exemption

7.1 Notwithstanding the above clause 1.0 to 13.0 there is nothing to exempt the contractor from the operations of any other Act or rules in force in the Republic of India.

7.2 In addition to the above, the Contractor shall abide by the safety code provision as per C.P.W.D. Safety Code framed from time to time.

GC-92 ACCIDENTS

It shall be the contractor's responsibility to protect against accidents on the work. He shall indemnify the Municipal Corporation against any claim for damage or for injury to persons or property resulting from, and in the course of work and also under the provision of the Workman's Compensation Act. On the occurrence of an accident arising out of the works which results in death or which is so serious as to be likely to result in death, the contractor shall within twenty four hours of such accident, report in writing to the Engineer-in-charge, the facts stating clearly and in sufficient details the circumstances of such accident and the subsequent action. All other accidents on the works involving injuries to persons or damage to property other than that of the contractors shall be promptly reported to the Engineer-in-charge stating clearly and in sufficient details and facts and circumstances of the accidents and the action taken. In all cases the contractor shall indemnify the Municipal Corporation against all loss of damage resulting directly or indirectly from the Contractor's failure to report in the manner aforesaid. This includes penalties or fine consequence of failure to give notice under the workman's compensation Act or failure to conform to the provisions of the said Act in regard to such accidents.

In the event of an accident in respect of which compensation may become payable under the workmen's compensation Act VIII of 1923 including all modification thereof whether such compensation may become payable by the contractor or by the Municipal Corporation as principal employer, the Engineer-in-charge may retain out of money due and payable to the contractor such sum or sums of money as may, in the opinion of the Engineer-in-charge be sufficient to meet such liability. On receipt of award from the labour commission in regard to quantum of compensation, the difference in amount will be adjusted.

GC-93 It is clarified that if the contractor makes his own arrangements for water required for construction and labour camp etc. by drilling bore. No water charges will be recovered from the contractor. On the otherhand, even if the contractor is not taking connection and makes other arrangement to use Municipal water by tanker or tapping water from near private connection even so water charges shall be recovered as per relevant condition of the tender. **As per City Engineer Note No.386, dtd.30/7/2012**

GC-93 (A) PRICE VARIATION CLAUSE:

No Price Variation difference will be paid to the contractor for Labour, Materials, P.O.L. (Fuel) or any other material for the work

GC-93 (B) STAR RATE & DIFFERENCE FOR REINFORCEMENT STEEL & CEMENT:

No star rate or basic rate difference will be paid to the contractor for cement, steel reinforcement or any other material for the work.

GC-94 GOODS AND SERVICE TAX (GST)

GST CLAUSE FOR CONSTRUCTION / ERECTION / COMMISSIONING / INSTALLATION / REPAIRS / MAINTENANCE / RENOVATION / FABRICATION OF STRUCTURE INCLUDING BUILDING (MEANS ALL WORKS CONTRACT / TURN KEY PROJECTS / SUPPLY OF MATERIAL / GOODS)

GST (Goods & Service Tax) has come in existence from 1 July 2017. Contract / Successful Bidder is bound to pay any amount of GST prescribed by the Govt. of India as per the Terms of Contract agreed upon during the course of execution of this Contract.

During the course of execution of contract, if there is any change in Rate of GST (Goods & Service Tax) by the Government the same shall be reimbursed / recovered separately by SMC subject to the submission of Original Receipt / proof for the amounts actually remitted by the successful Tenderer / Contractor to the competent authority along with a certificate from Chartered Accountant of Contractor / Successful Bidder certifying that the amount of GST paid to the Government and the same shall be intimated / submitted / claimed within 30 Days from the date of payment Remittance of GST within stipulated period shall be the sole responsibility of the Successful Bidder /

Contractor, failing which SMC and decision of Municipal Commissioner shall be final and binding on the Contractor / Successful Bidder in this regard Further the non-payment of GST to the Government may lead to the termination of contract and forfeiture of security Deposit / Performance Guarantee Amount.

If imposition of any other new Taxes / Duties / Levies / Cess or any other incidentals etc. or any increase in the existing Taxes / Duties / Levies / Cess or any other incidentals etc. (Excluding GST) are imposed during the course of the contract the same shall be borne by the Contractor / Successful Bidder only in no case SMC shall be liable for the same.

The Contractor will submit the invoice to the SMC having GSTIN of SMC mentioned therein and the taxes shall be shown separately on the face of the invoice so as to claim as ITC by SMC.

Note :- The Rates mentioned in BOQ are excluding GST. GST will be reimbursed separately (if applicable as per the opinion of Account department of SMC / GST Consultant of SMC) as per the prevailing GST Rates decided by the Government. The contractor is invariably bound to any changes in GST Rates made during the course of the work. The payment (if applicable) for GST will be only released only after the applicable Amount reflects on Government portal. Decision of Account Department of SMC regarding applicable GST Rates will be final.

GC-95 SECURED ADVANCES:

No Secured advances shall be paid.

GC-96 SUBMISSION / COMPULSION BY CONTRACTOR

The contractor registered with S.M.C. or any other Govt. organisation is required to employ minimal technical staff as detailed in the certificate issued to him. If contractor does not employ same technical staff over works entrusted to him, should submit photo-identity and education qualification of technical staff appointed at site.

"The contractor shall have to keep the record of the labourers employed for the concerned work. The contractor should provide attendance card, identification card, pay slip etc to the labourers employed. Further, the amount of E.S.I. & Provident Fund should be deducted from the salary of the labourers employed and such amount should invariably be deposited to the concerned Government Departments. In addition, the amount of social security under E.P.F. & M.P. act 1952 shall be recovered every month & such amount should invariably be deposited directly to the concern Government Departments. In the same context, the details regarding such amount deposited to the concern Govt. Deptt. and labourers employed shall be furnished to the office of Traffic Cell Department of S.M.C. every month. In case of failure, such amount shall be deducted/recovered from the running bill directly in accordance with the details given by contractor regarding labourers employed and as per the prevailing rules of Government. In absence of detail, an adhoc suitable amount of the total amount of work done shall be recovered directly from the running bills. On submission of evidence of recovery of such amount, the amount recovered/deducted shall be released in the next bill after due sanction of Competent Authority of S.M.C."

GC-97 SPECIAL RISK

If during the contract, there shall be outbreak of war (whether war is declared or not), major epidemic, earthquake, or similar occurrence in any part of the world beyond the control of either party to the contract which whether financially or otherwise materially affects the execution of the contract, the contractor shall unless and until, the contract is terminated under the provisions of this article, use his best endeavors to complete the execution of the contract, provided always that the Corporation shall be entitled at any time after the onset of such special risks, to terminate the contract by giving written notice to the contractor and upon such notice being given this contract shall terminate but without prejudice to the rights of either party in respect of any antecedent breach thereof. If any of the works, or materials to be delivered subjected to damage or distribution by reasons for the special risks, the contractor shall be entitled to payment for such damage or destroyed materials and to any costs involved in making good damages or destroyed materials as may be required by the Municipal Corporation.

The contractor shall not be liable for payment of compensation for delay or for failure to perform the contract for reasons of Force Majeure such as acts of public enemy, acts of Government fires, floods, cyclone, epidemics, quarantine restrictions, lockouts, strikes, freight embargoes and provided that the contractor shall within Ten (10) days from the beginning of such delay notify the Engineer-in-charge in writing the cause of delay. The Municipal Commissioner shall verify the facts and grant such extension as the facts justify.

GC-98 SECURITY DEPOSIT

The person/persons whose tender may be accepted (hereinafter called the contractor, which expression shall unless excluded by or repugnant to the context include his heirs, executors, administrators and assignees) shall (within 10 days of the receipt by him of the notification of the acceptance of his tender otherwise 0.065% per day of S.D. amount will be charged as penalty) deposit with Municipal Commissioner in cash or Government securities endorsed to the Commissioner sum sufficient which will make up the security deposit specified in the tender.

If the amount of the security deposit to be paid in lump sum within the period specified above is not paid the tender contract already accepted shall be considered as cancelled. The security deposit lodged by contractor shall be refunded after the expiry of the Defects Liability period as shown in the attached Memorandum after deducting dues, if any, which become liable to be recovered from the contractor under the terms and conditions of this Agreement.

GC-99 COMPENSATION OF THE DELAY

The time allowed for carrying out the work as entered in the tender shall be strictly observed by the contractor and shall be reckoned from the date on which the order to commence work is given to the contractor. The work shall throughout the stipulated period of the contract be proceeded with, all due diligence (time being deemed to be the absence of the contract on the part of the contractor) and the contractor shall pay as compensation a percentage amount (shown in the attached Memorandum) of the tendered cost of the whole work as shown by the tender for every day that the work remains uncommenced or unfinished after the proper days, And further to ensure good progress during the execution of the work the contractor shall be bound, in all cases in which the time allowed for any work exceeds one month, to complete parts of the work during the period shown in the attached Memorandum.

In the event of the contractor failing to comply with these conditions he shall be liable to pay as **compensation in form of liquidated damages**, the amount mentioned above for every day that the due quantity of work remained incomplete provided always that the total amount of compensation to be paid under the provision of this clause shall not exceed 10 percent of the Tendered cost of the work as shown in the tender.

GC-100 ACTION WHEN WHOLE OF SECURITY DEPOSIT IS FOREFITED

In any case in which under any clause of or clauses this contract the contractor shall have tendered himself liable to pay compensation amounting to the whole of this security deposit (whether paid in one sum or deducted by instalments) or in the case of abandonment of the work owing to serious illness or death of the contractor or any other causes, the Commissioner on behalf of the Corporation shall have power to adopt of the following courses, as he may deem best suited to the interest of Municipal Corporation .

(a) To rescind the contract (of which rescission notice in writing to the contractor under the hand of the Commissioner shall be conclusive evidence) and in that case that security deposit of the contractor shall stand forfeited and be absolutely at the disposal of Municipal Corporation .

(b) To employ labour paid by the related Zone and to supply material to carry out the works, or any part of the work debiting, the contractor with correctness of which cost and price the certificate of Executive Engineer 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 rates as if it had been carried out by the contractor under the terms of his contract, and in that case the certificate of the Executive Engineer as to the value of the work done shall be final and conclusive against the contractor.

(c) To order that the work of the contractor be in measured up 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 original contractor, if the whole work had been executed by him (as to the amount of which excess expenses the certificate in writing of the Executive Engineer shall be final and conclusive) be borne & paid by the original contractor shall be deducted

from any money due to him by Municipal Corporation under the contract or otherwise from his security deposit or the proceeds of sale thereof, or a sufficient part thereof.

Action when the progress of any particular portion of the work is unsatisfactory

In the event of any of the above courses be adopted by the Commissioner the contractor shall have no claim to compensation for any loss sustained by him by reason of his purchasing or procuring any materials or entering into any engagements, or made 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 resealed under provision aforesaid, the contractor shall not be entitled to recover, or be paid any sum for any work thereto actually performed by him under this contract unless and until the Executive Engineer shall have certified in writing the performance of such work and the amount payable to him in respect thereof, and he shall only be entitled to be paid the Particular amount so certified.

GC-101 COMPENSATION TO LOSS

Contractor remains liable to pay compensation in form of liquidated damages if action not taken under GC-22. If the progress of any particular portion of the work is unsatisfactory the Commissioner shall notwithstanding that the general progress of the work is satisfactory in accordance with GC-99, be entitled to take action under GC-22 (b) after giving the contractor 10 days' notice in writing and contractor will have no claim for compensation for any loss sustained by him owing to such action.

GC-102 Power to take possession of, require removal of, or self contractor's plan

In any case in which any of the powers conferred upon the Commissioner by GC-22 and GC-101 hereof shall have become exercisable and same shall not have been exercised the non-exercise thereof shall not constitute a waiver of any of the conditions hereof such powers shall notwithstanding be exercisable in any future case of default by the contractor for which by any clause or clauses hereof he is declared liable to pay compensation amounting to the whole of his security deposit required or and the liability of the contractor for past and future compensation shall remain unaffected.

In the event of the Commissioner taking action under sub-clause (a) or (c) of GC-22, he may, if he so desire, take possession of all or any tools, plant, materials and stores in or upon the works, or the site thereof or belonging to the contractor, or procured by him and intended to be used for the execution of the work of any part thereof, paying or allowing for the same in account at the contract rates, or in the case of contract rates not being applicable, at current market rates, to be certified by the Executive Engineer whose certificate thereof shall be final. In the alternative the Commissioner may by notice in writing to the contractor or his clerk of the works. Foremen or other authorised agent require him to remove such tools, plant, materials, or stores from the premises within a time specified in such notice; & in the event of the contractor failing to comply with any such requisition, the Commissioner may remove them at the contractor's expense or sell them by action or private sale at the risk and account of the contractor in all respects, and certificate of the Executive Engineer as to the expense of any such removal, and the amount of the proceeds and expense of any of any sale shall be final and conclusive against the contractor.

GC-103 EXTENSION OF TIME

If the Contractor shall desire an extension of the time for completion of the work on the ground of his having been unavoidably hindered in its execution or on any other ground, he shall apply in writing to the Commissioner within 30 days from the date on which he was hindered as aforesaid on or which the cause for asking for extension occurred and the Commissioner may, if in his opinion, there are reasonable grounds for granting an extension, grant such extension as he thinks necessary or proper. The decision of the Competent authority in this matter shall be final and binding to all.

GC-104 FINAL CERTIFICATION

On completion of the work the contractor shall be furnished with a certificate by the Executive Engineer (hereinafter called the Engineer-in-charge) of such completion, but no such certificate shall be given nor

shall the work be considered to complete until the contractor shall have removed from the premises on which the work shall have been executed all scaffolding, surplus materials and rubbish, and shall have cleaned off the dirt from all woodwork, doors, windows, walls, floors or other parts of any building, in or upon which the work has been executed, or of which he may have had possession for the purpose of executing the work, nor until the work shall have been measured by the Engineer-in-charge or where the measurement have been taken by his subordinates until they have received the approval of the Engineer-in-charge, the said measurement being binding and conclusive against the contractor.

If the contractor shall fail to comply with the requirements of this clause as to the removal of scaffolding, surplus materials and rubbish. And cleaning off dirt on or before the date fixed for the completion of the work, the Engineer-in-charge may, at the expense of the contractor remove such scaffolding surplus material and rubbish, and dispose off the same as he thinks fit and clean off such dirt as aforesaid; and contractor shall forthwith pay the amount off all expenses so incurred, but shall have no claim in respect of any such scaffolding or surplus materials as aforesaid except for any sum actually realized by the sale thereof.

GC-105 PAYMENT ON INTERMEDIATE CERTIFICATE TO BE REGARDED AS ADVANCE.

No payment shall be made for any work, on estimated to cost less than rupees one thousand, till after the whole of the said work shall have been completed & a certificate of completion given. But in the case of works estimated to cost more than rupees one thousand, the contractor shall, on submitting a monthly bill therefore be entitled to received payment proportionate to the percentage shown in the attached Memorandum of the part of the works than approved and passed by the Engineer-in-charge, whose certificate of such approval and passing of the sum so payable shall be final and conclusive against the contractor.

All such intermediate payment shall be regarded as payment by way of advance against the final payments only & not as payments for work actually done and completed and shall not preclude the Engineer-in-charge from requiring bad, unsound imperfect or unskilful work to be removed & taken away & reconstructed, or re-erected. nor shall any such payment be considered as an admission of the due performance of the contract or any part thereof in any respect of the accruing of and claim; nor shall it conclude, determine or affect in any way the Powers of the Engineer-in-charge as to the final settlement and adjustment of the accounts or otherwise, or in any other way vary or affect the contract. The final bill shall be submitted by the contractor within one month of the date fixed for the completion of the work, otherwise the Engineer-in-charge's certificate of the measurement and of the total amount payable for the work shall be final and binding on all parties.

GC-106 PAYMENT AT REDUCED RATE ON ACCOUNT OF ITEM OF WORK NOT ACCEPTED AS COMPLETED TO BE THE DISCRETION OF THE ENGINEER-IN-CHARGE

The rates for several items of the work agreed to within, shall be valid only when the item concerned is accepted as having been completed fully in accordance with the sanctioned specifications. In cases where the items of works are not accepted as so completed the Engineer-in-charge may make payment on account of such items at such reduced rates as he may consider reasonable in the preparation of final or on account bills.

A bill may be submitted by the contractor once in each month on or before the date fixed by the Engineer-in-charge for all works executed in the previous months, and the Engineer-in-charge shall take or cause to be taken the requisite measurement for the purpose of having the same verified, and the claim, so far as it is admissible shall be adjusted if possible within fifteen days from the presentation of the bill. If the contractor does not submit the bill within the time fixed as aforesaid, Engineer-in-charge may depute a subordinate to measure up the said work in the presence of the contractor or his duly authorised agent whose counter signature to the measurement list shall be sufficient warrant, and the Engineer-in-charge may prepare a bill from such list which shall be binding on the contractor in all respects.

GC-107 BILLS TO BE ON PRINTED FORMS

The contractor shall submit all bills on the printed forms to be had on application at the office of the Engineer-in-charge. The charges to be made in the bills shall always be entered at the rates specified in the tender or in the case of any extra work ordered in pursuance of these conditions, and not mentioned or provided for in the tender at the rates hereinafter provided for such work.

GC-108 STORES SUPPLIED BY SMC

If the specification or estimate of the work provides for the use of any special description of materials to be supplied from the Municipal Store or if it is required that the contractor shall use certain stores to be provided by the Engineer-in-charge (such materials and stores and the prices to be charged thereof as hereinafter mentioned being so far as practicable for the convenience of the contractor but not so as in any way to control meaning or effect of the contract specified in the schedule or memorandum hereto annexed) the contractor shall be supplied with such materials and stores as may be required from time to time to be used by him for the purpose of the contract only and the value of the full quantity of materials and stores so supplied shall be set off deducted from any sums then due, or thereafter to become due to the contractor under the contract, or otherwise or from the security deposit, or the proceeds of sale thereof shall be deposited is held in Government securities the same or a sufficient portion thereof shall in that case be sold for the purpose. All material supplied to the contractor shall remain the absolute property of Municipal Corporation and shall on no account be removed from the site of the work, and shall at all times be opened to inspection by the Engineer-in-charge. Any such materials unused and in perfectly good condition at the time of completion or determination of the contract shall be returned to the related zone store, if the Engineer-in-charge so requires by a notice in writing given under his hand, but the contractor shall not be entitled to return any such materials except with such consent and he shall have no claim for compensation on account of any such materials supplied to him as aforesaid but remaining unused by him or for any wastage in or damage thereto.

GC-109 WORKS TO BE EXECUTED IN ACCORDANCE WITH SPECIFICATIONS, DRAWINGS ORDERS ETC.

The contractor shall execute the whole and every part of the work in the most substantial and workman like manner, and both as regards materials and in every other respect in strict accordance with the specifications. The contractor shall also conform exactly, fully and faithfully to designs, drawings and instructions in writing relating to the work signed by the Engineer-in-charge and lodged in his office and to which the contractor shall be entitled to have access for the purpose of inspection at such office, or on the site of the work during office hours, and the contractor shall, if he so requires, be entitled at his own expense to make or cause to be made copies of the specifications and of all such designs, drawings and instructions on aforesaid.

GC-110 ALTERATION ON SPECIFICATIONS AND DESIGN NOT TO INVALIDATE CONTRACTORS. RATES FOR WORKS NOT ENTERED IN ESTIMATE OR SCHEDULE TO RATES OF THE SMC

The Engineer-in-charge shall have power to take any alteration in, or addition to the original specifications, drawings, designs and instructions that may appear to him to be necessary or advisable during the progress of the work, and the contractor shall be bound to carry out the work in accordance with any instructions in this connection which may be given to him in writing signed by the Engineer-in-charge and such alteration shall not invalidate the contract and any additional work which the contractor may be directed to do in the manner above specified as part of the work shall be carried out by the contractor on the same conditions in all respects on which he agreed to do the main work and at the same rates as are specified in the tender for the main work. And if the additional and altered work includes any class of work for which no rate is specified in this contract then such class of work shall be carried out at the rates entered in the schedule of rates of Municipal Corporation or at the rates mutually agreed upon between the Engineer-in-charge and the contractor whichever are lower if the additional or altered work for which no rate is entered in the schedule of Rates of Municipal Corporation is ordered to be carried out before the rates are agreed upon then the contractor shall, within seven days of the date of receipt by him of the order to carry out the work, inform the Engineer-in-charge of the rate which it is his intention to charge for such class of work and if the Engineer-in-charge does not agree to this rate he shall by notice in writing be at liberty to cancel his order to carry out such class of work, and arrange to carry it out in such manner as he may consider advisable provided always that if the contractor shall commence the work or incur any expenditure in regards thereto before the rates shall have been determined as lastly herein before mentioned, then in such case he shall only be entitled to be paid in such case he shall only be entitled to be paid in respect of the work carried out or expenditure incurred by him prior to the date of the determination of the rate as aforesaid according to such rate or rates as shall be fixed by the Engineer-in-charge. In the event of a dispute, the decision of the Commissioner will be final.

Where, however, the work shall have to be executed according to the designs; drawings and specifications recommended by the contractor and accepted by the competent authority the alteration above referred to shall within the scope of such designs drawings and specification appended to the tender.

Extension of time in consequence of additions or alterations. The time limit for the completion of work shall be extended in the proportion that the increase in its cost occasioned by alterations or addition the cost of the original contract work, and the certificate of the Engineer-in-charge as to such proportion shall be conclusive.

GC-111 NO COMPENSATION FOR ALTERATION IN OR RESTRICTION OF WORKS TO BE CARRIED OUT

If at any time after the execution of the contract documents the engineer-in-charge shall for any reason whatsoever, require the whole or any part of the work as specified in the tender to be stopped for any period or shall not require the whole or part of the work to be carried out at all or to be carried out by the contractor, he shall give notice in writing of the fact to the contractor who shall thereupon suspend or stop, the work totally or partially, as the case may be. In any such case, except as provided hereunder, the contractor shall have no claim to any payment or compensation whatsoever on account of any profit or advantage which he might have derived from the execution of the work in full but which he did not so derive in consequence of the full amount of the work nor having been carried out, or on account of any loss that he may be put to on account of materials purchased or agreed to be purchased, or for unemployment of labour recruited by him. He shall not also have any claim for compensation by reason of any alteration having been made in the original specifications, drawings, designs and instructions may involve any curtailment of the work as originals contemplated. Where which however, materials have already been purchased or agreed to be purchased by the contractor, before receipt by him of the said notice, the contractor shall be paid for such materials at the rate determined by the Engineer-in-charge, provided they are not in excess of requirements and are of approved quality and/or shall be compensated for the loss, if any that he may be put to in respect of materials agreed to be purchased by him, the amount of such compensation to be determined by the Engineer-in-charge, whose decision shall be final. If the contractor suffers any loss on account of his having to pay labour charges during the period during which to stoppage of work has been ordered under this clause the contractor shall on application be entitled to such compensation on account of labour charges as the Engineer-in-charge, whose decision shall be final, may consider reasonable, provided that the contractor shall not be entitled to any compensation on account of labour charges if, in the opinion of the Engineer-in-charge, the labour could have been employed by the contractor elsewhere for the whole or part of the period during which the stoppage of the work has been ordered as a foresaid.

GC-112ON CLAIM TO COMPENSATION ON ACCOUNT OF LOSS DUE TO DELAY IN SUPPLY OF MATERIALS BY SMC.

The contractor shall not be entitled to claim any compensation from Municipal Corporation for the loss suffered by him on account of delay by Municipal Corporation in the supply of materials entered in schedule A' where such delay is caused by

- (1) Difficulties relating to the supply of Railway wagons & availability of Government controlled materials-
- (2) Force Majeure.
- (3) Act of God.
- (4) Act of the Nation's enemies or any other reasonable cause beyond the control of Municipal Corporation .

In the case of such delay in the supply of material the Municipal Corporation shall grant such extension of time

for the completion of the work as shall appear to the Commissioner to be reasonable in accordance with the circumstances of the case. The decision of the Commissioner as to the extension of time shall be accepted as final by the contractor.

GC-113

The contractor is to set out and level the work & will be responsible for the accuracy of same. He is to provide and maintain measuring and surveying instruments including steel tapes, theodolite and dumpy level at all times for proper carrying of the work and for the use of Executive Engineer and his representative including skilled attendance.

GC-114

The Contractor is to cover up and protect the works from the weather, and is suspend all 'wet' operations during weather which, in the Executive Engineer opinion, will be detrimental to the work.

GC-115

Samples of each class of material and workmanship shall be submitted by the Contractor for the approval of Executive Engineer and after such approval these samples shall be deposited at any place the Executive Engineer may appoint and the Contractor shall be required to perform all the works of this contract in accordance with the samples.

GC-116

On completion, all work must be cleaned down; rubbish removed and the works and land cleaned of rubbish; surplus materials and other accumulations, and everything left in a clean and ordinary condition.

GC-117

The contractor shall provide, erect and maintain proper sheds and temporary buildings for the storage and protection of materials and goods and for the execution of work which may be fabricated or brought on the site.

GC-118

The contractor is to set out and level the works and will be responsible for the accuracy of the same. He shall also be responsible for the correctness of the positions, levels, dimensions and alignment of all parts of the structures as shown in the drawings supplied to him. If at any time any error shall appear during the progress of any part of the work, the contractor shall at his own expense rectify such error if called upon to the satisfaction of the Executive Engineer.

GC-119

The contractor shall permit the execution of the work not provided for in the tender by artists; tradesman, or others engaged by the Municipal Corporation. The contractor shall allow all reasonable facilities and the use of his scaffolding and water for the execution of such work, but is not required to provide any special scaffolding for the execution of such work except by special arrangement with Municipal Corporation.

GC-120 TIME LIMIT FOR UNFORESEEN CLAIM

Under no circumstance whatsoever shall the contractor be entitled to any compensation from Municipal Corporation on any account unless the contractor shall have submitted a claim in writing to the Engineer-in-charge within one month of cause of such claim occurring.

GC-121 ACTION AND COMPENSATION PAYABLE IN CASE OF BAD WORK:

If at any time before the security deposit is refunded to the contractor, it shall appear to the Engineer-in-charge or his subordinate in charge of the work that any work has been executed with unsound imperfect, or unskillful workmanship or with materials of inferior quality; or that any materials or articles provided by him for the execution of the work are unsound, or of a quality inferior to that contracted for, or otherwise not in accordance with the contract, it shall be lawful for the Engineer-in-charge to intimate this fact in writing to the contractor and then notwithstanding the fact that the work, materials or articles complained of may have been inadvertently passed, certified and paid for, the contractor shall be bound forthwith to rectify, or remove and reconstruct the work so specified in whole or in part as the case may require, or if so required shall remove the materials or articles so specified and provide other proper and suitable materials or articles at his own charge and cost; and in the event of his failing to do so within a period to be specified by the Engineer-in-charge in the written intimation aforesaid, the contractor shall be liable to pay compensation at the rate of one percent on the amount of the tender for every day not exceeding ten days, during which the failure so continue and in the event of any such failure as aforesaid the Engineer-in-charge may rectify or remove and execute the work or remove and replace the materials or articles complained of as the case may be at the risk and expense in all respects of the contractor, should the Engineer-in-charge consider that any such inferior work or materials as

described above may be accepted or made use of it; shall be within his discretion to accept the same at such reduced rates along with the appropriate penalty as the Commissioner may deem fit.

The period to be counted from that date of final completion and handing over of the work to the Municipal Corporation during which the contractor is so liable for any defects in the work shall be the Defects Liability Period shown in the attached Memorandum.

GC-122 WORK TO OPEN BE INSPECTION

Contractor is responsible agent to be present. All works under in course of execution or executed in pursuance of the contract shall at all time be open to the inspection and supervision of the Engineer-in- charge and his subordinates, and the contractor shall at all times during the usual working hours, and at all other times at which reasonable notice of the intention of the Engineer-in-charge or his subordinate to visit the work shall have been given to the contractor, either himself be present to receive orders and instructions, or have a responsible agent duly accredited in writing present for that purpose. Orders given to the contractor's duly authorised agent shall be considered to have the same force and effect as if they had been given to the contractor himself.

GC-123 NOTICE TO BE GIVEN BEFORE WORK IS COVERED UP

The contractor shall give not less than five day's notice in writing to the Engineer-in- charge or his subordinate in charge of the work before covering up or other wise placing beyond the reach of measurement any work in order that the same may be measured; and correct dimensions thereof taken before the same is so covered up or placed beyond the reach of measurement any work without the consent in writing of the Engineer- in-charge or his subordinate in charge of the work, and if any work shall be covered up or placed beyond the reach of measurement without such notice having been given or consent obtained, the same shall be uncovered at the contractor's expense, and in default thereof no payment or allowance shall be made for such work or for the materials with which the same was executed.

GC-124 Contractor Liable For Damage Done, And Or Imperfection For Three Months After Certificate.

If the contractor or his workmen; or servants shall break, deface injure or destroy any part of a building in which they may be working, or any building, road, fence enclosure or grass land or cultivated ground continuous to the premises on which the work of any part thereof is being executed; or if any damage shall be done to the work for any cause whatever while it is in progress or if any imperfection become apparent in it within the Defect liability period mentioned above by Engineer- in- charge the contractor shall make good the same at his own expense, or in default the Engineer in charge may cause the same to be made good by other workmen and deduct the expenses (of which certificate of Engineer-in- charge shall be final) from any sum that may be due or thereafter become due to the contractor or from his security deposit or the proceed of sale thereof or of a sufficient portion thereof.

GC-125 CONTRACTOR TO SUPPLY PLANT, SCAFFOLDING ETC

The contractor shall supply at his own cost all materials (except such special materials, if any, as may be supplied from the Pubub works department Stores in accordance with the contract).plant tools, appliances implements, ladders, cordage, scaffolding and any temporary works which may be required for the proper execution of the work, in the original; altered or substituted from, and whether included in these specification or, other documents forming part of the contract or referred to in these conditions or not and which may be necessary for the purpose of satisfying or complying with the requirements of the Engineer-in-charge as to any matter on which under these conditions he is entitle to be satisfied, or which he is entitled to require together with carriage thereof. To and from the work. The contractor shall also supply without charge the requisite number of persons with the means and materials necessary for the purpose of setting out works and counting, weighing and assisting in the measurement or examination at any time and from time to time of the work or materials, Failing this the same may be provided by the Engineer-in-charge at the expense of the contractor and the expense may be deducted from any money due to the contractor under the contract, or from his security deposit or the proceeds of sale thereof or of a sufficient portion thereof. The contractor shall provide all necessary fencing and lights required to protect the public from accident; and shall also be bound to bear the expenses of every suit. Action or other legal proceedings, at law, that may be brought by any person for Injury sustained owing to negligence of the above precautions, and to pay damages and costs which may be awarded in any such suit action or

proceedings, to any such person, or which may with the consent of the contractor be paid in compromising any claim by any such person.

GC-126

The contractor shall make his own arrangement for drinking water for the labour employed by him.

GC-127 LIABILITY OF CONTRACTOR FOR ANY DAMAGE DONE IN OR OUTSIDE WORK AREA

Compensation for all damage done intentionally or unintentionally or by contractor's labourers whether in or beyond the limits of municipal property shall be estimated by the Engineer-in-charge or such other office as he may appoint & estimates of Engineer-in-charge subject to the decision of the Commissioner on appeal be final & the contractor shall be bound to pay the amount of the assessed compensation of demand failing which the same will be recovered from the contractor as damage from the security deposit or deducted by the Engineer-in-charge from any sum that may be due or become due from Mahanagar Seva Sadan to the contractor under this contract or otherwise.

The contractor shall bear the expenses of defending any action or other legal proceedings that may be brought by any person from injury sustained by him owing to negligence of precautions to prevent the spread of fire & he shall also pay any damages and cost that may be awarded by the court in consequence.

GC-128 WORK ON SUNDAY

No work shall be done on Sunday without the sanction in writing of the Engineer-in-charge.

GC-129

Contract may be rescinded by and security deposit forfeited for subletting it without approval or for being a public officer or if contractor becomes insolvent:

The contract shall not be assigned or subject without the written approval of the Engineer-in-charge, and if the contractor shall assign or sublet his contract or attempt to do so or become insolvent or commence any proceedings to be adjudicated an insolvent or make any composition with his creditors, or attempt to do the Engineer-in-charge may, by notice in writing rescind the contract. Also if any bribe, gratuity gift, loan, perquisite, reward or directly advantage, pecuniary or otherwise, shall either or indirectly be given, promised, or offered by the contractor, or any of his servants agents to any public officer or person in the employ of Municipal Corporation in any way relating to his office or employment, or if any such officer or person shall become in any way directly or indirectly interested in the contract the Engineer-in-charge may be notice in writing rescind the contract. In the event of contract being rescinded, the security deposit of the contractor shall thereupon stand forfeited and be absolutely at the deposit of the Mahanagar Seva Sadan & the same consequences shall ensue as if the contract had been rescinded under clause-3 hereof and in addition the contractor, shall not be entitled to recover or be paid for any work thereto for, actually performed under the contract.

GC-130 SUM PAYABLE BY WAY OF COMPENSATING TO BE CONSIDERED AS REASONABLE COMPENSATION WITHOUT REFERENCE ACTUAL LOSS

All sums payable by a contractor by way of compensation under any of these conditions shall be considered as a reasonable compensation to be applied to the use of Municipal Corporation without reference to the actual loss

or damage sustained and whether any damage has or has not been sustained.

GC-131 CHANGES IN THE CONSTITUTION OF FIRM TO BE NOTIFIED.

In the case of a tender by partners any change in the constitution of a firm shall be forthwith notified by the contractor to the Engineer-in-charge for his information.

GC-132 WORKS TO BE UNDER THE DIRECTION OF EXECUTIVE ENGINEER

All works to be executed under the control shall be executed under the directions and subject to the approval in the respects of the Executive Engineer who shall be entitled to direct at what point or points and in what manner they are to be commenced, and from time to time carried on.

GC-133 DECISION OF THE COMMISSIONER TO BE FINAL

Except where otherwise specified in the contract decision of the Commissioner shall be final conclusive and binding on all parties to the contract upon all questions relating to the meaning of the specification designs, drawings and instructions here in before mentioned and as to the quality of workmanship, or materials used on the work, or as to any of her question, claim, right, matter, or thing whatsoever in any way arising or relating to the contract, designs, drawings, specifications, estimates, instructions, orders or these conditions, or otherwise concerning the works or the execution or failure to execute the same, whether arising, during the progress of the work or after the completion or abandonment thereof.

GC-134 LUMP SUM IN ESTIMATES:

When the estimate on which a tender is made includes lump sums in respect of parts of the work the contractor shall be entitled to payment in respect of the item of work involved or the part of the work in question at the same rates as are payable under this contract of such items of if the part of the work in question is not in the opinion of the Engineer-in-charge capable of measurement the Engineer-in-charge may at his discretion pay the lump sum amount entered in the estimate, and the certificate in writing of the Engineer-in-charge shall be final and conclusive under the provision of the clause.

GC-135 ACTION WHERE NO SPECIFICATION

In the case of any class of work of which there are on such specifications as are mentioned in Rule 1 such work shall be carried out in accordance with the Municipal or Gujarat Government P.W.D. specifications, and in event of there being no Municipal or Government P.W.D. specifications, then in such case the work shall be carried out in all respects in accordance with the instructions & requirement of the Engineer-in-charge.

GC-136 DEFINITION OF WORKS

The expression "works" or "Work" where used in these conditions shall, unless there be something in the subject or context repugnant to such construction be constructed to mean the work of works the contracted to be executed under or in virtue of the contract, whether temporary or permanent, and whether original altered, substituted or additional.

GC-137 REFUND OF QUARRY FEES AND ROYALTIES

All quarry fees and royalties shall be paid by the contractor All octroi taxes shall also be paid contractor according to the Municipal rules in force at the time and no refund shall be given Certificate for refund of quarry fees and royalties in admissible under existing rules shall be given by the Municipal to the contractor after successful completion of the contract. For the levy of water charges for construction work, please see the attached Memorandum.

GC-138 COMPENSATION UNDER WORKMEN'S COMPENSATION ACT

The contractor shall be responsible for and shall pay any compensation to his workmen payable under the workmen's Compensation Act 1923 (VIII of 1923) or any statutory modification thereof for injuries caused to workmen.

GC-139 CLAIM FOR QUANTITIES OF WORK ENTERED IN THE TENDER ESTIMATE

Quantities shown in the tender are approximate and no claim shall be entertained for quantities of work executed being either more or less than those entered in the tender of estimate.

GC-140 CLAIM FOR COMPENSATION DELAY IN STARTING THE WORK

No. compensation shall be allowed for any delay caused in the starting of the work on account of any acquisition of land and in the case of clearance work, for any delay in accordance to estimate.

GC-141 CLAIM FOR COMPENSATION FOR DELAY IN THE EXCAVATION OF WORK

No compensation shall be allowed for any delay in execution of the work on account of water standing in borrow pits or compartments. The rates are inclusive for hard or cracked soil, excavation in mud, sub-soil water or water standing in borrow pits, and no claim for an extra rate shall be entertained, unless otherwise expressly specified.

GC-142 ENTERING UPON OR COMMENCING ANY PORTION OF WORK

The contractor shall not enter upon or commence any portion of work except with the written authority and instructions of the Engineer-in-charge or of his subordinate in charge of the work failing such authority the contractor shall have no claim to ask for measurements for payment of work,

GC-143 MINIMUM AGE OF PERSONS EMPLOYED THE EMPLOYMENT OF DONKEYS AND OR OTHER ANIMALS & THE PAYMENT OF FAIR WAGES

- (i) No contractor shall employ any person who is under the age of 12 years.
- (ii) No contractor shall employ donkeys or other animals with breching of string or thin rope. The breeching must be atleast three inches wide and should be of tape (Nawar).
- (iii) No animals suffering from sores, lameness or emaciation or which is immature shall be employed on the work.
- (iv) The Engineer-in-charge or his agent is authorised to remove from the work any person or animal found working which does not satisfy these conditions and no responsibility shall be accepted by Municipal Corporation for any delay caused in the completion of the work by such removal.
- (v) The contractor shall pay fair & reasonable wages to the workmen employed by him in the contract undertaken by him in the event of any dispute arising between the contractor and his workmen on the grounds that the wages paid are not fair and reasonable, the dispute shall be referred without delay to the Executive Engineer who shall decide the same.

The decision of the Executive Engineer shall be conclusive and binding.

On the contractor but such decision shall not in any way affect the condition in the contract regarding the payment to be made by Municipal Corporation at the sanctioned tender rates.

GC-144 METHOD OF PAYMENT

Payment to contractors shall be made by cheques drawn on any Bank in Surat, provided the amount exceeds Rs.10. Amounts not exceeding Rs.10 will be paid in cash.

GC-145 ACCEPTANCE OF CONDITION COMPULSORY BEFORE TENDERING FOR WORK.

Any contractor who does not accept these conditions shall not be allowed to tender for works.

GC-146 CLAUSE HEADINGS

The clause headings in these conditions are for purposes of reference only and are not to be deemed to form part of this contract.

GC-147

Disputes if any, shall be discussed and mutually settled and in case of disagreement the same shall be referred to Commissioner/Standing Committee. After referring to Commissioner/Standing Committee if the said dispute is not solved, the same shall be referred to the court subject to Surat Jurisdiction only.

GC-148 THE FOLLOWING CONDITION ARE BEING INCLUDED IN THIS TENDER AND SHALL BE CONSIDERED AS A PART OF TENDER DOCUMENT.

- (i) In case the total amount of work done is less than 5% of the contract value, prorata S.D. to that extent may be refunded to the contractor while releasing the payment of final bill. In short, the S.D. to be retained by the Corporation after payment of final bill shall be equal to 2% of the amount of final bill as per the prevailing norms or as per the norms decided from time to time.
- (ii) If there is increase in amount of work more than 5% of the Contract value. The Additional S.D. shall be recovered from the running bill. When the total of any of work done by the Contractor up to running bills under consideration is more than 5% of the contract value. However, such S.D. shall be recovered in the round figure of Rs. 1000/- i.e. the amount of work done when it exceeds 5% of the contract value it shall be

refunded of to the nearest multiple of Rs.25000/- such additional S.D. shall be recovered for the works amount to Rs. 5 Lacs or more at the rate of 4% of the additional amount.

(iii) In many cases, the contractors are stopping the work half-way due to number of reason and when the department has to take actions in accordance to clause 3(a) or (b) or (c) of the contract the remaining work has to be carried out by advertising the tender for the remaining work and the whole administrative process right from inviting tenders to finalising the tender etc.

In such cases a fixed amount of Rs.1000/- should be reversal from the original contract towards the cost of advertisement and other administrative charges incurred by the department in finalising the contract for the remaining work. In case a separate advertisement is issued for a single work actual cost of advertisement shall be recovered such recovery shall be in addition to the recovery to be made under clause-3 or such other relevant clauses.

GC-149

No Contractor shall employ any person who is under the age of 18 years. If any contractor found employing person or persons under the age of 18 years, during course of the construction at any stage, legal actions shall be taken against him as stipulated in Child Labour (Prohibition & Regulation) Act 1986 and also, a penalty of Rs.20,000/-(Rupees Twenty thousand) shall be imposed which shall be deposited with District Collector in Child Labour Rehabilitation cum Welfare Fund.

No Contractor shall employ donkeys or other animals with breeching of string or thin rope. The breeching must be at least three inches wide and should be of tape [Nawar].

No animals suffering from sores, lameness or emaciation or which is immature shall be employed on the work.

The Engineer-in-charge or his agent is authorized to remove from work any person or animal found working which does not satisfy these conditions and no responsibility shall be accepted by the Municipal Corporation for any delay caused in the completion of the work by such removal.

The Contractor shall pay fair and reasonable wages to the workmen employed by him in the contract undertaken by him in the event of any dispute arising between the Contractor and his workmen on the grounds that the wages paid are not fair and reasonable, the dispute shall be referred without delay to the Executive Engineer who shall decide the same.

The decision of the Executive Engineer shall be conclusive and binding on the Contractor, but such decisions shall not in any way affect the condition in the contract regarding the payment to be made by the Municipal Corporation at the sanctioned tender rates.

GC-150 EVALUATION OF SUBMITTED QUALIFICATION OFFER BASED ON SUBMISSIONS MADE BY THE TENDERER

The tenderer shall be fully responsible for correctness of submissions made whether same has been examined and approved by employer or not. In the event of misrepresentation or suppression of the matter/ fact by the tenderer, the action will be taken on the wrong tenderer as per procedure/ provision outlined in the tender document. Price bid will be opened of those tenderers, whose post qualification bids meet requirements of the qualifying criteria as laid down in tender.

GC-151 AS PER STANDING COMMITTEE RESOLUTION NO . 811, DT. 13/07/1990

Before making payment of final bill to the tenderer of "Item rate type tender" on the completion of the works, total amount of that work done at sanctioned rate shall be compared with the total amount of work done, had it been executed at the rate of the tenderer of the tender which one is next higher than sanctioned one i.e. second lowest. tenderer.

While comparing total amount, quantity to be taken into consideration will be the quantity executed and not the quantity put to tender and will also include variation of quantity within the limits of quantity executed i.e. 30% of the estimated quantity or as desired in a particular case.

In case the latter is less than the total amount of work done at sanctioned rate than the amount of difference between the due shall be deducted from the final bill before making payment In other words, the work when executed shall not to exceed as compared to rates of second lowest tenderer.

EXECUTIVE ENGINEER,
SOUTH ZONE-A (UDHANA),
SURAT MUNICIPAL CORPORATION.

SIGNATURE OF THE CONTRACTOR.

Responsibility of contractor under Construction And Demolition Waste (C & D Waste) Rules 2016

Contractor shall remove All Construction and Demolition Waste (C & D Waste) and clean the area every day, or depending upon (1) The type & schedule of the work, (2) The quantity and type of waste generated, appropriate storage and collection facility shall be developed at site. Reasonable time frame shall be worked out in consultation with engineer in charge of the project, for storage & usage of C & D Waste.

If it's found that contractor is irregular and showing negligence to management of C & D Waste, than If deem fit, Engineer-in-charge would arrange to dispose the said C & D Waste through an Authorized C & D Waste Contractor/agency of Surat Municipal Corporation and All the expenditure made towards disposal of this C & D Waste shall be recovered from the contractor as per the prevailing charges.

Contractor shall have to bear the expenses towards management of C & D Waste as per the prevailing norms, no extra payment shall be entertained for the same.

Contractor shall keep record of the generation and disposal of Construction and Demolition waste (C & D Waste) and proof of its disposal as per the provision of C & D Waste rules and he has to submit along with running bills

If contractor fails to upkeep and maintain records of C & D Waste generation- Disposal records etc. than it shall be calculated as per the provision of the Standing Committee Resolution no. 1621/2016, Dt:01/10/2016 and charges shall be recovered from due of contractor with Surat Municipal Corporation.

Contractor shall also ensure use of recycled products made from SMC authorized C & D Waste agency as far as possible to promote the C & D Waste management project.

EXECUTIVE ENGINEER
SOUTH ZONE -A (UDAHNA)
SURAT MUNICIPAL CORPORATION
SURAT.

SIGNATURE OF THE CONTRACTOR.

Date :-

SPECIAL CONDITIONS OF CONTRACT

1. The basic nature of work is repair, rehabilitation and reconstruction, requiring special skill and experience of executing similar works in the past. While carrying out proposed scheme of rehabilitation, the contractor shall exercise due care to protect remaining structure from any damage arising due to said work. If any part of the building gets affected due to the said work, it shall be reinstated by the contractor to its original condition without claiming any extra cost for the same.
2. The contractor will appoint at least one qualified civil engineer (minimum qualification B.E. Civil), who will continuously supervise the work, assure the quality and soundness of the work being executed. This engineer shall have at least five years experience of similar work. Their profiles with necessary details like qualification, experience, etc. and supporting documentation shall be submitted with the tender documents, failing which the tender shall be subjected to rejection.
3. The contractor will perform visual inspection and delamination survey for the entire building under consideration with specific purpose of preparing detail distress mapping Autocad drawings before starting any work of repair, rehabilitation and reconstruction.

Various signs of distresses like cracks in RCC beam, column, slab, cracks in brick walls, cracks between RCC and brick joint, areas of loose plaster to RCC work, areas of loose cover concrete in beam, column, slab, spalling of concrete in RCC work, spots of dampness/leakages in brick walls, spots of dampness/leakages in RCC work, etc. shall be carefully observed and recorded in such a way that it gives clear idea about their (location identification on drawing, alignment on particular member, etc.) extent (approximate length, area) and nature of distress. Light hammer tapping shall be used for delamination survey of all RCC elements and areas of loose plaster/cover concrete shall be identified based on hollow/damped sound of tapping. Appointed engineers of the contractor shall carry out all fieldwork for distress mapping. The work shall be carried out in presence of representative of consultant and the Engineer-in-charge of SMC. Their suggestions for correction, modification shall be complied by the contractor.

The contractor will prepare full Autocad drawings of distress mapping, including necessary plan, section, elevation, etc. clearly indicating positions of various distresses before start of repair, rehabilitation, reconstruction work and get it certified by the consultant and SMC. The contractor will have to submit three copies of each drawing.

The entire procedure shall be executed under guidance of the consultant. The contractor will deploy manpower, material, equipment, etc. necessary for satisfactory completion of the said work, no extra payment for the same shall be made. The contractor shall not start any other work till satisfactory completion of distress mapping, submission of field book and submission of drawings in required number.

4. The contractor will appoint one "clerk of work" for building, who is qualified civil engineer (Minimum qualification B.E. Civil). The clerk of work shall duly record receipt of all materials on site and get it certified by the Engineer-in-charge. Chalan of all materials received on site shall be deposited with the Engineer-in-charge. It shall clearly indicate quality, make, quantity of material, date and time of supply and name of supplier. The chalan shall be verified and duly certified by the Engineer-in-charge and recorded in the material register by the clerk of work. The contractor will also make arrangement for cement godown, reinforcement yard, and areas for storage of fine aggregates, coarse aggregates and bricks. A separate godown shall be made for storage of all chemicals, admixtures and related accessories to be used for the said work. Once the materials are received on site, it shall not be taken out without permission of the Engineer-in-charge. Also, no material shall be taken out from the storage and used for the work without prior permission of the Engineer-in-charge. Any material taken out from the storage, if remains excess at the end of days work shall be redeposited in the storage. The clerk of work will maintain daily register for record of materials received, materials issued for work, materials redeposited, etc. which shall be daily got certified by the Engineer-in-charge. The "clerk of work" shall also maintain classified Itemwise material consumption record for all items of work and shall submit such statement at every 15 days interval to the consultant and SMC. Any pilferage's, loss, damage of material due to any reason on site shall be sole responsibility of the contractor and no claim for the same shall be entertained. Profile of person, who shall work as clerk of works along with necessary details like qualification,

experience, etc. and supporting documentation shall be submitted with the tender documents, failing which the tender shall be subjected to rejection.

5. The contractor shall strictly follow the quality assurance plan given in the tender. All necessary tests as mentioned in the quality assurance plan shall be carried out in approved laboratory and copy of results shall be submitted to the consultant and SMC. Before using any material on site, it shall be duly tested as mentioned in quality assurance plan. Materials, which do not give desired results, shall be rejected. All such rejected material shall be immediately removed from the site. All test samples shall be taken/made in presence of The Engineer-in-charge from SMC.

The contractor will also maintain a register to record all test results with related necessary information like location of test sample, type of test, date of sampling, number and frequency of sampling, date of testing, name of laboratory, expected test result, actual test result, remarks, etc. Any item of work, which does not give desired results shall be rejected. It shall be demolished and reconstructed by the contractor at no extra cost.

6. The contractor shall give guarantee on Rs.100 stamp paper, regarding quality and soundness of repair, rehabilitation, reconstruction work being executed by him, for a minimum period of three years from the date of satisfactory completion of work. During such period of guarantee if any distresses are observed in the work executed by him and in the opinion of building committee and consultant, it is due to improper quality/soundness of the work, the same shall be again repaired, rehabilitated, reconstructed and the contractor shall not claim any extra for the said work.
7. Along with tender documents the tenderer will submit tentative completion schedule clearly indicating his approach for timely completion of work. The successful tenderer shall prepare detail Itemwise bar chart and get it approved by the consultant within 15 days of award of work. Large copy (A0 size) of approved Itemwise bar chart shall be clearly displayed at appropriate location on site during execution of work. Expected and actual progress of work shall be indicated by different colour on daily basis, so as to monitoring proper timely progress of work. Any lag between expected and actual progress shall be duly supplemented by reason thereof and shall be got approved by the Engineer-in-charge.
8. If required and suggested by the consultant, the contractor will conduct non-destructive UPV test during pre-repair and / or post repair period to prove quality/efficiency of repair, rehabilitation, reconstruction, work executed by him. Such tests shall be executed by approved agency, in presence of the Engineer-in-charge and copy of test results shall be submitted to the consultant and SMC. If desired results are not obtained; the contractor will redo the work executed by him till satisfactory results are obtained. All expenses for such tests and necessary redoing shall be borne by the contractor and no extra payment shall be made for the same.
9. Following special materials are proposed to be used for tendered work
 - a) Rust removing chemical
 - b) Anti – corrosive coating
 - c) Expanding grout additive
 - d) Super plasticizer
 - e) Polymer bonding agent
 - f) Polymer to modify mortar
 - g) Curing agent
 - h) Epoxy grout
 - i) Epoxy putty

The tenderer shall clearly provide following information about all above materials that he propose to use for the tendered work, and submit the same in tabulated form along with the tender documents.

1. Name of the manufacturing company
2. Brand name / trade name of the material
3. Name and address of the manufacturing plant
4. Name and address of the authorised supplier

5. Standard material specifications provided by the manufacturer
 6. Standard procedure of application provided by the manufacturer with proportion of material proposed to be used
 7. Manufacturer's test certificate shall be appended
-
10. The tenderer shall also clearly mention the quality and make of all other materials like cement, reinforcement, aggregates, bricks, etc. along with the name-address of supplier. He shall stick to the same throughout the project and no deviation in the same shall be permitted during execution of work.
 11. All member of temporary frame work (props, braces, spans etc.) used by the contractor to support RCC members during execution of repair, rehabilitation and reconstruction work shall be of steel and adjustable in nature. Steel props shall have base fixture and top fixture with jacking arrangements and provision for proper bracing arrangements, while steel spans shall be of adjustable length with arrangements for proper bearing and fixing on steel props at their ends
-
12. The contractor shall not claim any escalation in quoted price due to any reason. No such claim shall be accepted.
-
13. The quantities for various items of work mentioned in the tender documents are approximate and likely to vary. The contractor shall not claim any extra amount or compensation for any increase or decrease in the quantities mentioned in the tender document. No such claim of the contractor shall be accepted.

NOTE:

Wherever Engineer-in-charge is mentioned it shall mean Engineer of SMC appointed for the said work.

SIGNATURE AND SEAL OF THE CONTRACTOR:

NAME AND ADDRESS:

DATE:

SCHEDULE – A**ADDITIONAL INSTRUCTION FOR CEMENT AND STEEL :**

Surat Municipal Corporation shall not issued cement and reinforcement steel to be used for this work. The cement and reinforcement steel required for the above said work shall be procured by contractor at its own cost.

The brands for cement shall be be **Ambuja, Ultratech, Sanghi, Hathi, Sidhdhi, JK Laxmi**, company confirming to IS-12269/87 latest amendment ISO-9000 of 53 grade OPC only.

Approved make of TMT reinforcement steel:-**TATA, SAIL, Rastriya Ispat, Electrotherm (ET), Ramswaroop, National, Mono Steel India Ltd., Gallantt metal Ltd., JSW, bhagyaLaxmi Rolling mill Pvt. Ltd., Zalanani "polaad"** as per confirming to IS 1786/2008 with latest amendments TMT Fe-415/Fe-500. TMT Steel shall be purchased by only manufacturing company/Authorised dealer/ Distributor/ Stockist only shall be allowed to use 6 mm plain steel shall be as per IS 2062/99 with latest emendment of any brand/make.Any of the above mentioned brands of Cement and Reinforcement steel shall only be used by the contractor at the time of execution.

The brands for structural steel to be used shall be of make TATA, Jindal, SAIL or Asian.

All structural steel shall conform to I.S. 226-1975. The steel shall be free from the defects mentioned in I.S. 226- 1975 and shall have a smooth finish. The material shall be free from loose mill scale, rust pits or other defects affecting the strength and durability. Rivet bars shall conform to I.S. 1148-1992.

When the structural steel is supplied by the contractor test certificates of the manufacturers shall be obtained according to **I.S. 226-1975 and other relevant Indian Standards.**

Coloured galvanized Roofing sheet shall be of TATA or Jindal make trafford sheet

WASTAGE OF CEMENT AND REINFORCEMENT STEEL

As the contractor is to bring the cement and steel, the question of considering the wastage on the basic of issue rate does not arise i.e.no separate payment shall be made for any kind of wastage in the Materials. The payment for reinforcement bar will be made on theoritical weight basis. The weight shall be computed on the basis of the length of the steel used in the work multiplied by the standard unit weight of MS/HYSD/TMT bar as mentioned in IS code No.1786.

The steel consumption eighter less than 7.5% of the standard consumption shall be penalised either at the double existing corporation issue rate or the prevailing market rate, whichever is more. Currently corporation Issue rate of TMT Steel is **Rs.50,500/-** per M.T (Without GST). Currently corporation Issue rate of TMT CRS Steel is **Rs.53,000/-** per M.T. (without GST). **(RAC/out/ No.331, Dt: 02/06/2026)**

Similarly, for cement also, the less consumption beyond 5% shall be penalised at the double existing corporation issue rate or the prevailing market rate, whichever is more. Currently corporation Issue rate of Cement is **Rs. 5,600/-** per M.T.(without GST).

It should be specifically noted that the cement and steel brought by the contractor at site of work shall be used only after the same is tested at the approved laboratory as per the direction of the Engineer-in-charge. Such approved laboratory may be located at Surat, Baroda, Ahmedabad or Mumbai.

All the charge for the transport and testing of the samples shall have to be borne by the contractor. The frequency of testing such material shall be in accordance to the relevant Indian Standards as directed by Engineer-in-charge.

EXECUTIVE ENGINEER,
SOUTH ZONE-A(UDHANA)
SURAT MUNICIPAL CORPORATION.

Contractor Signature with
Address:
Date :

MEMORANDUM

1.	General Description of work	:	Annual Rate Contract For Repairing, Maintenance and new work of footpath & watertable, divider, chainlizer, traffic island, activity area, P.C.C and laying cement concrete Guard Stone and Setting/Resetting stone paving/ Pever block work in Sub Zone-3 & 4 in South Zone-A (Udhana),(2nd Attempt).
2.	Estimated Cost	:	Rs.77,84,318.45
3.	Earnest Money Deposity	:	Rs. 78,000/-
4.	Security Deposit	:	Rs. 2% of Tender Amount
	(i) Initial Security Deposit	:	
	(ii) To be deducted for current bills	:	--
			Rs. 2% of Tender Amount
5.	Time allowed for the completion of work from date fixed in written order to commence	:	12 (Twelve) months (Excluding monsoon)
6.	Compensation for delayed work under Clause 2	:	Zero Point two percent (0.2%) of the contract price per day maximum upto ten percent (10%) of the contract price.
7.	The progress of work should confirm to the following schedule		
	1/4 of the work in	:	1/4 of the time.
	1/2 of the work in	:	1/2 of the time.
	3/4 of the work in	:	3/4 of the time.
8.	Percentage to be retained from running Account Bills	:	As per page No.22
9.	Defect Liability Period	:	12(Twelve) Months From the actual date of Completion of work.
10.	Water Charges	:	CONDITION FOR THE WATER SUPPLY & ELECTRIC SUPPLY on next page.
11.	Construction Cess will be deducted from respective R.A. Bill and Final bill in accordance with the prevailing norms of Govt. of Gujarat.	:	1% of Work Done Amount in R.A. Bills.
12	Goods and Service Tax (GST)	:	As per GC 94

Executive Engineer,
South Zone -A (Udhana)
Surat Municipal Corporation,

Contractor Signature with
Address:
Date :

SURAT MUNICIPAL CORPORATION
SOUTH ZONE-A (UDHNA)
CONDITION FOR THE WATER SUPPLY & ELECTRIC SUPPLY

FOR WATER CHARGE (As per City Engineer Note No.386, dtd.30/7/2012)

In case of Municipal Network or distribution center available or not at near by area

OPTION-1:

Contractor has to make his own arrangement for construction work whether from private boring or tankers. Contractor has to submit test report of water whether it is of good quality for construction work or not and contractor has to inform about it within 30 days of starting the work.

OPTION-2:

If contractor wants to use Municipal Water he has to follow procedure within below:

1. Contractor has to apply for water connection by Municipal Licenced plumber in prescribed form.
2. Contractor has follow all procedure with his own expenses.
3. According to rule Municipal Corporation issue bill to contractor for consumption of water and contractor has to paid it within stipulated time and contractor has submit one copy of bill and payment receipt to concern department. If contractor fail to pay the bill the amount of bill/paid receipt can be recover from contractor's bill.
4. If Municipal Corporation network is not available then Contractor can make arrangement of water tanker from nearby distribution center after depositing required amount.
5. After completion of work contractor has to cancelled the water connection and inform the concern department.
6. If network and distribution center/network are both not available in that case contractor has to make his own arrangement for good quality construction water and has to follow the option-1.

(2) The contractor shall make his own arrangement at his cost for electric supply required for operating various plants and machineries required for the works and for general lighting purpose for site, office, labour

colony etc.

The energy bills shall also be paid by the contractor.

EXECUTIVE ENGINEER,
SOUTH ZONE-A (UDHANA),
SURAT MUNICIPAL CORPORATION

SIGNATURE OF THE CONTRACTOR.

IMPORTANT INSTRUCTION-A TO THE CONTRACTOR

- (1) This tender document containing **Page No. to** duly signed by the tenderer, should be furnished to Corporation treasury along with the amount of earnest money deposit as mentioned in tender notice. If any of the drawings or papers removed from the tender, the tender shall be rejected and E.M.D. shall be forfeited.
- (2) The tenderer who wants to propose something in written, he should write it on his letter pad or another paper. Anything written on tender papers shall not be considered by Corporation and Contractor shall not be intended to do so.
- (3) Following Certificate shall be enclosed with tender.
 - (a) Solvency Certificate amounting of 20% of tender amount.
 - (b) Registration Certificate of required class given by Government or Semi-Government firm.
 - (c) Income-Tax clearance certificate.
 - (d) List of work done by Contractor with its volume.
- (4) This is annual rate contract, If the work given to one or more Contractors, the time limit shall be as per memorandum of the tender.

EXECUTIVE ENGINEER,
SOUTH ZONE-A (UDHANA),
SURAT MUNICIPAL CORPORATION

SIGNATURE OF THE CONTRACTOR.

IMPORTANT INSTRUCTION-B TO TENDERER

1.

Affix Latest Passport Size Photo of tenderer

Specimen Signature of the Bidder.

[2] AFFIX LATEST PASSPORT SIZE PHOTOGRAPH OF ALL PARTNERS IN CASE OF PARTNERSHIP AGENCY.

1	2	3	4
---	---	---	---

Specimen Signature of all partners incase of partnership agency.

1. ----- Submission of Registered Agreement
2. ----- is compulsory in case of partnership
3. ----- agency.
4. -----

- [3] Submission of sale tax certificate, with proof of residence is compulsory for tenderer.
- [4] In case of Government royalty applicable to tenderer, it is compulsory to submit a receipt of royalty payment with tender.
- [5] The Photograph and specimen signature of bidder will be cross checked, whenever he receives payment in account section of SMC.
- [6] The specimen signature of contractor will be cross checked by Account Department of SMC, in case of representative of Contractor alongwith letter of authority of a person who signed an agreement, receives payment.

EXECUTIVE ENGINEER,
SOUTH ZONE-A (UDHANA),
SURAT MUNICIPAL CORPORATION

SIGNATURE OF THE CONTRACTOR

SPECIAL NOTE

- (1) The work shall be carried out strictly according to the specifications given in Bombay Public Works Department Hand Book Vol.1 and II (The latest edition) whenever applicable as directed by Executive Engineer.
- (2) The work shall have to be started by the contractor at as many places as ordered by the Executive Engineer.
- (3) If during excavation or carrying out of any item of the work, any electric pole, electric cable, telephone cables, telegraph cable, gas line, drain connection pipeline, water service pipeline, sewer main, water mains, etc. is/are damaged by the contractor shall be liable to pay the full expenditure required and to repair the same or charges for the same (as the case may be) decided by the electric company, Gas Company, Government Authority or the Surat Municipal Corporation which ever may be.
- (4) The work shall be carried out in workman like manner, and best skilled worker should be employed. If any defect in the work is found out the contractor shall have to rectify within the time fixed by Executive Engineer. If he fails to rectify the defect Executive Engineer after giving due notice shall rectify the defect at the risk and cost of the contractor.
- (5) All the work shall be done strictly according to the instruction of Executive Engineer.
- (6) No compensation shall be paid if the work is stopped due to defective work or as per the instruction from Engineer-in-charge due to any reasons.
- (7) The rates given in the schedule shall hold good for all works done under this contract without reference to quantities or location of work.
- (8) The contractors are particularly directed to observe from the specification what is to be included in the items and rates for the several portion of the work frame out all their rates for items accordingly.
- (9) The date of starting of the work is considered to be the date specified in the final work order.
- (10) If any Clause of Arbitration is there in tender document is deleted here with.
- (11) The project under this tender may be executed under strict supervision of P.M.C. if deployed by S.M.C. Contractor shall carry out the instructions of P.M.C.
- (12) Third Party Inspection shall be deployed by S.M.C.
- (13) The contractor shall submit the advance Pour Card in prescribed form for the type of work which he planned to carry out with the skilled / unskilled labour deployed by him for the work.
- (14) The contractor shall establish concrete cube testing machine and other equipments required for quality checking of materials as per instructions of PMC/ Engineer-In-charge.
- (15) The contractor shall use the materials of the specified brands only. Request for equivalent brands will be considered only if specified brand is not available in market.
- (16) **ACCIDENT LIABILITIES:**

The Contractor shall be responsible for all liabilities under workman compensation act, as under:

- (a) On occurrence of accident, resulting in death of workman employed by the Contractor which is so serious as is likely to result in death of such workman who meet with accident, the Contractor shall within 24 hours of accident, intimate in writing to Engineer-in-charge of such incidence. The Contractor shall indemnify client, against all losses/damages sustained by the client resulting directly or indirectly from his failure to give such intimation to client including penalties/fines if any, payable by

client as a consequence of client's failure to give notice under workman's compensation act or otherwise to conform the provision of this act in regard to such accidents.

(b) In case when such compensations as above becomes payable under workman's compensation act, whether by contractor or by client as principal employer, it shall be law full for the Engineer-in-charge to retain out of money due and payable to the Contractor, such sum or sums of money as may in the opinion of the Engineer-in-charge be sufficient to meet such a liability, the opinion of the Engineer-in-charge shall be final in regard to all matters arising under this clause.

(17) **INSURANCE:**

The Contractor shall take "All Contract Risk Insurance Policy" for the estimated cost of this work "Work's Man Compensation Policy" for all workers and labours of contractor and client working at site and "Third Party Insurance Policy" to fully cover all third party type risk. The insurance policy so taken by the

Contractor for such purposes shall be in the joint name of the Contractor and the client and the policy shall be deposited with the client.

Contractors shall have to use maximum machinery for the work as per the direction of Engineer-In-Charge. If possible, space for stacking the surplus excavated earth will be provided by SMC. Otherwise the contractor shall arrange for the same at no extra cost to SMC.

(18) Contractor has to fixed display board describing the necessary information / particulars of work at specific location and shall submit the evidence to engineer-in-charge along with photographs. otherwise , 0.25% to 1.0% of tender amount as per description of engineer-in-charge shall be kept hold, while making payment to the contractor until the evidences as stated above is submitted. No extra payment shall be payable for fixing display boards.

(19) The Contractor shall paint building numbers & Flat numbers as per guideline of SMC without any extra payment.

(20) **PLEASE READ CAREFULLY**

Following details pertaining to work progress is mandatory.

~~(A) Bar chart: Contractor shall submit barchart showing schedule of execution of various activities within stipulated time limit~~

(B) Material Management : Contractor shall provide following details

- Source of materials i.e. yellow earth, Coarse aggregate, Grit, fine aggregates, bricks, cement, steel etc.
- Supply schedule : According to bar chart, the flow diagram of materials.

(1) Man power management :

The contractor shall submit details of manpower of various categories (skilled & unskilled labours) to be deployed for the work as under.

- Minimum no. of skilled and unskilled labors to be deployed on the work
- List of supervisors & engineers for supervision & quality control of the work.

(21) All the applicant contractors are required to have their own employers code number under EPF Act, 1952 and are required to comply the applicable provisions of said statute regularly and totally.

(22) Further the contractors for services are required to produce the certified copies of paid challans in respect of employees/workers employed by said contractor in respect of work allotted by Surat

Municipal Corporation, along with copies of Pay Roll and Muster Roll. If the same are not produced, the bills will not be released.

(23) Neutral Technology option:

If Contractor wish to submit a Bid with Neutral Technology construction then contractor has to submit detail methodology and Subsidised Material used in constrecution with detail specification of each and every material. Contractor have also to submit detail total estimate with rate justification of each and evey non-conventional item in a seperate offer documents.

The contractor has to provide following certificates for any non-conventional materials / technology from CBRI (Central Buliding Rsearch Institute) or IIT (Indian Institute of Technology) or International Affiliate Institution

- 1. Certificate of minimum life of structure of 50 years**
- 2. Certificate of testing of materials which includes**
 - **Fire resistance capacity of the structure**
 - **Thermal and energy efficienct certificate**
 - **Stability certificate of resistance to the natural Disasters like Flood, Earth quake, Cyclone.**

The material / Technology should be Eco-friendly.

EXECUTIVE ENGINEER,
SOUTH ZONE-A (UDHANA),
SURAT MUNICIPAL CORPORATION

SIGNATURE OF THE CONTRACTOR

SPECIFICATIONS OF MATERIALS

M-1 WATER :

- 1.1 Water shall not be salty or brackish and shall be clean, reasonably clear and free from objectionable quantities of silt and traces of oil and injurious alkalies, salts, organic matter and other deleterious material which will either weaken the mortar or concrete or cause efflorescence or attack the steel in R.C.C. Container for transport, storage and handling of water shall be clean. Water shall conform to the standards specified in I.S. 456-2000.
- 1.2 If required by the Engineer-in-charge it shall be tested by comparison with distilled water. Comparison shall be made by means of standard cement tests for soundness, time of setting and mortar strength as specified in I.S. 269-1989. Any indication of unsoundness, change in time of setting by 30 minutes or more or decrease of more than 10 percent in strength of mortar prepared with water sample when compared with the results obtained with mortar prepared with distilled water shall be sufficient cause for rejection of water under test.
- 1.3 Water for curing mortar, concrete or masonry should not be too acidic or too alkaline. It shall be free of elements which significantly affect the hydration reaction or otherwise interfere with the hardening of mortar or concrete during curing or those which produce objectionable stains or other unsightly deposits on concrete or mortar surfaces.
- 1.4 Hard and bitter water shall not be used for curing.
- 1.5 Portable water shall generally be found suitable for curing mortar or concrete.

M-2 LIME :

- 2.1 Lime shall be hydraulic lime as per I.S. 712-1984. Necessary tests shall be carried out as per I.S. 6932 (Parts I to X) 1995.
- 2.2 The following field tests for limes are to be carried out ---
 - a] A very rough idea can be formed about the type of lime by its visual examination i.e. fat lime bears pure white colour, lime in form of porous lumps of dirty white colour, indicates quick lime, and solid lumps the unburnt lime stone.
 - b] Acid tests for determining the carbonate content in lime. Excessive amount of impurities and rough determination of class of lime.
- 2.3 Storage shall comply with I.S. 712-1984. The slaked lime, if stored, shall be kept in a weather proof and damp proof shed with impervious floor and sides to protect it against rain, moisture, weather and extraneous materials mixing with it. All lime that has been damaged in any way shall be rejected and all rejected materials shall be removed from site of work.
- 2.4 Field testing shall be done according to I.S. 162-1989 to show the acceptability of materials.

M-3 CEMENT :

- 3.1 Cement shall be ordinary portland slag cement as per I.S. 269-1989 or Portland slag cement as per I.S. 455-1976 and revised latest I.S.

M-4 WHITE CEMENT :

- 4.1 The white cement shall conform to I.S. 8042-1989.

M-5 COLOURED CEMENT :

- 5.1 Coloured cement shall be with white or grey portland cement as specified in the item of the work.
- 5.2 The pigments used for coloured cement shall be of approved quality and shall not exceed 10% of cement used in the mix. The mixture of pigment and cement shall be properly ground to have a uniform colour and shade. The pigments shall have such properties as to provide for durability under exposure to sun-light and weather.

- 5.3 The pigment shall have the property such that it is neither affected by the cement nor detrimental to it.

M-6 SAND :

- 6.1 Sand shall be natural sand, clean, well graded, strong, durable and gritty particles free from injurious amounts of dust, clay, kankar nodules, soft or flaky particles, shale, alkali, salts, organic matter, loam, mica or other deleterious substances and shall be got approved from the Engineer-in-charge. The sand shall not contain more than 8% of silt as determined by field tests. If necessary the sand shall be washed to make it clean.

- 6.2 Coarse Sand : The fineness modulus of coarse sand shall not be less than 2.5 and shall not exceed 3.0. The sieve analysis of coarse sand shall be as under ---

I.S. Sieve Designation	% by weight passing sieve	I.S. Sieve Designation	% by weight passing sieve
4.75 mm	100	600 Micron	30-100
2.36 mm	90-100	300 Micron	5-70
1.18 mm	70-100	150 Micron	0-60

- 6.3 Fine Sand : The fineness modulus shall not exceed 1.0. The sieve analysis of fine sand shall be as under ---

I.S. Sieve Designation	% by weight passing sieve	I.S. Sieve Designation	% by weight passing sieve
4.75 mm	100	600 Micron	40-85
2.36 mm	100	300 Micron	5-50
1.18 mm	75-100	150 Micron	0-10

M-7 STONE DUST :

- 7.1 This shall be obtained from crushing hard black trap or equivalent, it shall not contain more than 8% of silt as determined by field test with measuring cylinder. The method of determining silt contents by field test is given as under.
- 7.2 A sample of stone dust to be tested shall be placed without drying in 200 mm measuring cylinder. The quantity of the sample shall be such that it fills the cylinder upto 100 mm mark. The clean water shall be added upto 150 mm mark. The mixture shall be stirred vigorously and the content allowed to settle for 3 hours.
- 7.4 The height of silt visible as settled layer above the stone dust shall be expressed as percentage of the height of the stone dust below. The stone dust containing more than 8% silt shall be washed so as to bring the silt content within the allowable limit.
- 7.5 The fineness modulus of stone dust shall not be less than 1.80.

M-8 STONE GRIT :

- 8.1 Grit shall consist of crushed or broken stone and be hard, strong, dense, durable, clean, of proper gradation and free from skin or coating likely to prevent proper adhesion of mortar. Grit shall generally be cubical in shape and as far as possible flaky elongated pieces shall be avoided. It shall generally comply with the provisions of I.S. 383-1990. Unless a special stone of a particular quarry is mentioned, grit shall be obtained from the best black trap or equivalent hard stone as approved by the Engineer-in-charge. The grit shall have no deleterious reaction with cement.

8.2 The grit shall conform to the following gradation as per sieve analysis :

I.S. Sieve Designation	% by weight passing sieve	I.S. Sieve Designation	% by weight passing sieve
12.50 mm	100%	4.75 mm	2.20%
10.00 mm	80-100%	2.36 mm	0.25%

8.3 The crushing strength of grit will be such as to allow the concrete in which it is used to build-up the specified strength of concrete.

8.4 The necessary tests for grit shall be carried out as per the requirements of I.S. 2338 (Parts I to VIII) 1988, as per instruction of the Engineer-in-charge. The necessity of test will be decided by the Engineering-in-charge.

M-9 CINDER :

9.1 Cinder is well burnt furnace residue which has been fused or sintered into lumps of varying sizes.

9.2 Cinder aggregates shall be well burnt furnace residue obtained from furnace using coal fuel only. It shall be sound clean and free from clay, dirt, ash or other deleterious matter.

9.3 The average grading for cinder aggregates shall be as mentioned below :

20 mm	100
10 mm	86
5.75 mm	70
2.36 mm	52

M-10 LIME MORTAR :

10.1 LIME : Shall conform to specification M-2. WATER : Water shall conform to specification M-1. SAND : Sand shall conform to specification M-6.

10.2 PROPORTION OF MIX Mortar shall consist of such proportions of slaked lime and sand as may be specified in the item. The slaked lime and shall be measured by volume.

10.3 PREPARATION OF MORTAR Lime mortar shall be prepared by wet process as per I.S. 1625-1971. Power driven mill shall be used for preparation of lime mortar. The slaked lime shall be placed in the mill in an even layer and ground for 180 revolutions with sufficient water. Water shall be added as required during grinding (care being taken not to add more water) that will bring the mixed material to a consistency of stiff paste. Thoroughly wetted sand shall then be added evenly and the mixture ground for another 180 revolutions.

10.4 STORAGE : Mortar shall always be kept damp, protected from sun and rain till used up, covering it by tarpaulin or open sheds.

10.5 USE: All mortar shall be used as soon as possible after grinding. It should be used on the day on which it is prepared. But in no case mortar made earlier than 36 hours shall be permitted for use.

M-11 CEMENT MORTAR :

11.1 Water shall conform to specification M-1. Cement shall conform to specification M-3. Sand shall conform to M-5.

11.2 PROPORTION OF MIX : 11.2.1 Cement and sand shall be mixed to specified proportions, sand being measured by measuring boxes. The proportion of cement shall be by volume on the basis of 50 Kg./Bag of cement being equal to 0.0342 cu.m. The mortar may be hand mixed or machine mixed as directed.

11.3 PREPARATION OF MORTAR : 11.3.1 In hand mixed mortar, cement and sand in the specified proportions shall be thoroughly mixed dry on a clean impervious platform by turning over atleast 3 times or more till a homogeneous mixture of uniform colour is obtained. Mixing platform shall be so arranged that no deleterious extraneous material

shall get mixed with mortar or mortar shall flow out. While mixing, the water shall be gradually added and thoroughly mixed to form a stiff plastic mass of uniform colour so that each particle of sand shall be completely covered with a film of wet cement. The water cement ratio shall be adopted as directed.

- 11.4 The mortar so prepared shall be used within 30 minutes of adding water. Only such quantity of mortar shall be prepared as can be used within 30 minutes.

M-12 STONE COARSE AGGREGATE FOR NOMINAL MIX CONCRETE :

- 12.1 Coarse aggregate shall be of machine crushed stone of black trap or equivalent and be hard, strong, dense, durable, clean and free from skin and coating likely to prevent proper adhesion of mortar.
- 12.2 The aggregate shall generally be cubical in shape. Unless special stones of particular quarries are mentioned aggregates shall be machine crushed from the best black trap or equivalent hard stone as approved. Aggregate shall have no deleterious reaction with cement. The size of the coarse aggregate for plain cement concrete and ordinary reinforced cement concrete shall generally be as per the table given below. However, in case of reinforced cement concrete the maximum limit may be restricted to 6 mm. less than the minimum lateral clear distance between bars or 6mm. less than the cover whichever is smaller.

TABLE

I.S. Sieve Designation	Percentage Passing for single sized aggregates of nominal size			I.S. Sieve Designation	Percentage Passing for single sized aggregates of nominal size		
	40 mm	20 mm	16 mm		40 mm	20 mm	16 mm
80 mm	-	-	-	12.5 mm	-	-	-
63 mm	100	-	-	10 mm	0.5	0.20	0.30
40 mm	80-100	100	-	4.75 mm	-	0.50	0.50
20 mm	0-20	85-100	100	2.75 mm	-	-	-
10 mm	-	-	85-100				

NOTE:- This percentage may be varied somewhat by the Engineer-in-charge when considered necessary for obtaining better density and strength of concrete.

- 12.3 The grading test shall be taken in the beginning and at the change of source of materials. The necessary tests indicated in I.S. 383-1990 and I.S. 456-2000 shall have to be carried out to ensure the acceptability. The aggregates shall be stored separately and handled in such a manner as to prevent the intermixing of different aggregates. If the aggregates are covered with dust, they shall be washed with water to make, them clean.

M-13 BLACK TRAP OR EQUIVALENT HARD STONE COARSE :

- 13.1 Aggregate for Design Mix Concrete : Coarse aggregate shall be of machine crushed stone of black trap or equivalent hard stone and be hard, strong, dense, durable, clean and free from skin and coating likely to prevent proper adhesion of mortar.
- 13.2 The aggregates shall generally be cubical in shape, unless special stones of particular quarries are mentioned, aggregates shall be machine crushed from the best, black trap or equivalent hard stones as approved. Aggregate shall have no deleterious reaction with cement.
- 13.3 The necessary tests indicated in I.S. 383-1990 and I.S. 456-2000 shall have to be carried out to ensure the acceptability of the material.
- 13.4 If aggregate is covered with dust it shall be washed with water to make it clean.

M-14 BRICK BATS AGGREGATE :

- 14.1 Brick bat aggregate shall be broken from well burnt or slightly over burnt and dense bricks. It shall be homogeneous in texture, roughly cubical in shape, clean and free from dirt of any other foreign material. The brick bats shall be of 40 mm to 50 mm size

unless otherwise specified in the item. The under burnt or over burnt brick bats shall not be allowed.

- 14.2 The brick bats shall be measured by volume by suitable boxes as directed.

M-15 BRICKS :

- 15.1 The bricks shall be hand or machine moulded and made from suitable soils and kiln burnt. They shall be free from cracks and flaws not nodules of free lime. They shall have smooth rectangular faces with sharp corners and shall be of uniform colour. The bricks shall be moulded with a frog of 100mm x 40 mm and 10mm to 20mm deep on one of its flat sides. The bricks shall not break when dropped on the ground from a height of 600 mm.
- 15.2 The size of modular bricks shall be 190mm x 90mm x 90mm.
- 15.3 The size of conventional bricks shall be as under ---
225 x 110 x 75mm.
- 15.4 Only bricks of one standard size shall be used on one work. The following tolerances shall be permitted in the conventional size adopted in a particular work.
Length : 3.00 mm
Width : 1.50 mm
Height : 1.50 mm
- 15.5 The crushing strength of the bricks shall not be less than 35 Kg./Sq.Cm. The average water absorption shall not be more than 20% by weight. Necessary tests for crushing strength and water absorption etc. shall be carried out as per I.S. 3495 (Part I to IV)-1992.

M-16 FLYASH BUILDING BRICKS :

The Flyash building bricks shall conform to Grade-5 of IS-13757. The frog of the 80 to 100 mm x 40 mm x 10 to 20 mm size.

The size of modular bricks shall be 190 mm x 90 mm x 90 mm.

The size of conventional brick shall be 230 mm x 110 mm x 70 mm.

Only bricks of one standard size shall be used on one work. The following tolerances shall be permitted in the conventional size adopted in a particular work:

Length : ± 4 mm

Width : ± 2 mm

Height : ± 2 mm

The physical characteristics of bricks shall be as follows.

The minimum compressive strength of Flyash building bricks shall not be less than 70 Kg/Sq.Cm. and the test shall be conform to IS-3495 (Part-I).

The average water absorption not more than 20 percentage by weight and the test shall conform to IS-3495(Part-3). Sampling of Flyash building bricks and criteria for conformity shall be as per I.S.:5454.

M-17 STONE :

- 17.1 The stone shall be of the specified variety such as Granite/Trap stone/Quartzite or any other type of good hard stones. The stones shall be obtained only from the approved quarry and shall be hard, sound, durable and free from defects like cavities, cracks, sand holes, flaws, injurious veins, patches of loose or soft materials etc. and weathered portions and other structural defects or imperfections tending to affect their soundness and strength. The stone with round surface shall not be more than 5% of dry weight. When tested in accordance with I.S. 1134-1985. The minimum crushing strength of the stone shall be 200 Kg./Sq.Cm. unless otherwise specified.
- 17.2 The samples of the stone to be used shall be got approved before the work is started.
- 17.3 The khanki facing stone shall be dressed by chisel as specified in the item for khanki facing in required shape and size. The face of the stone shall be so dressed that the bushing on the exposed face shall not project by more than 40 mm. from the general wall

surface and on face to be plastered it shall not project by more than 19 mm nor shall it have depressions more than 10 mm from the average wall surface.

M-18 LATERITE STONE :

- 18.1 Laterite stone shall be obtained from the approved quarry. It shall compacted in texture, sound, durable and free from soft patches. It shall have a minimum crushing strength of 100 Kg/Sq.Cm. in its dry condition. It shall not absorb water more 20% of its own weight, when immersed for 25 hours in water. After quarrying, the stone shall be allowed to weather for some time before using in work.
- 18.2 The stone shall be dressed into rectangular blocks so that all faces are from waviness and unevenness and the edges true and square.
- 18.3 Those type of stone in which white clay occurs should not be used.
- 18.4 Special corner stones shall be provided where so directed.

M-19 MILD STEEL BARS/TMT/CRS BARS :

- 19.1 Mild steel bars reinforcement TMT/CRS Bars for R.C.C. work shall conform to I.S. 432 (Part-II)-1982 and shall be of tested quality. It shall also comply with the relevant part of I.S. 456-1978 and revised latest I.S. Code.
- 19.2 All the reinforcement shall be clean and free from dirt, paint, grease, mill scale or loose or thick rust at the time of placing.
- 19.3 For the purpose of payment the bar shall be measured correct upto 10 mm length and weight payable worked out as per the rate specified below :

1.	6 mm	0.22 Kg/Rmt.
2.	8 mm	0.39 Kg/Rmt.
3.	10 mm	0.62 Kg/Rmt.
4.	12 mm	0.89 Kg/Rmt.
5.	14 mm	1.21 Kg/Rmt.
6.	16 mm	1.58 Kg/Rmt.
7.	18 mm	2.00 Kg/Rmt.
8.	20 mm	2.47 Kg/Rmt.
9.	22 mm	2.98 Kg/Rmt.
10.	25 mm	3.85 Kg/Rmt.
11.	28 mm	4.38 Kg/Rmt.
12.	32 mm	6.32 Kg/Rmt.
13.	36 mm	8.00 Kg/Rmt.
14.	40 mm	9.86 Kg/Rmt

M-20 HIGH YIELD STRENGTH STEEL DEFORMED BARS :

- 20.1 High yield strength steel deformed bars shall be either cold twisted or hot rolled and shall conform to I.S. 1739-1978 and I.S. 1139-1966 respectively.
- 20.2 Other provision and requirements shall conform to specification No. M-18 for Mild Steel Bars.

M-21 HIGH TENSILE STEEL WIRES :

- 21.1 The high tensile wires for use in prestressed concrete shall conform to I.S. 2090-1983.

- 21.2 The tensile strength of the high tensile steel bars shall be as specified in the item. In absence of the given strength and minimum strength shall be taken as per para 6-1 of the I.S. 1785-1962. Testing shall be done as per I.S. requirements.
- 21.3 The high tensile steel shall be free from loose mill scale, rust, oil, grease or any other harmful matter. Cleaning of steel bars may be carried out by immersion in solvent solution, wire brushing or passing through a pressure box containing carborundum.
- 21.4 The high tensile wire shall be obtained from manufactures in coils having diameter not less than 350 times the diameter of wire itself so that wire springs back straight on being uncoiled.

EXECUTIVE ENGINEER,
SOUTH ZONE-A(UDHANA),
SURAT MUNICIPAL CORPORATION

SIGNATURE OF THE CONTRACTOR.

SCHEDULE FOR TESTING OF MATERIALS

Sr. No.	Brief description of materials to be tested	Prescription of test which shall be carried out	Frequency @ which test shall be carried out (As per GERI Q.C. Vol-12002)
1.	Sand	(1) Gradation	1 per 150 Cumt for concrete or as per requirement of relevant specification.
		(2) Fineness Modulus	
		(3) Specific Gravity	
		(4) Water Absorption	
		(5) Silt Content	
2.	Coarse Aggregate	(1) Gradation	1 per 150 Cumt for concrete or as per requirement of relevant specification.
		(2) Impact Value	
		(3) Flakiness Index	
		(4) Water Absorption	
		(5) Stripping Value	
3.	C.C.Cube	(1) Compressive Strength	1-5 Cumt. 1-Test 6-15 Cumt. 2-Test 16-30 Cumt. 3-Test 31-50 Cumt. 4-Test 51 Cumt. & above 4 + 1 for each addl. 50 Cumt. or part of thereof.
4.	Flush Door	(1) End Immersion Test	Randomly as per IS:7638: 1975
		(2) Glue Adhesion Test	
5.	Tiles	(1) Wet Transverse Strength (2) Water Absorption	Randomly as per Strength IS:4905:1968
6.	Flyash Brick	(1) Compressive Strength (2) Water Absorption	As per IS:5454:1978
7.	AAC Block	(1) Compressive Strength (2) Dry Density (3) Drying Shrinkage (4) Thermal conductivity	As per IS 2185 Part-3 As per IS 6441
8.	Cement	(1) Consistency test (2) Initial Setting time (3) Final setting time (4) Compressive Strength (5) Fineness by Dry Sieving (6) Fineness by Specific Surface (7) Soundness by Le-Chatelier (8) Specific Gravity	Every 50 Tons or part thereof
9.	Steel	(1) Weight per meter (2) Yield Stress/ 0.2 % Proof stress (3) % Elongation (4) Tensile Strength	(a) For Consignment below 100 tons (i) Under 10 mm dia One sample for each 25 tons or part thereof (ii) 10 mm to 16 mm dia One Sample for each 35 tons or part thereof (iii) Over 16 mm dia One Sample for each 45 tons or part thereof. (b) For Consignment over 100 tons (i) Under 10 mm dia One sample for each 40 tons or part thereof (ii) 10 mm to 16 mm dia One Sample for each 45 tons or part thereof

10.	Chemical Mortar for AAC Blocks	As per Relievent Latest IS-code	
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Note:-

- (1) For Sand and Coarse aggregate two Nos. of full bag for one sample shall be supplied by agency.
- (2) For water test 5:00 liters of water shall be supplied by agency in plastic container for each sources.
- (3) Sample from the lot shall be selected by authorized representative along with representative of SMC or TPI or PMC.
- (4) Selected sample shall be handed over personally by representative of S.M.C. or TPI or PMC in sealed condition with letter containing sample No. and sampling date.
- (5) Test report should be received by the department containing reference of department's letter, sample No. sampling date and date of testing.

EXECUTIVE ENGINEER,
SOUTH ZONE-A (UDHANA),
SURAT MUNICIPAL CORPORATION

SIGNATURE OF THE CONTRACTOR.

GENERAL TECHNICAL SPECIFICATION FOR BUILDING WORKS

GENERAL :

1. In the specification "as directed"/"Approved" shall be taken to mean "as directed"/approved by the Engineer-in-charge.
2. Wherever a reference to any Indian Standard appears in the specifications, it shall be taken to mean as a reference to the latest edition of the same in force on the date of agreement.
3. In "Mode of Measurement" in the specification wherever a dispute arises in the absence of specific mention of a particular point or aspect, the provisions on these particular point or aspects in the relevant Indian Standards shall be referred to.
4. All measurements and computations, unless otherwise specified, shall be carried out nearest to the following limits :
 - (i) Length, width and depth (height) 0.01 Mt.
 - (ii) Areas 0.01 Sq.Mt.
 - (iii) Cubic Contents 0.01 Cu.Mt.
 In recording dimensions of work.
 The sequence of length, width and height (depth) or thickness shall be followed.
5. The distance which constitutes lead shall be determined along the shortest partial route and not necessarily the route actually taken. The decision of the Engineer-in-charge in this regard shall be taken as final.
6. Where no lead is specified, it shall mean "all leads".
7. Lift shall be measured from plinth level.
8. Definite particulars covered in the items of work, though not mentioned or elucidated in its specifications shall be deemed to be included therein.
9. Reference to specifications of materials as made in the detailed specification the items of works is in the form of a designation containing the number of the specification of the material and prefix 'M' e.g. 'M-s'.
10. Approval of the samples of various materials given by the Engineer-in-charge shall not absolve the contractor from the responsibility of replacing defective material brought on site or materials used in the work found defective at a later date. The contractor shall have no claim to any payment or compensation whatsoever on account of any such materials being rejected by the Engineer-in-charge.
11. The contract rate of the item of work shall be for the work completed in all respects .
12. No collection of materials shall be made before it is got approved from the Engineer-in-charge.
13. Collection of approved materials shall be done at site of work in a systematic manner. Materials shall be stored in such a manner as to prevent damage, deterioration or intrusion of foreign matter and to ensure the preservation of their quality and fitness for the work.
14. Materials, if and when rejected by the Engineer-in-charge, shall be immediately removed from the site of work.
15. No materials shall be stored prior to, during and after execution of a structure in such a way as to cause or lead to damage on overloading of the various components of the structure.
16. All work shall be carried out in a workmanlike manner as per the best techniques for the particular item.

17. All tools, templates, machinery and equipment for correct execution of the work as well as for checking lines, levels, alignment of the works during execution shall be kept in sufficient numbers and in good working condition on the site of the work.
18. The mode procedure and manner of, execution shall be such that it does not cause damage or over-loding of the various components of the structure during execution of after completion of the structure.
19. Special modes of construction not adopted in general Engineering practice, if proposed to be adopted by the Contractor, shall be considered only if the contractor provides swatisfactory evidence thatsuch special mode of construction is safe, sound and helps in speedy construction and completion of work to the required strength and quality. Acceptance of the same by the Engineer-in-charge shall not, however, absolve the contractor of the responsibility of any adverse effects and consequences of adopting the same in the course of execution of completion of the work.
20. All installations pertaining to water supply and fixtures thereof as well as drainage lines and sanitary fittings shall be deemed to be completed only after giving satisfactory tests by the Contractor.
21. The contractor shall be responsible for observing the rules and regulations imposed under the "Minor Minerals Act", and such other laws and rules prescribed by Government from time to time.
22. All necessary safety measures and precautions (including those laid down in the various relevent Indian Standards) shall be taken to ensure the safety of men, materials and machinery on the works as also of the work itself.
23. The testing charges of all materials shall be borne by the Contractor.
24. Approval to any or the executed items for the work dose not in any way releive the contractor of his responsibility for the correctness, soundness and strength of the structure as per the drawings and specifications.

Executive Engineer
South Zone-A (Udhana)
Surat Municipal Corporation

SIGNATURE OF THE CONTRACTOR.

LIST OF APPROVED LABORATORY

Sr.no	Name	Address
1	Gujarat Engineering Research Institute (GERI)	Katargam, Surat.
2	Unique Engineering Testing & Adviosry Service	216, road 6F, New Estate, Udhog nagar, Udhna, Surat, Gujarat 394210
3	Bhoomi researchCentre	2/1362, "Bhumi House", Sagramura, Opp. Sub-Jail, Ring Road,, Surat, 395005
4	Sardar Vallabhbhai National Institute of Technology	Ichchhanath, Surat.
5	Vidyabharti Trust Intstitute of Technology and Research Center	Umrakh, Bardoli, Surat, Gujarat 394345
6	MATTEST Lab	Udhna Udyognagar, Surat.
7	Civil engineering Research Laboratory	Lab House, Road No.04, RJD integrated textile park, Ichchhapore, Surat.
8	S.T.B.S. Material Testing cell	Shree Swami Atmanand Sraswati Vidhya sankul, varachha road, surat.
9	Jems multi-tech consultancy	38-4, Block no.4, Khatodara GIDC, majura gate, Surat
10	Manglam Geotech Services	Plot No.17, Shri Laxmi Industrial Estate, Near Sunday's school, Udhna Bhestan road, Surat

Note :- During course of the execution if any other laboratory is approved by SMC, the contractor can send the material in that laboratory also. The frequency for testing of samples (in either of the laboratories) shall be decided by SMC/E.I.C.

**Executive Engineer
South Zone-A (Udhana)
Surat Municipal Corporation**

Signature of the Contractor:-

ITEMWISE DETAILED TECHNICAL SPECIFICATIONS

Item No. 01:-

Box cutting the road surface to proper slop and camber for road work including a base for road work including removing the excavated stuff depositing on the road side to a slop as directed up to 50.0 mt. Lead. (SOR 2024-25)

DESCRIPTION:-

The land width required for the roadway, gutters side slopes and catch water gutters shall be cleared of all trees having girth of 30 cm. and less, loose stones, vegetation bushes, stumps and all other objectionable materials. The roots of trees and stumps shall be removed to a depth of 30 cms. below the grade formation and slopes and excavation filled up with excavated materials and loose. Useful materials shall be arranged in convenient stacks along the road boundary or as directed at places within 50 meters lead, and handed over to the department in convenient sections. Unsuitable materials shall be burnt or otherwise disposed off by the contractor at his own cost without causing any nuisance, inconvenience or damage to the works, property or people in the neighborhood. If the materials disposed off out side the road land, necessary permission from the private land owners shall be taken by the contractor and royalty etc. if any paid by him without claiming any compensation. All materials shall be disposed off in a neat manner.

After cleaning the site, the alignment of the road shall be properly set out true to line, curves, slopes, grade and sections as shown on the plans or directed by the Engineer-in-charge. The Contractor shall provide all labor and materials such as lime, strings, pegs, nails, bamboos, stones, mortar, concrete etc. required for setting out establishing benchmarks and giving profiles. The Contractor shall be responsible for maintaining the B.Ms. profiles, alignments and other marks as long as they are required for the work in the opinion of the Engineer-in-charge. If the Contractor defaults in the respect even after the direction by the Engineer-in-charge within the specified time, they may be restored by the Engineer-in-charge at the cost of Contractor. Levels and section of the ground shall be taken and recorded in the presence of the Contractor or his authorized representative before the excavation is started so as to serve as the basis of measurement. The Contractor or his representative shall sign the book in token of his acceptance of the level etc. If there is any disagreement the Contractor shall inform of it in writing to the Engineer-in-charge with the specified reference to the sections before starting further work. Once the work is started no cognizance of any complaint shall be taken merely not signing of the book shall not be deemed as disagreement.

Profiles of this section including the road side gutter to be excavated shall be laid at suitable intervals of 10 m to 50 m or other intervals as directed by the Engineer-in-charge to conform to the curved or straight alignment, section, grade and side slopes. The line out shall be clearly marked and profiles of embankments where excavated materials are to be used shall be set up with the toe line marked on each side. The roadway section shall first be excavated with vertical side for each lift and the side slopes for that lift shall be excavated in steps. These steps shall be smoothed to the required slope when the excavation reaches the road formation. The contractor shall on no account excavate beyond the slopes or below the specified grade unless so directed by the Engineer in writing. If excavation is done below the specified level or outside this section, it shall not be paid for and the contractor shall be required to fill up at his own cost such extra excavation in the road portion, with approved materials of the embankment grade in layer watered and fully loose to attain maximum density laid down for the embankment in its relevant item. The Engineer may require measurement ridges and deadmen to be left at specified intervals or places and kept intact till ordered to be removed, for the purposes of check measurements. The excavation shall be finished neatly, smoothly and evenly to the correct lines, curves, grades, section and side slopes as shown on the plans or directed by the Engineer-in-charge. The sub-grade if loose, shall be scarified, watered and loose to the same density as the embankment. The section, side slopes and catch water gutter shall be maintained by the contractor at his own cost in such a way that the formation and gutters will be well drained by providing necessary

diversion etc. and not damaged due to obstruction of any drainage, necessary passages shall be provided for leading away seepage, springs, surface flow or rainwater safely without damaging the work. If any damage occurs due to default of the contractor in this respect, he shall make good the damage at his cost. If it is necessary in the execution of the work to interrupt existing surface drainage, irrigation channels, sewers or underdrainage, temporary arrangements shall be provided till such time as is necessary. The Contractor at his own cost shall make good the interrupted drainage and sewer etc. unless separately provided in the tender. Any damage to the existing works or work in hand caused as a result of his operations or negligence shall be made good by the Contractor at his own cost. Road side gutters shall be excavated to the specified section and shall be measured along with the main cutting in cubic metres.

If slides occur in the cutting they shall be removed as ordered by the Engineer-in-charge. If finished slopes slide in to the road way before the final acceptance of the work, such slides shall be removed by the Contractor and shall be paid for at the contract rate for the class of excavation involved provided the slides are not due to any negligence of the Contractor. The classification of the material in slides shall conform to its condition at the time of removal and payment made accordingly regardless of its time of prior conditions. Care shall be taken to see that excavation is arranged in a safe way so that there will be no risk to the work or workman by slides, falling materials, boulders and collapsing slides.

If there is traffic nearby or if there are towns, village in the neighborhood, barricades and/or traffic signal shall be provided day and night for the duration of the work in such a way as to prevent accidents. Warning signals shall be displayed at 7 mt. from the danger point on both sides to give sufficient warning. If necessary, signalers shall be stationed at each end to regulate traffic where it is heavy. Measures shall be taken to see that the excavation does not affect or damage adjoining structures or property. If there is damage to property, injury to workers, the members of the public, animals etc. due to the negligence of the Contractor, he will be responsible and liable to all the consequence including compensation.

When the useful excavated materials is to be used in embankment within a lead 50 metre and all lift, it shall be directly deposited at the required location in specified layers. No handling or conveyance charges shall be paid if the material is temporarily deposited elsewhere and subsequently conveyed to site of deposition. The sequence of operations should be arranged properly. Materials required for items other than bank shall be arranged in neat stacks at convenient places, without interfering with drainage in any way. The excavated materials shall not be deposited within 3 m from the top edge of slope or top of the bank. The lead shall be measured from the junction point of cutting and embankment up to 50 mt. on either side. The contract rate shall be for a unit of one cubic metre for the stratus mentioned in the wording of the item of excavation acceptably completed, as directed by the Engineer-in-charge.

DISPOSAL OF EXCAVATED MATERIALS:-

All the surplus excavated materials shall be the property of the contractor. Suitable material obtained from the excavation of the roadway shoulders, verge, drains, cross drainage works etc. shall be used for

- i) Filling for roadway embankments
- ii) Filling existing pits in the right of way as directed by the Engineer including levelling and spreading with all leads and lifts.
- iii) For landscaping of the road as directed by the Engineer, including levelling and spreading, with all leads and lifts.
- iv) Surplus material such as rubble, stones etc. not intended for use as above shall be used as a raw material for crusher with prior permission of Engineer-in-charge.

Unsuitable and surplus material which in the opinion of the Engineer cannot be used in the works shall be removed from site by the Contractor and disposed off including all lead & lifts. No place will be made available by the employer for disposing off the material and no claim will be entertained on that account.

1.1 MEASUREMENTS FOR PAYMENT

Excavation for roadway shall be measured by taking cross sections at suitable intervals in the original position before the work starts and after its completion and computing the volumes in cu. m. by the method of average end areas for each class of material encountered. At the option of the Engineer, the Contractor shall leave depth indicators during excavations of such shape and size and in such positions as directed so as to indicate the original ground level as accurately as possible. The contractor shall see that these remain intact till the final measurements are taken.

1.2. RATES :-

The contract unit rates for the items of roadway and drain excavations shall be payment in full for carrying out the operations required for the individual items including full compensation for :

- (i) Setting out
- (ii) Transporting the excavated materials and depositing the same on sites of embankments, spoil banks or stacking as directed within lifts and lead upto 50 m.
- (iii) Trimming bottoms and slopes of excavation.
- (iv) Dewatering
- (v) Disposal of surplus excavated stuff and clearing of site after completion of work.
- (vii) Watering where necessary and compacting to requirements.
- (viii) Erecting all safety provisions and making necessary diversions as directed by ENGINEER/Engineer-in-charge. This item should be executed as per MORTH

Item No. 02:-

Preparation of subgrade with compacting, levelling and consolidation of subgrade with mini roller/plate vibrator machine including watering and filling in depression which occur during the process. including labour, machinery, equipments required to execute this item etc. complete as detailed in tender specification & as directed by engineering charge. (SOR 2024-25)

Immediately following the spreading of the subgrade material rolling shall be started with mini roller/plate vibrator machine.

Except on super-elevated portion where the rolling shall proceed from inner edge to outer, rolling shall be from the edges gradually progressing towards the centre. First the edge/edges shall be compacted with roller running forward and backward. The roller shall then move inward parallel to the centre line of the road, in successive passes uniformly lapping preceding tracks by at least one half way width.

Rolling shall continue until the subgrade material is thoroughly keyed and the creeping of the sub-grade ahead of the roller is no longer visible. During the process rolling shall not be done when the sub-grade is soft or yielding or when it causes a wave like motion in the sub-grade course.

The rolled surface shall be checked transversely and longitudinally with templates and any irregularities corrected by loosening the surface, adding or removing necessary amounts of subgrade material and re-rolling until the entire surface conforms to desired camber and grade. In no case shall use of screening be permitted to make up depressions.

The binding materials where it is required to be used shall be applied, successively in two or more thin layers at a slow and uniform rate. After each application, the surface shall be continuously sprinkled with water, the resulting slurry swept in with hand brooms or mechanical brooms to fill the voids properly, and rolled during which water shall be applied to the wheels of the rollers if necessary to wash down the binding materials sticking to them. These operations shall continue until the resulting slurry after filling of voids, forms a wave ahead of the wheels of the moving roller. After the final compaction of subgrade course the road shall be allowed to dry overnight. Next morning hungry spot shall be filled with screening of binding materials as directed, lightly sprinkled with water, if necessary and rolled. No traffic shall be allowed on the road until the base has set. The Engineer-in-charge shall have the discretion to stop hauling traffic from using the completed subgrade course if in his opinion it would cause excessive damage to the surface.

MODE OF PAYMENT:-

Payment will be made on Sq.mt. basis consolidation of finished work and shall also include cost of watering, rent of machinery, cost of fuel, wages of drivers and cleaners, earthen and murrumbund etc. and watchman etc.

Item No. 03:-

Providing & Laying C.C 1:5:10 (1 cement : 5 coarse sand : 10 graded stone agg. 40 m.m Nominal size) & curing comp. excl. cost of from work in : Foundation & Plinth (SOR 2024-25)

3.1.0 Materials:-

Water shall conform to M-1. Cement shall conform to M-3. Sand shall conform to M-6. Stone aggregate 40 mm nominal size shall conform to M-12.

3.2.0 WORKMANSHIP:

3.2.1 General:-

Before starting concreting the bed of foundation trenches shall be cleared of all loose materials, leveled, watered and rammed as directed.

3.2.2 Proportion of Mix:-

The proportion of cement, sand and coarse aggregates shall be one part of cement, 5 parts of sand and 5 parts of stone aggregate shall be measured by volume.

3.2.3 Mixing:-

The concrete shall be mixed in a mechanical mixer at the site of work. Hand mixing may however be allowed for smaller quantity of work if approved by Engineer-in-charge. When hand mixing is permitted by the Engineer-in-charge in case of breakdown of machineries and in the interest of the work, it shall be carried out on a water tight platform and care shall be taken to ensure that mixing is continued until the mass is uniform in colour and consistency. However in such case 10% more cement than otherwise required shall have to be used without any extra cost. The mixing in mechanical mixers shall be done for a period 1 1/2 to 2 minutes. The quantity of water shall be just sufficient to produce dense concrete of required workability for the purpose.

3.2.4 Transporting and placing the concrete :-

The concrete shall be handed from the place of mixing to the final position in not more than 15 minutes by the method as directed and shall be placed into its final position, compacted and finished within 30 minutes of mixing with water i.e. before the setting commences.

The concrete shall be laid in layers of 15 cm to 20 cm.

Compacting:- The concrete shall be rammed with heavy iron rammer and rapidly to get the required compaction and to allow the interstices to be filled with mortar.

3.2.5 Curing:-

After the final set, the concrete shall be kept continuously wet, if required by ponding for a period of not less than 7 days from the date of placement.

3.3.0 Mode of measurements and payment:-

The concrete shall be measured for its length breadth and depth, limiting dimensions to those specified on plan or as directed. The rate shall be for a unit of one cubic meter. This item should be executed as per MORTH

Item No. 04:-

Providing & laying C.C 1:3:6 (Cement :3 coarse sand :6 Crushed stone agg 20mm nominal size)&curing comp. excl. cost of form work in :(a) foundation & Plinth (SOR 2024-25)

Detail specification as per Item Description, Item No. 3 but read 1:3:6 instead of 1:5:10, latest amendment and as directed by Engineer-in-charge. This item should be executed as per MORTH

Item No. 05:-

Providing & laying ordinary cement con. 1:1.5:3 (Cement:1.5 sand: 3 graded stone agg. 20 mm nominal size) finishing smooth curing etc. comp. Incl. Cost of form work but excl. Cost of reinforcement for R.C.C. Work in : Up to G.L./P.L.(A) BEAM :(ii) Having c/s area more than 0.08 sq. mt. & upto 0.12 sq.mt (SOR 2024-25)

5.1.0 Materials :-

Water shall conform to M-1, Cement shall conform to M-3. Sand shall conform to M-6. Grit shall conform to M-8. Graded stone aggregate 20 mm nominal size shall conform to M-12.

5.2.0 General:-

- 5.2.1 The concrete mix is not required to be designed by preliminary tests. The proportion of the concrete mix shall be 1:1.5:3 [1 cement: 3 coarse sand: 3 graded stone aggregate 20 mm nominal size] by volume. Concrete work shall have exposed concrete surface or as specified in the item.
- 5.2.2 The designation ordinary M-100, M-150, M-200, M-250 specified as per I.S. corresponding approximately to 1:3:6 1:2:4, 1:1:1, 1/2: 3 and 1:1:2 nominal mix of ordinary concrete by volume respectively with conforming to IS:456.
- 5.2.3 The ingredients required for ordinary work, containing one bag of cement of 50 kg. by weight [0.0342 cu.m.] for different proportion of mix shall be as under.

Grade	Total quantity of dry aggregate by volume per 50 Kg. of cement to be taken as the sum of individual volume of fine and coarse aggregate maximum	Proportion of fine aggregate of coarse aggregate	quantity of water per 50 Kg. of cement maximum
M-100 (1:3:6)	300 Liters	Generally 1:3 for fine aggregate to coarse aggregate by volume but subject to and upper limit	35 Liters
M-150 (1:2:4)	220 Liters		32 Liters
M-200 (1:1.5:3)	160 Liters		30 Liters
M-250 (1:1:2)	100 Liters		27 Liters

- 5.2.4 The water-cement ratio shall not be more than those specified in the table. The cement content of the mix specified in the table shall be increased if the quantity of water in a mix has to be increased to overcome the difficulties of placement and compaction so that the water-cement ratio specified in the table is not exceeded.
- 5.2.5 Workability of the concrete shall be controlled by maintaining a water-cement ratio that is found to give a concrete mix which is just sufficiently wet to be placed and compacted without difficulty with the means available.
- 5.2.6 The maximum size of coarse aggregate shall be as large as possible within the limits

- specified but in no case greater than one-fourth of the minimum thickness of the member, provided that the concrete can be placed without difficulty so as to surround all reinforcement thoroughly and to fill the corners of the form.
- 5.2.7 For reinforced concrete work, coarse aggregates having a nominal size of 20 mm generally considered satisfactory.
- 5.2.8 For heavily reinforced concrete members as in the case of the ribs of main beams the nominal maximum size of coarse aggregate should usually be restricted to 5 mm, less than the minimum clear distance between the main bars, or 5 mm, less than the minimum cover to the reinforcement whichever is smaller.
- 5.2.9 Where reinforcement is widely spaced as in solid slabs, limitations of size of the aggregate may not be so important and the nominal maximum size may some times be as great as or greater than the minimum cover.
- 5.2.10 Admixture may be used in concrete only with approval of Engineer-in-charge based upon the evidence that with the passage of time; neither the compressive strength of concrete is reduced nor are other requisite qualities of concrete and steel impaired by the use of such admixtures.
- 5.3.0 **WORKMANSHIP:**
- 5.3.1 **General:-** The bars shall be kept in position by the following method:
In case of beam and slab construction, sufficient number of precast cover blocks in cement mortar 1:2 [1 cement 2 coarse sand] about 4 x 4 cms. section of thickness equal to the specified cover shall be placed between the bars and shuttering as to secure and maintain the requisite cover of concrete over the reinforcement.
In case of cantilevered or doubly reinforced beams or slabs, the main reinforcing bars shall be held in position by introducing chair spacers or supports bars at 1.0 to 1.2 metres centres.
- In case of columns and wall, the vertical bars shall be kept in position by means of timber templates with slots accurately cut in them, the templates shall be removed after concreting has been done below it. The bars may also be suitably tied by means of annealed steel wires to the shuttering to maintain their position during concreting.
All bars projecting from pillars, columns, beams, slabs etc. to which other bars and concrete are to be attached or bounded to later on, shall be protected with a coat of thin neat cement grout, if the bars are not likely to be incorporated with succeeding mass of concrete within the following 10 days. This coat of thin neat cement shall be removed before concreting.
- 5.3.2 **Proportioning:-**
Proportioning shall be done by volume, except cement which shall be measured in terms of bags of 50 kg. weight. The volume of one such bag being taken as 0.0342 cu. metre. Boxes of suitable sizes shall be used for measuring sand and aggregate. The size of the boxes [internal] shall be 35x25 cms. and 40 cms. deep. While measuring the aggregate and sand, the boxes shall be filled without shaking, ramming or hammering. The proportioning of sand shall be on the basis of its dry volume and in case of damp sand, allowances for bulkage shall be made.
- 5.3.3 **Mixing:-**
- 5.3.3.1 For all work, concrete shall be mixed in a mechanical mixer which along with other accessories shall be kept in first class working condition and so maintained throughout the construction. Measured quantity of aggregate, sand and cement required for each batch shall be poured into the drum of the mechanical mixer while it is continuously running. After about half a minute of dry mixing measured quantity of water required for each batch of concrete mix shall be added gradually and mixing continued for another one and half minute. Mixing shall be continued till materials are uniformly distributed and uniform colour of the entire mass is obtained and each individual particle of the coarse aggregate shown complete coating of mortar containing its proportionate amount of cement. In no case shall the mixing be done for less than two minutes after all ingredients have been put into the mixer.
- 5.3.3.2 When hand mixing is permitted by the Engineer-in-charge for small jobs or for certain other reasons, it shall be done on the smooth watertight platform large enough to allow efficient turning over the ingredients of concrete before and after adding water. Mixing platform shall be so arranged that no foreign material gets mixed with concrete nor the mixing water flow out. Cement in required number of bags shall be

- placed in a uniform layer on top of the measured quantity of fine and coarse aggregate, which shall also be spread in a layer of uniform thickness on the mixing platform. Dry coarse and fine aggregate and cement shall then be mixed thoroughly by turning over to get a mixture of uniform colour. Specified quantity of water shall then be added gradually through a rose can and the mass turned over till a mix of required consistency is obtained. In hand mixing, quantity of cement shall be increased by 10 percent above that specified.
- 5.3.3.3 Mixer which have been out of use for more than 30 minutes shall be thoroughly cleaned before putting in a new batch, unless otherwise agreed to by the Engineer-in-charge. The first batch of concrete from the mixture shall contain only two thirds of normal quantity of coarse aggregate. Mixing plant shall be thoroughly cleaned before changing from one type of cement concrete to another.
- 5.3.4 Consistency:
The degree of consistency which shall depend upon the nature of the work and methods of vibration of concrete, shall be determined by regular slump test in accordance with I.S. 1199 : 1959. The slump of 10 mm to 25 mm shall be adopted when vibrators are used and 80 mm when vibrators are not used.
- 5.3.5 Inspection :
- 5.3.5.1 Contractor shall give the Engineer-in-charge due notice before placing any concrete in the forms to permit to inspect and accept the work and from as to their strength, alignment and general fitness but such inspection shall not relieve the contractor of his responsibility for the safety of men, machinery, materials and for results obtained. Immediately before concreting, all forms shall be thoroughly cleaned.
- 5.3.5.2 Centring design and its erection shall be got approved from the Engineer-in-charge. One carpenter with helper shall invariably be kept present throughout the period of concreting. Movement of labour and other persons shall be totally prohibited for reinforcement laid in position. For access to different parts suitable mobile platform shall be provided so that steel reinforcement in position is not disturbed. For ensuring proper cover, mortar blocks of suitable size shall be cast and tied to the reinforcement. Timber, kapachi or metal pieces shall not be used for this purpose.
- 5.3.6 Transporting and laying:-
- 5.3.6.1 The method of transporting and placing concrete shall as approved. Concrete shall be so transported and placed that no contamination, segregation or loss of its constituent material takes place.
- 5.3.6.2 All form work shall be cleaned and made free from standing water, dust, snow or ice immediately before placing of concrete. No concrete shall be placed in any part of structure until the approval of Engineer-in-charge.
- 5.3.6.3 Concreting shall proceed continuously over the area between construction joints. Fresh concrete shall not be placed against concrete which has been in position for more than 30 minutes unless a proper construction joint is formed. Concrete shall be compacted in its final position within 30 minutes of its discharge from the mixer. Except where otherwise agreed to by the Engineer-in-charge concrete shall be deposited in horizontal layers to a compacted depth of not more than 0.45 metre when internal vibrators are used and not exceeding 0.30 metre in all other cases.
- 5.3.6.4 Unless otherwise agreed to by the Engineer-in-charge, concrete shall not be dropped into place from a height exceeding 2 meters.
- 5.3.6.5 When trunking or chutes are used they shall be kept close and used in such a way as to avoid segregation. When concreting has to be resumed on a surface which has hardened, it shall be roughened, swept clean, thoroughly wetted, and covered with a 13 mm thick layer of mortar composed of cement and sand in the same ratio as in the concrete mix itself, this 13 mm layer of mortar shall be freshly mixed and placed immediately before placing of new concrete. Where concrete has not fully hardened, all laitance shall be removed by scrubbing the wet surface with wire or bristle brushes, care being taken to avoid dislodgement of any particles, of coarse aggregate. The surface shall then be thoroughly wetted, all free water removed, and then coated with neat cement grout. The first layers of concrete to be placed on this surface shall not exceed 150 mm in thickness and shall be well rammed against old work, particular attention being given to corners and close spot.
- 5.3.6.6 All concrete shall be compacted to produce a dense homogeneous mass with the assistance of vibrators, unless otherwise permitted by the Engineer-in-charge for exceptional cases such as concreting under water where

vibrators cannot be used. Sufficient vibrators in serviceable conditions shall be kept at site so that spare equipment is always available in the event of breakdowns.

- 5.3.6.7 Concrete shall be judged to be compacted when the mortar fills the spaces between the coarse aggregate and begins to cream up to form an even surface. Compaction shall be completed before the initial setting starts i.e. within 30 minutes of addition of water to dry mixture. During compaction, it shall be observed that needle vibrators are not applied on reinforcement which is likely to destroy the bond between concrete and reinforcement.
- 5.3.7 Curing:-
Immediately after compaction, concrete, weather including rain, running water, shocks, vibration, traffic, rapid temperature changes, frost and drying out process, it shall be covered with wet sacking, hessian or other similar absorbent material approved, soon after the initial set and shall be kept continuously wet for a period of not less than 14 days from the date of placement. Masonry work over foundation concrete may be started after 48 hours of its laying but curing of concrete shall be continued for a minimum period of 14 days.
- 5.3.8 Sampling and Testing of concrete:-
- 5.3.8.1 Samples from fresh concrete shall be taken as per IS 1199:1999 and cubes shall be made, cured and tested at 7 days and 28 days as per requirements in accordance with IS 516:1959. A random sampling procedure shall be adopted to ensure that each concrete batch shall have a reasonable chance of being tested i.e. the sampling should be spread over the entire period of concreting and cover all mixing units. The minimum frequency of sampling of concrete of each grade shall be in accordance with following.
- 5.3.8.2 Quantity of concrete in the work No. of samples
- | | |
|--------------|--|
| 1-5 Cmt. | 1 |
| 6-15 Cmt. | 2 |
| 16-30 Cmt. | 3 |
| 31-50 Cmt. | 4 |
| 51 and above | 4 + one additional sample for each additional 50 cmt. or part thereof. |

Note:- At least one sample shall be taken from shift. The test specimens shall be made from each sample, five for testing at 7 days and the remaining five at 28 days. The samples of concrete

shall be taken on each day of the concreting as per above frequency. The number of specimens may be suitably increased as deemed necessary by the Engineer-in-charge when procedure of tests given above reveals a poor quality of concrete and in other special cases.

- 5.3.8.3 The average strength of the group of cubes cast for each day shall not be less than the specified cube strength of 150 kg/cm² at 28 days. 20% of the cubes cast for each day may have value less than the specified strength provided the lowest value is not less than 85% of the specified strength. If the concrete made in accordance with the proportions given for a particular grade does not yield the specified strength such concrete shall be classified as belonging to the appropriate lower grade. Concrete made in accordance with the proportions given for a particular grade shall not, however, be placed in a higher grade on the ground that the test strength are higher than the minimum specified.

5.3.9 Stripping :

- 5.3.9.1 The Engineer-in-charge shall be informed in advance by the contractor of his intention to strike the formwork. While fixing the time for removal of formwork, due considerations shall be given to local conditions, character of the structure, the weather & other conditions that influence the setting of concrete and of the materials used in the mix. In normal circumstances [generally where temperatures are above 20°C] and where ordinary concrete is used forms may be struck after expiry of periods specified in the Item No. 4 for respective item of form work.
- 5.3.9.2 All form work shall be removed without causing any shock or vibration as would damage the concrete. Before the soffits are removed, the concrete surface shall be exposed, where necessary in order to ascertain that the concrete has sufficiently hardened. Centring shall be

gradually and uniformly lowered in such a manner as to permit the concrete to take stresses due to its own weight uniformly and gradually. Where internal metal ties are permitted they or their removable parts shall be extracted without causing any damage to the concrete and remaining holes filled with mortar. No permanently embedded metal part shall have less than 25 mm. Cover to the finished concrete surface. Where it is intended to re-use the form work, it shall be cleaned and made good to the satisfaction of the Engineer-in-charge. After removal of form work and shuttering, the Executive Engineer shall inspect the work and satisfy by random checks that concrete produced is of good quality.

- 5.3.9.3 Immediately after the removal of forms all exposed bolts etc. Passing through the cement member and used for shuttering or any other purpose shall be cut inside the cement concrete member to a depth of at least 25 mm. below the surface of the concrete and, the resulting hole be filled by cement mortar. All fins caused by form joints, all cavities produced by the removal of form ties and all other holes and depression, honeycomb spots, broken edges or corners and other defects, shall be thoroughly cleaned, saturated with water and carefully pointed and rendered true with mortar of cement and fine aggregate mixed in the proportions used in the grade of concrete that is being finished and so as dry consistency as is possible to use. Considerable pressure shall be applied in filling and pointing to ensure thorough filling in all voids. Surfaces which are pointed shall be kept moist for a period of 24 hours.
- 5.3.9.4 If rock pockets/honeycombs in the opinion of the Engineer-in-charge are of such an extent or character as to effect the strength of the structure materially or to endanger the life of the steel reinforcement, he may declare portions of the structure affected.
- 5.4.0 Mode of measurement and payment:
- 5.4.1 The consolidated cubical contents of concrete work as specified in item shall be measured. The concrete laid in excess of sections shown on drawings or as directed shall not be measured. No deduction shall be made for.
- [a] Ends of dissimilar materials such as joints, beams, posts, girders, rafters, purlin, trusses, corbels and steps etc. up to 500 sq.cm. in section.
- [b] Opening up to 0.1 sq.m.
- [c] The volume occupied by reinforcement shall not be deducted from R.C.C. work.
- 5.4.2 The rate includes cost of all materials labour, tools and plant required for mixing, placing in position vibrating and compacting, finishing as directed, curing and all other incidental expenses for producing concrete of specified strength. The rate excludes the cost of form work.
- 5.4.3 The rate shall be for a unit of one cubic meter. This item should be executed as per MORTH

Item No. 06:-

Supplying and filling fine sand (Pana/Stone Dust/Crush sand) in 25/75 mm Avg.) compacted thickness over the base including necessary compaction, watering etc. complete. item includes levelling by using mini roller/plat vibrator machine and as per details in tender specification & as directed by engineer in charge. (SOR 2024-25).

- 6.1.0 MATERIALS:
- 6.1.1 Fine sand (Pana) shall conform to specification of material M-3.
- 6.2 WORKMANSHIP:
- 6.2.1 Fine sand (Pana) shall be supplied to worksite and stacked at suitable place. It shall be got approved by Engineer-in-charge. Fine sand (Pana) shall be filled in compacted thickness of 25/75 mm. It shall be compacted and watered thoroughly. This item should be executed as per MORTH

Item No. 07:-

Providing 100mm thick readymade C.C. kerb of strength M-20 (size 300mm x 380mm) purchased from SMC's approved paver block manufacturer & setting in line, level and in truly vertical position, including filling joints in C.M. 1:1 (1 part of cement : 1 part of stone dust) smooth pointing in C.M. 1:1 (1 part of cement : 1 part of coarse sand) including watering etc. complete and as directed by engineer in charge. (SOR 2024-25)

7(A) For rounding edge of footpath (For fanning portion)

Item includes all materials, labour, equipment, tools, plants, watering, cleaning etc. complete.

RAW MATERIAL:

CEMENT:-

The cement used in the manufacture of high quality precast concrete paving block shall be conforming to IS 12269 (53 grade) ordinary Portland Cement or IS 8112 (43 grade ordinary Portland cement). The minimum cement content in concrete used for making paver blocks should be 310 kg/Cu.M. And the upper limit of cement shall not be more than 425 kg/Cu.M.

AGGREGATES:-

The fine and coarse aggregates shall consist of naturally occurring crushed or uncrushed materials which, apart from the grading requirements, comply with IS 383-1970. The fine aggregates used shall contain a minimum of 25% natural silicon sand. Lime stone aggregates shall not be used. Aggregates shall contain no more than 3% by weight of clay and shall be free from deleterious salts and contaminants.

WATER:-

The water shall be clean and free from any deleterious matter. It shall meet the requirements stipulated in IS: 456-2000.

OTHER MATERIALS:-

Any other material/ingredients used in the concrete shall conform to latest IS specifications.

C.C. BLOCK CHARACTERISTICS:

The C.C. block should have perpendicularities after release from the mould and the same should be retained until the laying.

The concrete mix design should be followed for each batch of materials separately and automatic batching plant is to be used to achieve uniformity in strength and quality.

The C.C. block shall be manufactured in single layer only. Skilled labours should be employed for laying blocks to ensure line and level, for laying, desired shape of the surface and adequate compaction of the sand in joint.

The C.C. block must be of size 300 mm x 100 mm x 380 mm and casted in M-200 Grade with 4" (110 mm) radius rounding at the top and 2 (two) nos. 12 mm keys at the other vertical face as directed by Engineer-in-charge.

When foot path meets with a junction or approach road at the end of foot path, a turning radius equal to the width of foot path should be made as per below and as directed by Engineer-in-charge.

Sr. Turning Radius No. of C.C. block Size of C.C. block in round
ding to be fix

1.	1.00mt.	4 Nos.	} Outer 370mm x inner 340mm x
2.	1.50mt.	6 Nos.	} thickness 100mm x Height
3.	2.00mt.	8 Nos.	} 380mm

Strength is measure of the ability of the concrete kerb unit to withstand load. It is determined under laboratory conditions using bending strength. A load is uniformly applied through a 401mm swivel parallel rigid bearers rounded to a radius of 201mm until failure reached. For each kerb

the individual strength in MPa is determined using the second moment of area. For each of calculation, the second moment of area and distance from the centroid to the extreme tensile fibre are incorporated for the profiles specified within the standard. For other profiles please refer to individual manufacturers who will supply the relevant information. The bending strength in MPa is recovered to check compliance with BS EN, The number of the kerbs per sample will vary depending on previous production performance assessed statistically by attributes of variables.

The characteristic bending strength shall not be less than the value corresponding to the class in the table that follows. None of the individual results shall be less than the corresponding minimum bending strength in the table. Where kerbs, due to their geometry, cannot be tested according to this standard they shall be considered to be in the same class as tested kerbs provided they have at least the Bending strength classes.

Class	Marking	Characteristic bending strength (MPa)	Minimum bending strength (MPa)
1	S	3.5	2.8
2	T	5.0	4.0
3	U	6.0	4.8

WEATHERING RESISTANCE:

Is a measure of the ability of the concrete kerb to withstand weathering specific conditions exist such as frequent contact of the surface with de-icing salt under frost conditions. It can be assessed under laboratory conditions by measuring the amount of spalled material from a surface under the cycle of freezing thawing action using a de-icing salt solution, or, if no de-icing salt is used, then the measurement of the porosity by measuring the water absorption of the kerb could be used.

ABRASION RESISTANCE:

Is a measure of the ability of the concrete kerb to withstand erosion caused by traffic in service. It is assessed under laboratory conditions by abrading the surface of the kerb with a flow of a hard abrasive material while applying a known force. The resulting loss of material from the kerb surface is measured by determining the abraded width.

SLIP/RESISTANCE:

Is a measure of the ability of the concrete kerb laid in service to withstand slipping for pedestrians and skidding for vehicles. The unpolished slip resistance value is determined using standard rubber material attached to a pendulum friction tester and tested under wet conditions. To determine the polished surface value (PPV) for all paving units BS 7932:1988 should be used. This test method measures the slip resistance of the kerb after it has been synthetically trafficked (or polished) under laboratory conditions to replicate the performance of kerb during their life under traffic conditions. For more details please contact the manufacturer.

Kerb and edgings are mainly used as edge restraints to paved surfaces or where changes in surface materials or levels occur. They retain any unbound construction material, e.g. laying course material, within the paved area and help support the applied loads by preventing horizontal displacement of the pavement construction. Channels may be used in these applications as well but can also be used to intercept and

transport surface water. In vehicular areas kerb, edging and channel units will inevitably be over-run or suffer side impact from vehicle tyres sometime in their service life. By selecting the appropriate units and ensuring correct installation they will give long and durable service.

TOLERANCES:

Performance deviation the value for possible deviation from manufacturer's declared values are as follows.

Length:

1% to the nearest mm, with a minimum of 4 mm and not exceeding 10 mm.

Other dimensions:

Other faces: 3% to the nearest

mm, with a minimum 3 mm not exceeding 5 mm.

Other parts: 5% to the nearest mm, with a minimum of 3 mm not exceeding 10 mm.

Flatness and straightness:

Length of gauge mm	Permissible deviation mm
300	+/-1.5
400	+/-2.0
500	+/-2.5
800	+/-4.0

The difference between any two measurements of single kerb shall be </-

5 mm. Installation of concrete kerbs, edging and channel units has five

main stages:

- Preparation of support layers.
- Construction of unit foundation.
- Laying to line and level.
- Bedding of units.
- Haunching of units.

The unit foundation itself must be supported, either on an extension to the underlying pavement sub layers or, for thin pavements (e.g. edgings on pedestrian footways), directly on an adequate subgrade. The depth of the unit and that of the pavement construction will determine on which pavement layer the kerb foundation will sit.

Products should be laid using one of the following alternative methods:

1. Units set on a race of freshly mixed concrete.
2. Units bedded on a mortar bed on top of a hardened concrete race or on a mortar bedding on a carriageway.
3. Units bonded to the pavement surface.

LAYING OF C.C. BLOCK AS KERB:

C.C. block shall be placed in line, level and entirely vertically in position with 12 mm gap including filling joints in C.M. 1:1 (1 Part of cement : 1 part of stone dust) and smooth pointing in C.M. 1:1 (1 cement of cement : 1 part of stone dust) including watering.

At the Residential units, it shall be kept 8" (200 mm) open above water table and at the commercial complex, it shall be kept 3" (75 mm) open above water table and as directed by Engineer-in-charge.

SAMPLING AND TESTING PROCEDURE FOR C.C. BLOCK:

Sample size:

- Internal: Average of minimum 3 samples per 3000 blocks for paver block manufacturers.
- External: Minimum 3 blocks per 3

000blocks. Sampling for testing :

SamplingfortestingofC.C.kerbshallbedoneinaccordancewithAppendix-Ainitemno.6.

Compressive strength : testing for 28 days compressive strength shall be undertaken.

Abrasion Resistant: It is assessed under laboratory conditions by abrading the surface of the kerb with a flow of a hard abrasive material applying a known force. The resulting loss of material from the kerb surface is measured by determining the abraded width.

Bending strength : The characteristic bending strength shall be less than the value corresponding to the class. None of the individual results shall be less than the corresponding minimum bending strength.

The rate shall be for a unit of one R.M.

For ensuring quality control and workmanship, above test shall be taken at 01 (One) test per each 1000 (One thousand) Nos. of C.C. block.

The C.C. block shall be got tested at (R&B) field laboratory of GERI (R&B) or S.V.N.I.T., or Govt. approved laboratory.

Laying on pavement surface:

The units may be laid directly onto a suitable pavement surface which should extend to a width to fully support the units and any required haunching. The units are bonded to the surface using a suitable synthetic resin compound or with a modified strengthened mortar.

Jointing:

Concrete kerbs are generally laid with unfilled, close joints with a minimum joint width of 12 mm they must not be butt-jointed. Mortar joints should be filled by 1:1 (1 Cement : 1 stone dust) and finished with the mortar which should be freshly mixed, consisting of 1:1 (1 Cement : stone dust) where mortar joints are used, they should be completely filled and fully compacted. Joint width should be 12 mm.

Where units are laid over or adjacent to a jointed concrete pavement, suitable joints should extend through the line of the units at the joints and continue through the kerb face. When mortar joints are used, movement joints should be provided. These movement joints should be formed of 12 mm thick easily compressible material, extend through the kerb face. Mortar should be used as soon as possible and any material that has begun to set or has been mixed for more than two hours discarded.

Contractors need to plan the work to ensure risk is kept to an acceptable level. This may involve the following actions.

- Rethink the phasing of the kerb installation to maximise the number of kerbs being laid at one time.
- Lay direct from the pack rather than double handling by stringing out ahead of final laying.
- Use machinery capable of handling both packs and individual kerbs.
- Use machinery solutions for the handling of non standard kerb details such as feature kerbs, transition kerbs, drop kerbs, quadrants (cheeses) and radius kerbs.
- Ensure that workers are trained in the safe use of mechanical lifting equipment.
- Provide training in safe lifting techniques for works involved with kerb laying.

-Consider use of alternative light weight kerb components for certain circumstances.

Kerb laying by hand involves a serious risk of injury to those who are doing the work and therefore employers need to take action to control this risk. When taking the risk, the best solutions will be those which address all three main hazards, the weight of the kerb, the repetitive nature of the operation and poor posture during work. The help find the best solution, the manual handling hierarchy of control measures is suggested. You should try to adopt the solution nearest the top of hierarchy first, as these will give the best level of risk control. In rare cases, where it is not possible to use any mechanical solutions, short stretches of kerb may be laid manually. Where this is necessary workers should be trained in good handling techniques. The use of lighter weight kerbs or devices that allow two people to share the lift will reduce the risk of injury.

GENERAL GUIDANCE:

It is important that work procedures are drawn up before commencement to identify any hazards. Failure to do this can result in lack of co-ordination of materials and multiple handling of product. Correct personal protective clothing should be provided.

Planning the work:

Work should be planned and coordinated to avoid unnecessary handling.

For operations where forklift vehicles are used, kerbs should be stacked onto timber pallets. Ensure that pallets are robust as the failure of a pallet could allow kerbs to fall.

Stripping and wrapping of packs should only be removing just prior to use of the kerbs.

Care should be taken when cutting bands and/or removing wrapping to avoid kerbs falling. Accurate placement of the concrete bed will minimise shovelling operations.

Accurate preparation of the concrete bed and any excavated trench will reduce the amount of adjustment to kerbs once laid.

Where power tools are used for cutting these should be concrete cutters with diamond blades and water flow lubrication for cooling and dust suppression.

The rate should be for a unit of One R.M.

Item No. 08 :-

Providing and fixing C.C M 20 Grade Pre cast finished surface Kerb stones of approved design including the cost of form work (as directed by engineer in charge), curing etc. complete. The rate shall also include for erecting and fixing the pieces in position with necessary equipments and materials and include the flush pointing in CM 1:2 for all joints of the kerb stones. (Sample must be approved) (SOR 2023-24)

Kerb type A Kerb type D

8.1 RAW MATERIAL

8.1.1 CEMENT:-

The cement used in the manufacture of high quality precast concrete paving block shall be conforming to IS 12269 (53 grade) ordinary Portland Cement or IS 8112 (43 grade ordinary Portland cement). The minimum cement content in concrete used for making paver blocks should be 310 kg/Cu.M. And the upper limit of cement shall not be more than 425kg/Cu.M.

8.1.2 AGGREGATES :-

The fine and coarse aggregates shall consist of naturally occurring crushed or uncrushed materials which, apart from the grading requirements comply with IS 383-1970. The fine aggregates used shall contain a minimum of 25% natural silicon sand. Lime stone aggregates shall not be used. Aggregates shall contain no more than 3% by weight of clay and shall be free from deleterious salts and contaminants.

8.1.3 WATER :-

The water shall be clean and free from any deleterious matter. It shall meet the requirements stipulated in IS:456- 2000.

8.1.4 OTHER MATERIALS :-

Any other material/ingredients used in the concrete shall conform to latest IS specifications.

8.2 KERBSTONE CHARACTERISTICS

The concrete kerb stone should have perpendicularities after release from the mould and the same should be retained until the laying.

The surface should be of anti-skid and anti glare type. The concrete kerb stone should have uniform chamfers to facilitate easy drainage of surface run off.

The concrete kerb stone should have uniform interlocking space of 2 mm to 3 mm to ensure compacted sand filling after vibration on the concrete kerb stone surface.

The concrete mix design should be followed for each batch of materials separately and automatic batching plant is to be used to achieve uniformity in strength and quality.

The concrete kerb stone shall be manufactured in single layer only.

Skilled labour should be employed for laying blocks to ensure line and level for laying, desired shape of the surface and adequate compaction of the sand in the joints.

The concrete kerb stone pavers are to be skirted all round with kerbing using solid concrete kerb stone of type A size 500 mm x 250 mm x 250, type D size 375 mm x 250 mm x 225 mm or as directed by the Engineer. The kerbing should be embedded for 100 mm depth. The concrete used for kerbing shall be cured properly for 7 days minimum.

8.3 LAYING OF CONCRETE KERBSTONE :-

8.3.1 PRIMING :-

It will be responsibilities of the Contractors to ensure that the manhole/pipeline cable trenches/circular drainage system etc. raised to driveway level using the requisite materials as per instruction of Engg. The areas of potholes/deep depressions at the isolated locations also have to be filled up before laying the paver blocks. No extra payments will be made for this purpose.

It will be the responsibility of the Contractors to ensure that undulations on the concrete kerb stone are eliminated after the traffic is allowed on it. Proper slope for drainage of water needs to be ensured by the Contractor. All necessary materials, tools, tackles are required to be arranged by the Contractor.

8.3.2 BEDDINGSANDCOURSE :-

The bedding sand shall consist of a clean well graded sand passing through 4.75 mm sieve and suitable for concrete. The bedding should be from either a single source or blended to achieve the following grading.

In sieve size	% passed
9.52 mm	100
4.75 mm	95-100
2.36 mm	80-100
1.18 mm	60-100
600 microns	25-60
300 microns	10-30
150 microns	5 - 15
75 microns	0 - 10

Contractor shall be responsible to ensure that single-sized, gap graded sands or sands containing an excessive amount of fines or plastic fines are not used. The sand particles should preferably be sharp not rounded as sharp sand possess higher strength and resist the migration of sand from under the block to less frequently areas even though sharp sands are relatively more difficult to compact than rounded sands, the use of sharp sands is preferred for the more heavily trafficked driveways. The sand use for bedding shall be free of any deleterious soluble salts or other contaminants likely to cause efflorescence.

The sand shall be of uniform moisture content and within 4%-8% when spread and shall be protected against rain when stock piled prior to spreading. Saturated sand shall not be used. The bedding sand shall be spread loose in a uniform layer as per drawing. The compacted uniform thickness shall be of 45 mm and within +/- 5 mm. Thickness variation shall not be used to correct irregularities in the base course surface.

The spread sand shall be carefully maintained in a loose dry condition and protected against pre-compaction both prior to and following screeding. Any precompacted sand or screeded sand left overnight shall be loosened before further laying of paving blocks take place.

Sand shall be slightly screeded in a loose condition to the predetermined depth only slightly ahead of the laying of paving unit.

Any depressions in the screeded sand exceeding 5 mm shall be loosened, raked and rescreeded before laying of paving blocks.

8.4 LAYINGOFINTERLOCKINGCONCRETEKERB STONE:-

concrete kerb stone shall be laid in herringbone laying pattern throughout the pavement. Once the laying pattern has been established, it shall continue without interruption over the entire pavement surface. Cutting of kerb, the use of infill concrete or discontinuities in laying pattern is not be permitted in other than approved locations.

concrete kerb stone shall be placed on the uncompacted screeded sand bed to the nominated laying pattern, care being taken to maintain the specified bond through out the job. The first row shall be located next to an edge restraint. Specially manufactured edge concrete kerb stone are permitted or edge kerb may be cut using a power saw, a mechanical or hydraulic guillotine, bolster or other approved cutting machine.

concrete kerb stone shall be placed to achieve gaps nominally 2 to 3 mm wide between adjacent paving joints. No joint shall be less 1.5 mm not more than 4 mm. Frequent use of string lines shall be used to check alignment. In this regard the "laying face" shall be checked at least every two meters as the face proceeds. Should the face become out of alignment, it must be corrected prior to initial compaction and before further laying job is proceeded with.

In each row, all full kerb shall be laid first. Closure kerb shall be cut and fitted subsequently. Such closer kerb shall consist of not less than 25% of a full kerb.

To infill spaces between 25 mm and 50 mm wide concrete having screened sand, coarse aggregate mix shall be used. Within such mix the nominal aggregate size shall not exceed one third the smallest dimension of the infill space. For smaller spaces dry packed mortar shall be used.

Except where it is necessary to correct any minor variations occurring in the laying bond, the concrete kerb stone shall not be hammered into position. Where adjustment of concrete kerb stone necessary care shall be taken to avoid premature compaction of the sand bedding.

8.4.1 INITIALCOMPACTION :-

After laying the concrete kerb stone, they shall be compacted to achieve consolidation of the sand bedding and brought to design levels and profiles by not less than Two (2) passes of a suitable plate compactor.

The compactor shall be a high-frequency, low amplitude mechanical flat plate vibrator having plate area sufficient to cover a minimum of twelve concrete kerb stone. Prior to compaction all debris shall be removed from the surface.

Compaction shall proceed as closely as possible following laying and prior to any traffic. Compaction shall not, however, be attempted within one metre of the laying face. Compaction shall continue until lipping has been eliminated between adjoining kerb. Joints shall then be filled and recompacted as described in Cl. 3.5.

All work further than one metre from the laying face shall be left fully compacted at the completion of each day's laying.

Any kerbs that are structurally damaged prior to or during compaction shall be immediately removed and replaced.

Sufficient plate compactors shall be maintained at the paving site for both bedding compaction and joint filling.

8.4.2 JOINTFILLINGANDFINALCOMPACTION :-

As soon as possible after compaction and in any case prior to the termination of work on that day and prior to the acceptance of vehicular traffic, sand for joint filling shall be spread over the pavement.

Joint sand shall pass a 2.36 mm (No.8) sieve and shall be free of soluble salts or contaminants likely to cause efflorescence. The same shall comply with the following grading limits.

In sieve size	% passed
2.36 mm	100
1.18 mm	90-100
600 microns	60-90
300 microns	30-60
150 microns	15-30
75 microns	10-20

The Contractor shall supply a sample of the jointing sand to be used in the contract prior to delivering any such materials to site for incorporation into the works. Certificates of test results issued by a recognized testing laboratory confirming that the samples conform to the requirements of this specifications shall accompany the sample.

The jointing sand shall be broomed to fill the joints. Excess sand shall then be removed from the pavement surface and the jointing sand shall be compacted with not less than one (1) Pass by the plate vibrator and joints refilled with sand to full depth.

This procedure shall be repeated until all joints are completed filled with sand. No traffic shall be permitted to use the pavement until all joints have been completely filled with sand and compacted.

Both the sand and paver block shall be dry when sand is spread and broomed into the joints to prevent premature setting of sand.

The difference in level (lipping) between adjacent kerbs shall not exceed 3 mm with not more than 1% in any 3 m x 3 mm area exceeding 2 mm. Pavement which is deformed beyond above limits after final compaction shall be taken out and reconstructed to the satisfaction of the Engineer.

8.4.3 EDGERESTRAINT :-

Edge restrains need to be sufficiently robust to withstand override by the anticipated traffic, to withstand thermal expansion and to prevent loss of the laying course material from beneath the surface course. The edge restraint should present a vertical face down to the level of the underside of the laying course.

The surface course should not be vibrated until the edge restraint, together with any bedding or concrete haunching, has gained sufficient strength. It is essential that edge restraints are adequately secured.

8.5 SAMPLING AND TESTING PROCEDURES FOR CONCRETE KERBSTONE OF TYPE A AND TYPE D :-

8.5.1 SAMPLE SIZE:-

Internal - Average of minimum 3 samples per 5000 kerb stone - for concrete kerb stone manufacturers.
External - Minimum 2 blocks per 10000 kerb stone. Average of minimum 8 kerbs per site - for captioned contractors.

8.5.2 SAMPLING FOR TESTING :-

Sampling for testing of concrete kerb stone shall be done in accordance with Appendix-A.

8.5.3 COMPRESSIVE STRENGTH :-

Testing for 28 days compressive strength shall be undertaken in accordance with Appendix-B. The average compressive strength type A and type D kerbs as per MORTH.

Note:- 10% lower tolerance limit in compressive strength shall be allowed.

8.5.4 WATER ABSORPTION :-

Testing for water absorption shall be in accordance with IS 2185:1979:Part I (Specifications for concrete masonry blocks) Appendix C

APPENDIX-A

SAMPLING OF CONCRETE KERBSTONE :-

Method of Sampling:

The concrete kerb stone required for carrying out the tests, a sample of 20 block shall be taken from every consignment of 4000 kerbs or part thereof the same size, shape and thickness and the same batch of manufacture from these samples the kerbs shall be taken at random for conducting the tests.

8.5.5 MARKING AND IDENTIFICATION :-

All samples shall be clearly marked at the time of sampling in such a way that the designated section of Part thereof and the consignment represented by the sample, are clearly defined.

The sample shall be dispatched to the approved test laboratory taking precaution to avoid damage to the paving in transit. Protect the paving from damage and contamination until they have been tested. The samples shall be stored in water at $20 \pm 5^\circ\text{C}$ for 24 hours prior to testing.

APPENDIX- B

PROCEDURE FOR TESTING OF COMPRESSIVE STRENGTH FOR CONCRETE KERB STONE :

Reference: MORTH Specification for concrete kerb stone

B-1 Testing Machine: The testing machines shall be of suitable capacity for the test and capable of applying the load at the rate specified. It shall comply, as regards repeatability and accuracy with the requirements of relevant IS specification.

B-2 Procedure - The sample specimens shall be tested in wet condition after being stored at least 24 hours, in water maintained at a temperature of $20 \pm 5^\circ\text{C}$ before the specimens are submerged in water, the necessary area shall be determined.

The plates of the testing machine shall be wiped clean and any loose grit or other material removed from the contact faces of the specimen. Plywood nominally 4 mm thick, shall be used as packing between the upper and lower faces of the specimen and the machine plates, and these boards shall be larger than the specimen by a margin of at least 5 mm at all points. Fresh packing shall be used for each specimen tested. The specimen shall be placed in the machine with the wearing surface in a horizontal plane and in such a way that the axes of the specimen are aligned with those of

the machine plates. The load shall be applied without shock and increased continuously at the rate of approximately 15 N/sqmm per minute until no greater load can be sustained. The maximum load applied to the specimen shall be recorded.

B-3 CALCULATION OF CORRECTED STRENGTH:-

The compressive strength of each kerb specimen shall be calculated by as per MORTH.

B-4 COMPRESSIVE STRENGTH CALCULATION:-

The average corrected compressive strength for the designed kerb section shall be calculated.

APPENDIX-C

METHOD FOR THE DETERMINATION OF WATER ABSORPTION:-

The test specimens shall be completely immersed in water at room temperature for 24 hours. The specimens shall then be weighed, while suspended by a metal wire and completely submerged in water

They shall be removed from the water and allowed to drain for one minute. Visible surface water being removed with a damp cloth and immediately weighed

Subsequent to saturation, all specimens shall be dried in a ventilated oven at $100 \pm 5^\circ\text{C}$ for not less than 24 hours and until two successive weightings at intervals of 2 hours show an increment of loss not greater, than 0.2 percent of the last previously determined mass of the specimen.

Calculate the absorption as follows:

$$\text{Absorption, kg/m}^3 \text{ A-B} \\ = \frac{\text{-----} 10000}{\text{B-C}}$$

$$\text{Absorption} \\ \text{percent A-} \\ \text{B Where } \frac{\text{-----} 100}{\text{B}}$$

A = wet mass of unit in kg

B = dry mass of unit in kg. And

C = suspended immersed mass of unit in kg.

This item should be executed as per MORTH.

Item No. 09 :-

Providing interlocking type Rubber moulded cement concrete paver block of approved shape, design & colour having 60mm thickness (M-35) purchased from SMC's approved paverblock manufacturer only & fixing of fine sand bedding. Item includes levelling by using vibratory plates compacted machine. Item also includes all materials, labour, equipments, tools, plants, watering, cleaning etc. complete. Without colour (SOR 2024-25)

Section 1.01 Without colour With colour

**With Colour (Produced by
C&D waste) Without Colour
(Produced by C&D waste)**

RAW MATERIAL

CEMENT:-

The cement used in the manufacture of high quality precast concrete paving block shall be conforming to IS 12269 (53 grade) ordinary Portland Cement or IS 8112 (43 grade ordinary Portland cement).

The minimum cement content in concrete used for making paver blocks should be 310 kg/Cu.M. And the upper limit of cement shall not be more than 425kg/Cu.M.

AGGREGATES :-

The fine and coarse aggregates shall consist of naturally occurring crushed or uncrushed materials which, apart from the grading requirements comply with IS 383-1970. The fine aggregates used shall contain a minimum of 25% natural silicon sand. Lime stone aggregates shall not be used. Aggregates shall contain no more than 3% by weight of clay and shall be free from deleterious salts and contaminants.

WATER :-

The water shall be clean and free from any deleterious matter. It shall meet the requirements stipulated in IS:456- 2000.

OTHER MATERIALS :-

Any other material/ingredients used in the concrete shall conform to latest IS specifications.

PAVERBLOCKS CHARACTERISTICS

The concrete pavers should have perpendicularities after release from the mould and the same should be retained until the laying.

The surface should be of anti-skid and anti glare type. The paver should have uniform chamfers to facilitate easy drainage of surface run off.

The pavers should have uniform interlocking space of 2 mm to 3 mm to ensure compacted sand filling after vibration on the paver surface.

The concrete mix design should be followed for each batch of materials separately and automatic batching plant is to be used to achieve uniformity in strength and quality.

The pavers shall be manufactured in single layer only.

Skilled labour should be employed for laying blocks to ensure line and level for laying, desired shape of the surface and adequate compaction of the sand in the joints.

The pavers are to be skirted all round with kerbing using solid concrete blocks of size 100 mm x 200 mm x 400 mm or as directed by the Engineer. The kerbing should be embedded for 100 mm depth. The concrete used for kerbing shall be cured properly for 7 days minimum.

LAYING OF PAVER BLOCK

KS:- PRIMING :-

It will be responsibilities of the Contractors to ensure that the manhole/pipeline cable trenches/circular drainage system etc. raised to driveway level using the requisite materials as per instruction of Engg. The areas of potholes/deep depressions at the isolated locations also have to be filled up before laying the paver blocks. No extra payments will be made for this purpose.

It will be the responsibility of the Contractors to ensure that undulations on the paver blocks are eliminated after the traffic is allowed on it. Proper slope for drainage of water needs to be ensured by the Contractor. All necessary materials, tools, tackles are required to be arranged by the Contractor.

BEDDING SAND COURSE :-

The bedding sand shall consist of a clean well graded sand passing through 4.75 mm sieve and suitable for concrete. The bedding should be from either a single source or blended to achieve the following grading.

In Sieve Size	% Passed
9.52 mm	100
4.75 mm	95-100
2.36	80-100
1.18	60-100
600 Microns	25-60
300 Microns	10-30
150 Microns	5-15
75 Microns	0-10

Contractor shall be responsible to ensure that single-sized, gap graded sands or sands containing an excessive amount of fines or plastic fines are not used. The sand particles should preferably be sharp not rounded as sharp sand possess higher strength and resist the migration of sand from under the

block to less frequently areas even though sharp sands are relatively more difficult to compact than rounded sands, the use of sharp sands is preferred for the more heavily trafficked driveways. The sand use for bedding shall be free of any deleterious soluble salts or other contaminants likely to cause efflorescence.

The sand shall be of uniform moisture content and within 4%-8% when spread and shall be protected against rain when stock piled prior to spreading. Saturated sand shall not be used. The bedding sand shall be spread loose in a uniform layer as per drawing. The compacted uniform thickness shall be of 45 mm and within +/- 5 mm. Thickness variation shall not be used to correct irregularities in the base course surface.

The spread sand shall be carefully maintained in a loose dry condition and protected against pre-compaction both prior to and following screeding. Any precompacted sand or screeded sand left overnight shall be loosened before further laying of paving blocks take place.

Sand shall be slightly screeded in a loose condition to the predetermined depth only slightly ahead of the laying of paving unit.

Any depressions in the screeded sand exceeding 5 mm shall be loosened, raked and rescreeded before laying of paving blocks.

LAYING OF INTERLOCKING PAVER BLOCKS :-

Paver blocks shall be laid in herringbone laying pattern throughout the pavement. Once the laying pattern has been established, it shall continue without interruption over the entire pavement surface. Cutting of blocks, the use of infill concrete or discontinuities in laying pattern is not permitted in other than approved locations.

Paver blocks shall be placed on the uncompacted screeded sand bed to the nominated laying pattern, care being taken to maintain the specified bond throughout the job. The first row shall be located next to an edge restraint. Specially manufactured edge paving blocks are permitted or edge blocks may be cut using a power saw, a mechanical or hydraulic guillotine, bolster or other approved cutting machine.

Paver blocks shall be placed to achieve gaps nominally 2 to 3 mm wide between adjacent paving joints. No joint shall be less 1.5 mm not more than 4 mm. Frequent use of string lines shall be used to check alignment. In this regard the "laying face" shall be checked at least every two meters as the face proceeds. Should the face become out of alignment, it must be corrected prior to initial compaction and before further laying job is proceeded with.

In each row, all full blocks shall be laid first. Closure blocks shall be cut and fitted subsequently. Such closure blocks shall consist of not less than 25% of a full blocks.

To infill spaces between 25 mm and 50 mm wide concrete having screened sand, coarse aggregate mix shall be used. Within such mix the nominal aggregate size shall not exceed one third the smallest dimension of the infill space. For smaller spaces dry packed mortar shall be used.

Except where it is necessary to correct any minor variations occurring in the laying bond, the paver blocks shall not be hammered into position. Where adjustment of paver blocks necessary care shall be taken to avoid premature compaction of the sand bedding.

INITIAL COMPACTION :-

After laying the paver blocks, they shall be compacted to achieve consolidation of the sand bedding and brought to design levels and profiles by not less than Two (2) passes of a suitable plate compactor.

The compactor shall be a high-frequency, low amplitude mechanical flat plate vibrator having plate area sufficient to cover a minimum of twelve paving blocks. Prior to compaction all debris shall be removed from the surface.

Compaction shall proceed as closely as possible following laying and prior to any traffic. Compaction shall not, however, be attempted within one metre of the laying face. Compaction shall continue until lipping has been eliminated between adjoining blocks. Joints shall then be filled and recompact as described in Cl. 3.5.

All work further than one metre from the laying face shall be left fully compacted at the completion of each day's laying.

Any blocks that are structurally damaged prior to or during compaction shall be immediately removed and replaced.

Sufficient plate compactors shall be maintained at the paving site for both bedding compaction and joint filling.

JOINT FILLING AND FINAL COMPACTION :-

As soon as possible after compaction and in any case prior to the termination of work on that day and prior to the acceptance of vehicular traffic, sand for joint filling shall be spread over the pavement.

Joint sand shall pass a 2.36 mm (No.8) sieve and shall be free of soluble salts or contaminants likely to cause efflorescence. The same shall comply with the following grading limits.

In Sieve Size	% Passed
9.52 mm	100
4.75 mm	95-100
2.36	80-100

1.18	60-100
600 Microns	25-60
300 Microns	10-30
150 Microns	5-15
75 Microns	0-10

The Contractor shall supply a sample of the jointing sand to be used in the contract prior to delivering any such materials to site for incorporation into the works. Certificates of test results issued by a recognized testing laboratory confirming that the samples conform to the requirements of this specifications shall accompany the sample.

The jointing sand shall be broomed to fill the joints. Excess sand shall then be removed from the pavement surface and the jointing sand shall be compacted with not less than one (1) Pass by the plate vibrator and joints refilled with sand to full depth.

This procedure shall be repeated until all joints are completed filled with sand. No traffic shall be permitted to use the pavement until all joints have been completely filled with sand and compacted. Both the sand and paver block shall be dry when sand is spread and broomed into the joints to prevent premature setting of sand.

The difference in level (lipping) between adjacent blocks shall not exceed 3 mm with not more than 1% in any 3 m x 3 mm area exceeding 2 mm. Pavement which is deformed beyond above limits after final compaction shall be taken out and reconstructed to the satisfaction of the Engineer.

EDGERESTRAINT :-

Edge restrains need to be sufficiently robust to withstand override by the anticipated traffic, to withstand thermal expansion and to prevent loss of the laying course material from beneath the surface course. The edge restraint should present a vertical face down to the level of the underside of the laying course.

The surface course should not be vibrated until the edge restraint, together with any bedding or concrete haunching, has gained sufficient strength. It is essential that edge restraints are adequately secured.

SAMPLINGANDTESTINGPROCEDURESFORPAVERBLOCKS

:- SAMPLE SIZE:-

Internal - Average of minimum 3 samples per 5000 blocks - for paver block manufacturers.

External - Minimum 2 blocks per 10000 blocks. Average of minimum 8 blocks per site - for captioned contractors.

SAMPLINGFORTESTING :-

Sampling for testing of paver blocks shall be done in accordance with Appendix-A.

COMPRESSIVE STRENGTH :-

Testing for 28 days compressive strength shall be undertaken in accordance with Appendix-B. The average compressive strength of 60 mm thick paver blocks tested shall be 31.8 MPa.

Note:- 10% lower tolerance limit in compressive strength shall be allowed. WATER ABSORPTION :-

Testing for water absorption shall be in accordance with IS 2185:1979:Part I (Specifications for concrete masonry blocks) Appendix C

APPENDIX-A

SAMPLINGOFPAVERBLOCKS :-

Method of Sampling:

The paver blocks required for carrying out the tests, a sample of 20 block shall be taken from every consignment of 4000 blocks or part thereof the same size, shape and thickness and the same batch of manufacture from these samples the blocks shall be taken at random for conducting the tests.

MARKINGANDIDENTIFICATION :-

All samples shall be clearly marked at the time of sampling in such a way that the designated section of Part thereof and the consignment represented by the sample, are clearly defined.

The sample shall be dispatched to the approved test laboratory taking precaution to avoid damage to the paving in transit. Protect the paving from damage and contamination until they have been tested. The samples shall be stored in water at 20°C + 5°C for 24 hours prior to testing.

APPENDIX- B

PROCEDURE FOR TESTING OF COMPRESSIVE STRENGTH FOR PAVER BLOCK :

Reference: BS 6717 Part I (1993) Specification for Paver Blocks B-1 Testing Machine: The testing machines shall be of suitable capacity for the test and capable of applying the load at the rate specified. It shall comply, as regards repeatability and accuracy with the requirements of relevant IS specification.

B-2 Procedure - The sample specimens shall be tested in wet condition after being stored at least 24 hours, in water maintained at a temperature of $200^{\circ}\text{C} + 50^{\circ}\text{C}$ before the specimens are submerged in water, the necessary area shall be determined.

The plates of the testing machine shall be wiped clean and any loose grit or other material removed from the contact faces of the specimen. Plywood nominally 4 mm thick, shall be used as packing between the upper and lower faces of the specimen and the machine plates, and these boards shall be larger than the specimen by a margin of at least 5 mm at all points. Fresh packing shall be used for each specimen tested. The specimen shall be placed in the machine with the wearing surface in a horizontal plane and in such a way that the axes of the specimen are aligned with those of the machine plates. The load shall be applied without shock and increased continuously at the rate of approximately 15 N/sqmm per minute until no greater load can be sustained. The maximum load applied to the specimen shall be recorded.

B-3 ALLCULATION OF CORRECTED STRENGTH:-

The compressive strength of each block specimen shall be calculated by dividing the maximum load by full cross section area and multiplying by an appropriate factors.

Thickness and Chamfer
Correction Factors For
Compressive Strength

Work Size Thickness in mm	Correction Factors	
	Plain Block	Chamfered Block
60	1.00	1.06
80	1.12	1.18
100	1.18	1.24

B-4 COMPRESSIVE STRENGTH CALCULATION:-

The average corrected compressive strength for the designed block section shall be calculated. APPENDIX -C

METHOD FOR THE DETERMINATION OF WATER ABSORPTION:-

The test specimens shall be completely immersed in water at room temperature for 24 hours. The specimens shall then be weighed, while suspended by a metal wire and completely submerged in water

They shall be removed from the water and allowed to drain for one minute Visible surfaces water being removed with a damp cloth and immediately weighed

Subsequent to saturation, all specimens shall be dried in a ventilated oven at 100 to 115°C for not less than 24 hours and until two successive weightings at intervals of 2 hours show an increment of loss not greater, than 0.2 percent of the last previously determined mass of the specimen.

Calculate the absorption as follows:

$$\text{Absorption, kg/m}^3 \text{ A-B} \\ = \frac{\text{A-B}}{\text{B-C}} \times 10000$$

$$\text{Absorption} \\ \text{percent A-} \\ \text{B Where } \frac{\text{A-B}}{\text{B}} \times 100$$

A = wet mass of unit in kg
B = dry mass of unit in kg. And
C = suspended immersed mass of unit in kg.

This item should be executed as per MORTH

Item No. 10 :-

Providing & fixing interlocking type Cement Concrete paver block of approved shape & design having 60 mm thickness (M-40) purchased from SMC's approved paverblock manufacturer only on fine sand bedding. Item includes leveling by using vibratory plates compacted machine. Item also includes all materials, Labour, equipments, tools, plants, watering, cleaning etc. complete. (SOR 2024-25)

For Road Junction 80 mm thick (M-50)

MATERIALS:

Water shall conform to the standards specified in I.S.456-1978. Cement shall be ordinary port land cement as per I.S.269-1976. Fine sand shall be natural sand, hard, strong, durable and free from injurious amounts of lust clay, alkali, salts, organic matter, loam, mica and also got approved from the Engineer-in-charge.

WORKMANSHIP :

Cement concrete paver block of approved shape and design as shown in drawing (178 x 180 x 65 mm) shall be supplied and stacked on site and preserved carefully, paver block in bulk as per requirement shall be supplied to site broken pieces of C.C. paver block shall not be used.

Before fixing/laying of paver blocks paving area shall be filled with the fine sand of approved quality in 135 mm thickness.

After filling fine sand in required thickness, it shall be leveled and compacted by vibrating plate compactor, Sprinkling of water during this process. Shall be done, leveling and compaction of fine sand bedding shall be done to the satisfaction of Engineer-in-charge. The work of laying c.c. paver block in a interlocking pattern shall be in line and level. Necessary chamber shall be maintained to drain out the water easily. After properly laying of C.C. paver block. It shall be again compacted by using vibrating plate compactor. All unevenness must be removed and same level must be achieved. Corners and the edges shall be filled with mortars. Good aesthetics view shall be achieved.

Testing of C.C. paver block shall be given as per instruction of Engineer-in-charge. Testing report include results of compressive strength test and abrasion test.

MODEOFMEASUREMENTANDPAYMENT :

Item includes all materials, labors, equipments and all miscellaneous expenses incurred in this particular item.

The measurement shall be taken in Sq.mt. from the building line to inner edge of kerb stone/ pardi.

Testing report of C.C. paver block must be compulsory and shall be submitted well in time minimum compressive strength and maximum abrasion shall be 300 Kg./Sq.cm. and 2.0 mm respectively.

The rate shall be for a unit of one Sq.mts.

This item should be executed as per MORTH

Item No. 11 :-

Removing and resetting Existing paver block, including all watering leveling, cleaning, labour & Equipments chagres etc. complete as per details in tender specification & as directed by engineer in charge.

11.1 RAW MATERIAL**11.1.1 CEMENT:-**

The cement used in the manufacture of high quality precast concrete paving block shall be conforming to IS 12269 (53 grade) ordinary Portland Cement or IS 8112 (43 grade ordinary Portland cement). The minimum cement content in concrete used for making paver blocks should be 310 kg/Cu.M. And the upper limit of cement shall not be more than 425kg/Cu.M.

11.1.2 AGGREGATES :-

The fine and coarse aggregates shall consist of naturally occurring crushed or uncrushed materials which, apart from the grading requirements comply with IS 383-1970. The fine aggregates used shall contain a minimum of 25% natural silicon sand. Lime stone aggregates shall not be used.

Aggregates shall contain no more than 3% by weight of clay and shall be free from deleterious salts and contaminants.

11.1.3 WATER :-

The water shall be clean and free from any deleterious matter. It shall meet the requirements stipulated in IS:456- 2000.

11.1.4 OTHER MATERIALS :-

Any other material/ingredients used in the concrete shall conform to latest IS specifications.

11.2 PAVERBLOCKS CHARACTERISTICS

The concrete pavers should have perpendicularities after release from the mould and the same should be retained until the laying.

The surface should be of anti-skid and anti glare type. The paver should have uniform chamfers to facilitate easy drainage of surface run off.

The pavers should have uniform interlocking space of 2 mm to 3 mm to ensure compacted sand filling after vibration on the paver surface.

The concrete mix design should be followed for each batch of materials separately and automatic batching plant is to be used to achieve uniformity in strength and quality.

The pavers shall be manufactured in single layer only.

Skilled labour should be employed for laying blocks to ensure line and level for laying, desired shape of the surface and adequate compaction of the sand in the joints.

The pavers are to be skirted all round with kerbing using solid concrete blocks of size 100 mm x 200 mm x 400 mm or as directed by the Engineer. The kerbing should be embedded for 100 mm depth. The concrete used for kerbing shall be cured properly for 7 days minimum.

11.3 LAYING OF PAVERBLOCKS :-

11.3.1 PRIMING :-

It will be responsibilities of the Contractors to ensure that the manhole/pipeline cable trenches/circular drainage system etc. raised to driveway level using the requisite materials as per instruction of Engg. The areas of potholes/deep depressions at the isolated locations also have to be filled up before laying the paver blocks. No extra payments will be made for this purpose.

It will be the responsibility of the Contractors to ensure that undulations on the paver blocks are eliminated after the traffic is allowed on it. Proper slope for drainage of water needs to be ensured by the Contractor. All necessary materials, tools, tackles are required to be arranged by the Contractor.

11.3.2 BEDDING SAND COURSE :-

The bedding sand shall consist of a clean well graded sand passing through 4.75 mm sieve and suitable for concrete. The bedding should be from either a single source or blended to achieve the following grading

In Sieve Size	% Passed
9.52 mm	100
4.75 mm	95-100
2.36	80-100
1.18	60-100
600 Microns	25-60
300 Microns	10-30
150 Microns	5-15
75 Microns	0-10

Contractor shall be responsible to ensure that single-sized, gap graded sands or sands containing an excessive amount of fines or plastic fines are not used. The sand particles should preferably be sharp not rounded as sharp sand possess higher strength and resist the migration of sand from under the block to less frequently areas even though sharp sands are relatively more difficult to compact than rounded sands, the use of sharp sands is preferred for the more heavily trafficked driveways. The sand use for bedding shall be free of any deleterious soluble salts or other contaminants likely to cause efflorescence.

The sand shall be of uniform moisture content and within 4%-8% when spread and shall be protected against rain when stock piled prior to spreading. Saturated sand shall not be used. The bedding sand shall be spread loose in a uniform layer as per drawing. The compacted uniform thickness shall be of 45 mm and within +/- 5

mm. Thickness variation shall not be used to correct irregularities in the base course surface.

The spread sand shall be carefully maintained in a loose dry condition and protected against pre-compaction both prior to and following screeding. Any precompacted sand or screeded sand left overnight shall be loosened before further laying of paving blocks take place.

Sand shall be slightly screeded in a loose condition to the predetermined depth only slightly ahead of the laying of paving unit.

Any depressions in the screeded sand exceeding 5 mm shall be loosened, raked and rescreeded before laying of paving blocks.

11.4 LAYING OF INTERLOCKING PAVEMENT BLOCKS :-

Paver blocks shall be laid in herringbone laying pattern throughout the pavement. Once the laying pattern has been established, it shall continue without interruption over the entire pavement surface. Cutting of blocks, the use of infill concrete or discontinuities in laying pattern is not permitted in other than approved locations.

Paver blocks shall be placed on the uncompacted screeded sand bed to the nominated laying pattern, care being taken to maintain the specified bond through out the job. The first row shall be located next to an edge restraint. Specially manufactured edge paving blocks are permitted or edge blocks may be cut using a power saw, a mechanical or hydraulic guillotine, bolster or other approved cutting machine.

Paver blocks shall be placed to achieve gaps nominally 2 to 3 mm wide between adjacent paving joints. No joint shall be less 1.5 mm not more than 4 mm. Frequent use of string lines shall be used to

check alignment. In this regard the "laying face" shall be checked at least every two meters as the face proceeds. Should the face become out of alignment, it must be corrected prior to initial compaction and before further laying job is proceeded with.

In each row, all full blocks shall be laid first. Closure blocks shall be cut and fitted subsequently. Such closer blocks shall consist of not less than 25% of a full blocks.

To infill spaces between 25 mm and 50 mm wide concrete having screened sand, coarse aggregate mix shall be used. Within such mix the nominal aggregate size shall not exceed one third the smallest dimension of the infill space. For smaller spaces dry packed mortar shall be used.

Except where it is necessary to correct any minor variations occurring in the laying bond, the paver blocks shall not be hammered into position. Where adjustment of paver blocks necessary care shall be taken to avoid premature compaction of the sand bedding.

11.4.1 INITIAL COMPACTION :-

After laying the paver blocks, they shall be compacted to achieve consolidation of the sand bedding and brought to design levels and profiles by not less than Two (2) passes of a suitable plate compactor.

The compactor shall be a high-frequency, low amplitude mechanical flat plate vibrator having plate area sufficient to cover a minimum of twelve paving blocks. Prior to compaction all debris shall be removed from the surface.

Compaction shall proceed as closely as possible following laying and prior to any traffic. Compaction shall not, however, be attempted within one metre of the laying face. Compaction shall continue until lipping has been eliminated between adjoining blocks. Joints shall then be filled and recompacted as described in Cl. 3.5.

All work further than one metre from the laying face shall be left fully compacted at the completion of each day's laying.

Any blocks that are structurally damaged prior to or during compaction shall be immediately removed and replaced.

Sufficient plate compactors shall be maintained at the paving site for both bedding compaction and joint filling.

11.4.2 JOINT FILLING AND FINAL COMPACTION :-

As soon as possible after compaction and in any case prior to the termination of work on that day and prior to the acceptance of vehicular traffic, sand for joint filling shall be spread over the pavement.

Joint sand shall pass a 2.36 mm (No.8) sieve and shall be free of soluble salts or contaminants likely to cause efflorescence. The same shall comply with the following grading limits.

In Sieve Size	% Passed
9.52 mm	100
4.75 mm	95-100
2.36	80-100
1.18	60-100
600 Microns	25-60
300 Microns	10-30
150 Microns	5-15
75 Microns	0-10

The Contractor shall supply a sample of the jointing sand to be used in the contract prior to delivering any such materials to site for incorporation into the works. Certificates of test results issued by a recognized testing laboratory confirming that the samples conform to the requirements of this specifications shall accompany the sample.

The jointing sand shall be broomed to fill the joints. Excess sand shall then be removed from the pavement surface and the jointing sand shall be compacted with not less than one (1) Pass by the plate vibrator and joints refilled with sand to full depth.

This procedure shall be repeated until all joints are completed filled with sand. No traffic shall be permitted to use the pavement until all joints have been completely filled with sand and compacted. Both the sand and paver block shall be dry when sand is spread and broomed into the joints to prevent premature setting of sand.

The difference in level (lipping) between adjacent blocks shall not exceed 3 mm with not more than 1% in any 3 m x 3 mm area exceeding 2 mm. Pavement which is deformed beyond above limits after final compaction shall be taken out and reconstructed to the satisfaction of the Engineer.

11.4.3 EDGE RESTRAINT :-

Edge restrains need to be sufficiently robust to withstand override by the anticipated traffic, to withstand thermal expansion and to prevent loss of the laying course material from beneath the surface course. The edge restraint should present a vertical face down to the level of the underside of the laying course.

The surface course should not be vibrated until the edge restraint, together with any bedding or concrete haunching, has gained sufficient strength. It is essential that edge restraints are adequately secured.

11.5 SAMPLING AND TESTING PROCEDURES FOR PAVER BLOCKS :-**11.5.1 SAMPLE SIZE:-**

Internal - Average of minimum 3 samples per 5000 blocks - for paver block manufacturers.

External - Minimum 2 blocks per 10000 blocks. Average of minimum 8 blocks per site - for captioned contractors.

11.5.2 SAMPLING FOR TESTING :-

Sampling for testing of paver blocks shall be done in accordance with Appendix-A.

11.5.3 COMPRESSIVE STRENGTH :-

Testing for 28 days compressive strength shall be undertaken in accordance with Appendix-B. The average compressive strength of 60 mm thick paver blocks tested shall be 31.8 MPa.

Note:- 10% lower tolerance limit in compressive strength shall be allowed.

11.5.4 WATER ABSORPTION :-

Testing for water absorption shall be in accordance with IS 2185:1979:Part I (Specifications for concrete masonry blocks) Appendix C

APPENDIX-A**SAMPLING OF PAVER BLOCKS :-**

Method of Sampling:

The paver blocks required for carrying out the tests, a sample of 20 block shall be taken from every consignment of 4000 blocks or part thereof the same size, shape and thickness and the same batch of manufacture from these samples the blocks shall be taken at random for conducting the tests.

11.5.5 MARKING AND IDENTIFICATION :-

All samples shall be clearly marked at the time of sampling in such a way that the designated section of Part thereof and the consignment represented by the sample, are clearly defined.

The sample shall be dispatched to the approved test laboratory taking precaution to avoid damage to the paving in transit. Protect the paving from damage and contamination until they have been tested.

The samples shall be stored in water at $20 \pm 5^\circ \text{C}$ for 24 hours prior to testing.

APPENDIX- B

PROCEDURE FOR TESTING OF COMPRESSIVE STRENGTH FOR PAVER BLOCK :

Reference: BS 6717 Part I (1993) Specification for Paver Blocks B-1 Testing Machine: The testing machines shall be of suitable capacity for the test and capable of applying the load at the rate specified. It shall comply, as regards repeatability and accuracy with the requirements of relevant IS specification.

B-2 Procedure - The sample specimens shall be tested in wet condition after being stored at least 24 hours, in water maintained at a temperature of $20 \pm 5^\circ \text{C}$ before the specimens are submerged in water, the necessary area shall be determined.

The plates of the testing machine shall be wiped clean and any loose grit or other material removed from the contact faces of the specimen. Plywood nominally 4 mm thick, shall be used as packing between the upper and lower faces of the specimen and the machine plates, and these boards shall be larger than the specimen by a margin of at least 5 mm at all points. Fresh packing shall be used for each specimen tested. The specimen shall be placed in the machine with the wearing surface in a horizontal plane and in such a way that the axes of the specimen are aligned with those of the machine plates. The load shall be applied without shock and increased continuously at the rate of approximately 15 N/sqmm per minute until no greater load can be sustained. The maximum load applied to the specimen shall be recorded.

B-3 CALCULATION OF CORRECTED STRENGTH:-

The compressive strength of each block specimen shall be calculated by dividing the maximum load by full cross section area and multiplying by an appropriate factors.

Thickness and Chamfer
Correction Factors For
Compressive Strength

Work Size thickness in mm	Correction Factors	
	Plain Block	Chamfered
60	1.00	1.06
80	1.12	1.18
100	1.18	1.24

B-4 COMPRESSIVE STRENGTH CALCULATION:-

The average corrected compressive strength for the designed block section shall be calculated.

APPENDIX-C

METHOD FOR THE DETERMINATION OF WATER ABSORPTION:-

The test specimens shall be completely immersed in water at room temperature for 24 hours. The specimens shall then be weighed, while suspended by a metal wire and completely submerged in water

They shall be removed from the water and allowed to drain for one minute. Visible surface water being removed with a damp cloth and immediately weighed

Subsequent to saturation, all specimens shall be dried in a ventilated oven at $100 \pm 5^\circ \text{C}$ for not less than 24 hours and until two successive weightings at intervals of 2 hours show an increment of loss not greater than 0.2 percent of the last previously determined mass of the specimen.

Calculate the absorption as follows:

Absorption, kg/m^3 A-B

$$= \frac{122}{10000} \times \frac{A-B}{B-C}$$

Absorption
percent $\frac{A-B}{B}$
Where $\frac{A-B}{B} \times 100$

A = wet mass of unit in kg
B = dry mass of unit in kg. And
C = suspended immersed mass of unit in kg.

Item No. 12:-

Dismantling of structures on roadways, including disposal of unserviceable material free of cost in permanent work as directed by the engineer with all leads and lifts etc. complete. (A) Unreinforce Cement Concrete (SOR 2024-25)

12.1.0 WORKMANSHIP:-

- 12.1.1 The term Demolition shall consist of one or more parts of the building as specified or shown in the drawing. Demolition implies taking up or down or breaking up. This shall consist of demolishing whole or part of work including all relevant items as specified or shown in the drawings.
- 12.1.2 The demolitions shall always be planned beforehand and shall be done in reverse order of the one in which the structure was constructed. This scheme shall be got approved from the Engineer-in-charge before stating the work. This however will not absolve the contractor from the responsibility of proper and safe demolition.
- 12.1.3 Necessary propping, the shoring and or under pinning shall be provided for the safety of the adjoining work or property, which is to be left intact, before dismantling and demolishing is taken up and the work shall be carried out the such away no damage is caused to the adjoining property.
- 12.1.4 Wherever required, temporary enclosures or partitions shall also be provided. Necessary precautions shall be taken to keep dust nuisance down as and where necessary..
- 12.1.5 Dismantling shall be done in a systematic manner. All materials which are likely to be damaged by dropping from a height. The order of demolishing roofs, masonry etc. shall be carefully removed first. The dismantled articles shall be passed by hand where necessary, lowered to the ground (as not thrown) and then properly stacked as directed.
- 12.1.6 All materials obtained from demolitions shall be the property of Corporation unless otherwise specified and shall be kept in safe custody until handed over to any store to Surat Municipal Corporation as specified by the Engineer-in-charge.
- 12.1.7 Any serviceable materials, obtained during dismantling and demolition, shall be separated out and stacked properly on site or any store of S.M.C. as directed, with all lead and lift. All unserviceable materials, rubbish etc. shall be stacked as directed by Engineer-in-charge.
- 12.1.8 On completion of work the site shall be cleared of all debris, rubbish and cleaned as directed.
- 12.2.0 Rates:
- 12.2.1 Measurements of all work except hidden work shall be taken before demolition or dismantling and no allowance for increase in bulk shall be allowed. The demolition of lime concrete shall be measured under this item. Specification for deduction for voids, openings etc. shall be on same basis as the employed for construction of work.
- 12.2.2 All work shall be measured in decimal system as fixed in its place subject to the following limit, unless otherwise stated hereinafter: (a) Dimensions shall be measured to the nearest 0.01 mt. (b) Area shall be worked out to the nearest 0.01 cum.
- 12.2.3 The rates shall include cost of all labour involved and tools used in demolishing and dismantling including scaffolding. The rate shall also include the charges for separating out and stacking

the serviceable materials properly and disposing the unserviceable materials with all lead and lift. The rate also includes for temporary shoring for the safety of the portion not required to be pulled down or of adjoining property and providing temporary enclosures or partitions where considered necessary.

12.2.4 The rate shall be for a unit of 100 cubic meter. This item should be executed as per MORTH

Item No. 13 :-

Demolition including stacking of serviceable materials and disposal of unserviceable materials with all lead and lift (i) RCC work

13.1.0 WORKMANSHIP :-

13.1.1 The term Demolition shall consist of one or more parts of the building as specified or shown in the drawing. Demolition implies taking up or down or breaking up. This shall consist of demolishing whole or part of work including all relevant items as specified or shown in the drawings. The demolition shall always be planned before hand and shall be done in reverse order of the one in which the structure was constructed. This scheme shall be got approved from the Engineer-in-charge before stating the work. This however will not absolve the contractor from the responsibility of proper and safe demolition.

Necessary propping, the shoring and or under pinning shall be provided for the safety of the adjoining work or property, which is to be left intact, before dismantling and demolishing is taken up and the work shall be carried out the such away no damage is caused to the adjoining property.

Wherever required, temporary enclosures or partitions shall also be provided. Necessary precautions shall be taken to keep dust nuisance down as and where necessary.

Dismantling shall be done in a systematic manner. All materials which are likely to be damaged by dropping from a height. The or demolishing roofs, masonry etc. shall be carefully removed first. The dismantled articles shall be passed by hand where necessary, lowered the ground (as not thrown) and then properly stacked as directed.

All materials obtained from demolition shall the property of Corporation unless otherwise specified and shall be kept in safe custody until handed over to any store to Surat Municipal Corporation as specified the Engineer-in-charge.

Any serviceable materials, obtained during dismantling demolition, shall be separated out and stacked properly on site or any store of S.M.C. as directed, with all lead and lift. All unserviceable

materials, rubbish etc. shall be stacked as directed by Engineer-in-charge. On completion of work the site shall be cleared of all debris rubbish and cleaned as directed.

13.3.0 Rates :

Measurements of all work except hidden work shall be taken before demolition or dismantling and no allowance for increase in bulk shall be allowed. The demolition of lime

concrete shall be measured under this item. Specification for deduction for voids, openings etc. shall be on same basis as the employed for construction of work.

All work shall be measured in deciman system as fixed in its place subject to the following limit, unless otherwise stated hereinafter : (a) Dimensions shall be measured to the nearest 0.01 mt. (b) Areas shall be worked out to the nearest 0.01 cum.

The rate shall include cost of all labour involved and tools used in demolishing and dismantling including scaffolding. The rate shall also include the charges for separating out and stacking the serviceable materials properly and disposing the unserviceable materials with all lead and lift. The rate also includes for temporary shoring for the safety of the portion not required to be pulled down or of adjoining

property and providing temporary enclosures or partitions where considered necessary.

The rate shall be for a unit of one cubic metre.

Item No. 14 :-

Providing & fixing IS Mark TMT Bar FE 500D reinforcement for R.C.C. work incl. bending, binding & placing in position etc. comp. Upto G.L./P.L. (SOR 2024-25)

MATERIALS

- 14.1 Mild steel bars shall conform to M-18 Thermo Mechanically Treated steel bars (high yield strength steel deformed bars) shall conform to M-18, Mild steel binding wires shall conform to M-21.
- 14.2. WORKMANSHIP
 - 14.2.1 The work shall consist of furnished and placing reinforcement to the shape and dimensions shown as on the drawings or as directed.
 - 14.2.2 Steel shall be clean and free from rust and loose mill scale at the time of fixing in position and subsequent concreting.
 - 14.2.3 Reinforcing steel shall conform accurately to the dimensions given in the bar bending schedules shown on relevant drawings. Bars shall be bent cold to specified shape and dimensions or as directed, using a proper bar bender, operated by hand or power to attain proper radius of bends, bars shall not be bent or straightened in a manner that will injure the material. Bars bent during transportation or handling shall be straightened before being used on the work. They shall not be heated to facilitate bending. Unless otherwise specified for mild steel a "U" type hook at the end of each bar shall invariably be provided to main reinforcement. The radius of the bend shall not be less than straight part of the bar beyond the end of the curve shall be at least four times the diameter of the bar. In case which are not round and in case of deformed bars, the diameter shall be taken as the diameter of the circle having an equivalent effective area. The hooks shall be suitably encased to prevent any splitting of the concrete. The cold twisted steel bars shall be used without hooks at the ends. Deformed bars without hooks shall, however, comply with relevant anchorage requirements.
 - 14.2.4 All the reinforcement bars shall be accurately placed in exactly the same position as shown on the drawings, and shall be securely held in position during placing of concrete by annealed binding wire not less than 1 mm. in size, and by using stay blocks or metal chair spacers, metal handers, supporting wires or other approved devices at sufficiently close intervals. Bars shall not be allowed to sag between supports nor displaced during concreting or any other operations of the work. All devices used for positioning shall be of non-corrodible material. Wooden and metal supports shall not extend to the surface of the concrete, except where shown on the drawings. Placing bars on layers of freshly laid concrete as the work progresses for adjusting bar spacing shall not be allowed. Pieces of broken stone or brick wooden blocks shall not be used. Layers of bars shall be separated by spacer bars, precast mortar blocks or other approved devices. Reinforcement after being placed in position shall be maintained in a clean condition until completely embedded in concrete. Special care shall be exercised to prevent any displacement of reinforcement in concrete already placed. To prevent reinforcement from corrosion, concrete cover shall be provided as indicated on drawings. All the bars are to be spliced and which are likely to be exceeding 10 days shall be protected by a thick coat of neat cement grout.
 - 14.2.5 Bars crossing each other where required shall be secured by binding wires (annealed) of size not less than 1 mm. in such a manner that they do not slip over each other at the time of fixing and concreting.
 - 14.2.6 As far as possible, bars of full length shall be used, in case this is not possible, overlapping of bars shall be done as directed. when practicable, overlapping bars shall not touch each other, but be kept apart by 25 mm. or 125 times the maximum size of the coarse aggregate whichever is greater between them. Where not feasible, overlapping bars shall be bound with annealed wires, not less than 1 mm. thick twisted tight. The overlaps shall be staggered for different bars and located at points, along the span where neither shear nor bending moment is maximum.
 - 14.2.7 Wherever indicated on the drawings or desired by the Engineer-in-charge, bars shall be joined by couplings which shall have a cross section sufficient to transmit the full stresses of

bars. The ends of the bars that are joined by coupling shall be upset for sufficient length so that the effective cross section at the base of threads is not less than the normal cross section of the bar. Threads shall be standard threads. Steel for coupling shall conform to I.S-226.

- 14.2.8 When permitted or specified on the drawings, joints of reinforcement bars shall be welded so as to transmit their full stresses. Welded joints shall preferably be located at points when steel will not be subjected to more than 75% of the maximum permissible stresses and welds so staggered that at any one section not more than 20% of the rods are welded. Only electric welding using a process which excludes air from molten and conforms to any or all other special provisions for the work shall be accepted. Suitable means shall be provided for holding bars securely in position during welding. It shall be ensured that no voids are left in welding and when welding is done in two or three stages, previous surface shall be cleaned properly. Ends of the bars shall be cleaned of all loose scale, rust, grease, paint and other foreign matter before welding. Only competent welders shall be employed on the work. The M.S. electrodes used for welding shall conform to I.S. 814. Welded pieces of reinforcement shall be tested. Specimen shall be taken from the actual site and their number and frequency of test shall be as directed.

ItemNo. 15:-

Providing and fixing rebar of following diameter using chemical grout of Swancho/Hilti/Fischer or equivalent make including cost of all equipments, tools, material, labour, etc. Standard procedure as mentioned in manufacturer's specifications shall be strictly followed, which shall be submitted and got approved from the authority prior to start of work. The rate shall also include cost of drilling of hole of required diameter and depth as mentioned in manufacturer's specification, cleaning the hole with required air blower and other necessary tools and tackles, positioning, providing and grouting chemical, allied fixtures and fasteners, etc. but excluding the cost of reinforcing bar etc. complete. Item includes necessary scaffolding, staging, labour, tools and equipments, etc. complete as directed by the engineer-in-charge. (SOR 2024-25)

(A)16mm

(B)20mm

Details specification as per Item Description, manufacturer technical details and as directed by Engineer- in-charge.

This item should be executed as per MORTH

ItemNo. 16:-

Excavation for 27 cm wide and 25 cm deep Gishi in Ashpalt Bitumeneous road for erection of concrete wall as a road divider and removal of all excavated materials /asphalts etc. from the site as per details in tender specification & as directed by engineer in charge at the cost of contractor. (M.R)

MODE OF MEASUREMENT & PAYMENT

- 16.1 For the purpose of calculating consumption, wastage shall not be permitted beyond 7.5%. Excess consumption over 7.5% will be charged at penalty rate.
- 16.2 Reinforcement shall be measured in length including overlaps, separately for different diameters as actually used in the work. Where welding or coupling is resorted to, in place of lap joints, such joints shall be measured for payment as equivalent length of overlap as per design requirement. From the length so measured, the weight of reinforcement shall be calculated in tonnes on the same basis of as per M-14 even though steel is supplied to the contractor by the department on actual weight. Length shall include hooks at the ends. Wastage and annealed steel wire for binding shall not be measured and the cost of these items shall be deemed to be included in the rate for reinforcement.
- 16.3 The rate for reinforcement includes cost of steel binding wires, its transporting from departmental store to worksite, cutting, bending, placing and fixing in position as shown on the drawings and as directed. It shall also include all devices for keeping reinforcement in approved position, cost of joining as per approved method and all wastage and spacer bars.
- 16.4 The rate shall be for unit of one Kg.

This item should be executed as per MORTH

Item No. 17:-

Providing & laying cement concrete 1:2:4 (1 cement:2 sand:4 graded stone agg. 20 mm nominal size) & curing comp. Includ.cost of form work but exclu. Cost of reinforcement for reinforced concrete work in : (A) Foundation, footing, Base of columns and Mass concrete. (SOR 2024-25)

17.1.0 Materials:-

Water shall conform to M-1. Cement shall conform to M-3. Sand shall conform to M-6. Stone aggregate 40 mm nominal size shall conform to M-12.

17.2.0 WORKMANSHIP:

17.2.1 General:-

Before starting concreting the bed of foundation trench shall be cleared of all loose materials, levelled, Watered and rammed as directed.

17.2.2 Proportion of Mix:-

The proportion of cement, sand coarse aggregates shall be one part of cement, 3 parts of sand and 6 parts of stone aggregate shall be measured by volume.

17.2.3 Mixing:-

The concrete shall be mixed in a mechanical mixer at the site of work. Hand mixing may however be allowed for smaller quantity of work if approved by Engineer-in-charge. When hand mixing is permitted by the Engineer-in-charge in case of breakdown of machineries and in the interest of the work, it shall be carried out on a water tight platform and care shall be taken to ensure that mixing is continued until the mass is uniform in colour and consistency. However in such case 10% more cement than otherwise required shall have to be used without any extra cost. The mixing in mechanical mixers shall be done for a period 1 1/2 to 2 minutes. The quantity of water shall be just sufficient to produce dense concrete of required workability for the purpose.

17.2.4 Transporting and placing the concrete :-

The concrete shall be handed from the place of mixing to the final position in not more than 15 minutes by the method as directed and shall be placed into its final position, compacted and finished within 30 minutes of mixing with water i.e. before the setting commences.

The concrete shall be laid in layers of 15 cm to 20 cm.

Compacting :- The concrete shall be rammed with heavy iron rammer and rapidly to get the required compaction and to allow the interstices to be filled with mortar.

17.2.5 Curing:-

After the final set, the concrete shall be kept continuously wet, if required by ponding for a period of not less than 7 days from the date of placement.

17.3.0 Mode of measurements and payment:-

The concrete shall be measured for its length breadth and depth, limiting dimensions to those specified on plan or as directed. The rate shall be for a unit of one cubic meter.

Item No. 18:-

Applying Priming coat over new steel and other metal surface after over and including preparing the surface by thoroughly cleaning oil, grease dirt and other foreign matter and scoured with brushed fine steel wool, scrapers and sand paper with ready mixed priming paint brushing red lead. (SOR 2024-25)

Materials:

The ready mixed primer, brushing red lead shall conform to IS 102:1972.

The thinner (linsed oil) shall conform to IS 75:1973 if for any reason, thinning is necessary in a case of ready mix paint, the brand of thinner recommended by manufacturer shall be used.

The name of paint shall conform to M-44B.

Workmanship :

Preparation of surfaces:

The surfaces before painting shall be cleaned of all rust, scale, dirt and other foreign matter sticking to it with wire brushes, steel wool, scrapers, sand paper etc. This surface shall then be wiped finally

with mineral turpentine which shall also be removed greases and perspiration of hand marks. The surfaces shall then be allowed dry.

Application of primer:

After the preparation of the surface, the priming coat shall be applied immediately. The brushing operations are to be adjusted to the spreading capacity advised by the manufacturer of the particular primer. The paint shall be applied evenly and smoothly by means of crossing and laying off. The crossing and laying off consists of covering the area over with paint, brushing alternately in opposite directions, two or three times and then finally brushing lightly in a direction at right angles to the same. In this process no brush marks shall be left after the laying off is finished. The full process of crossing and laying will constitute one coat.

During painting, every time, after the priming coat has been worked out of the brush bristles or after the brush has been unloaded the bristles of the brush shall be opened up striking the brush against portion of the unpainted surface with the end of the bristles held at right angles to the surface, so that bristles thereafter will collect the correct amount of paint when dipped again in to a paint container. The primary coat shall be allowed to dry completely before painting is started.

No hair marks from the brush or clogging at paint puddles in the corner or panel angles of mouldings etc. shall be left on the work.

Special care shall be taken painting over bolts, nuts, rivet overlaps etc.

The container when not in use shall be kept close and free from air so that paint does not thicken and also shall be kept guarded from dust.

General:

The materials required for painting work shall be obtained directly from approved manufacturers or approved dealer and brought to the site in maker's drums, bogs etc. with seal unbroken.

All materials not in actual use shall be kept properly protected. Lids of containers shall be kept closed and surface of paint in open or partially

open containers covered with a thin layer of turpentine to prevent formation of skin. The materials which have become state or flat to improper and long storage shall not be used. The paint shall be stirred thoroughly in its container before pouring into and shall be continuously stirred in smaller container. No left over paint shall be put back into stock tins. When not in use the containers shall be kept properly closed.

If for reason, thinning is necessary, the brand of thinner recommended by the manufacturer shall be used.

The surface to be painted shall be thoroughly cleaned and dusted. All dust, dirt and grease shall be thoroughly removed before painting is started. No painting on exterior or other exposed parts of the work shall be carried out in wet, damp or otherwise unfavourable weather and all the surface shall be thoroughly dried before painting work is started.

Application of paint:

Brushing operations are to be adjusted to the spreading capacity advised by the manufacturer of particular paint. The paint shall be applied evenly and smoothly by means of crossing and laying off. The crossing and laying off consists of covering the area over with paint, brushing the surface hard for the first time over and then brushing alternately in opposite directions to or three times and then finally brushing lightly in direction at right angles to the same. In this process no brush marks shall be left after the laying off is finished. The full process of crossing and laying off will constitute one coat.

Each coat shall be allowed to dry completely and lightly rubbed with every fine grade of sand paper and loose particles brushed off before next coat is applied. Each coat shall vary slightly in the shade and shall be approved from Engineer-in-charge before next coat is started.

Each coat except the last coat shall be lightly rubbed down with sand paper or fine pumice stone and cleaned of dust before the next coat is applied. No hair marks from the brush or clogging of paint puddles in the corners of panels, angles of moulding etc. shall be left on the work.

Special care shall be taken while painting over bolts, nuts, rivets, overlaps etc. Approved quality brushes shall be used.

Mode of measurement and payment:

The new steel and other metal surfaces shall be measured under this item.

All the work shall be measured net in the decimal system as executed subject to the following limits unless otherwise stated hereinafter.

(a) Dimension shall be measured to the nearest 0.01 mtr.

(b) Area shall be worked cut to the nearest 0.01 sq. metre.

No. deduction shall be made for openings not exceeding 0.5 sq. metre each and no addition shall be made for painting to beadings, mouldings, edges, jambs, soffits, sills etc. of such openings.

In case of fabricated structural steel and iron work, priming coat of paint shall be included with fabrication. In case of trusses if measured in sq. m. compound girders, stanchions, lattices, girder and similar work, actual area shall be measured in sq. m. and no extra shall be paid for painting on bolts, heads, nuts, washers, etc. No addition shall be made to the weight calculated for the purpose of measurements of steel and iron works for paint applied on shop or at site.

The different surfaces shall be grouped into one general item. Areas of uneven surface being converted into equivalent paint areas in accordance with the table given as per Annexure-II for payment.

There is for complete item as specified i.e. one primer coat and two coats of oil paint.

int. The rate shall be for a unit of one sq. meter.

Item No. 19:-

Painting two coat (excluding priming coat) on new steel and other metal surface with synthetic enamel paint, brushing to give an even shade including cleaning the surface of all dirt, dust and other foreign matters. (SOR 2024-25)

Item No. 20:-

Painting one coat (excluding priming coat) on Previously Painted steel and other metal surface with synthetic enamel paint, brushing to give an even shade including cleaning the surface of all dirt, dust and other foreign matters. (SOR 2024-25) Details specifications same as per

For every subsequent coat Extra over item no. above

Item No. 18 and paint specification as directed by Engineer-in-charge

Item No. 21:-

Painting two coats of enamel paint over priming coat (including priming coat) on wall after removing entire surface dirt, dust foreign matter & also incl. preparing the surface even & sand papered smooth etc. comp. (M.R.)

Materials:

Theready mixed primer, brushing red lead shall conform to IS 102:1972.

The thinner (linsed oil) shall conform to IS 75:1973 if for any reason, thinning is necessary in a case of ready mix paint, the brand of thinner recommended by manufacturer shall be used.

The enamel paint shall conform to M-44B.

Workmanship :

Preparation of surfaces:

The surfaces before painting shall be cleaned of all rust, scale, dirt and other foreign matter sticking to it with wire brushes, steel wool, scrapers, sand paper etc. This surface shall then be wiped finally with mineral turpentine which shall also remove grease and perspiration of hand marks. The surfaces shall then be allowed to dry.

Application of primer:

After the preparation of the surface, the priming coat shall be applied immediately. The brushing operations are to be adjusted to the spreading capacity advised by the manufacturer of the particular primer. The paint shall be applied evenly and smoothly by means of crossing and laying off. The crossing and laying off consists of covering the area over with paint, brushing alternately in opposite directions, two or three times and then finally brushing lightly in a direction at right angles to the same. In this process no brush marks shall be left after the laying off is finished. The full process of crossing and laying will constitute one coat.

During painting, every time, after the priming coat has been worked out of the brush bristles or after the brush has been unloaded the bristles of the brush shall be opened up striking the brush against portion of the unpainted surface with the end of the bristles held at right angle to the surface, so that bristles thereafter will collect the correct amount of paint when dipped again in to a paint container. The primary coat shall be allowed to dry completely before painting is started.

No hair marks from the brush or clogging at paint puddles in the corner or panel angles of mouldings etc. shall be left on the work.

Special care shall be taken painting over bolts, nuts, rivet overlaps etc.

The container when not in use shall be kept close and free from air so that paint does not thicken and also shall be kept guarded from dust.

General:

The materials required for painting work shall be obtained directly from approved manufacturers or approved dealer and brought to the site in maker's drums, bogs etc. with seal unbroken.

All materials not in actual use shall be kept properly protected. Lid of containers shall be kept closed and surface of paint in open or partially open containers covered with a thin layer of turpentine to prevent formation

of skin. The materials which have become state or flat to improper and long storage shall not be used. The paint shall be stirred thoroughly in its container before pouring into and shall be continuously stirred in smaller

container. No left over paint shall be put back into stock tins. When not in use the containers shall be kept properly closed.

If for reason, thinning is necessary, the brand of thinner recommended by the manufacturer shall be used.

The surface to be painted shall be thoroughly cleaned and dusted. All dust, dirt and grease shall be thoroughly removed before painting is started. No painting on exterior or other exposed parts of the work shall be carried out in wet, damp or otherwise unfavourable weather and all the surface shall be thoroughly dried before painting work is started.

Application of paint:

Brushing operations are to be adjusted to the spreading capacity advised by the manufacturer of particular paint. The paint shall be applied evenly and smoothly by means of crossing and laying off. The crossing and laying off consists of converging the area over with paint, brushing the surface hard for the first time over and then brushing alternately in opposite directions to or three times and then finally brushing lightly in direction at right angles to the same. In this process no brush marks shall be left after the laying off is finished. The full process of crossing and laying off will constitute one coat.

Each coat shall be allowed to dry completely and lightly rubbed with every fine grade of sand paper and loose particles brushed off before next coat is applied. Each coat shall vary slightly in the shade and shall be approved from Engineer-in-charge before next coat is started.

Each coat except the last coat shall be lightly rubbed down with sand paper or fine pumice stone and cleaned of dust before the next coat is applied. No hair marks from the brush or clogging of paint puddles in the corners of panels, angles of moulding etc. shall be left on the work.

Special care shall be taken while painting over bolts, nuts, rivets, overlaps etc. Approved quality brushes shall be used.

Mode of measurement and payment:

The new steel and other metal surfaces shall be measured under this item.

All the work shall be measured net in the decimal system as executed subject to the following limits unless otherwise stated hereinafter.

(a) Dimension shall be measured to the nearest 0.01 mtr.

(b) Area shall be worked cut to the nearest 0.01 sq. metre.

No. deduction shall be made for openings not exceeding 0.5 sq. metre each and no addition shall be made for painting to beadings, mouldings, edges, jambs, soffits, sills etc. of such openings.

In case of fabricated structural steel and iron work, priming coat of paint shall be included with fabrication. In case of trusses if measured in sq. m. compound girders, stanchions, lattices, girder and similar work, actual area shall be measured in sq. m. and no extra shall be paid for painting on bolts, heads, nuts, washers, etc. No addition shall be made to the weight calculated for the purpose of measurements of steel and iron works for paint applied on shop or at site.

The different surfaces shall be grouped into one general item. Areas of uneven surface being converted into equivalent paint areas in accordance with the table given as per Annexure-II for payment.

The rate is for complete item as specified i.e. one primer coat and two coats of oil paint. The

rate shall be for a unit of one sq. meter.

ANNEXURE-II

Equivalent plain Area of a uneven surface (Vides specifications for item relevant to paint and polishing)

Sr. No.	Description of work	How measured	Multiplying factor
1.	Pannled or framed and braced of ledged and battened or ledged and braced joinery cleat etc. shall be deemed to be cluded in the item.	Measured flat (not girthed) including chowkhat or frame. Edges, chocks,	1.30 For each side)
2.	Flush joinery	Measured flat (not girthed) including chowkhat or frame, Edges, Chocks, cleats, etc. shall be deemed to be included in the item.	1.20 For each side)
4.	Fully glazed hauzed joinery	Measured flat (not girthed) including chowkhat or frame, cleats, etc. shall be deemed to be included in the item.	0.80 For each side)
4.	Partly panelled and partly glazed for glazed journey.	Measured flat (not girthed) including chowkhat or frame etc. shall be deemed cleats, Edges, chock to be included in the item.	1.0 For each side)
5.	Full Ventilationed or louzered joinery.	Measured flat (not girthed) including chowkhat or cleat etc. shall be deemed to be included in the item.	1.0 For each side)
6.	Weather boarding	Measurement flat (not girthed) supporting framework shall not be measured separately.	1.2 For each side)
7.	Wood Shingle roofing	Measurement flat (not girthed)	1.0 For each side)
8.	Boarding with cover fillets and match boarding.	Measurement flat (not girthed)	1.05 For each side)
9.	Tile & slate work on e way or two way	Measurement flat over all no deduction shall be made painting for open spaces. supporting over members shall not be measured separately.	0.08 For each side)
10.	Trellies (or Jafri) work on e way or two way for the open spaces	Measured flat over all no deduction shall be made supporting members shall not be measured separately.	1.00 for painting cover
11.	Guard bars balustrades, rades, gates gratings, grills, expanded metal and railings	Measured flat over all No deduction shall be made for open spaces, supporting members shall not be measured separately.	1.00 for painting cover
12.	Gates and open palisade fencing including standards.	Measurement flat over all No deduction shall be made for open spaces. supporting members shall not be measured separately	1.00 for painting cover
13.	Curved or enriched work	Measured flat over all no no deduction shall be made for open spaces supporting members shall not be measured separately	2.0 (For each side)

14	Steel roller shutters.	Measured flat (size of opening) over all, jamb guides, bottom rails and locking arrangement etc. shall be included in the item (top covers shall be measured separately).	1.10 (for each side)
15.	Plain sheet steel door and windows)	Measured flat (not girthed) including frame	1.10 (for each side)
16.	Fully glazed or gauzed steel door & windows.	Measured flat (not girthed) including frame edges etc.	0.60 (for each side)
17.	Partly panelled and partly glazed or gauzed steel doors	Measured flat (not girthed) including frame edges etc.	0.80 (for each side)
18.	Collapsible gate	Measured flat (size of opening) No separate measurements shall be taken for the top and bottom guide rails, rolls, fitting etc.	1.0 for painting all over

Note : The height shall be taken from the bottom of the lowest rail if the palisades do not go below it (or from the lower end of palisades, if they protect below the lowest rail) upto the top of palisades but not upto the top of standards if they are higher than the palisades.

Item No. 22:-

Painting two coats of enamel paint (Excluding priming coat) over previously painted wall after removing entire surface with even shade & surface after removing dirt, dust foreign matter etc. comp.(M.R.)

Detail specifications same as per Item No. 21 and paint specification and as directed by Engineer-in-charge

Item No. 23 :-

Providing & applying two coats of weather shield max paint (3 coats may be required in case of darker colours.) of ICI Dulux or Apex Ultima of Asian Paint including applying exterior acrylic primer coat as per manufacturers specification and directions in shade and colour approved by architects, on exterior surfaces of the building including scaffolding, preparing the surface, watering, curing etc. complete and as directed by the architects and manufacturers.

Surface Preparation :

surface is thoroughly clean, dry and free from all loose dirt, chalk, grease, fungi, algae and flaking paint. This can be achieved by brushing with a wire/ stiff coir brush, followed by water jetting if required. Fill up all minor cracks and defects with white cement and sand mixture in the ratio 1:3. For application on previously painted wall, previous coatings of paint must be thoroughly scraped off and Clean the surface thoroughly using wire brushes.

Priming:

Apply a liberal coat of exterior acrylic primer and allow it to dry for 4-5 hours. Application of putty is not recommended. Minimum 4-6 hours duration is required between each coat of weather shield max paint (M.R.)

Detail specifications same as per Item No. 22 and paint specification and as directed by Engineer-in-charge

Item No. 24:-

Filling in foundation and plinth with murrum or selected soil in layers of 20cm. thickness including watering, ramming and consolidating etc. complete. (SOR 2024-25).

24.1.0 Materials:-

Murrum shall be cleaned, of good binding quality, and of approved quality obtained from approved pots/ quarries of disintegrated rock which contain silicious material and

- natural mixture of clay of calcareous origin. The size of murrum shall not be more than 20 mm.
- 24.2.0 Workmanship:-
- 24.2.0 The murrum to be used for filling shall be free from salts, organic or other foreign matter. All clods of murrum shall be broken.
- 24.2.1 As soon as the work in foundation has been completed and measured the site of foundations shall be cleared of all debris, brick bats, mortar dropping etc. and filled with murrum in layers not exceeding 20 Cms. Each layer shall be adequately watered, rammed and consolidated before the succeeding layer is laid. The murrum shall be rammed with iron rammers where feasible and with the butt ends of crowbars, where rammer cannot be used.
- 24.2.2 The plinth shall be similarly filled with murrum in layers not exceeding 20 cms. adequately watered and consolidated by ramming with iron or wooden rammers. When filling reaches finished level, the surface shall be flooded with water for at least 24 hours and allowed to dry and then rammed and consolidated.
- 24.2.3 The finished level of fillings shall be kept to shape intended to be given to the floor.
- 24.2.4 In case of large heavy duty flooring like factory flooring, the consolidation may be done by power rollers, where so specified. The extent of consolidation shall also be as specified.
- 24.2.5 The excavated stuff of the selected types shall be allowed to be used in filling the trenches and plinth. Under no circumstances black cotton soil shall be used for filling the plinth.
- 24.3.0 Mode of measurement and payment:-
- 24.3.1 The payments shall be made for filling in plinth and trenches. No deduction shall be made for shrinkage of voids if consolidated as instructed above.
- 24.3.2 The rate includes cost of collecting and carting murrum or selected murrum of approved quality with all lead and labour required for filling in trenches and plinth.
- 24.3.3 The rate shall be for a unit of one cubic metre.

Item No. 25:-

Providing & fixing M.S. Grills of required pattern to wooden frames of windows etc. At all floor levels with M.S. flats at required spacing & frame around square or round bars with round headed bolts & round headed bolts and nuts or by screws incl. Priming coat of Red lead paint etc. comp. (A) Plain grill For all Floors. (SOR 2024-25)

- 25.1.0 MATERIALS:
The structural steel shall conform to M-22.
- 25.2.0 WORKMANSHIP:-
The M.S. Grill shall be prepared as per the drawings or as directed for fixing to wooden frames of windows etc.
The grill shall be fabricated to the designs and patterns shown in the drawings and the weight shall be as directed, and the joints shall be rivetted or welded as shown in the plan or as directed. The grill so formed shall be fixed into the strip frames of the window setc. before they are erected in position. The outside strip frame of the grill shall be housed to its full thickness into the recess cut into the frame of the window setc. The grill shall be fixed to the frame with number of bolts and nuts or screws viz. bolt nut/screw per 30 cm. of the length
- of outer strips subject to a minimum of 2 Nos. on such side of the frame or as indicated in the drawing or as directed.
The bolts and nuts or screws shall be counter sunk and shall be fixed with the top of their heads flush with the face of the frame strips.
- 25.3.0 MODE OF MEASUREMENT AND PAYMENT :-
The payments shall be made for weight of screws, bolts and nut setc. only weight of grill shall be paid. The rate shall be for a unit one Kg.
This item should be executed as per MORTH.

Item No. 26:-

Providing & laying cement concrete 1:4:8 (1 cement:4 coarse sand:8 graded stone agg. 40 mm nominal size) & curing comp. excl.cost of form work in (A) Foundation and Plinth (SOR 2024-25)

26.1.0 Materials:-

Water shall conform to M-1. Cement shall conform to M-3. Sand shall conform to M-6. Stone aggregate 40 mm nominal size shall conform to M-12.

26.2.0 WORKMANSHIP:**26.2.1 General:-**

Before starting concreting the bed of foundation trenches shall be cleared of all loose materials, levelled, Watered and rammed as directed.

26.2.2 Proportion of Mix:-

The proportion of cement, sand coarse aggregate shall be one part of cement, 4 parts of sand and 8 parts of stone aggregate shall be measured by volume.

26.2.3 Mixing:-

The concrete shall be mixed in a mechanical mixer at the site of work. Hand mixing may however be allowed for smaller quantity of work if approved by Engineer-in-charge. When hand mixing is permitted by the Engineer-in-charge in case of breakdown of machineries and in the interest of the work, it shall be carried out on a water tight platform and care shall be taken to ensure that mixing is continued until the mass is uniform in colour and consistency. However in such case 10% more cement than otherwise required shall have to be used without any extra cost. The mixing in mechanical mixers shall be done for a period 1 1/2 to 2 minutes. The quantity of water shall be just sufficient to produce dense concrete of required workability for the purpose.

26.2.4 Transporting and placing the concrete :-

The concrete shall be handed from the place of mixing to the final position in not more than 15 minutes by the method as directed and shall be placed in its final position, compacted and finished within 30 minutes of mixing with water i.e. before the setting commences. The concrete shall be laid in layers of 15 cm to 20 cm.

Compacting :- The concrete shall be rammed with heavy iron rammer and rapidly to get the required compaction and to allow the interstices to be filled with mortar.

26.2.5 Curing:-

After the final set, the concrete shall be kept continuously wet, if required by ponding for a period of not less than 7 days from the date of placement.

26.3.0 Mode of measurements and payment :-

The concrete shall be measured for its length breadth and depth, limiting dimensions to those specified on plan or as directed. The rate shall be for a unit of one cubic meter.

Item No. 27:-

- 1. Providing and laying chequered precast concrete tiles 22mm thick with aggregate of sizes upto 6mm in floors treads of steps and landing on 20mm thick bed of C.M. 1:6 (1 cement : 6 sand) or L.M. 1:1.5 (1 Lime putty : 1.5 sand) jointed with neat cement slurry with pigments to match the shade of the tiles. (SOR 2024-25)**

27.1.0 Materials:

Water shall conform to M-1 cement shall conform to M-3. Lime Mortar shall conform to M-10. Cement mortar shall conform to M-11. The precast chequered tiles of 20mm. thick shall be of light shade using white cement and conform to M-47-D.

27.2.0 Workmanship:**27.2.1 The work shall be carried out as per I.S. 1443-1972.****Bedding:**

Before spreading the mortar, the sub-base of the floor shall be cleaned of all dirt, scum and loose materials and then well wetted without forming any pools of water on the surface. In case of R.C.C. floors, the top shall be left a little rough, all points, of level for the finished

surface shall be marked out. The lime water of proportion 1:6 (1 cement : 6 coarse sand) jointed with neat cement slurry mixed with pigment to match the shade of the tiles as directed shall be then evenly and smoothly spread over the base. Bedding layer or mortar shall be not less than 10 mm and average thickness of bedding shall be 25 mm.

1. Laying:

Before laying the terrazzo (Marble/Mosaic) tiles, the tiles shall be thoroughly wetted with water. Neat cement grout of required consistency at 4.4 kg. cement/sq. mt. shall be spread on the mortar bed. The tiles shall be laid on the neat cement float and shall be evenly and firmly bedded to the required level and slopes. There shall be no hollows left. The joints shall be of uniform thickness and in straight line as per the pattern.

The surface of floorings shall be checked frequently with a straight edge at least two metres long so as to obtain a true surface with required slope.

The tiles which are fixed in the adjoining wall shall go about 10 mm under plaster. Skirting or dado shall be left unfinished for about 50 mm above finished floor level and unfinished strip then left earlier shall be finished.

In places where full tiles can not be fixed. The tiles shall be cut to the size and smoothened at edges to give straight and true joints.

After the tiles have been laid, the surplus cement slurry and the joints shall be cleaned and washed fairly deep before cement hardens.

The day after tiles have been laid, the joints shall be cleaned of every cement grout with a wire brush to a depth of about 5 mm and then grouted with white cement with or without pigment to match the shade of the topping of tiles.

27.2.4 Curing:

The floorings shall be kept wet with damp sand or water for seven days. It shall be kept undisturbed at least for 14 days. The grinding shall normally be commenced after 14 days.

27.2.5 Polishing:

After the tiles are properly cured, first grinding shall be done with carborundum stone of 48 to 60 grade grit fitted in machine. Water shall be properly used during grinding. When the chips show up and the floor has been uniformly rubbed, it shall be cleaned with water, baring all pinholes. It shall then be covered with a thin coat of white cement mixed with or without pigments to match the colour of the topping of the tiles. Pin holes if any shall thus be filled. This grout shall be kept moist for a week. Thereafter second grinding shall be started with carborundum of 120 grit. Grouting and curing shall follow again. Final grinding shall be done when other works are finished. The machine shall be fitted with carborundum of grit 220 to 350 using water in abundance. The floor shall then be washed clean with water. Oxalic acid powder shall then be dusted at 33 grams per square metre on the surface and the surface rubbed with machine fitted with hessian bobs or rubbed hard with pad of wooden rags. The floor shall then be washed clean and dried with a soft cloth or Linen. The finished floor shall not sound hollow when tapped with a mallet.

If any tile is disturbed or damaged it shall be refitted or replaced properly jointed and polished. Testing of the tiles shall be carried out by the contractor at his own cost as per I.S. requirement for required tests.

27.3.0 Mode of Measurements and payment:

The terrazzo tiles floorings shall be measured in Sq. metre for visible area of work done.

No deductions shall be made nor extra paid for any opening in the floor area up to 0.1 Sq. mt. Nothing extra shall be paid for use of cut tiles or for laying the floors at different levels in the same room or courtyard. Mosaic tiles laid in floor borders and bands etc. shall be measured in the same item and nothing extra shall be payable on account of these or similar bonds formed of half or multiples of half size, standard tiles or other uncut tiles.

The treads of stairs and steps paved

with tiles without nosings shall also be measured under this item. Extra rates shall however be paid for such area where width of treads does not exceed 30 cms.

The rates shall include the cost of all materials, labour involved in all the operations as described above.

The rate shall be for a unit of one sq. metre.

Item No. 28:-

Removing & resetting existing readymade c.c. kerb stone of required size & thickness in line level and in truly vertical position including filling joints in C.M. 1:1 (1 part of cement : 1 part of coarse sand) including watering etc. complete and as directed by engineer in charge (M.R.)

- (A) For regulated edge of footpath
 (B) For rounding at the edge of footpath (for fanning portion) (No. x 2-R)
 Item includes all materials, labour, equipment, tools, plants,

watering, cleaning etc. complete.

RAW MATERIAL:

CEMENT:-

The cement used in the manufacture of high quality precast concrete paving block shall be conforming to IS 12269 (53 grade) ordinary Portland Cement or IS 8112 (43 grade ordinary Portland cement). The minimum cement content in concrete used for making paver block shall be 310 kg/Cu.M. And the upper limit of cement shall not be more than 425 kg/Cu.M.

AGGREGATES:-

The fine and coarse aggregates shall consist of naturally occurring crushed or uncrushed materials which, apart from the grading requirements comply with IS 383-1970. The fine aggregates used shall contain a minimum of 25% natural silicon sand. Lime stone aggregates shall not be used. Aggregates shall contain no more than 3% by weight of clay and shall be free from deleterious salts and contaminants.

WATER:-

The water shall be clean and free from any deleterious matter. It shall meet the requirements stipulated in IS:456-2000.

OTHER MATERIALS:-

Any other material/ingredients used in the concrete shall conform to latest IS specifications.

C.C. BLOCK CHARACTERISTICS:

The C.C. block should have perpendicularities after release from the mould and the same should be retained until the laying.

The concrete mix design should be followed for each batch of materials separately and automatic batching plant is to be used to achieve uniformity in strength and quality.

The C.C. block shall be manufactured in single layer only. Skilled labours should be employed for laying blocks to ensure line and level, for laying, desired shape of the surface and adequate compaction of the sand in joint.

The C.C. block must be of size 300 mm x 100 mm x 380 mm and casted in M-200 Grade with 4" (110 mm) radius rounding at the top and 2 (two) nos. 12 mm keys at the other vertical face as directed by Engineer-in-charge. When foot path meets with a junction or approach road at the end of foot path, a turning radius equal to the width of foot path should be made as per below and as directed by Engineer-in-charge.

Sr.No.	Turning Radius	No. of C.C. Block to be fixed	Size of C.C. Block in rounding
1.	1.00 mt.	4 Nos.	Outer 370 mm x inner 340 mm x thickness 100 mm x Height 380 mm
2.	1.50 mt.	6 Nos.	
3.	2.00 mt.	8 Nos.	

Strength is measure of the ability of the concrete kerb unit to withstand load. It is determined under laboratory conditions using bending strength. A load is uniformly applied through a 401 mm swivel parallel and rigid bearers rounded to a radius of 201 mm until its failure is reached. For each kerb the individual strength in MPa is determined using the second moment of area. For each of calculation, the second moment of area and distance from the centroid to the extreme tensile fibre are incorporated for the profiles specified within the standard. For other profiles please refer to individual manufacturers who will supply the relevant information. The bending strength in MPa is recovered to check compliance with BS EN, The number of the

kerbs per sample will vary depending on previous production performance assessed statistically by attributes of variables.

The characteristic bending strength shall not be less than the value corresponding to the class in the table that follows. None of the individual results shall be less than the corresponding minimum bending strength in the table. Where kerbs, due to their geometry, cannot be tested according to this standard they shall be considered to be in the same class as tested kerbs provided they have at least the Bending strength classes.

ClassStrength	Marking(MPa)	CharacteristicBending(MPa)	MinimumBendingStrength
1	S	3.5	2.8
2	T	5.0	4.0
3	U	6.0	4.8

WEATHERINGRESISTANCE:

Is a measure of the ability of the concrete kerb to withstand weathering specific conditions exist such as frequent contact of the surface with de icing salt under frost conditions. It can be assessed under laboratory conditions by measuring the amount of spalled material from a surface under the cycle of freezingthawing action using a deicing salt solution, or, if de-icing salt is used, then the measurement of the porosity by measuring the water absorption of the kerb could be used.

ABRASIONRESISTANCE:

Is a measure of the ability of the concrete kerb to withstand erosion caused by traffic in service. It is assessed under laboratory conditions by abrading the surface of the kerb with a flow of a hard abrasive material while applying a known force. The resulting loss of material from the kerb surface is measured by determining the abraded width.

SLIP/SKIPRESISTANCE:

Is a measure of the ability of the concrete kerb laid in service to withstand slipping for pedestrians and skidding for vehicles. The unpolished slip resistance value is determined using standard rubber material attached to a pendulum friction tester and tested under wet conditions. To determine the polished pvaer value (PPV) for all paving units BS 7932:1988 should be used. This test method measures the slip resistance of the kerb after it has been synthetically trafficked (or polished) under laboratory conditions to replicate the performance of kerb during their life under traffic conditions. For more details please contact interpave.

Kerb and edgings are mainly used as edge restraints to paved surfaces or where changes in surface materials or levels occur. They retain any unbound construction material, e.g. laying course material, within the paved area and help support the applied loads by preventing horizontal displacement of the pavement construction. Channels may be used in these applications as well but can also be used to intercept and transport surface water. In vehicular areas kerb, edging and channel units will inevitably be over run or suffer side impact from vehicle tyres sometime in their service life. By selecting the appropriate units and ensuring correct installation they will give long and durable service.

TOLERANCES:

Performance deviation the value for possible deviation from manufacturer's declared values are as follows.

Length:

1% to the nearest mm, with a minimum of 4 mm and not exceeding 10 mm.

Other dimensions:

Other faces: 3% to the nearest mm, with a minimum 3 mm not exceeding 5 mm.

Other parts: 5% to the nearest mm, with a minimum of 3 mm not exceeding 10 mm.

Flatness and straightness:

Length of gauge mm	Permissible deviation mm
300	1.5
400	2.0
500	2.5
800	4.0

The difference between any two measurements of single kerb shall be $\leq \pm 5$ mm.

Installation of concrete kerbs, edging and channel units has five main stages:

- Preparation of support layers.
- Construction of unit foundation.

- Laying to line and level.
- Bedding of units.
- Haunching of units.

The unit foundation itself must be supported, either on an extension to the underlying pavement sub layer or, for thin pavements (e.g. edgings on pedestrian footways), directly on an adequate subgrade. The depth of the unit and that of the pavement construction will determine on which pavement layer the kerb foundation will sit.

Products should be laid using one of the following alternative methods:

1. Units set on a race of freshly mixed concrete.
2. Units bedded on a mortar bed on top of a hardened concrete race or on a mortar bedding on a carriageway.
3. Units bonded to the pavement surface.

LAYING OF C.C. BLOCK AS KERB:

C.C. block shall be placed in line, level and entirely vertically in position with 12 mm gap including filling joints in

C.M. 1:1 (1 part of cement: 1 part of stone dust) and smooth pointing in C.M. 1:1 (1 cement of cement: 1 part of stone dust) including watering.

At the Residential units, it shall be kept 8" (200 mm) open above water table and at the commercial complex, it shall be kept 3" (75 mm) open above water table and as directed by Engineer-in-charge.

SAMPLING AND TESTING PROCEDURE FOR C.C. BLOCK:

Sample size:

- Internal: Average of minimum 3 samples per 3000 blocks - for paver block manufacturers.
- External: Minimum 3 blocks per 3000 blocks.

Sampling for testing:

Sampling for testing of C.C. kerb shall be done in accordance with Appendix-A in item no. 6.

Compressive strength : testing for 28 days compressive strength shall be undertaken.

Abrasion Resistant: It is assessed under laboratory conditions by abrading the surface of the kerb with a flow of a hard abrasive material applying a known force. The resulting loss of material from the kerb surface is measured by determining the abraded width.

Bending strength: The characteristics bending strength shall be less than the value corresponding to the class.

None of the individual results shall be less than the corresponding minimum bending strength.

Tests shall be for a unit of one R.M.

For ensuring quality control and workmanship, above test shall be taken at 01 (One) test per each 1000 (One thousand) Nos. of C.C. block.

The C.C. block shall be got tested at (R&B) field laboratory of GERI (R&B) or S.V.N.I.T., or Govt. approved laboratory.

Laying on pavement surface:

The units may be laid directly onto a suitable pavement surface which should extend to a width to fully support the units and any required haunching. The units are bonded to the surface using a suitable synthetic resin compound or with a modified strengthened mortar.

Jointing:

Concrete kerbs are generally laid with unfilled, close joints with a minimum joint width of 12 mm they must not be butt-jointed. Mortar joints should be filled by 1:1 (1 Cement : 1 stone dust) and enriched with the mortar which should be freshly mixed, consisting of 1:1 (1 Cement : stone dust) where mortar joints are used, they should be completely filled and fully compacted. Joints width should be 12 mm.

Where units are laid over or adjacent to a jointed concrete pavement, suitable joints should extend through the line of the units at the joints and continue through the kerb race. When mortar joints are used, movement joints should be provided. These movement joints should be formed of 12 mm thick easily compressible material, extend through the kerb. Mortar should be used as soon as possible and any material that has begun to set or has been mixed for more than two hours discarded.

Contractors need to plan the work to ensure risk is kept to an acceptable level. This may involve the following actions.

- Rethink the phasing of the kerb installation to maximise the number of kerbs being laid at one time.
- Lay direct from the pack rather than double handling by stringing out ahead of final laying.
- Use machinery capable of handling both packs and individual kerbs.
- Use machinery solutions for the handling of non standard kerb details such as feature kerbs, transition kerbs,

drop kerbs, quadrants (cheeses) and radius kerbs.

- Ensure that workers are trained in the safe use of mechanical lifting equipment.
- Provide training in safe lifting techniques for works involved with kerb laying.
- Consider use of alternative light weight kerb components for certain circumstances.

Kerb laying by hand involves a serious risk of injury to those who are doing the work and therefore employers need to take action to control this risk. When taking the risk, the best solutions will be those which address all three main hazards, the weight of the kerb, the repetitive nature of the operation and poor posture during work. To help find the best solution, the manual handling hierarchy of control measures is suggested. You should try to adopt the solution nearest the top of hierarchy first, as these will give the best level of risk control. In rare cases, where it is not possible to use any mechanical solutions, short stretches of kerb may be laid manually. Where this is necessary workers should be trained in good handling techniques. The use of lighter weight kerbs or devices that allow two people to share the lift will reduce the risk of injury.

GENERAL GUIDANCE:

It is important that work procedures are drawn up before commencement to identify any hazards. Failure to do this can result in lack of co-ordination of materials and multiple handling of product. Correct personal protective clothing should be provided.

Planning the work:

Work should be planned and coordinated to avoid unnecessary handling.

For operations where forklift vehicles are used, kerbs should be stacked onto timber planks. Ensure that pallets are robust as the failure of a pallet could allow kerbs to fall.

Stripping and wrapping of packs should only be removing just prior to use of the kerbs.

Care should be taken when cutting bands and/or removing wrapping to avoid kerbs falling. Accurate placement of the concrete bed will minimise shovelling operations.

Accurate preparation of the concrete bed and any excavated trench will reduce the amount of adjustment to kerbs once laid.

Where power tools are used for cutting these should be concrete cutters with diamond blades and water flow lubrication for cooling and dust suppression.

The rates should be for a unit of One R.M.

ITEM NO.:29

- 29.1.0 **Providing and setting 35 to 50 mm thick rough kotah stone paving for work in line, level and in proper gradient including 25mm thick bedding in C.M. 1 : 6 (1 part of cement : 6 part of coarse sand) with sufficient ramming consolidation. providing joints in C.M.(1 part of cement : 3 part of coarse sand) and smooth pointing in C.M.1:1(1 part of cement : 1 part of coarse sand) including watering etc complete.(SOR 2023-24)**
- 29.1.1 MATERIALS:
- 29.1.2 Water shall conform to specification of material M-1.
- 29.1.3 Cement shall conform to specification of material M-2
- 29.1.4 Sand shall conform to specification of material M-3
- 29.1.5 Cement mortar shall conform to specification of material M-4
- 29.1.6 Rough kotah stone shall conform to specification of material M-11
- 29.2.0 WORKMANSHIP:
- 29.2.1 Thorough kotah stones of required size shall be supplied by the contractor at his own cost. The loading and unloading of rough kotah stones shall be carried out with enough care. The stones shall be stacked at site suitably and properly.
- 29.2.2 Before laying the stone the bottom surface shall be levelled to the required gradient. Bedding of C.M. 1:6 (1 Part of Cement and 6 part of coarse sand) shall be laid in 25 mm thickness.
- 29.2.3 Each stone shall be thoroughly wetted before laying and shall be laid evenly and firmly on bedding of cement mortar. There shall be no cavities left. The joints shall be of uniform thickness and in straight line as per pattern. The joints shall be filled with cement mortar in prop. 1:3 (1 part of cement and 3 part of coarse sand).
- 29.2.4 After day work the joints shall be opened to a depth of about 5 mm and then grouted with cement pointing 1:1 (1 part of cement : 1 part of coarse sand).
- 29.2.5 CURING :
The paving area of footpath shall be kept wet with damp sand or watered at least for seven days. The water table shall be laid in required gradient so that water can drain out easily.
- 29.3.0 MODE OF MEASUREMENT AND PAYMENT:
- 29.3.1 No deduction shall be made nor extra shall be paid for any opening in water table area up to 0.1 R.mt.
- 29.3.2 The rates shall include carting of rough kotah stones from Municipal Store to work site.
- 29.3.3 The rates shall include the cost of all materials, labour and tools involved in all the operation as described above.
- 29.3.4 The rates shall be for a unit of one Sq.mt.

Item No. 30:-

Providing and setting 50 to 60 mm thick rouge kotah stone water table in line, level and in required gradient including 25 mm thick bedding in C.M. 1:6 (1 Part of cement : 6 Part of coarse sand) with sufficient ramming consolidation. Providing joints in C.M. 1:3 (1 Part of cement : 3 Part coarse sand) and smooth pointing in C.M. 1:1 (1 Part of Cement, 1 Part of coarse sand) including watering etc. complete and as per details in tender specification & as directed by engineer in charge.(SOR 2024-25).

Size: 2'0" x 1'0"

Size: 1'x1' (40 to 50 mm thick)

- 30.1.0 MATERIALS:

- 30.1.1 Water shall conform to specification of material M-1.
- 30.1.2 Cement shall conform to specification of material M-2
- 30.1.3 Sand shall conform to specification of material M-3
- 30.1.4 Cement mortar shall conform to specification of material M-4
- 30.1.5 Rough kotah stones shall conform to specification of material M-11
- 30.2.0 WORKMANSHIP:
- 30.2.1 Thorough kotah stones of required size shall be supplied by the contractor at his own cost. The loading and unloading of rough kotah stones shall be carried out with enough care. The stones shall be stacked at site suitably and properly.
- 30.2.2 Before laying the stone the bottom surface shall be levelled to the required gradient. Bedding of C.M. 1:6 (1 Part of Cement and 6 part of coarse sand) shall be laid in 25 mm thickness.
- 30.2.3 Each stone shall be thoroughly wetted before laying and shall be laid evenly and firmly on bedding of cement mortar. There shall be no cavities left. The joints shall be of uniform thickness and in straight line as per pattern. The joints shall be filled with cement mortar in prop. 1:3 (1 part of cement and 3 part of coarse sand).
- 30.2.4 After daywork the joints shall be opened to a depth of about 5 mm and then grouted with cement pointing 1:1 (1 part of cement : 1 part of coarse sand).
- 30.2.5 CURING :
The paving area of footpath shall be kept wet with damp sand or watered at least for seven days.
The water table shall be laid in required gradient so that water can drain out easily.
- 30.3.0 MODE OF MEASUREMENT AND PAYMENT:
- 30.3.1 No deduction shall be made nor extra shall be paid for any opening in water table area upto 0.1 R.mt.
- 30.3.2 The rates shall include providing and setting of rough kotah stones.
- 30.3.3 The rates shall include the cost of all materials, labour and tools involved in all the operation as described above.
- 30.3.4 The rates shall be for a unit of one R.mt.

ITEM NO.: 31

Removing & resetting existing ready made C.C. Kerb of strength of required size & thickness in line, level and truly vertical position, including filling joints in C.M. 1:1 (1 part of cement 1 part of coarse sand) smooth pointing in C.M. 1:1 (1 part of cement : 1 part of stone dust) including watering etc. complete as directed by engineer-in-charge. (MR)

- 31.1 MATERIALS:
- 31.1.1 Water shall conform to specification of material M-1.
- 31.1.2 Cement shall conform to specification of material M-2
- 31.1.3 Sand shall conform to specification of material M-3
- 31.1.4 Cement mortar shall conform to specification of material M-4
- 31.2 WORKMANSHIP:
- 31.2.1 The existing water table shall be removed carefully and in such a way that no damage is caused to the adjoining structures, cables and service lines etc. The dismantled stone shall be properly stacked as directed by Engineer-in-charge.
- 31.2.2 Before resetting the stones the water table the bottom surface shall be watered and rammed properly. The surface shall be levelled to the proper gradient so that water drain out easily.
- 31.2.3 Resting of rough kotah stones for water table shall be carried out as per the detailed specification of Item No. 5 using thorough kotah stones obtained from existing footpath.
- 31.2.4 On completion of resetting work the site shall be cleared of all rubbish and cleaned as directed.
- 31.3 MODE OF MEASUREMENT AND PAYMENT:
- 31.3.1 The rates shall include the cost of all materials, labour, and tools involved in all the operations described above except rough kotah stones.
- 31.3.2 The rates shall be for a unit of one Sq.mt.
- 31.3.3

ITEMNO.: 32

Removing and resetting rough kotah stone for work in line, level and proper gradient including 25mm thick bedding in C.M 1 : 6 (1 part of cement : 6 part of coarse sand) with sufficient ramming consolidation.providing joints in M.(1part of cement :3 part of coarse sand) and smooth pointing in C.M.1:1(1part of cement :1 part of coarse sand) including watering etc complete.(SOR 2023-24).

- 32.1 MATERIALS:
- 32.1.1 Water shall conform to specification of material M-1.
- 32.1.2 Cement shall conform to specification of material M-2
- 32.1.3 Sand shall conform to specification of material M-3
- 32.1.4 Cement mortar shall conform to specification of material M-4
- 32.2 WORKMANSHIP:
- 32.2.1 The existing water table shall be removed carefully and in such a way that no damage is caused to the adjoining structures, cables and service lines etc. The dismantled stone shall be properly stacked as directed by Engineer-in-charge.
- 32.2.2 Before resetting the stones the water table the bottom surface shall be watered and rammed properly. The surface shall be levelled to the proper gradient so that water drain out easily.
- 32.2.3 Resting of rough kotah stones for water table shall be carried out as per the detailed specification of Item No.7 using thorough kotah stones obtained from existing footpath.
- 32.2.4 On completion of resetting work the site shall be cleared of all rubbish and cleaned as directed.
- 32.3 MODE OF MEASUREMENT AND PAYMENT:
- 32.3.1 The rate shall include the cost of all materials, labour, and tools involved in all the operations described above except rough kotah stones.
- 32.3.2 The rate shall be for a unit of one Sq.mt.

ITEMNO.: 33

Removing and resetting existing rough kotah stone water table for footpath in line, level and proper gradient including 25 mm thick bedding in CM 1:6 (1 Part of Cement, 6 Part of coarse sand) with sufficient ramming, consolidation, Providing joints in C.M. 1:3 (1 Cement : 3 Coarse sand) and smooth pointing in C.M. 1:1 (1 Cement : 1 Coarse sand) including watering etc. complete as per details in tender specification & as directed by engineer in charge.(SOR 2024-25)

- 33.1 MATERIALS:
- 33.1.1 Water shall conform to specification of material M-1.
- 33.1.2 Cement shall conform to specification of material M-2
- 33.1.3 Sand shall conform to specification of material M-3
- 33.1.4 Cement mortar shall conform to specification of material M-4
- 33.2 WORKMANSHIP:
- 33.2.1 The existing water table shall be removed carefully and in such a way that no damage is caused to the adjoining structures, cables and service lines etc. The dismantled stone shall be properly stacked as directed by Engineer-in-charge.
- 33.2.2 Before resetting the stones the water table the bottom surface shall be watered and rammed properly. The surface shall be levelled to the proper gradient so that water drain out easily.
- 33.2.3 Resting of rough kotah stones for water table shall be carried out as per the detailed specification of Item No.7 using thorough kotah stones obtained from existing footpath.
- 33.2.4 On completion of resetting work the site shall be cleared of all rubbish and cleaned as directed.
- 33.3 MODE OF MEASUREMENT AND PAYMENT:
- 33.3.1 The rate shall include the cost of all materials, labour, and tools involved in all the operations described above except rough kotah stones.

The rate shall be for a unit of one Sq.mt.

Item No.34

Providing and fixing in position readymade cement concrete Water Drain Channel (300 x 300 x 80 mm) M- 30 Grade with all labour, material, testing charge etc. complete as per details in tender specification & as directed by engineer in charge.(SOR 2024-25).

Readymadewaterdrainchannel(600x300x100)

Cl. no.6.2.5.1 The average 28 days compressive strength of paver blocks shall meet the specified requirement. Individual paver blocks strength shall not be less than 85 percent of the specified strength. In case blocks of age less than 28 days are permitted to be supplied, correlation between 28 days strength and the strength at specified age for indentified batch/mix of blocks shall be established.

Table 3 Compressive Requirements of Concrete Paver Blocks
(Clause 6.2.5.2. and 9.1.4)

Sr.No.	Grade of Paver Blocks	Minimum Average 28 Days Compressive Strength
(1)	(2)	(3)
i)	M-30	$Zf_{ck} + 0.825 \times S.D.$ (established standard deviation rounded off to nearest 0.5 N/mm^2)
ii)	M-35	
iii)	M-40	
iv)	M-50	
v)	M-55	

(i) Note:-S.D.-Standard Deviation considered as 5, as per 456-2016.

IS 15658 : 2006

Table 1 Recommended Grades of Paver Blocks for Different Traffic Categories
(Clauses 5 and 9.1.4)

Sr No.	Grade Designation of Paver Blocks	Specified Compressive Strength of Paver Blocks at 28 Days N/mm^2	Traffic Category	Recommended Minimum Paver Block Thickness	Traffic Examples of Application
(1)	(2)	(3)	(4)	mm (5)	(6)
i)	M-30	30	Non-traffic	50	Building premises, monument premises, landscapes, public gardens/parks, domestic drives, paths and patios, embankment slopes, sand stabilization area, etc
ii)	M-35	35	Light-traffic	60	Pedestrian plazas, shopping complexes ramps, car parks, office driveways, housing colonies, office complexes, rural roads with low volume traffic, farm houses, beach sites, tourist resorts local authority footways, residential roads, etc
iii)	M-40	40	Medium-traffic	80	City streets, small and medium market roads, low volume roads, utility cuts on arterial roads, etc
iv)	M-50	50	Heavy-traffic	100	Bus terminals, industrial complexes, mandi houses, roads on expansive soils, factory floor, service stations, industrial pavements, etc
v)	M-55	55	Very heavy-traffic	120	Container terminals, ports, docks yards, mine access roads, bulk cargo handling areas, airport pavements, etc

Item No.35

Providing and laying cement concrete cast-in-situ Guard Stone (1:1/2:3) (1 cement : 1/2 coarse sand : 3 graded stone aggregate of 20 mm nominal size) including cost of form work including, curing labour, machinery, equipments required to execute this item etc. complete. (SOR 2024-25)

600 MM X 225 MM X 400 MM size cement concrete M-20 grade pre cast Kerbs & Fixing as per drawing Purchased from SMC's approved manufactures and as directed by Engineer with all leads, lifts etc. complete.

Cement concrete precast kerbs shall be procured from SMC's approved manufacturer.

Shall be in conformance with Section 1700 of Specification of road and bridgework (MORT & H).

Measurement for this Item will be in RM and rates for the Item complete in all respects as per the instructions of Engineer representing SMC will be as indicated in BOQ.

Item No.36

Providing and laying cement concrete cast-in-situ Guard Stone (1:2:4) (1 cement : 2 coarse sand : 4 graded stone aggregate of 20 mm nominal size) including cost of form work including, curing labour, machinery, equipments required to execute this item etc. complete. (SOR 2024-25)

750 MM X 350 MM X 400 MM size cement concrete M-20 grade pre cast Kerbs & Fixing as per drawing Purchased from SMC's approved manufactures and as directed by Engineer with all leads, lifts etc. complete.

Cement concrete precast kerbs shall be procured from SMC's approved manufacturer.

Shall be in conformance with Section 1700 of Specification of road and bridgework (MORT & H).

Measurement for this Item will be in RM and rates for the Item complete in all respects as per the instructions of Engineer representing SMC will be as indicated in BOQ.

Item No.37

Providing & laying cement concrete 1:1.5:3 (1 cement:1.5 sand:3 graded stone agg. 20 mm nominal size) & curing comp. Includ. cost of form work but exclu. Cost of reinforcement for reinforced concrete work in : (A) Foundation, footing, Base of columns and Mass concrete. (SOR 2024-25).

37.1.0 Materials:-

Water shall conform to M-1, Cement shall conform to M-3. Sand shall conform to M-6. Grit shall conform to M-8.

Graded stone aggregate 20 mm nominal size shall conform to M-12.

37.2.0 General

37.2.1 The concrete mix is not required to be designed by preliminary tests. The proportion of the concrete mix shall be 1:1.5:3 [1 cement: 3 coarse sand: 3 graded stone aggregate 20 mm nominal size] by volume

37.2.2 concrete work shall have exposed concrete surface or as specified the item.

37.2.3 The designation ordinary M-100, M-150, M-200, M-250 specified as per I.S. corresponding approximately to 1:3:6 1:2:4, 1:1:1, 1/2: 3 and 1:1:2 nominal mix of ordinary concrete by volume respectively with conforming to IS:456.

37.2.4 The ingredients required for ordinary work, containing one bag of cement of 50 kg. by weight [0.0342 cu.m.] for different proportion of mix shall be as under.

Grade	Total quantity of dry aggregate by volume per 50 Kg. of cement to be taken as the sum of individual volume of fine and coarse aggregate maximum	Proportion of fine aggregate to coarse aggregate	quantity of water per 50 Kg. of cement maximum
M-100	300 Liters	Generally 1:3 for fine	35 Liters
(1:3:6)		aggregate to coarse	

M-150 (1:2:4)	220 Liters	aggregate by volume but subject to and upper limit	32 Liters
M-200 (1:1.5:3)	160 Liters		30 Liters
M-250 (1:1:2)	100 Liters		27 Liters

- 37.2.5 The water cement ratio shall not be more than those specified in the table. The cement content of the mix specified in the table shall be increased if the quantity of water in a mix has to be increased to overcome the difficulties of placement and compaction so that the water cement ratio specified in the table is not exceeded.
- 37.2.6 Workability of the concrete shall be controlled by maintaining a water cement ratio that is found to give a concrete mix which is just sufficiently wet to be placed and compacted without difficulty with the means available.
- 37.2.7 The maximum size of coarse aggregate shall be as large as possible within the limits specified but in no case greater than one fourth of the minimum thickness of the member, provided that the concrete can be placed without difficulty so as to surround all reinforcement thoroughly and to fill the corners of the form.
- 37.2.8 For reinforced concrete work, coarse aggregates having a nominal size of 20 mm generally considered satisfactory.
- 37.2.9 For heavily reinforced concrete members as in the case of the ribs of main beams the nominal maximum size of coarse aggregate should usually be restricted to 5 mm, less than the minimum clear distance between the main bars, or 5 mm, less than the minimum cover to the reinforcement whichever is smaller.
- 37.2.10 Where the reinforcement is widely spaced as in solid slabs, limitations of size of the aggregate may not be so important and the nominal maximum size may some times be as great as or greater than the minimum cover.
- 37.2.11 Admixture may be used in concrete only with approval of Engineer-in-charge based upon the evidence that with the passage of time, neither the compressive strength of concrete is reduced nor are other requisite qualities of concrete and steel impaired by the use of such admixtures.
- 37.3.0 WOR
KMA
NSHI
P:

37.3.1 General:- The bars shall be kept in position by the following method:

In case of beam and slab construction, sufficient number of precast cover blocks in cement mortar 1:2 [1 cement 2 coarse sand] about 4 x 4 cms. section of thickness equal to the specified cover shall be placed between the bars and shuttering as to secure and maintain the requisite cover of concrete over the reinforcement.

In case of cantilevered or doubly reinforced beams or slabs, the main reinforcing bars shall be held in position by introducing chair spacers or supports bars at 1.0 to 1.2 metres centres.

In case of columns and wall, the vertical bars shall be kept in position by means of timber templates with slots accurately cut in them, the templates shall be removed after concreting has been done below it. The bars may also be suitably tied by means of annealed steel wires to the shuttering to maintain their position during concreting.

All bars projecting from pillars, columns, beams, slabs etc. to which other bars and concrete are to be attached or bounded to later on, shall be protected with a coat of thin neat cement grout, if the bars are not likely to be incorporated with succeeding mass of concrete within the following 10 days. This coat of thin neat cement shall be removed before concreting.

37.3.2 Proportioning:-

Proportioning shall be done by volume, except cement which shall be measured in terms of bags of 50 kg. weight. The volume of one such bag being taken as 0.0342 cu. metre. Boxes of suitable sizes shall be used for measuring sand and aggregate. The size of the boxes [internal] shall be 35x25 cms. and 40 cms. deep. While measuring the aggregate and sand, the boxes shall be filled without shaking, ramming or hammering. The proportioning of sand shall be on the basis of its dry volume and in case of damp sand, allowances for bulking shall be made.

37.3.3 Mixing:-

37.3.3.1 For all work, concrete shall be mixed in a mechanical mixer which along with other accessories shall be kept in first class working

condition and so maintained throughout the construction. Measured quantity of aggregate, sand and cement required for each batch shall be poured into the drum of the mechanical mixer while it is continuously running. After about half a minute of dry mixing measured quantity of water required for each batch of concrete mix shall be added gradually and mixing continued for another one and half minute. Mixing shall be continued till materials are uniformly distributed and uniform colour of the entire mass is obtained and each individual particle of the coarse aggregates shown complete coating of mortar containing its proportionate amount of cement. In no case shall the mixing be done for less than two minutes after all ingredients have been put into the mixer.

37.3.3.2 When hand mixing is permitted by the Engineer-in-charge for small jobs or for certain other reasons, it shall be done on the smooth watertight platform large enough to allow efficient turning over the ingredients of concrete before and after adding water. Mixing platform shall be so arranged that no foreign material gets mixed with concrete nor the mixing water flow out. Cement in required number of bags shall be placed in a uniform layer on top of the measured quantity of fine and coarse aggregate, which shall also be spread in a layer of uniform thickness on the mixing platform. Dry coarse and fine aggregate and cement shall then be mixed thoroughly by turning over to get a mixture of uniform colour. Specified quantity of water shall then be added gradually through a rose can and the mass turned over till a mix of required consistency is obtained. In hand mixing, quantity of cement shall be increased by 10 percent above that specified.

37.3.3.3 Mixer which have been out of use for more than 30 minutes shall be thoroughly cleaned before putting in a new batch, unless otherwise agreed to by the Engineer-in-charge. The first batch of concrete from the mixture shall contain only two thirds of normal quantity of coarse aggregate. Mixing plant shall be thoroughly cleaned before changing from one type of cement concrete to another.

37.3.4 Consistency:

The degree of consistency which shall depend upon the nature of the work and methods of vibration of concrete, shall be determined by regular slump test in accordance with I.S. 1199 : 1959. The slump of 10 mm to 25 mm shall be adopted when vibrators are used and 80 mm when vibrators are not used.

37.3.5 Inspection :

37.3.5.1 Contractor shall give the Engineer-in-charge due notice before placing any concrete in the forms to permit to inspect and accept the false work and forms as to their strength, alignment and general fitness but such inspection shall not relieve the contractor of his responsibility for the safety of men, machinery, materials and for results obtained. Immediately before concreting, all forms shall be thoroughly cleaned.

37.3.5.2 Centring design and its erection shall be got approved from the Engineer-in-charge. One carpenter with helper shall invariably be kept present throughout the period of concreting. Movement of labour and other persons shall be totally prohibited for reinforcement laid in position. For access to different parts suitable mobile platform shall be provided so that steel reinforcement in position is not disturbed. For ensuring proper cover, mortar blocks of suitable size shall be cast and tied to the reinforcement. Timber, kapachi or metal pieces shall not be used for this purpose.

37.3.6 Transporting and laying:-

37.3.6.1 The method of transporting and placing concrete shall as approved. Concrete shall be so transported and placed that no contamination, segregation or loss of its constituent material takes place.

37.3.6.2 All form work shall be cleaned and made free from standing water, dusts, snow or ice immediately before placing of concrete. No concrete shall be placed in any part of structure until the approval of Engineer-in-charge.

37.3.6.3 Concreting shall proceed continuously over the area between construction joints. Fresh concrete shall not be placed against concrete which has been in position for more than 30 minutes unless a proper construction joint is formed. Concrete shall be compacted in its final position within 30 minutes of its discharge from the mixer. Except where otherwise agreed to by the Engineer-in-charge concrete shall be deposited in horizontal layers to a compacted depth of not more than 0.45 metre when internal vibrators are used and not exceeding 0.30 metre in all other cases.

37.3.6.4 Unless otherwise agreed to by the Engineer-in-charge, concrete shall not be dropped into place from a height exceeding 2 metres.

37.3.6.5 When trunking or chutes are used they shall be kept close and used in such a way as to avoid segregation. When concreting has to be resumed on a surface which has hardened, it shall be roughened, swept clean, thoroughly wetted, and covered with a 13 mm thick layer of mortar composed of cement and sand in the same ratio as in the concrete mix itself, this 13 mm layer of mortar shall be freshly mixed and placed immediately before placing of new concrete. Where concrete has not fully hardened, all laitance shall be removed by scrubbing the wet surface with wire or bristle brushes, care being taken to avoid dislodgement of any particles of coarse aggregate. The surface shall then be thoroughly wetted, all free water removed, and then coated with neat cement grout. The first layers of concrete to be placed on this surface shall not exceed 150 mm in thickness and shall be well rammed against old work, particular attention being given to corners and close spot.

37.3.6.6 All concrete shall be compacted to produce a dense homogeneous mass with the assistance of vibrators, unless otherwise permitted by the Engineer - in - charge for exceptional cases such as concreting under water where vibrators cannot be used. Sufficient vibrators in serviceable condition shall be kept at site so that spare equipment is always available in the event of breakdowns.

37.3.6.7 Concrete shall be judged to be compacted when the mortar fills the spaces between the coarse aggregate and begins to cream up to form a level surface. Compaction shall be completed before the initial setting starts i.e. within 30 minutes of addition of water to dry mixture. During compaction it shall be observed that needle vibrators are not applied on reinforcement which is likely to destroy the bond between concrete and reinforcement.

37.3.7 Curing:-

Immediately after compaction, concrete, weather including rain, running water, shocks, vibration, traffic, rapid temperature changes, frost and drying out process it shall be covered with wet sacking, hessian or other similar absorbent material approved, soon after the initial set and shall be kept continuously wet for a period of not less than 14 days from the date of placement. Masonry work over foundation concrete may be started after 48 hours of its laying but curing of concrete shall be continued for a minimum period of 14 days.

37.3.8 Sampling and Testing of concrete:-

37.3.8.1 Samples from fresh concrete shall be taken as per IS 1199:1999 and cubes shall be made, cured and tested at 7 days and 28 days as per requirements in accordance with IS 516:1959. A random sampling procedure shall be adopted to ensure that each concrete batch shall have a reasonable chance of being tested i.e. the sampling should be spread over the entire period of concreting and cover all mixing units. The minimum frequency of sampling of concrete of each grade shall be in accordance with following.

37.3.8.2 Quantity of concrete in the work

	No. of samples
up to 1-5 Cmt.	1
6-15 Cmt.	2
16-30 Cmt.	3
31-50 Cmt.	4
51 and above	4 + one additional sample for each additional 50 cmt. or part thereof.

Note:- At least one sample shall be taken from shift. The test specimens shall be made from each sample, five for testing at 7 days and the remaining five at 28 days. The samples of concrete

shall be taken on each day of the concreting as per above frequency. The number of specimens may be suitably increased as deemed necessary by the Engineer-in-charge when procedure of tests given above reveals a poor quality of concrete and in other special cases.

37.3.8.3 The average strength of the group of cubes cast for each day shall not be less than the specified cube strength of 150 kg/cm² at 28 days. 20% of the cubes cast for each day may have value less than the specified strength provided the lowest value is not less than 85% of the specified strength. If the concrete made in accordance with the proportions given for a particular grade does not yield the specified strength such concrete shall be classified as belonging to the appropriate lower grade. Concrete made in accordance with the proportions given for a particular grade shall not, however,

er, be placed in a higher grade on the ground that the test strength are higher than the minimum specified.

37.3.9 Stripping :

37.3.9.1 The Engineer-in-charge shall be informed in advance by the contractor of his intention to strike the formwork. While fixing the time for removal of formwork, due considerations shall be given to local conditions, character of the structure, the weather & other conditions that influence the setting of concrete and of the materials used in the mix. In normal circumstances [generally where temperatures are above 20°C] and where ordinary concrete is used forms may be struck after expiry of periods specified in Item No. 4 for respective item of form work.

37.3.9.2 All form work shall be removed without causing any shock or vibration as would damage the concrete. Before the soffit are removed, the concrete surface shall be exposed, where necessary in order to ascertain that the concrete has sufficiently hardened. Centring shall be gradually and uniformly lowered in such a manner as to permit the concrete to take stresses due to its own weight uniformly and gradually. Where internal metal ties are permitted they or their removable parts shall be extracted without causing any damage to the concrete and remaining holes filled with mortar. No permanently embedded metal part shall have less than 25 mm. cover to the finished concrete surface. Where it is intended to re-use the formwork, it shall be cleaned and made good to the satisfaction of the Engineer-in-charge. After removal of form work and shuttering, the Executive Engineer shall inspect the work and satisfy by random checks that concrete produced is of good quality.

37.3.9.3 Immediately after the removal of forms all exposed bolts etc. passing through the cement member and used for shuttering or any other purpose shall be cut inside the cement concrete member to a depth of at least 25 mm. below the surface of the concrete and, the resulting hole be filled by cement mortar. All fins caused by form joints, all cavities produced by the removal of form ties and all other holes and depression, honeycomb spots, broken edges or corners and other defects, shall be thoroughly cleaned, saturated with water and carefully pointed and rendered true with mortar of cement and fine aggregate mixed in the proportions used in the grade of concrete that is being finished and so as dry consistency as is possible to use. Considerable pressure shall be applied in filling and pointing to ensure thorough filling in all voids. Surfaces which are pointed shall be kept moist for a period of 24 hours.

37.3.9.4 If rock pockets/honeycombs in the opinion of the Engineer-in-charge are of such an extent or character as to effect the strength of the structure materially or to endanger the life of the steel reinforcement, he may declare portions of the structure affected.

37.4.0 Mode of measurement and payment:

37.4.1 The consolidated cubic contents of concrete work as specified in item shall be measured. The concrete laid in excess of sections shown on drawings or as directed shall not be measured. No deduction shall be made for.

[a] Ends of dissimilar materials such as joints, beams, posts, girders, rafters, purlin, trusses, corbels and steps etc. up to 500 sq.cm. in section.

[b] Opening up to 0.1 sq.m.

[c] The volume occupied by reinforcement shall not be deducted from R.C.C. work.

37.4.2 The rate includes cost of all materials labour, tools and plant required for mixing, placing in position vibrating and compacting, finishing as directed, curing and all other incidental expenses for producing concrete of specified strength. The rate excludes the cost of form work.

37.4.3 The rates shall be for a unit of one cubic meter. This item should be executed as per MORTH.

ITEM NO. 38 :-

Providing and laying Granular Sub Base (drainage layer) conforming to grading V of Table 400-1 of each layer not exceeding 200mm thickness and compacted thickness as per design & drawing with specified graded stone metal and sand mixed in pugmill and laid with mechanical means spreading with motor grader and compacting with vibratory roller having minimum 80-100 kN static weight to achieve desired density of 98% of MDD including all

materials, labour, machinery, tests required to be carried out with all leads and lifts etc., complete as per details in tender specification & as directed by engineer in charge. (SOR 2024-25)

This work shall consist of laying and compacting well-graded material on prepared subgrade in accordance with the requirements of these Specifications. The material shall be laid in one layer as sub-base according to lines, grades and cross-sections shown on the drawings.

38.1 Material requirements

The material to be used for the work shall be natural sand, crushed gravel, crushed stone, crushed slag, or

combination thereof depending upon the grading required. The material shall be free from organic or other deleterious constituents and shall conform to the grading given in

Table 1 and physical requirements

given in Table 2. If the water absorption of the aggregates determined as per IS: 2386 (Part 3) is greater than 2 percent, the aggregates shall be tested for Wet Aggregate Impact Value (AIV) (IS:5640). Soft aggregates like Kankar, brick ballast and laterite shall also be tested for Wet AIV (IS:5640).

Table 1 Grading for Granular Sub-base (GSB-V) Materials

IS size (mm)	Percent by Weight Passing the IS Sieve (Grading-V)
75.0	100
53.0	80-100
26.5	55-90
9.50	35-65
4.75	25-50
2.36	10-20
0.85	2-10
0.425	0-5
0.075	-

Table 2 Physical Requirements for Materials for Granular Sub-base

Physical properties	Test procedure	Requirement
Aggregate Impact Value (%)	IS:2386 (Part 4) or IS:5640	40 maximum
Liquid Limit (%)	IS:2720 (Part 5)	Maximum 25
Plasticity Index (%)	IS:2720 (Part 5)	Maximum 6
CBR at 98% dry density (at IS:2720-Part 8) (%)	IS:2720 (Part 5)	Minimum 30

38.2 Construction Operations

38.2.1 Preparation of Sub-grade

Immediately prior to the laying of sub-base, the subgrade already finished as mentioned in ITEM NO. 5 shall be prepared by removing all vegetation and other extraneous matter, lightly sprinkled with water, if necessary and rolled with two passes of 80-100 kN smooth wheeled roller.

38.2.2 Spreading and Compacting

The Granular sub-base material of the grading-V and water shall be mixed mechanically by a suitable mixer equipped with provision for controlled addition of water and mechanical mixing so as to ensure homogenous and uniform mix. The required water content shall be determined in accordance with IS:2720 (Part 8). The mix shall be spread on the prepared subgrade with the help of a motor grader of adequate capacity, its blade having hydraulic controls suitable for initial adjustment and for maintaining the required slope and grade during the operation.

Moisture content of the

mix shall be checked in accordance with IS:2720 (Part 2) and suitably adjusted so that, at the time of compaction, it is from 1 to 2 percent below the optimum moisture content.

Immediately after spreading the

mix, rolling shall be done by an approved roller. If the thickness of the compacted layer does not exceed 100 mm, a smooth wheeled roller of 80 to 100 kN weight may be used. For a compacted single layer up to 200 mm the compaction shall be done with the help of a vibratory roller of minimum 80 to 100 kN static weight capable of achieving the required compaction. Rolling shall commence at the lower edge and proceed towards the upper edge longitudinally for portions having unidirectional crossfall or on superelevation.

For carriageway having crossfall on both sides, rolling shall commence at the edges and progress towards the crown.

Each pass of the roller shall uniformly overlap not less than one-third of the track made in the proceeding pass. During rolling, the grade and crossfall (camber) shall be checked and any high spots or depressions which become apparent, corrected by removing or adding fresh material. The speed of the roller shall not exceed 5 km per hour. Rolling shall be continued till the density achieved is at least 98 percent of the maximum dry density for the material determined as per IS: 2720 (Part 8). The surface of any layer of material on completion of compaction shall be well closed, free from movement under compaction equipment and from compaction planes, ridges, cracks or loose material. All loose, segregated or otherwise defective areas shall be made good to the full thickness of layer and re-compacted.

38.3 Surface Finish and Quality Control of Work

38.3.1 General

All

works performed shall conform to the lines, grades, cross sections and dimensions shown on the drawings, subject to the permitted tolerances described herein-after.

38.3.2 Horizontal Alignment

Horizontal alignment shall be reckoned with respect to the Centre line of the carriageway as shown on the drawings. The tolerance for edges of the roadway and Sub-base layers of pavement shall be ± 25 mm.

38.3.3 Surface Levels

The level of the Granular sub-base shall not vary from those calculated with reference to the longitudinal and cross-profile of the road shown on the drawings beyond the tolerance limit of ± 10 mm.

For checking compliance with the above requirement for Granular sub-base, measurements of the surface levels shall be taken on a grid of points placed at 6.25 m longitudinally and 3.5 m transversely. For any 10 consecutive measurements taken longitudinally or transversely, not more than one measurement shall be permitted to exceed the tolerance as above, this one measurement being not in excess of 5 mm above the permitted tolerance.

38.3.4 Surface Regularity of Pavement Courses

The longitudinal profiles shall be checked with a 3 meter long straight edge/moving straight edge as directed by the Engineer at the middle of each traffic lane along a line parallel to the center line of the road. The maximum permitted number of surface irregularities shall be as per **Error! Reference source not found.**

The maximum allowable difference between the road surface and underside of a 3 m straight edge when placed parallel with, or at right angle to the center line of the road at points decided by the Engineers shall be 8 mm for Granular Sub-base.

38.3.5 Rectification

Where the surface regularity of subgrade and the various pavement courses fall outside the specified tolerances in Clause **Error! Reference source not found.**, the Contractor shall be liable to rectify these in the manner described below.

Where the surface is high, it shall be trimmed and suitably compacted. Where the same is low, the deficiency shall be corrected by scarifying the lower layer and adding fresh material and recompacting to the required density. The degree of compaction and the type of material to be used shall conform to the requirements of MoRTH-2013 (Fifth revision) Clause 401. Control on the quality of materials and works shall be exercised by the Engineer in accordance with Section 900 MoRTH -2013 (Fifth revision).

(b) Item No.39

Providing and fixing C.C. M-25 grade pre-cast Vacuum pressured finished surface kerb stones of approved design including cost of formwork and mould (as directed by engineer incharge), curbing etc. The rate shall also including for erecting and fixing the pieces in position with necessary.(SOR 2023-24).

Tree guard ID 500mm, 800 x 800 x 75 mm (Type D) (Set 4)(SOR 2023-24)

39.1 Arrangements for Traffic

During the period of construction, arrangement for traffic shall be provided and maintained in accordance with Clause 5.5.

39.2 Measurements for Payment

Granular sub-base shall be measured as finished work in position in cubic meters. The protection of edges of granular sub-base extended over the full formation width shall be considered incidental to the work of providing granular sub-base and as such no extra payment shall be made for the same.

39.3 Rate

The Contract unit rate for granular sub-base shall be payment in full for carrying out the required operations including full compensation for:

- i. Making arrangements for traffic to Clause 5.5 except for initial treatment to verges, shoulders and construction of diversions.
- ii. Supplying all material to be incorporated in the work including all royalties, fees, rents where applicable with all leads and lifts.
- iii. All labour, tools, equipment and incidental to complete the work to the Specifications.
- iv. Carrying out the work in part width of road where directed

Carrying out the required tests for quality control

ITEM NO.40:

Dismantling of structures on roadways, including disposal of unserviceable material free of cost in permanent work as directed by the engineer with all leads and lifts etc. complete.

- (A) R.C.C. Pardi
- (B) Removing existing Kotah Stone
- (C) Brick/stone masonry
- (D) Plain concrete
- (E) Bituminous Pavement
- (F) Non bituminous pavement

WORKMANSHIP :-

- 40.1 The term Demolition shall consist of one or more parts of the building as specified or shown in the drawing. Demonization implies taking up or down or breaking up. This shall consist of demolishing whole or part of work including all relevant items as specified or shown in the drawings.
- 40.2 The demolition shall always be planned before hand and shall be done in reverse order of the one in which the structure was constructed. This scheme shall be got approved from the Engineer-in-charge before stating the work. This however will not absolve the contractor from the responsibility of proper and safe demolition.
- 40.3 Necessary propping, the shoring and or under pinning shall be provided for the safety of the adjoining work or property, which is to be left intact, before dismantling and demolishing is taken up and the work shall be carried out the such away no damage is caused to the adjoining property.
- 40.4 Wherever required, temporary encloses or partitions shall also be provided. Necessary precautions shall be taken to keep dust nuisance down as and where necessary.
- 40.5 Dismantling shall be done in a systematic manner. All materials which are likely to be damaged by dropping from a height. The or demolishing roofs, masonry etc. shall be carefully removed first. The dismantled articles shall be passed by hand where necessary, lowered the ground (as not thrown) and then properly stacked as directed.

- 40.6 All materials obtained from demolition shall be the property of Corporation unless otherwise specified and shall be kept in safe custody until handed over to any store to Surat Municipal Corporation as specified the Engineer-in-charge.
- 40.7 Any serviceable materials, obtained during dismantling demolition, shall be separated out and stacked properly on site or any stop of S.M.C. as directed, with all lead and lift. All unserviceable materials, rubbish etc. shall be stacked as directed by Engineer-in-charge.
- 40.8 On completion of work the site shall be cleared of all debris rubbish and cleaned as directed.
- 40.9 **Rates :**
- 40.9.1 Measurements of all work except hidden work shall be taken before demolition or dismantling and no allowance for increase in bulk shall be allowed. The demolition of lime concrete shall be measured under this item. Specification for deduction for voids, openings etc. shall be on same basis as the employed for construction of work.
- 40.9.2 All work shall be measured in decimal system as fixed in its place subject to the following limit, unless otherwise stated hereinafter : (a) Dimensions shall be measured to the nearest 0.01 mt. (b) Areas shall be worked out to the nearest 0.01 sq.mt.
- 40.9.3 The rate shall include cost of all labour involved and tools used in demolishing and dismantling including scaffolding. The rate shall also include the charges for separating out and stacking the serviceable materials properly and disposing the unserviceable materials with all lead and lift. The rate also includes for temporary shoring for the safety of the portion not required to be pulled down or of adjoining property and providing temporary enclosures or partitions where considered necessary.
- 40.9.4 The rate shall be for a unit of as per Schedule-B.
- (c) .
- (d)

Item No.41

Providing and laying/fixing cement concrete cast-in situ/Precast kerb in M-20 grade as per drawing and as per details in tender specification, Purchsed from SMC's approved manufactures list. Setting in line, level and in truly vertical position, including filling joints 10mm width in C.M. 1:1 (1 Part of cement 1 part of coarse sand) smooth pointing in C.M. 1:1 (1 Part of cement : 1 Part of stone dust) including watering, test required to be carriedout etc. complete and as directed by Engineer-in-charge). including all leads, lifts, loding & unloading, watering, labour, tests required to be carried out, machinery, equipments required to execute this item etc. complete. (HHeight, W-width, t- thickness)(SOR 2024-25)

(i) 775mm height cement concrete M-20 grade cast-in-situ/Precast Kerbs & Fixing for Medianas per drawing and as per details in tender specification & as directed by engineer in charge.

(i) 0.15 (th.) * 0.30(l) * 0.48(Ht.) mt. in size cement concrete M-20 grade pre cast Kerbs & Fixing as per drawing Purchsed from SMC's approved manufactures and as per details in tender specification & as directed by engineer in charge.

Item includes all materials, labour, equipment, tools, plants, watering, cleaning etc. complete.

RAW MATERIAL:

CEMENT:-

The cement used in the manufacture of high quality precast concrete paving block shall be conforming to IS 12269 (53 grade) ordinary Portland Cement or IS 8112 (43 grade ordinary Portland cement). The minimum cement content in concrete used for making paver blocks should be 310 kg/Cu.M. And the upper limit of cement shall not be more than 425 kg/Cu.M.

AGGREGATES:-

The fine and coarse aggregates shall consist of naturally occurring crushed or uncrushed materials which, apart from the grading requirements, comply with IS 383-1970. The fine aggregates used shall contain a minimum of 25% natural silicon sand. Lime stone aggregates shall not be used. Aggregates shall contain no more than 3% by weight of clay and shall be free from deleterious salts and contaminants.

WATER:-

The water shall be clean and free from any deleterious matter. It shall meet the requirements stipulated in IS: 456-2000.

OTHER MATERIALS:-

Any other material/ingredient used in the concrete shall conform to latest IS specifications.

C.C. BLOCK CHARACTERISTICS:

The C.C. block should have perpendicularities after release from the mould and the same should be retained until the laying.

The concrete mix design should be followed for each batch of materials separately and automatic batching plant is to be used to achieve uniformity in strength and quality.

The C.C. block shall be manufactured in single layer only. Skilled labours should be employed for laying blocks to ensure line and level, for laying, desired shape of the surface and adequate compaction of the sand in joint.

The C.C. block must be of size 300 mm x 100 mm x 380 mm and casted in M-200 Grade with 4" (110 mm) radius rounding at the top and 2 (two) nos. 12 mm keys at the other vertical face as directed by Engineer-in-charge.

When foot path meets with a junction or approach road at the end of foot path, a turning radius equal to the width of foot path should be made as per below and as directed by Engineer-in-charge.

Sr. Turning Radius No. of C.C. block Size of C.C. block in rounding to be fix

1.	1.00mt.	4 Nos.	} Outer 370mm x inner 340mm x
2.	1.50mt.	6 Nos.	} thickness 100mm x Height
3.	2.00mt.	8 Nos.	} 380mm

Strength is measure of the ability of the concrete kerb unit to withstand load. It is determined under laboratory conditions using bending strength. A load is uniformly applied through a 401mm swivel parallel and rigid bearers rounded to a radius of 201mm until failure is reached. For each kerb the individual strength in MPa is determined using the second moment of area. For each of calculation, the second moment of area and distance from the centroid to the extreme tensile fibre are incorporated for the profiles specified within the standard. For other profiles please refer to individual manufacturers who will supply the relevant information. The bending strength in MPa is recovered to check compliance with BS EN, The number of the kerbs per sample will vary depending on previous production performance assessed statistically by attributes of variables.

The characteristic bending strength shall not be less than the value corresponding to the class in the table that follows. None of the individual results shall be less than the corresponding minimum bending strength in the table. Where kerbs, due to their geometry, cannot be tested according to this standard they shall be considered to be in the same class as tested kerbs provided they have at least the Bending strength classes.

Class	Marking	Characteristic bending strength (MPa)	Minimum bending strength (MPa)
1	S	3.5	2.8

2	T	5.0	4.0
3	U	6.0	4.8

WEATHERING RESISTANCE:

Is a measure of the ability of the concrete kerb to withstand weathering specific conditions exist such as frequent contact of the surface with de icing salt under frost conditions. It can be assessed under laboratory conditions by measuring the amount of spalled material from a surface under the cycle of freezing thawing action using a deicing salt solution, or, if non-icing salt is used, then the measurement of the porosity by measuring the water absorption of the kerb could be used.

ABRASION RESISTANCE:

Is a measure of the ability of the concrete kerb to withstand erosion caused by traffic in service. It is assessed under laboratory conditions by abrading the surface of the kerb with a flow of a hard abrasive material while applying a known force. The resulting loss of material from the kerb surface is measured by determining the abraded width.

SLIP/RESISTANCE:

Is a measure of the ability of the concrete kerb laid in service to withstand slipping for pedestrians and skidding for vehicles. The unpolished slip resistance value is determined using standard rubber material attached to a pendulum friction tester and tested under wet conditions. To determine the polished pvaer value (PPV) for all paving units BS 7932:1988 should be used. This test method measures the slip resistance of the kerb after it has been synthetically trafficked (or polished) under laboratory conditions to replicate the performance of kerb during their life under traffic conditions. For more details please contact interpave.

Kerb and edgings are mainly used as edge restraints to paved surfaces or where changes in surface materials or levels occur. They retain any unbound construction material, e.g. laying course material, within the paved area and help support the applied loads by preventing horizontal displacement of the pavement construction. Channels may be used in these applications as well but can also be used to intercept and

transport surface water. In vulnerable areas kerb, edging and channel units will inevitably be over-run or suffer side impact from vehicle tyres sometime in their service life. By selecting the appropriate units and ensuring correct installation they will give long and durable service.

TOLERANCES:

Performance deviation the value for possible deviation from manufacturer's declared values are as follow

s. Length:

1% to the nearest mm, with a minimum of 4 mm and not exceeding 10 mm.

Other dimensions:

Other faces: 3% to the nearest

mm, with a minimum 3 mm not exceeding 5 mm.

Other parts: 5% to the nearest mm, with a minimum of 3

mm not exceeding 10 mm. Flatness and straightness:

Length of gauge mm	Permissible deviation mm
300	+/-1.5
400	+/-2.0
500	+/-2.5
800	+/-4.0

The difference between any two measurements of single kerb shall be </-

5mm. Installation of concrete kerbs, edging and channel units has five

main stages:

- Preparation of support layers.
- Construction of unit foundation.
- Laying to line and level.
- Bedding of units.
- Haunching of units.

The unit foundation itself must be supported, either on an extension to the underlying pavement sub layers or, for thin pavements (e.g. edgings on pedestrian footways), directly on an adequate subgrade. The depth of the unit and that of the pavement construction will determine on which pavement layer the kerb foundation will sit.

Products should be laid using one of the following alternative methods:

1. Units set on a race of freshly mixed concrete.
2. Units bedded on a mortar bed on top of a hardened concrete race or on a mortar bedding on a carriageway.
3. Units bonded to the pavement surface.

LAYING OF C.C. BLOCK AS KERB:

C.C. block shall be placed in line, level and entirely vertically in position with 12mm gap including filling joints in C.M. 1:1 (1 Part of cement : 1 part of stone dust) and smooth pointing in C.M. 1:1 (1 cement of cement : 1 part of stone dust) including watering.

At the Residential units, it shall be kept 8" (200 mm) open above water table and at the commercial complex, it shall be kept 3" (75 mm) open above water table and as directed by Engineer-in-charge.

SAMPLING AND TESTING PROCEDURE FOR C.C. BLOCK:

Sample size:

- Internal: Average of minimum 3 samples per 3000 blocks - for paver block manufacturers.
- External: Minimum 3 blocks per 3

000 blocks. Sampling for testing :

Sampling for testing of C.C. kerb shall be done in accordance with Appendix-A in item no. 6.

Compressive strength : testing for 28 days compressive strength shall be undertaken.

Abrasion Resistant: It is assessed under laboratory conditions by abrading the surface of the kerb with a flow of a hard abrasive material applying a known force. The resulting loss of material from the kerb surface is measured by determining the abraded width.

Bending strength : The characteristic bending strength shall be less than the value corresponding to the class. None of the individual results shall be less than the corresponding minimum bending strength.

The rate shall be for a unit of one R.M.

For ensuring quality control and workmanship, above test shall be taken at 01 (One) test per each 1000 (One thousand) Nos. of C.C. block.

The C.C. block shall be got tested at (R&B) field laboratory of GERI (R&B) or S.V.N.I.T., or Govt.

approved laboratory.

Laying on pavement surface:

The units may be laid directly onto a suitable pavement surface which should extend to a width to fully support the units and any required haunching. The units are bonded to the surface using a suitable synthetic resin compound or with a modified strengthened mortar.

Jointing:

Concrete kerbs are generally laid with unfilled, close joints with a minimum joint width of 12 mm. They must not be butt-jointed. Mortar joints should be filled by 1:1 (1 Cement : 1 stone dust) and enriched with the mortar which should be freshly mixed, consisting of 1:1 (1 Cement : stone dust) where mortar joints are used, they should be completely filled and fully compacted. Joint width should be 12 mm.

Where units are laid over or adjacent to a jointed concrete pavement, suitable joints should extend through the line of the units at the joints and continue through the kerb race. When mortar joints are used, movement joints should be provided. These movement joints should be formed of 12 mm thick easily compressible material, extend through the kerb race. Mortar should be used as soon as possible and any material that has begun to set or has been mixed for more than two hours discarded.

Contractors need to plan the work to ensure risk is kept to an acceptable level. This may involve the following actions.

- Rethink the phasing of the kerb installation to maximise the number of kerbs being laid at one time.
- Lay direct from the pack rather than double handling by stringing out ahead of final laying.
- Use machinery capable of handling both packs and individual kerbs.
- Use machinery solutions for the handling of non standard kerb details such as feature kerbs, transition kerbs, drop kerbs, quadrants (cheeses) and radius kerbs.
- Ensure that workers are trained in the safe use of mechanical lifting equipment.
- Provide training in safe lifting techniques for works involved with kerb laying.
- Consider use of alternative lightweight kerb components for certain circumstances.

Kerb laying by hand involves a serious risk of injury to those who are doing the work and therefore employers need to take action to control this risk. When taking the risk, the best solutions will be those which address all three main hazards, the weight of the kerb, the repetitive nature of the operation and poor posture during work. The hierarchy of control measures is suggested. You should try to adopt the solution nearest the top of the hierarchy first, as these will give the best level of risk control. In rare cases, where it is not possible to use any mechanical solutions, short stretches of kerb may be laid manually. Where this is necessary workers should be trained in good handling techniques. The use of lighter weight kerbs or devices that allow two people to share the lift will reduce the risk of injury.

GENERAL GUIDANCE:

It is important that work procedures are drawn up before commencement to identify any hazards. Failure to do this can result in lack of co-ordination of materials and multiple handling of product. Correct personal protective clothing should be provided.

Planning the work:

Work should be planned and coordinated to avoid unnecessary handling.

For operations where forklift vehicles are used, kerbs should be stacked onto timber planks. Ensure that pallets are robust as the failure of a pallet could allow kerbs to fall.

Stripping and wrapping of packs should only be removing just prior to use of the kerbs.

Care should be taken when cutting bands and/or removing wrapping to avoid kerbs falling.

Accurate placement of the concrete bed will minimise shovelling operations.

Accurate preparation of the concrete bed and any excavated trench will reduce the amount of adjustment to kerbs once laid.

Where power tools are used for cutting these should be concrete cutters with diamond blades and water flow lubrication for cooling and dust suppression.

The rate should be for a unit of One R.M.

Item No.42

Supplying and fixing RCC collar (300 mm dia) for tree plantation including all taxes, carting, loading, unloading etc. complete with all labour, material charge etc. complete as per details in tender specification & as directed by engineer in charge. (SOR 2024-25)

R.C.C. collar of various diameters of required length shall be supplied by the contractor and fixing as per Engineer instruction.

The rate shall be for a unit of one number.

Item No.43

Dismantling of structures on roadways, including disposal of unserviceable material free of cost in permanent work as directed by the engineer with all leads and lifts etc. complete.

(A) Metalled road (SOR 2024-25)

(B) Asphalt road

As per Engineer in Charge Instruction

EXECUTIVE ENGINEER,
SOUTH ZONE (Udhana)-A
SURAT MUNICIPAL CORPORATION
SURAT.

SIGNATURE OF THE CONTRACTOR

APPROVED VENDOR LIST

CIVIL MATERIAL MAKE LIST		
SR. NO.	ITEMS	MAKE/BRANDS
1	Cement	Ultratech, Ambuja, Sanghi, Siddhi, Wonder, J K Laxmi, Hathi (53 / 43 Grade)
2	High Yield Strength Deformed steel bars Thermo mechanically treated (TMT) / Structural steel	(Fe-500/500D) Tata, SAIL, RINL, JSW, Electrotherm, National, RINL, Mono Steel India Ltd. Gallantt metal Ltd., bhagyaLaxmi Rolling mill Pvt. Ltd., Zalanani "polaad"
3	Mild steel structure	Tata, SAIL, RINL, JSW, Electrotherm, National, RINL
4	Vitrified tiles	Orient, Kajaria, Jhonson, Nitco, Somani, Bell, Asian or Euro
5	Telephone Black granite	With metallic ringing Sound (Approved by Architect or engineer in charge)
6	Dark original green Udaipur marble, Khatu Stone	Without any stain or color coating (Approved by Architect or engineer in charge)
7	Glazed tiles	Orient, Kajaria, Jhonson, Nitco, Somani, Bell, Asian or Euro
8	Aluminum Section (Powder coated)	Jindal, Banco, Hindalco
9	Acrylic emulsion plastic Paint	Nerolac, Asian, ICI, Berger
10	Weather shield max paint	ICI, Asian apex ultima, Dulux
11	Sanitary fittings	Cera, Hindware, Perryware, Nicer, Duravit, Jaguar
12	PVC or UPVC fittings	Astral, Supreme, Prince, Finolex
13	PTMT fittings	Prayag, Wilson
14	PVC (Triple layer coated) water tank	Sintex, Super
15	Construction chemicals	BASF, Fosroc, Roff, Perma, Sunanda, Sika, OR equivalent
16	Door-window fittings & fixtures	Brass-sonal make c.p. heavy section
17	Wood	100% natural (pure) seasoned wood
18	Ply wood	Century or Anchor
19	Glass	Saint gobain, Modi, AIS,
20	Ready mixed concrete	Ultratech / Lafarge
21	Rebars	Hilti, Fisher
22	Binding Wires	Galvenised coated wire
23	Epoxy Joints	Laticretes, Pidilite, Mapei
24	Veneer / Laminates	Century, Greenlam

25	FRP Frame and Shutters	Sintex or equivalent approved by Consultant
26	Aluminium Section	Jindal, Hindalco, Banco
27	Lapi / Putty	JK White, Birla
28	SS Pipes	Grade 316, Jindal or its equivalent
29	Sanitary fittings	Jaguar, Cera, Hindware, Hindustan
30	Toilet fittings	Cera, Hindware, Perryware, Nicer, Duravit, Jaguar
31	Water Proofing Cool Gaurd	Panas, Cembo
32	Concrete Admixture	Basf, Fosroc, Roff, Perma, Sunanda, Sika, OR equivalent
33	Waterproofing to Terrace or Sunken Slab	Basf, Fosroc, Roff, Perma, Sunanda, Sika, OR equivalent
34	Special Repairs Job including Polymer Mortar, Protective Coating, Injection Grout, Micro Concrete, Crack filling etc.	Basf, Fosroc, Roff, Perma, Sunanda, Sika, OR equivalent
35	Anchor Grouts	Basf, Fosroc, Roff, Perma, Sunanda, Sika, OR equivalent
36	Foundation Grouts	Basf, Fosroc, Roff, Perma, Sunanda, Sika, OR equivalent
37	Construction and Expansion Joint Sealant	Basf, Fosroc, Roff, Perma, Sunanda, Sika, OR equivalent
38	Paver Block	Anjani Cement Articals, Laxmi Tiles, Shree Arihant Precast Products, Vyara Tiles Pvt. Ltd, Krishna Precast, Bansal Buidling Material Pvt. Ltd., Kismat Tiles & Flyash Product
39	Precast Kerb	Anjani Cement Articals, Laxmi Tiles, Shree Arihant Precast Products, Vyara Tiles Pvt. Ltd, Krishna Precast, Bansal Buidling Material Pvt. Ltd., Kismat Tiles & Flyash Product

NOTE ON APPROVED VENDOR LIST: -

1. Equipment's/ items for which no make is specified, approval shall be obtained from both Consultant and Client prior to supply. Contractor will have to propose Minimum three vendors for such item, right to selection/rejection of particular make offer by contractor is with consultant and client.
2. Various options are given in the above vendor's list. However, choice as to the selection of particular make will rest to both Consultant and Engineer-in-Charge.
3. No deviation in the make list shall allowed.

SIGNATURE OF THE CONTRACTOR.

Date :- - -2026

i) Responsibility of contractor under Construction And Demolition Waste (C & D Waste) Rules 2016

Contractor shall remove All Construction and Demolition Waste (C & D Waste) and clean the area every day, or depending upon (1) The type & schedule of the work, (2) The quantity and type of waste generated, appropriate storage and collection facility shall be developed at site. Reasonable time frame shall be worked out in consultation with engineer in charge of the project, for storage & usage of C & D Waste.

If it is found that contractor is irregular and showing negligence to management of C & D Waste, then if deemed fit, Engineer-in-charge would arrange to dispose the said C & D Waste through an Authorized C & D Waste Contractor/agency of Surat Municipal Corporation and All the expenditure made towards disposal of this C & D Waste shall be recovered from the contractor as per the prevailing charges.

Contractor shall have to bear the expenses towards management of C & D Waste as per the prevailing norms, no extra payment shall be entertained for the same.

Contractor shall keep record of the generation and disposal of Construction and Demolition waste (C & D Waste) and proof of its disposal as per the provision of C & D Waste rules and he has to submit along with running bills

If contractor fails to upkeep and maintain records of C & D Waste generation- Disposal records etc. then it shall be calculated as per the provision of the Standing Committee Resolution no. 1621/2016, Dt:01/10/2016 and charges shall be recovered from due of contractor with Surat Municipal Corporation.

Contractor shall also ensure use of recycled products made from SMC authorized C & D Waste agency as far as possible to promote the C & D Waste management project.

EXECUTIVE ENGINEER
SOUTH ZONE-A (UDHANA)
SURAT MUNICIPAL CORPORATION
SURAT.

SIGNATURE OF THE CONTRACTOR.

Date :-

To,
Municipal Commissioner,
Surat Municipal Corporation,
SURAT.

Sir,

I/ We have tendered for the work of
.....and have paid Earnest Money Deposit
Amounting to Rs. drawn by

(Name of the Bank)

There receipt No. dated by the Corporation is attached herewith. In case, my/our
tender is not accepted, therefore kindly arrange to refund the amount of Earnest Money Deposit paid by me/ us as per the
details referred to above. Advance, stamped Receipt duly signed on Revenue Stamp of Rs. 1.00 p.
is also enclosed herewith. Signature of the Contractor

Address:-

.....

.....

Encl: As Stated.

ADVANCE STAMP RECEIPT

Received with thanks the sum of Rs. (In Words
) only from the Surat Municipal Corporation being the refund of Earnest
 Money Deposit placed by me/us vide SMC's Receipt No. dated along with the tender
 paper for the
 (Name of the work)

Date:- Revenue Stamp

Signature of the Tenderer.

f.w.c. to the Accountant,

1. For remarks whether the deposit amounting to Rs. placed on
 by Shri/M/s. in connection with the work of
 . stands in full in the name of the
 aforesaid party (R.No. dated)

EXECUTIVE ENGINEER
 SOUTH ZONE-A (Udhana)
 SURAT MUNICIPAL CORPORATION

F.W.Cs. to EXECUTIVE ENGINEER, SOUTH ZONE-A, (UDHANA)

To deposit of Rs. placed on by Shri/M/s stands in full in
 the name of the aforesaid party.

Accountant.

Submitted,

For favour of sanction of refund Rs.

being the amount of deposit placed on

..... vide Receipt No.

by

Shri/M/s.

in

connection with the work of

.....

.....

.....

as the tender of the above party has been accepted / had not been

accepted and the concerned contractor has paid security deposit of Rs.

..... for the above referred work on Dt.

..... The party has also executed an agreement for the above work. The above deposit stands in full in the name of the said party as certified by the Accountant on

..... The expenditure will be debited on

B.H.G. Tender Deposit Account.

Assistant Engineer/Jr. Engineer.

Dy. Engineer,
Accordingly.

Sanctioned

EXECUTIVE ENGINEER
SOUTH ZONE-A (Udhana)
SURAT MUNICIPAL CORPORATION

SPECIAL CONDITION
ANNEXURE-A
AFFIDAVIT

Name of Work: _____

- I, the undersigned, do hereby certify that all the statements made in the required attachments are true and correct. I also understand that in case of wrongful/false information, corporation is entitled to take any civil & criminal punitive action against me / us.
- The undersigned also hereby certifies that neither our firm M/s _____ Nor any of its constituent partners have abandoned any work in India nor has any contract awarded to us been rescinded during last five years, prior to the date of this bid.
- The undersigned hereby authorize(s) and request(s) any bank, person, authorities, government or public limited institutions, firm or corporation to furnish pertinent information deemed necessary and requested by the SMC to verify our statements of our competence and general reputation etc.
- The undersigned understands and agrees that further qualifying information may be requested, and agrees to furnish any such information at the request of the SMC.
- The SMC and its authorized representatives are hereby authorized to conduct any inquiries or investigations to verify the statements, documents, and information submitted in connection with this bid and to seek clarification from our bankers and clients regarding any financial and technical aspects. This Affidavit will also serve as authorization to any individual or authorized representative to any institution referred to in the supporting information, to provide such information deemed necessary and requested by representative of Surat Municipal Corporation to verify statements and information provided in the Tender or with regard to the resources, experience and competence of the Applicant.

 Signed by the Authorized signatory of the firm

 Title of the office

 Name of the firm

Date:

Note:- The affidavit form as indicated above to be furnished on non-judicial stamp paper of Rs.300 and duly

notarized.

ANNEXURE-IX**UNDERTAKING BY THE TENDERER FOR NOT BLACK LISTED ON RS.300/- GOVERNMENT STAMP PAPER**

I/We.....Address..... Solemnly
 affirm and state that on oath that (Name of Tenderer) has not been black
 listed by any Government/Semi Government/Public Sector Undertaking/Public limited and no has been
 banned/suspended business dealings with the said firm. The information given above is true to the best of my
 knowledge. I/We agree that if any notice in future, my/our bid/tender shall be rejected/terminated.

SIGNATURE AND SEAL OF THE CONTRACTOR:

NAME AND ADDRESS:

DATE:

❖ It is mandatory to submit the above Affidavit through online (Notarized colour scan copy) and also in hard copy.

Note:- The affidavit format as indicated above to be furnished on non-judicial stamp paper of Rs.300 and duly notarized

NAME OF THE CONTRACTOR	
ADDRESS OF THE CONTRACTOR	ORIGINAL FOR RECEIPT
COMPANY	
LOGO TELEPHONE NUMBER	
E-mail	
GSTIN: OF THE CONTRACTOR	
TAX INVOICE	
Invoice No:	Transport Mode: NA
Invoicedate:	Vehicle number: NA
Reverse Charge (Y/N):	Date of Supply:
	Place of Supply: Surat (SMC Jurisdiction)
Bill of Party	
Ship to Party	
Name: SURAT MUNICIPAL CORPORATION	
Address: Head Office, Muglisara, Surat.	
GSTIN:	
State: Gujarat	Code 24
Name: SURAT MUNICIPAL CORPORATION	
Address: Zone/Department address	
GSTIN:	
State: Gujarat	Code 24

Sr. N o.	Product Description	HSN Code	Qty	Rate	Amou nt	M. B.D IFFER ENCE	Taxab le val ue	Cgst		SGST		IGST		T O T A L
								RATE	Amou nt	RATE	AMOU NT	RATE	AMOU NT	
	AsperMB SR.NO.OF...													
	ZONE													
	PAGE NO.....													
	TO.....													
	TOTAL													
TotalInvoiceamountinwords						Totalamountbefore tax(LabourCess&TDS TOBEDEDUCTEDON THIS AMT)								
						Add:CGST/SGST/IGST								
						TotalAmountafterTax:								
BankDetails						GSTOnReverseCharge								
BankA/C. :						Certifiedthattheparticulargivenabovearetrueandcorrect NAME OF CONTRACTOR AuthorizedSignature								
Bank IFSC:														
		CommonSeal												

Note: PARTY CODE OF SMC.



**SURAT MUNICIPAL CORPORATION SOUTH
ZONE-A (UDHANA)**

Tender(Online) Notice No.DMC/SZ-A/03/2026-27

WORK NO.02

(ii) TENDER FOR

Work Name	Annual Rate Contract For Repairing, Maintenance and new work of footpath & watertable, divider, chainlizer, traffic island, activity area, P.C.C and laying cement concrete Guard Stone and Setting/Resetting stone paving/ Pever block work in Sub Zone-3 & 4 in South Zone-A (Udhana),(2nd Attempt).
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Checklist for the Bidder

Sr. No.	Particulars	To be Submitted with Tech- bid		Please Mark as ✓ for Submission
		File to be Attached Online	Hard Copy Submission	
1.	Earnest Money Deposit/Tender Fee as specified elsewhere in the tender document.	YES	DD/PO	
2.	Certified copy of Registration/valid GST registration and Copy of Income tax PAN	YES	NO	
3.	Certified copy of Professional Tax Registration (EC /RC)	YES	NO	
4.	Digitally Signed Partnership Agreement/ Partnership Deed/ Power of Attorney/ Board Resolution in case of Semi Government / Government Organization for bidding the Tender Documents etc (If Applicable) (PDF file to be uploaded with Tech Bid.)	YES	NO	
5.	Certified copies of Experience, namely Work Orders and/or Certificates of satisfactory completion from Respective Authorities	YES	NO	
6.	Latest Bank Solvency certificate of the Current Year from Bankers of Nationalized/Scheduled bank (Valid for Not less than 4 Months from date of Tender Opening), having minimum value equal to 20 % of the total estimated cost of Tender. (i.e 20% of 9.20 lacs)	YES	NO	
7.	Certificate from Chartered Accountant, showing the average annual financial turnover of last three years. (PDF file to be uploaded with Tech Bid.)	YES	NO	
8.	Last Three Years Income Tax Clearance	YES	NO	

	Certificate			
9.	All the Documents Required as per the Check list of Tech.bid/Attached Annexure with the tender	YES	NO	
10.	Affidavit of the Annexure-A, Non Blacklist Contractor Annexure-IX (To be given on the authorized amount of stamp paper approved by Government of Gujarat with Applicable Article signed by authorized notary)	YES	YES	
11.	List of Technical Personnel	YES	NO	
12.	Addenda Corrigendum(s) duly Sealed/Signed (If Applicable)	YES	YES	

Note:- All the above mentioned documents must be colored scanned and notarized with clearly displaying stamp, number and name of the notary. Moreover, all of the above mentioned documents along with supporting documents shall be submitted in electronic format only. Only Documents [Earnest Money Deposit, Tender fees, Affidavit, Addenda Corrigendum (s) duly Sealed / Signed (If Applicable)] shall only be submitted in HARD COPY to Surat Municipal Corporation by all bidders.