

Surat Municipal Corporation

South West (Athwa) Zone



NAME OF WORK: CONSTRUCTION/RESTRENGTHENING WORK OF FOOTPATH WITH R.C.C PARDI,C.C. KERB STONE, RUBBER MOULDED PAVER BLOCK AND ROUGH KOTAH STONE IN VARIOUS ROADS OF SUB ZONE - 3 & 5 IN SOUTH WEST (ATHWA) ZONE.

E- Tender NOTICE (online) NO: Dy.Commissioner/S.W.(A) Zone/No.01/2026-2027 (Work No.3)

VOLUME-I: TECHNICAL BID

Download of tender documents from : 22/06/2026 to 07/07/2026, up to 18.00 hrs
website smc.nprocure.com

Last date of submission of online tender : Up to 07/07/2026, up to 18.00 hrs

Pre bid Meeting

Bidder shall have to post their queries on E mail address exen.swz@suratmunicipal.gov.in on or before **01/07/2026 up to 11:00 A.M.**

Submission of tender fees, EMD and other documents in hard copy : From 07/07/2026 to 16/07/2026 18.00 hrs. to the Chief Accountant, SMC, Muglisara, Surat by R.P.A.D./Speed Post

Estimated Cost : Rs. 1,22,56,858.00

Earnest Money Deposit (EMD) : Rs. 1,22,600.00

Document Fees : Rs. 4,248.00

Opening of Technical Bid (Online) : On 08/07/2026, 11.00 hrs.

Opening of Price Bid (Online) : On 17/07/2026, 11.00 hrs.

Class : "C"

SURAT MUNICIPAL CORPORATION

TENDER DOCUMENT

NAME OF WORK: - CONSTRUCTION/RESTRENGTHENING WORK OF FOOTPATH WITH R.C.C PARDI,C.C. KERB STONE, RUBBER MOULDED PAVER BLOCK AND ROUGH KOTAH STONE IN VARIOUS ROADS OF SUB ZONE - 3 & 5 IN SOUTH WEST (ATHWA) ZONE.

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SURAT MUNICIPAL CORPORATION

SOUTH WEST (ATHWA) ZONE

1. NOTICE TO INTENDING TENDERERS:

(A) RECEIPT AND OPENING OF TENDER :

Online Tenders will be received from the established and reliable contractors on or before 18.00 hours on **13/03/2026** on website smc.nprocure.com. The tender received after due time and date specified will not be accepted.

(B) NAME OF WORK:- CONSTRUCTION/RESTRENGTHENING WORK OF FOOTPATH WITH R.C.C PARDI,C.C. KERB STONE, RUBBER MOULDED PAVER BLOCK AND ROUGH KOTAH STONE IN VARIOUS ROADS OF SUB ZONE - 3 & 5 IN SOUTH WEST (ATHWA) ZONE.

- | | |
|--------------------------|--|
| 1. ESTIMATED COST | : Rs. 1,22,56,858.00 |
| 2. EARNEST MONEY DEPOSIT | : Rs. 1,22,600.00 |
| 3. TIME LIMIT | : 12 (Twelve) months (Including Monsoon) |
| 4. Document Fee | : Rs. 4,248.00 (Including GST) |
| 5. Registration required | : "C" 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 and other Documents in hard copy. The tenders will be opened in three stages i.e. Qualification Bid, Technical Bid and Commercial Bid.

(D) PURCHASE OF TENDER DOCUMENTS :

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

Tender documents fees 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.

(E) CONTRACT PERIOD :

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

As Memorandum no Execution work shall be permitted on site from 15th June to 30th September (i.e. during monsoon) except special permission is been granted in required circumstances. However material procurement shall be permitted.

(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) as specified in the tender notice
- The successful tenderer shall execute the Contract Agreement within fifteen 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.

- (f) The successful Tenderer shall furnish insurance in accordance with the contract documents.
- (g) 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.
- (h) 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.
- (i) All intending tenderers will have to purchase digital signatures in order to participate in the online bidding process.
- (j) **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.**

(G) Tender Validity Period :

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

(H) 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 West (Athwa) Zone,
Surat Municipal Corporation,
Surat.

SIGNATURE OF THE CONTRACTOR :-
ADDRESS :- DATE :-

2. QUALIFICATION OF TENDERER:

- A. Tenderer shall be required to submit the enlisted documents in hard copy along with the Qualification Bid. **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 for pre-qualification,

- (A) Experience of having successfully completed similar works during last 7 years either of the following

(1a) **Three similar** completed works, each costing not less than amount equal to 40% of the estimated cost.(Rs.49,02,743.20)

OR

(2a) **Two similar** completed works, each costing not less the amount equal to 50% of the Estimated Cost. (Rs.61,28,429.00)

OR

(3a) **One similar** completed works, each costing not less the amount equal to 80% of the Estimated Cost. (Rs.98,05,486.40)

Similar works means works of set-reset of footpath/repairing of existing footpath/divider/construction of footpath and paver block works etc.

- (B) Average Annual Turnover during last 3 years, ending 31st March of previous financial year, should be at least 30% of Estimated Cost. An attested copy of annual turnover for last 3 years should be enclosed. Here, If last financial year turnover certificate is not available or not audited, than years before last financial year should be considered.
- (C) The Bidder should submit Solvency Certificate amounting minimum 20% of the estimated cost issued by schedule bank / Nationalized bank.(Considering validity as 1 year from date of issue of Solvency Certificate)
- (D) The works carried out for Government or Semi-Government or ULB shall only be considered for qualification. The necessary work completion certificate from not below the rank of Executive Engineer shall only be considered.
- (E) An attested copy of registration with MES, various department of State Government, Surat Municipal Corporation, CPWD etc.
Registration required: “C” class
- (F) List of the works already completed in last 7 years in prescribed Performa 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 arrive at common base for the value of the works completed in India. **Cut of month shall be considered from month of tender submission**

Year	Multiplying factor
Immediate last year of the assessment year*	1.1
Second	1.21
Third	1.33
Fourth	1.46
Fifth	1.61
Sixth	1.77
Seventh	1.95

*Here assessment year shall be reckon from year and month in which tender is submitted

Bidder should indicate actual figures of costs and amount for the work executed in Annexure – I without accounting for the above-mentioned factors.

(G) Declaration regarding the work on hand with the tenderer shall also be given in prescribed Performa as per Annexure-II. Attested copies of work orders, interim certificates if any shall also be attach as supporting documents.

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

(I) For records reasons SMC shall have absolute powers to qualify the bidder for any particular work irrespective of its monetary value.

(J) The bidder 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 bidder 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.

(K) Joint Venture or sublet or back to back work shall not be allowed.

B. Tenderer shall submit only one tender for the work put to this tender.

The tenderer shall furnish a written statement with details in Annexure enclosed.

Executive Engineer,
South West (Athwa) Zone,
Surat Municipal Corporation,
Surat.

SIGNATURE OF THE CONTRACTOR: -
ADDRESS: -
DATE: -

3. INFORMATION TO TENDERER:

- | | |
|--|--|
| 1. Tender validity period | (120) calendar days from the date of opening of price bid |
| 2. Earnest Money Deposit | Rs. 1,22,600.00 |
| 3. Security Deposit | As per Condition of Contract Clause 1 |
| 4. Time of Completion | 12 (Twelve) months (Including Monsoon) |
| 5. Period of liability for defects. | Twelve Months after completion of work. |
| 6. Penalty for delay | Zero Point two percent (0.2%) of the contract price per day maximum up to ten percent of the contract price. |
| 7. Last date of download of tender | Date :- 07/07/2026 up to 18.00 hrs from smc.nprocure.com |
| 8. Last date of submission of online Tender | Date:- 07/07/2026 up to 18.00 hrs |
| 9. Last date of submission of Tender fees, EMD and other Documents | Up to 16/07/2026 up to 18.00 hrs |

Executive Engineer,
South West (Athwa) Zone,
Surat Municipal Corporation,
Surat.

SIGNATURE OF THE CONTRACTOR :-
ADDRESS :-
DATE :-

4. CHECK LIST

SURAT MUNICIPAL CORPORATION
SOUTH WEST ZONE (ATHWA)

E- Tender NOTICE (online) NO: Dy.Commissioner/S.W.(A) Zone/No.01/2026-2027 (Work No.3)

CHECK LIST

Sr. No.	Particulars	To be Submitted with Tech- Bid		Please <input type="checkbox"/> Mark as for Submission
		file to be attached Online	Hardcopy Submission	
(1)	Forwarding Letter	No	Yes	
(2)	Tender Fee	Yes	DD / PO	
(3)	EMD	Yes	DD / PO	
(4)	GST Registration certificates	Yes	No	
(5)	PAN card No.	Yes	No	
(6)	Professional Tax Registration (EC/RC)certificates	Yes	No	
(7)	Digitally signed Partnership Agreement / Partnership Deed / power of attorney/Board Resolution in case of semi government /government Organization for being the tender documents etc. (if applicable) (pdf file to be uploaded with tech bid)	Yes	No	
(8)	Power of attorney for signing tender document etc.	Yes	No	
(9)	Photograph of each partner or as the case may be	Yes	No	
(10)	Solvency certificate from bankers of Nationalized/ Scheduled bank for the 20% of Tender Amount. (Rs 24,51,371.60)	Yes	No	
(11)	Digitally signed CA Certificate showing financial turnover of last three years [i.e. 2022-23, 2023-24, 2024-25] (pdf file to be uploaded with tech-bid).	Yes	No	
(12)	Certificates of successful completion of work for the works mentioned in "QUALIFICATION CRITERIA FOR TENDERER" as mentioned on the page no 05 of the tender document..	Yes	No	
(13)	Last Three Years Income Tax Clearance Certificate	Yes	No	
(14)	A list of work on hand	Yes	No	
(15)	All the documents required as per the check list attached annexure with the	Yes	Yes	

	tender			
(16)	Affidavit of the Tenderer on non-judicial stamp paper of Rs. 300.00 (Annexure - III)	Yes	Yes	
(17)	Addenda corrigendum(s) duly sealed/ signed if applicable)	Yes	Yes	
(18)	Special Terms and Conditions (Sealed Signed) Tender document	Yes	No	
(19)	Consultant's/ Bidder's Undertaking/ Certificate	Yes	Yes	
(20)	List of Technical Personnel	Yes	No	
(21)	CHECK LIST	Yes	No	
(22)	Anti Black list Certificate.	Yes	Yes	

Note: -

The tenderer should be required to furnish details/ certificates etc. as mentioned above otherwise their offer shall be liable for rejection.

SEAL & SIGNATURE OF TENDERER: -

5. SUBMISSION OF TENDER

(Following condition shall supersede relevant condition mentioned elsewhere in the bidding document)

- 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 Clause as 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.
- All Documents must be colored scanned to be seen as original. Scanning in Black and White or gray shall not be acceptable.
- All the Documents must be notarized with clearly displaying stamp, number and name of the notary.
- Price Bid shall have to be quoted strictly online only. No hard copy of price bid shall be accepted.
- Addenda/corrigenda to these tender documents, if issue must be signed and submitted online and also in hard copy.

DOCUMENT TO BE SUBMITTED IN HARD COPY:

“Following Documents shall only be submitted in HARD COPY to Surat Municipal corporation by all bidders”

- Earnest Money Deposit as mentioned in the Tender. (i.e. DD)
- Tender fees as mentioned in the tender
- Affidavit on Non-Judicial Stamp Paper of Rs. 300/-
- Undertaking by the tenderer for not blacklisted on Rs.300/- government stamp paper
- Addenda and Corrigendum (if any).

Technical bid and qualification documents mentioned in the tender and price bid are not to be submitted in physical form. please note that Non – Submission of Hard Copies of technical Bid as well as price Bid does not absolve the bidders from any liability created from the bid condition and bidding process. price bid shall have to be quoted strictly online only. Technical –Bid in Hard copy shall be Submitted only by Successful bidders upon intimation from SMC.”

Executive Engineer,
South West (Athwa) Zone,
Surat Municipal Corporation,
Surat.

SIGNATURE OF THE CONTRACTOR:-

ADDRESS:-

DATE:-

6. DETAILS TO BE SUBMITTED IN QUALIFICATION (online)

The following details are required to be submitted in in electronic format only through online (by colour scanning)

- a) The scan copies of Tender fees and EMD. **(Colored scanned)**
- b) Affidavit non-judicial stamp paper of Rs. 300 (Annexure-III) and Undertaking of not blacklisted on non-judicial stamp paper of Rs. 300 (Annexure-IX) **(Colored scanned & Notarized)**
- c) Documents/certificate supporting Annexure-I, II, IV, V, VI, VII and VIII in required Performa. **(Colored scanned)**
- d) Necessary documents required for various details mentioned in Tender Clause No. (2) “Qualification of Tenderers”. (form 3(A) Experience Certificate) **(Colored scanned & Notarized)**
- e) Registration Certificate. **(Colored scanned & Notarized)**
- f) Solvency Certificate **(Colored scanned & Notarized)**
- g) Balance Sheet for the last 3 years. (Turn over Certificate as per CVC guide line) **(Colored scanned & Notarized)**
- h) Scan Copy of Addenda and Corrigendum (if any). **(colored scanned)**
- i) Partnership deed (if any) **(Colored scanned & Notarized)**
- j) Contractor’s GST Registration **(Colored scanned & Notarized)**

Note :- ALL Necessary Documents, Certificates like Excise Registration, GST Registration, Work Experience Certificates and work order of similar works, Partnership Deed If any, Power of Attorney If any, Valid Bank Solvency etc. must be notarized colour scan copy.

On failing to submit all the above mandatory documents through online (by scanning), bidder will not be qualified for opening of the Price Bid.

The tenderer shall have to strictly submit the Technical Bid and Price Bid online only. The submission in hard copies shall be rejected and tender shall not be opened further.

APPROVE LIST OF BANK
Finance Department, GR No. : FD/MSM/e-file/4/2024/2859/D.M.O.
Date : 01/05/2025

(A) Guarantees issued by the following banks will be accepted as SD/EMD on Permanent basis :

- All Nationalized Banks

(B) Guarantees issued by the following banks will be accepted as SD/EMD on March 31, 2026. 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.

Sr.No.	Name of Bank	Sr.No.	Name of Bank
1	AXIS Bank	22	South Indian Bank
2	AU Small Finance Bank	23	Standard Chartered Bank
3	Bandhan Bank	24	Tamilnad Mercantile Bank
4	Barclays Bank	25	Utkarsh Small Finance Bank
5	City Union Bank	26	YES Bank
6	CSB Bank	27	Ahmedabad Mercantile Co-op. Bank
7	DBS Bank India Limited	28	Nutan Nagrik Sahkari Bank Ltd.
8	DCB Bank	29	Rajkot Nagarik Sahakari Bank Ltd.
9	Equitas Small Finance Bank	30	Saraswat Co-Operative Bank Ltd
10	ESAF Small Finance Bank	31	SBPP Co-operative Bank Ltd.
11	FEDERAL Bank	32	SVC Co-Operative Bank Ltd.
12	HDFC Bank	33	The Cosmos Co-op Bank Ltd.
13	HSBC Bank	34	The Gujarat State Co-operative Bank
14	ICICI Bank	35	The Mehsana Urban Co-Op. Bank
15	IDBI Bank	36	The Surat District Co-op Bank
16	IDFC First Bank	37	The Surat People's Co. Op. Bank Ltd
17	Jammu and Kashmir Bank	38	The Kalupur Commercial Co-op. Bank
18	Jana Small Finance Bank	39	The Panchmahal District Co-operative Bank
19	Karnataka Bank	40	The Baroda District Co-operative Bank
20	Karur Vysya Bank	41	Baroda Gujarat Gramin Bank
21	Kotak Mahindra Bank	42	Saurashtra Gramin Bank

All the eligible banks are instructed to collect the original documents/papers of guarantee from the concerned tendering authority.

EXECUTIVE ENGINEER
SOUTH WEST (ATHWA) ZONE SURAT MUNICIPAL
CORPORATION. ANNEXURES FOR PRE-
QUALIFICATION TO BE FILLED IN BY
TENDERER

ANNEXURE-I

Performa for list of works of similar nature already completed by the Tendered 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

❖ It is mandatory to submit the supporting documents / certificates through online (by scanning)

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 with other work” then bidders shall have to submit copies of final bill indicating similar work or certificate of amount indicating “Similar work” from relevant authority.

Signature of the Contractor
with seal.

Place:

Date

ANNEXURE-II

Performa for declaration regarding works on hand with the tenderer:

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

❖ **It is mandatory to submit the supporting documents / certificates through online (by scanning)**

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 tenders are invited).

ANNEXURE-III

AFFIDAVIT

1. **Name of the work:** CONSTRUCTION/RESTRENGTHENING WORK OF FOOTPATH WITH R.C.C PARDI,C.C. KERB STONE, RUBBER MOULDED PAVER BLOCK AND ROUGH KOTAH STONE IN VARIOUS ROADS OF SUB ZONE - 3 & 5 IN SOUTH WEST (ATHWA) ZONE.

- 1.0 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.
- 2.0 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 for such works has been rescinded during last five years, prior to the date of this bid.
- 3.0 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 or our competence and general reputation.
- 4.0 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.
- 5.0 The SMC and its authorised representatives are hereby authorised to conduct any inquiries or investigations to verify the statements, documents, and information submitted in connection with this application 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 authorised representative of any institution referred to in the supporting information, to provide such information deemed necessary and requested by yourselves to verify statements and information provided in the Tender or with regard to the resources, experience and competence of the Applicant.

Signed by the authorised 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.**

- ❖ **It is mandatory to submit the above Affidavit through online (by scanning) and in hard copy**



ANNEXURE-IV

Details of Technical staff with tenderer

Sr. No.	Name of personnel	Qualification	Total experience	Who is proposed to be posted for this work



It is mandatory to submit the above list through online (by scanning)

ANNEXURE-V

List of tools, plants and equipments with tenderer (Format as per tenderer's choice)

- ❖ **It is mandatory to submit the list of tools, plants and equipment's or supporting documents / certificates through online (by scanning).**

ANNEXURE-VI

List of tools, plants and equipments to be deployed by the tenderer for the work (Format as per tenderer's choice).

ANNEXURE-VII

Contractors Schedule for execution of work in the form of Bar chart

Sr. No.	Description of Activity	Start month and date and completion month and Date

ANNEXURE-VIII

Structure and Organisation of the Company

1. **Name of Applicant**
2. **Nationality of Applicant**
3. **Office Address**
Telegraphic Address
Telephone No. (O) (M)
Telex No.
Fax No.
Email address :
4. Year and location of establishment
5. The Applicant is
 - a) An individual
 - b) A proprietary firm
 - c) A firm in partnership
 - d) A limited company or Corp.
(if a firm in partnership)
6. For how many years has your organization been in business of similar work under it's present name ? what were your fields when your organization was established?

Signature of Applicant.

Date :

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 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 AND ADDRESS:

DATE:

❖ **It is mandatory to submit the above Affidavit through online (Notarized
colour scan copy) and also in hard copy.**

7. TENDER FOR WORKS

I/We hereby tender for the execution for the Surat Municipal Corporation (herein before and herein after referred to as "Municipal Corporation") of the work specified in the memorandum within the time specified in such memorandum at the tendered rates specified in schedule B (memorandum showing items of work to be carried out) and in accordance in all respects with the specification, designs, drawings, and instructions in writing referred to in clause 13 of the annexed conditions of contract and agree that when materials for the work are provided by Municipal Corporation such materials and the rates to be paid for them shall be as provided in schedule A hereto.

Should this tender be accepted I/We hereby agree to abide by and fulfill all the terms and provisions of the conditions of contract annexed hereto so far as applicable, and in default thereof to forfeit and pay to Municipal Corporation in office the sums of money mentioned in the said conditions.

Receipt No. _____ dated _____ from Municipal Corporation in respect of the sum of Rs. _____ (Rupees _____ only) / A crossed order cheque of Rs. _____ (Rupees _____ only) No. _____ dated _____ on the _____ in favour of the Commissioner, Surat Municipal Corporation is herewith forwarded representing the earnest money the full value of which is to be absolutely forfeited to Municipal Corporation should I/We not deposit the full amount of security deposit specified in the Memorandum, in accordance with Clause 1 of the said conditions.

Contractor:

Address:

Dated the _____ day of _____ 2026

(Witness)

(Address)

(Occupation)

The above tender is hereby accepted by me on behalf of the Surat Municipal Corporation.

Dy.Municipal Commissioner
Surat Municipal Corporation.

Dated _____ day of _____ 2026

8. CONTRACT AGREEMENT FOR

NAME OF WORK: - CONSTRUCTION/RESTRENGTHENING WORK OF FOOTPATH WITH R.C.C PARDI,C.C. KERB STONE, RUBBER MOULDED PAVER BLOCK AND ROUGH KOTAH STONE IN VARIOUS ROADS OF SUB ZONE - 3 & 5 IN SOUTH WEST (ATHWA) ZONE.

Articles of agreement made this _____ day of the month of _____ 2026. Between the Commissioner of Surat Municipal Corporation (which expression shall include his successors and assignees of one part) and _____ hereinafter called the contractor (which expression shall include their administrator and assignees of the other part).

WHEREAS the Contractors above named tendered for the works above mentioned and the same having been accepted by the General Body of the Municipal Corporation vide Resolution No. _____ dated _____; it is hereby agreed that the Contractor should carry out the works according to the terms and conditions of the contract detailed in the Item Rate Tender Books, - conditions and specifications, which have been signed by the contractors on.

In witness whereof the said Contractors and the Commissioner on behalf of the Surat Municipal Corporation have hereinto set their respective hands this _____ day of the month of _____ of the year 2026.

Signed, sealed and delivered by the said contractor in the presence of

Executive Engineer,
Surat Municipal Corporation
Surat.

Contractor,

Dy.Municipal Commissioner
Surat Municipal Corporation

I am responsible if the Contractor does not abide by the Condition of this contract.

Sealed with the common seal of the Surat Municipal Corporation in the presence of ---

Surety.

1. _____
2. _____

Members,
Standing Committee,
Surat Municipal Corporation

9. SURETY

This bond is made this _____ day of the month of _____ 2026. The Two Thousand Twenty five _____ between Shri _____ (hereinafter called the surety) of the first part and the Commissioner on behalf of the Surat Municipal Corporation of the second part.

WHEREAS the Contractor/Contractors Shri/Ms. _____ of _____ has/have entered into a contract with the Surat Municipal Corporation for the works detailed below :-

Name of the work	Tender Amount	G.B. Resolution No. & date Sanctioning Contract

AND WHEREAS one of the conditions of the contract being that the Contractor/ contractors shall give surety/sureties to the Corporation for the due fulfillment of the contract to the full value of the total expenditure of the work.

NOW THIS BOND WITNESSES and it is hereby agreed and declared as follows :-

I/We Surety/Sureties hereby bind myself/ourselves responsible for the due fulfillment of the contract in all its respects by the Contractor/Contractors and I/We do hereby agree and undertake to indemnity and keep harmless.

The Surat Municipal Corporation jointly as well as severally if the Contractor / Contractors fail / fails to carry out the whole or any part of the contract work as per the conditions and specifications of the work and as agreed to between the parties to the contract to the extent of full value of the total expenditure to be incurred in that behalf by the Municipal Corporation provided always that the expression "the Surety/Sureties" hereinbefore used shall include the heirs, executors, assigns or administrators of each and every person in this context.

IN WITNESS WHEREOF the said surety/sureties and the Dy.Municipal Commissioner on behalf of the Surat Municipal Corporation have here into set their respective hands this _____ day the month of _____ of the year 2026.

Surety

Signed in the presence.

Signed in the presence.

Dy.Municipal Commissioner,
Surat Municipal Corporation

Sealed with the common seal of the
Surat Municipal Corporation in the
presence of

1. _____

2. _____

Member
Standing Committee,
Surat Municipal Corporation

10. PERCENTAGE RATE TENDER AND 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 Posted on a board hung up in the Municipal Office and signed by the Commissioner.

This form will state the work to be carried out, as well as the date for submitting and opening tenders, and the time allowed for carrying out the work; also the amount of earnest money to be deposited with the tender, and the amount of the security deposit to be deposited by the successful tenderer and the percentage, if any to be deducted from bills. It will also state whether a refund of quarry fees, royalties dues ground rents & water-charges will be granted. Copies of the specifications, designs drawings and estimated rates; schedule rates and any other documents required in connection with the work which will be signed by the Executive Engineer, for the purpose of identification shall also be opened for inspection by contractors at the office of the Executive Engineer, during office hours.

Where the works are proposed to be executed according to the specifications recommended by a contractor and approved by a competent authority on behalf of the Surat Municipal Corporation such specification 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 by each partner thereof, and in the event of the absence of any partner, it shall be signed on his behalf by a person holding a power of attorney authorizing him to do so.
- (3) Receipt for payments made on account of any work when executed by a firm, should also be signed by all the partners, except where the contractors 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 person having authority to give effectual receipt for the firm.
- (4) Any person who submits a 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 each item of the work. Tenders which propose any alteration 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 sort, will be liable to rejection. No single tender shall include more than one work, but contractors who wish to tender for two or more works shall submit a separate tender for each. Tenders shall have the name and the number of the works to which they refer written outside the envelope.
- (5) The Commissioner or his duly authorised Assistant will open tenders in the presence of any intending contractors who may be present at the time, and will enter the amounts of the several tenders in a comparative statement in suitable form. In the event of a tender being accepted, the contractors shall thereupon, for the purpose of identification sign copies of the specifications and other documents mentioned in Rule.1. In the event of a tender being rejected the deposit will be refundable on application.
- (6) The Municipal Corporation shall have the right of rejecting all or of the tenders without assigning any reason.
- (7) No receipt for any payment alleged to have been made by a contractor regard to any matter relating to this tender or the contract shall be valid and binding on Municipal Corporation unless it signed by the Executive Engineer,.
- (8) The memorandum of work to be tendered for and the schedule of materials to be supplied by the Municipal Corporation and their rates shall be filled in and completed by the office of the

Executive Engineer, before the tender form is issued. If a form issued to an intending tenderer has not been so filled in and completed, he shall request the said office to have this done before he completes and delivers his tender.

- (9) All work shall be measured net by standard measure and according to the rules and custom of the Municipal Department of Surat Municipal Corporation 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 shall, if so desired by the Commissioner, produce along with his tender a banker's certificate of his financial stability. If he fails to produce such a certificate his tender will not be considered.
- (12) All corrections and additions or pasted slips should be initialed.
- (13) The measurements of work will be taken according to the usual method in use in the SMC and no proposals to adopt alternative methods will be accepted. The Commissioner's decision as to what the usual method in use in the SMC will be final.
- (14) The tender for work shall remain open for a period of 120 days from the date of opening of price bid of this tender for this work and that the tenderer shall not be allowed to withdraw or modify the offer on his own during this period. If any tenderer withdraws or makes modifications of additional in the terms and conditions of his tender not acceptable to the corporation shall without prejudice to any right or remedy be at liberty to forfeit in full the said earnest money absolutely.
- (15) Tenderers shall also note that as per the provisions of government, 01 % (one percent) construction cess on the work done amount shall be levied and shall be deducted from each running bill & final bill. The contractor shall quote the rate accordingly.**
- (16) The successful tenderer shall submit the copy of technical bid duly sealed & signed within fifteen days of issue of work order.**
- (17) The tenderer shall invariably submit the Certificate of Provident Fund of Employee without which bill for payment shall not be processed.**
- (18) The successful tenderer shall submit the copy of labour license within fifteen days of issue of work order.**

Signature of The Contractor.

Executive Engineer,
South West (Athwa) Zone,
Surat Municipal Corporation

11. GST CLAUSE

FOR CONSTRUCTION / ERECTION / COMMISSIONING / INSTALLATION / REPAIRS MAINTENANCE / RENOVATION / FABRICATION OF STRUCTURE INCLUDING BUILDING (MEANS ALL WORKS CONTRACT / TURN KEY PROJECT / 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. However, all the quoted rates must be inclusive of GST.
- 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 amount actually remitted by the successful Tenderers/ 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 nonpayment of the GST to the Government may lead to the termination of contract and forfeiture of Security Deposit /Performance Guarantee Amount.
- If 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 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.
- The Construction labour welfare cess shall be deducted from R.A. bill & Final of the contractor at the prevailing rate. The current rate of labor cess is 1% of the capital amount.
- All the prevailing taxes (i.e. GST) in the tender shall remain to the contractors account and it shall not be reimbursed / recovered. However, the variation in the prevailing GST structure shall be recovered / reimbursed.

Note :- The Rates mentioned in BOQ/SCHEDULE-B 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.

Construction Cess will be deducted from all Running Bills & Final Bills as per the prevailing Government Rates.

Executive Engineer,
Surat Municipal Corporation
Surat.

12. IMPORTANT POINTS TO BE BROUGHT TO TENDERER'S NOTICE

THE TENDER MAY BE REJECTED OUTRIGHT IF THE TENDERER

- A. Stipulates the validity period less than what is stated in the form or tender.
- B. Stipulates his own conditions.
- C. Does not quote his rates inclusive of terminal or sales tax or central taxes etc. in his rates.
- D. Does not disclose the full names and addresses of all his partners in the case of partnership concern.
- E. Does not fill in and sign the tender form as well as the bill of quantities and rates, annexure, specifications etc.
- F. Does not pay the Earnest Money Deposit by Pay Order or demand draft with the PART – A: QUALIFICATION BID of the tender.
- G. Does not submit the tender before the stipulated time on the specified date in the accounts office as directed.

13. CONDITIONS OF CONTRACT

Clause 1.

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 of Cash or 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 of Cash or Demand Draft/ Pay Order / bank Guarantee (en-cashable 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) 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.

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 D.D. / Payorder / 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 15 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 charged. If the Security Deposit is not paid within one month with interest, necessary actions as per condition of contract will be taken.

Initial Security Deposit (i.e. 2% Of Tender Amount) in form of Bank Guarantee may be accepted as per relevant tender provision, However BG shall be valid till final date of completion of work + 1 year (Whether final bill is audited and paid or not). It shall be contractor's responsibility to extent the BG On Or Before expiry of time limit of BG. In case of late renewal of BG, penalty of security deposit shall be levied at the rate of 0.065% of per day of BG amount.

The successful tenderer shall have to enter into an agreement on a non-judicial stamp paper of Rs. 300/- if initial Security Deposit paid in form Bank Guarantee or Demand draft as per the form of the agreement approved by the Municipal Corporation, Surat.

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/-.

Clause 2.

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 essence 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 uncompleted 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, 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.

Clause 3.

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 installments] or in the case of abandonment of the work owing to serious illness or death of the contractor or any other cause, the Commissioner on behalf of the Corporation shall have power to adopt any of the following courses, as he may deem best suited to the interest of the 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 the Municipal Corporation.
- b To employ labour paid by the South West (Athwa) 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 the 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 executed out of his hands, and to give it to another Contractor to complete, in which case any expenses which may be incurred in excess of the sum which would have been paid to the original Contractor, if the whole work had been executed by him [as to the amount of which excess expenses the certificate in writing of the Executive Engineer shall be final and conclusive] be borne and paid by the original Contractor and shall be deducted from any money due to him by the Municipal Corporation under the contract or otherwise from his security deposit or the proceeds of sale thereof, or a sufficient part thereof.

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 having purchased or procured any materials or entered 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 rescinded 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 amount so certified.

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 amount so certified.

Clause 4:

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 Clause 2, be entitled to take action under Clause 3 [b] after giving the Contractor 10 days notice in writing and the Contractor will have no claim for compensation for any loss sustained by him owing to such action.

Clause 5.

In any case in which any of the powers conferred upon the Commissioner by clause 3 and 4 hereof shall have become exercisable and the 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 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 and the liability of the Contractor for past and future compensation shall remain unaffected.

In the event of the Commissioner taking action under the sub-clause (a) or (c) of clause 3, he may, be he so desires to 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 authorized agent require him to remove such tools, plant, materials, or stores from the premises within a time to be specified in such notice; and 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 auction 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 sale shall be final and conclusive against the Contractor.

Clause 6.

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 or on 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 Commissioner in this matter shall be final.

Clause 7.

On the 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 of 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 materials and rubbish, and dispose off the same as he thinks fit and clean off such dirt as aforesaid; and the Contractor shall forthwith pay the amount of 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.

Clause 8.

No payment shall be made for any work, estimated to cost less than Rupees one thousand, till after the whole of the said work shall have been completed and 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 receive payment proportionate to the percentage shown in the attached Memorandum of the part of the work 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 payments shall be regarded as payments by way or advance against the final payments only and not as payments for work actually done and completed and shall not preclude the Engineer-in-charge from requiring bad, unsound imperfect or unskillful work to be removed and taken away and reconstructed, or re-erected, nor shall any such payments be considered as an admission of the due performance of the contract or any part thereof in such 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 to the measurement and of the total amount payable for the work shall be final and binding on all parties.

Clause 9.

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 and 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.

Clause 10.

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, the 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.

Clause 11.

The Contractor shall submit all bills on the printed forms to be hand 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.

Clause 12.

If the specification or estimate of the work provides for the use of any special description of materials to be supplied from the S.M.C. 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 the 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 from the security

deposit or the proceeds of sale thereof shall be 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 the 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 South West (Athwa) 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.

Clause 13.

The Contractor shall execute the whole and every part of the work in the most substantial and workmanlike 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 expenses to make or cause to be made copies of the specifications and of all such designs, drawings and instructions on aforesaid.

Clause 14.

The Engineer-in-charge shall have power to make any alterations in, or additions 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 respect 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 rates is specified in this contract, then such class of work shall be carried out at the rates entered in the schedule of rates of the 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 the 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 the 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 be 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 a 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.

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

Clause 15 A

A. 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 herein under, 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, 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, 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 aforesaid.

Clause 15 B. (Deleted)

Clause 16.

The Contractor is to set out and level the work and will be responsible for the accuracy of the 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 the Executive Engineer and his representatives including skilled attendance.

Clause 17.

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

Clause 18.

Samples of each class of material and workmanship shall be submitted by the Contractor for the approval of the 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.

Clause 19.

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.

Clause 20.

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.

Clause 21.

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 structure 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.

Clause 22.

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 the Municipal Corporation.

Clause 23.

Under no circumstances whatsoever shall the Contractor be entitled to any compensation from the 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.

Clause 24.

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 estimate for every day not exceeding ten days, during which the failure so continues and in the event of any such failure as aforesaid the Engineer-in-charge may rectify or remove and re-execute the work or remove and replace the materials or articles complained of or 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.

Clause 25.

All works under in cause 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.

Clause 26.

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 otherwise 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.

Clause 27.

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 of if any imperfection becomes apparent in it within the Defect liability period mentioned above by the 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 the 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 proceeds of sale thereof or of a sufficient portion thereof.

Clause 28.

The Contractor shall supply at his own cost all materials [except such special materials, if any, as may be supplied from the S.M.C. Stores in accordance with the contract]. Plant tools, appliance implements, ladders, cordage, tackle, 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 specifications or, other documents forming part of the contract or referred to in these conditions he is entitled to be satisfied, or which he is entitled to require together with carriage there for, 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 of 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 there for of 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.

Clause 29.

The Contractor shall make his own arrangements for drinking water for the labour employed by him.

Clause 30.

Compensation for all damage done intentionally or unintentionally or by the contractor's laborers whether in or beyond the limits of the Municipal property shall be estimated by the Engineer-in-charge or such other office as he may appoint and estimates of the Engineer-in-charge subject to the decision of the Commissioner on appeal be final and the Contractor shall be bound to pay the amount of the assessed compensation on 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 the Municipal Corporation 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 and he shall also pay any damages and cost that may be awarded by the court in consequence.

Clause 31.

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

Clause 32.

The contract shall not be assigned or sublet without the written approval of the Engineer-in-charge, and if the Contractor shall assign or sublet his contract or attempt to do so or become insolvent or commence any proceedings to be adjudicated an insolvent or make any composition with his creditors, or attempts or

attempt to do the Engineer-in-charge may, by notice in writing rescind the contract. Also if any bribe, gratuity gift, load, perquisite, reward or advantage, pecuniary or otherwise, shall either directly or indirectly be given, promised, or offered by the Contractor, or any of his servants or agents to any public officer or person in the employ of the 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 by 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 Municipal Corporation and 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.

Clause 33.

All sums payable by a Contractor by way of compensation under any of these conditions shall be considered as reasonable compensation to be applied to the use of the Municipal Corporation without reference to the actual loss or damage sustained and whether any damage has or has not been sustained.

Clause 34.

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.

Clause 35.

All works to be executed under the contract shall be executed under the directions and subject to the approval in all 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.

Clause 36.

Except where otherwise specified in the contract the 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 specifications, drawings, designs and instructions hereinbefore mentioned and as to the quality of workmanship, or materials used on the work, or as to any other question, claim, right, matter, or thing whatsoever in any way arising aloof, 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.

Clause 37.

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 items of work involved or the part of the work in question at the same rates as are payable under this contract or such items or if the part of the work in question is not in the opinion of the Engineer-in-charge capable of measurement the Engineer-in-charge may at his discretion pay the lump sum amount entered in the estimate, and the certificate in writing of the Engineer-in-charge shall be final and conclusive under the provisions of the clause.

Clause 38.

In the case of any class of work for which there are no 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 the event of there being no Municipal or Government P.W.D. specifications, then in such a case the work shall be carried out in all respects in accordance with the instructions and requirements of the Engineer-in-charge.

Clause 39.

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 construed to mean the work or works the contracted to be executed under or in virtue of the contract, whether temporary or permanent, and

whether original, altered, substituted or additional.

Clause 40.

Taxes and Duties on Material

All charges on account of Octroi, terminal tax or Sales tax etc. and other duties on material obtain for the works from any source shall be borne by the Contractor. 'P' and 'C' form shall not be supplied by the Municipal Corporation.

The bidder is advised, directed to take into consideration all the Central/State/ Local Self-Government taxes, levies. No tax/nor any Govt. levy shall be paid extra and/or separately. However, the deduction of Tax/Levy, if any, shall be ensured from payment due to be made time to time in accordance with the provisions of Central/State Govt. Laws, orders issued from time to time and remaining in force.

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 Term of Contract agreed upon during the course of execution of this Contract.

From last date of submission of tender and During the course of execution of contract if there is any change in Rate of GST (Goods & Service tax) by the Government the same i.e. only the difference shall be reimbursed / recovered separately by SMC subject to the submission of original Receipt /Proof for the amount actually remitted by the Successful Tenderer / 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.

Except GST, 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 and obliged to reimburse and no dispute regarding same shall be entertained by SMC. Bidder / firm should have to produce attested copy of sale tax certificate with proof of residence.

The Construction labour welfare cess shall be deducted from R.A. bill of the contractor at the prevailing rate. The current rate of labor cess is 1% of the capital amount.

Clause 41.

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. The Workmen Compensation policy and all the insurances pertaining to Plant and Equipment, fire, burglary shall be in the Contractors scope. However, the events such as earthquake and flood shall be considered as a Force Majeure and relevant clauses of the tender shall apply for the same

Clause 42.

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.

Clause 43.

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

Clause 44.

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.

Clause 45.

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 of or payment for work.

Clause 46.

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 authorised 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.

Clause 47.

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

Clause 48.

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

Clause-49

The work contract tax shall not be paid to the contractor.

Clause-50.

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

Clause-51

The following condition are being included in this tender and shall be considered as a part of tender document.

In case the total amount of work done is 5% less than 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.

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 upto 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. 3000/- i.e. the amount of work done when it exceeds 5% of the contract value it shall be rounded off 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.

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 finalizing the tender etc.

In such cases a fixed amount of Rs. 1000/- should be recovered from the original contract towards the cost of advertisement and other administrative charges incurred by the department in finalizing 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.

Clause 52. (Deleted)

Clause 53.

Amount on account of Earnest Money should be paid in pay order or demand draft only to the Municipal Commissioner. Earnest Money in the form of cheque will not be accepted. The amount will be forfeited in case after his quotation is accepted, the contractor does not complete the contract documents and pay the amount of Security Deposit of tender amount within the specified time as mentioned in clause 1 of condition of contract, otherwise it will be refunded. The work is to be completed within 12 (Twelve) months (Excluding Monsoon) from the date of written order to commence the work. The Insurance Company's bond will not be accepted against the Security Deposit.

Note:- The contractor is also allowed to pay the 50% amount of earnest money in pay order or demand draft of any Nationalized Bank payable at Surat in favor of the commissioner Surat Municipal Corporation only and rest of 50% in form of Bank guarantee of any Nationalized Bank located at surat.

Clause 54. (Deleted)

Clause 55.

No alteration in the form of quotation and in schedule of quantities and no additions in the shape of special stipulation will be permitted. Quotation which do not fulfill all or any of the above conditions or are incomplete in any respect are liable to be rejected.

Clause 56.

The tenderer must obtain for himself on his own responsibility and at his own expense all the information which may be necessary for the purpose of filling this tender and for entering into a contract for the execution of the same from the office of the Executive Engineer, Surat Municipal Corporation, Surat, during the office hours between 11:00 A.M. to 6:00 P.M. on weekdays except Sunday & Holidays and must examine the drawings and inspect site of the work and acquaint himself with all local conditions and matters pertaining thereto before submitting the tender.

Clause 57.

Each of the pages (having reference for signature of the contractor) of the tender documents is required to be signed by the person or persons submitting the tender in token of his/their having acquainted himself/themselves with General Conditions etc., as laid down. Any tender with any of the documents

not so signed which will be rejected.

Clause 58. (Deleted)

Clause 59.

The rates quoted by the contractor shall include all eventualities such as heavy rain, sudden floods, etc. which may cause damage to the executed work or which may totally wash out the work. Until the completion certificate is issued to the contractors, S.M.C. shall not be responsible for such damage or wash out to the construction work.

Clause 60.

Time is the essence of the contract. The work should be completed within 12 (Twelve) months (including Monsoon) from the date of the work order issued to the contractor to commence the work. The successful contractor will have to give a schedule of the various items of work to be done so that the work is completed within the stipulated time.

Clause 61.

Rate for extra items, as far as possible will be derived from the quoted tender items where it is not possible to do so, the same shall be carried out from the Road & Building S.O.R.2024-25 or arrived at by adding 15% towards overhead and profits on the actual cost of labour, material and plant and machinery input as approved by the Engineer-in-charge.

Clause 62.

In case of delay in execution of work the penalty at the rate of 0.2% of contract value per day subject to the maximum of 10% of the contract value, shall be payable by the contractor to the Corporation towards compensation.

Clause 64.

No claim for any extra or compensation for damage will be entertained on account of such variation, except where the quantity is increased by more than 30%. No claim for any extra or compensation for damages will be entertained on account of such variation where the quantity is decreased to any percentage or where the item is totally deleted.

Clause 65.

It should be noted that the contractor shall have to complete the work in stipulated time of 12 (Twelve) months (including Monsoon) as per the terms of the contract. The Contractor shall submit complete CPM/PERT chart and get it approved within one month of the award of the work.

Clause 66.

The Contractor shall also arrange to obtain the license from the competent Authority under the contract labour (regulation and abolition) Act 1970.

Clause 67. (Deleted)

Clause 68.

The following additional information shall be forwarded by the tenderer along with the submission of the tender:

- a A list of works of comparable nature executed, along with their value and time of completion.
- b A list of works in hand showing the cost of the work to be completed against each with the certificate from the Head of the office concerned.
- c A list of machinery in their possession and which they will bring for the proposed work.
- d Solvency certificate without which such tenders are liable to be rejected. The Solvency certificate

should be for the amount equal to 20% of the tender value of the work.

e Every contractor shall furnish along with the tender, information regarding income-tax the circle of the district in which he is assessed for income-tax the reference No. and year of assessment.

Clause 69.

Acceptance of quotation will rest with the competent authority who does not bind himself to accept the lowest and reserves the right to reject any or all quotations/tenders and no reasons will be given for acceptance or rejection thereof. The tenderers whose quotation is accepted will have to enter into a regular contract and abide by all rules and regulations embodied in the tender.

Clause 70.

The tender will be liable to be rejected outright, if while submitting it ---

- a 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.
- b Any of the pages of the tender are removed or replaced.
- c In the case of item rate tender, the rates are not entered in ink in figures and words and the total of each item and grand total are not struck by the tenderer in ink in the last column of Schedule 'B' under his signature.
- d Any errors are made by him in the tender.
- e All corrections and additions or pasted slips are not initiated by tenderers.
- f The tenderer or in the case of a firm each partner thereof does not sign or the signature/signatures is/are not attested by a witness on page of the tender in the space provided for the purpose.
- g The tenderers which do not fulfill any of the conditions of those in the printed form and those tenders which are incomplete.

Clause 71.

The contractor has to make all arrangements for procuring the materials required on his own work.

Clause 72.

in case of any discrepancy with tender document the contractor may contact the Executive Engineer, Surat Municipal Corporation, Surat.

Clause 73.

In view of the difficult position regarding the availability of foreign exchange, no foreign exchange would be released by the SMC for the purchase of plant and machinery required for the execution of the work contracted

Clause 74.

The contractor will have to construct shed for storing valuable materials at works site having locking arrangement. The material will be taken for use in the presence of the SMC person. No materials will be allowed to be removed from the site of works.

Clause 75.

Tender once accepted shall be binding on the contractor even if the formal agreement is not signed.

Clause 76.

Tender once offered can not be withdrawn except with the express permission of the Municipal Corporation.

Clause 77.

The successful tenderer may be required to furnish surety of 10% of the contract value on stamp paper if so desired by the Commissioner.

Clause 78.

The tenderers are requested to give complete specification of prices quoted.

Clause 79.

For all R.C.C. works such as Footings, Columns, Beams, Slabs, Chhajjas, Pardis, Lintels, etc., a 15 cm x 15 cm x 15cm sizes test cube as per the P.W.D. Standard will have to be taken by the contractor and as per instructions and directions of the Engineer-in-charge. These test cubes will be for 7 days and 28 days respectively. After 7 days, 28 days these test cubes will be tested in the Government approved laboratory by the contractor at his own expense and results will be submitted directly to the respective head of the SMC.

Clause 80.

This tender document (Technical Bid – excluding drawings), which should be furnished along with earnest money deposit, duly filled in and signed. No pages can be removed from the conditions of contract, specifications of drawings, otherwise it will be considered as an intentional fault and the tender will be liable for rejection and the amount of earnest money deposit forfeited.

Clause 81.

If the work executed is found to be of inferior quality OR of any substandard quality not conforming to the specifications at any point of time during the inspection of by Engineer-in-charge or any Higher Authority, the contract shall be terminated without assigning any reasons there off and no payment shall be made towards the probable damages or loss caused to the contractor and materials purchased by him for this work and no compensation whatsoever either shall be paid to contract by Municipal Corporation.

Clause 82.

The Successful contractor shall take “all contract risk insurance policy” for the tendered cost of the work. "Work's man compensation policy" for all workers and labor of contractor and clients working at site and “Third party insurance policy" to fully cover all third-party type risk for the whole contract i.e. Construction, supply, installation, testing and commissioning and Operation & maintenance of sewage treatment plant. The insurance policy so taken by the contractor for such purpose shall be in the joint name of the contractor and the client and the policy shall be deposited with the clients.

Clause 83.

The Contractor should note that the conditional tenders shall be out rightly rejected.

Clause 84.

Out of the amount payable/creditable to contractor's account, the Central Government/State Government tax/taxes shall be deducted at source in accordance with the relevant laws/rules from time to time prevailing.

Clause-85.

Now no octroi is to be paid as the same is exempted and therefore the question of reimbursement does not arise. The contractors shall quote their rates considering this aspect of exemption of octroi.

Clause 86.

Surat Municipal Corporation shall not provide 'C' or 'D' Form for tax purposes.

Clause 87.

No price variation or escalation shall be paid to the contractor.

Clause 88. (Deleted)

Clause 89.

The final bill shall be paid only after the successful commissioning of the total network.

Clause 90.

Special Clause regarding EPF act 1952 and payroll and muster roll.

All the applicant contractors are required to have their own employer 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.

Clause 91.

Liaisoning with any Government- Semi Government Body Etc. public / private sector should be in the scope of Supplier/ Tenderer for related tender material.

Executive Engineer,
South West (Athwa) Zone,
Surat Municipal Corporation,
Surat.

Signature of The Contractor

14. SCHEDULE - A

CEMENT AND STEEL:

Surat Municipal Corporation shall not issue 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 Ambuja, Sanghi, Hathi, Sidhdhi, JK Laxmi and Ultratech confirming to IS 12269/87 (with its latest amendments) of OPC - 53 grade only.

Approved make of HYSD/TOR/TMT reinforcement steel :- TATA, SAIL, Rastriya Ispat, Electrotherm (India) ltd. and J.S.W. Steel ltd. If Steel purchased from Electrotherm (India) ltd. and J.S.W. Steel ltd. than purchase bill / testing certificate of that product shall be obtained from company itself and the name of the contractor /work shall be appeared on the bill /testing report.

Any of the above mentioned brands of Cement and Reinforcement steel shall only be used by the contractor at the time of execution.

The cement content shall be between maximum and minimum values for various grades of controlled concrete as specified in the IS 456 : 2003 and its latest amendments below:

Concrete Grade	Minimum	Max. W/C Ratio
M 15	240	0.60
M 20	310	0.55
M 25	330	0.50
M 30	350	0.45
M 35	370	0.45

For concrete with volumetric / nominal mix and other items with use of cement the same shall be as per prevailing Surat Municipal Corporation standards

WASTAGE OF CEMENT AND REINFORCEMENT STEEL :

As the contractor is to bring the cement and steel, the question of considering the wastage on the basis 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 theoretical 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 TMT bar as mentioned in IS code No. 1786, IS-432 or IS-226.

The steel consumption lesser than 7.5% of the standard consumption shall be penalised at the double existing corporation issue rate or the prevailing market rate, whichever is more.

Similarly, for cement also, the lesser consumption beyond 5% shall be penalised at the double existing corporation issue rate or the prevailing market rate, whichever is more.

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, 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.

Price Variation for Cement, Steel brought by Contractor :

Surat Municipal Corporation shall not issue cement and reinforcement steel to be used for this work and No price variation and no star rate difference for Cement and steel shall be paid by SMC.

EXECUTIVE ENGINEER,
SOUTH WEST (ATHWA) ZONE
SURAT.

SIGNATURE OF THE CONTRACTOR.

15. SCHEDULE - B

AS PER SEPARATE PRICE BID uploaded

Note:

1. All works shall be carried out as per Government of Gujarat's P.W.D. Handbook and our specifications contained in this document and as directed.
2. The Schedule of Quantities and Rates are to be read for the purpose of pricing in conjunction with instructions of tenderers, technical specifications, drawings and General conditions for contract for Civil works.
3. The price quoted in the summary of costs, sheets of schedule of quantities and rates shall be of all inclusive value for the work described including all costs and expenses which may be required in for the execution of the work described together with all general risks, liabilities and obligations set forth or implied in the document on which the tender is based.
4. The quantities furnished are approximate. In the event of actual quantities varying from those furnished herein below or items deleted or added, the percentage (Plus/Minus) quoted for the entire work shall remain, firm and no extra claims in this respect will be entertained. The payment shall be made based on the actual quantities executed for the completion of work.
5. All works shall be carried out strictly as per detailed specification whether actually specified or not. If not specified, as per directions of owner/Engineer-in-charge.
6. Percentage (Plus/Minus) quoted by tenderer shall be firm even if the contract is split.
7. Percentage (Plus/Minus) and the total amount entertained in the summary of cost, sheet of schedule of quantities and Rates shall be written in ink and shall be entered both in figures and words.
8. Detailed specifications of items of work are described under section Detailed Technical Specification for each item of schedule of quantities and Rates. The section gives guidelines to the reference of relevant clauses of specifications and mode of measurement. Tenderer shall read this in conjunction with other technical specifications and quote accordingly.
9. The measurements shall be as described in the detailed Technical specification of items of work, all measurements being not in accordance with the drawings with no allowance for waste.
10. If Tenderers need any clarifications, they should obtain the same in writing from Owner/Engineer-in-charge. No notice will be taken of any verbal discussion in such matters.
11. Rates quoted include clearance of site (prior to commencement of work and at its close before handing over) in all respects and hold good for work under all conditions, site, moisture, weather etc.
12. If Tenderers need any clarifications, they should obtain the same in writing from Owner/Engineer-in-charge. No notice will be taken of any verbal discussion in such matters.

mm	Millimeters
cm	Centimeters
mt.	Meters

Km.	Kilometers
Sq.mt.	Square Meters
Cu.mt.	Cubic Meters
R.Mt.	Running Meters
No.	Numbers
C.I.	Cast Iron
R.C.C.	Reinforced Cement Concrete
Wt.	Weight
Kg.	Kilogramme
M.T.	Metric Tonne
M.D.	Metre Depth
M.S.	Mild Steel
I.S.	Indian Standard

Executive Engineer,
South West (Athwa) Zone,
Surat Municipal Corporation,
Surat.

Signature of the Contractor.

16. IMPORTANT INSTRUCTION TO TENDERER

1.

Affix latest
passport size
photo of
tenderer

Specimen Signature of the Contractor

2.

1	2	3	4
AFFIX LATEST PASSPORT SIZE PHOTOGRAPH OF ALL PARTNERS IN CASE OF PARTNERSHIP AGENCY			

Specimen signature of all partners incase of partnership agency.

- i. _____
ii. _____
iii. _____
iv. _____

Submission of Registered
Agreement is compulsory
in case of partnership agency.

3. ~~Submission of income tax clearance certificate of last three years is compulsory for tenderer submitting agency.~~
4. Submission of sale tax certificate, with proof of residence is compulsory for tenderer.
5. In case of Government royalty applicable to tenderer, it is compulsory to submit a receipt of royalty payment with tender.
6. The Photograph and specimen signature of contractor will be cross checked, whenever contractor receives payment in account section of SMC.
7. The specimen signature of contractor will be cross checked by Account Department of SMC, in case of representative of Contractor along with letter of authority of a person who signed an agreement, receives payment.
8. All partners of tenderer should put their specimen signature at the relevant places in the tender. A Passport size photograph of all partners who have signed the tender shall be affixed in the tender.

The successful tenderer shall be required to execute necessary agreement where in the same partners shall put on their signatures.

Executive Engineer,
South West (Athwa) Zone,
Surat Municipal Corporation,
Surat.

Signature of the Contractor

17. MEMORANDUM OF WORKS:

I / We _____ the undersigned do hereby tender for carrying-out the work described in the schedule subject to the conditions annexed in Schedules attached herewith in tender documents.

1. General Description of work : **CONSTRUCTION/RESTRENGTHENING WORK OF FOOTPATH WITH R.C.C PARDI, C.C. KERB STONE, RUBBER MOULDED PAVER BLOCK AND ROUGH KOTAH STONE IN VARIOUS ROADS OF SUB ZONE - 3 & 5 IN SOUTH WEST (ATHWA) ZONE. (WORK NO.5)**
2. Estimated Cost : Rs. 1,22,56,858.00
3. Earnest Money Deposit : Rs. 1,22,600.00
1. Security Deposit:
 - i Pay order or F.D.R. or D.D. of any Nationalized Bank. :- : As per Chapter No. 14, Clause No. 1
 - of any Nationalized Bank:-
 - ii In form of Bank guarantee of any Nationalized Bank :As per Chapter No. 14, Clause No. 1
 - ii To be deducted from Running Bill in form of Retention Money:- : As per Chapter No. 14, Clause No. 1
5. Time Limit : 12 (Twelve) months (Including Monsoon)
6. Penalty for delay : 0.2% (Zero-point Two percent) of the contract price per day maximum up to 10% (Ten Percent) of the Tender Amount.
7. The progress of work should confirm to : 15% of the work in 25% of the time.
35% of the work in 50% of the time.
66% of the work in 75% of the time
100% of the work in 100% of the time.
However, it shall be revised and modified subjected to various factors affecting progress of the work.
8. Percentage to be retained from running account bills:- :Additional 5% (Shall be released at the time of final bill)
9. Defect Liability Period : 12 Months (Twelve Months) (Including Monsoon)

Executive Engineer,
South West (Athwa) Zone,
Surat Municipal Corporation,
Surat.

SIGNATURE OF THE CONTRACTOR: -
ADDRESS: -
DATE: -

18. SPECIAL CONDITIONS OF CONTRACT

1.0 GENERAL CONDITIONS :

1.1 Location of site & accessibility

- i The Proposed site at South West (Athwa) zone is located within the jurisdiction of SMC and is as per location plan.
- ii Service roads are laid within and up to the site of the work. These will be available to the contractor subject to any limitations imposed by SMC.
- iii the contractor shall have to obtain tokens for himself and obtain gate passes for removing any of his materials outside the premises. The contractor's persons entry and exit will be by main gate only.
- iv Non-availability of access roads or railway siding or permits for entry of vehicles and equipment at any specific area shall in no case be the cause to condone any delay in the execution of the works or be the cause for any claims or extra compensations.

1.2 Scope of Work

This tender enquiry covers removing and resetting paver block of existing footpath in SMC area.

The schedule of quantities is given separately in tender. The broad scope of work is as follows and shall be carried out strictly in accordance with specifications and instructions of Engineer-in-charge issued from time to time. The contractor shall provide all necessary materials equipment, labour etc. for the execution and maintenance of work till completion unless otherwise mentioned in the tender documents. All materials that go with the work shall be approved by the Engineer in charge prior to procurement and use.

- **Excavating the road surface upto required depth including removing the excavated materials and depositing on the road side upto 50 mt lead.**
- **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, (B) Bituminous Pavement, (C) Non Bituminous Pavement / Metalled road, (D) Removing existing kotah stone/Paver block, (E) Demolition including stacking of serviceable materials and disposal of unserviceable materials with all lead and lift (i) RCC work, (F) Brick / Stone Masonary**
- **Providing and laying cement concrete 1:2:4 (1 Cement : 2 coarse sand, 4 graded stone aggregate of 20 mm nominal size) including providing and fixing reinforcement as specified in drawing with necessary bending, binding and placing in position and also including form work of sheating of steel sheet so as to form necessary centering shuttering propping. (A) R.C.C. kerb 300 mm depth and 100 mm width, (B) R.C.C. kerb 450 mm depth and 100 mm width**
- **Removing and resetting of paver block of walkway with necessary sand/pava filling and make in line and level with necessary vibrating using compactor machine and as directed by Engineer-in-charge.**
- **Providing 100 mm.thick readymade C.C. kerb of strength M20 (size 300 * 380 mm.) purchased from S.M.C.'s approved paver block manufacturer and setting in lion, level and in truly vertical position including filling joints in C.M.1:1 (1 part of cement 1 part of sote dust) including watering etc.**
- **Providing and fixing interlocking type Rubber Moulded cement concrete paver block of approved shape, design and colour having 60 mm thickness (M-35) purchased from SMC's approved paverblock manufacter on and fixing on fine sand bedding. With colour**

- Supplying and filling fine sand (pana) in 75 mm/100 mm/150 mm. (Avg.) compacted thickness over the base including necessary compaction. Item includes levelling by using vibratory plates compacted Machine.
- Providing and laying Granular Sub Base conforming to grading V of Table 400.00 grading II of compacted thickness of 150 mm with specified graded stone metal and sand mixed in pugmill and laid with mechanical means spreading with motor grader and compacting with ST roller having minimum 80-100 kN static weight to achieve desired density of 98% of MDD including all materials, labour, machinery with all leads and lifts etc.
- Providing and laying cement concrete 1:5:10 (1 part of cement : 5 part of coarse sand : 10 part of graded stone aggregate of 40 mm nominal size) and curing complete excluding cost of formwork in : (A) Foundation and plinth
- Providing and setting 50 to 60 mm, 35 to 50mm thick rough 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 in C.M. 1:3 (1 part of cement : 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.
- Removing /Resetting of 100 mm thick readymade C.C. kerb M-20 (size 300mm x 380mm) and 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.
- Providing 100 mm thick readymade C.C. kerb of strength M-20 (size 300mm x 380mm) purchased from S.M.C.'s approved paver block manufacturer
- two coats of enamel paint (Excluding priming coat) over previously painted wall with even shade & surface after removing dirt, dust foreign matter

1.3 Water Supply & water charges

The contractor shall be allowed to make arrangement for necessary construction water in two ways.

- a) The contractor can make its own arrangement of water supply through private boreholes or through tankers. However, the contractor shall be required to inform Surat Municipal Corporation within 30 days of starting of the work and shall have to produce necessary test certificate that confirm the construction water grade as per relevant IS.
- b) If contractor wishes to use the Municipal water for construction purpose, he/she shall have to apply to get the water connection through license plumber from relevant zone office. He shall have to bear all the cost towards getting water connection. The contractor shall be liable to pay all the charges as per the prevailing rules and regulation of Surat Municipal Corporation for making use of water. Further, the contractor shall have to produce the copy of payment of water charges bill to the undersigned, otherwise the water charges shall be deducted from his running bills.

Where, the water supply network is not available, the contractor may borrow the tanker from any of the municipal water distribution center on the payment of necessary water charges, as per the prevailing rules and regulation.

Most importantly, the contractor shall be responsible for disconnecting the water connection on completion of work and shall have to inform the department accordingly.

If Municipal mains are not available nearby the contractor shall have to make his own arrangement at his cost for water required for construction purpose.

Exemption for water charges shall be granted if contractor makes its own arrangement of water supply. Contractor has to inform within 30 days of starting of work for its own arrangement of water.

1.4 Electric Supply for construction purpose.

The contractor shall make his own arrangements at his own cost for electric supply required for operating various plants and machineries required for the work and for general lighting purpose for site, office, labour colony etc. The energy bills shall also be paid by the contractor.

2.0 SUBMISSION OF TENDER :

2.1 Tender must be submitted in original and without making any additions, alterations and as per details given in other clauses given here under. The requisite details shall be filled in by the contractor in the tender documents. The item rates shall be filled in the given schedules in this tender and bills of quantity should be clearly brought out in a separate letter.

2.2 Addenda / corrigenda to this tender documents, if issued must be signed and submitted along with the technical bid (i.e. Cover-1).

The tenderer should write clearly the revised quantities in Bills of Quantity of tender documents and should price the work based on revised quantities when amendments for quantities are issued in addenda.

3.0 DOCUMENTS

3.1 The Tenders as submitted will consists of the following:

- i Complete set of tender documents as sold duly filled in and signed by the tenderer as prescribed in different clauses of the tender documents.
- ii Declaration showing all works as similar types and magnitudes carried out and on hand with the contractor and the value of works that remains to be executed in each case must accompany the tender.
- iii Solvency Certificate of Bank or a Revenue Officer of an amount up to 20% of the tendered cost plus the amount of works on hand still to be executed will have to be produced by the Contractor. In respect of the tenders from the co-operative society, a solvency certificate of an amount equal to 20% of the amount of work put to tender will have to be produced along with the tender or a certificate regarding the borrowing capacity of the society issued by the Legal Assistant, Director of Cottage Industries will have to be produced along with the tender.
- iv Demand draft or pay order for earnest money deposit must accompany the tender. Tenderer may pay earnest money in the 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.
- v ~~The contractor shall have to furnish Income Tax Clearance Certificate before his tender is accepted and intimate Assessment No. & Ward under which he is assessed.~~
- vi Tenderer should submit the True Copy of the Certificate of Registration along with the tender without which the tender will not be considered.

3.2 All pages to be initialed

All signatures in tender documents shall be dated as well as all the pages of the sections of tender documents shall be initialed at the lower right hand corner and signed wherever required in the tender papers by the tenderer or by a person holding power of attorney, authorizing him to sign on behalf of the tenderer before submission of tender.

3.3 Rates to be in figures & words

The tenderer shall quote in English both in figures as well as in words the percentage rate in annexure /schedules.

3.4 Corrections & Erasures

All corrections and erasures in the entries of tender papers will be signed in full by the tenderer with date. No erasures or over-writings are permissible.

3.5 Discrepancies & Adjustments of Errors

Any error in quantity or amount in schedule 'B' showing items of works to be carried out shall be adjusted in accordance with the following rules ---

- a In the event of a discrepancy between description in words & figures quoted by a tenderer in the 'rates' column, the descriptions in words shall be prevailed.
- b In the event of an error occurring 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 unit rate shall be regarded as firm and multiplications shall be amended on the basis of the rates.
- c All the errors in totaling in 'amount' column and in carrying forward totals shall be corrected.
- d Any rounding off of amounts against 'items' 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 acceptance.

3.6 Signature of Tenderer

The tender shall contain the name, residence and place of business of person or persons making the tender and shall be signed by the tenderer with his usual signature. Partnership name by all the partners or by duly authorised representative followed by the name and designation of the person signing. Tender by a corporation limited company shall be signed by an authorised representative and a power of attorney in behalf shall accompany the tender. A copy of the constitution of the firm with the name of all the partners to be furnished.

3.7 Details of Experience

The tenderer should enclose documents to show that he has previous experience in having successfully completed in the recent past works of this nature, together with the names of owners, location on sites and values of contracts.

4.0 TRANSFER OF TENDER DOCUMENTS

Transfer of tender documents purchased by an intending tenderer to another is not permissible.

5.0 VALIDITY

The validity period of the tender submitted for this work shall be of One hundred and twenty calendar days (120 days) from the date of opening of price bid of the 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 modification or addition in the terms & conditions of 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.

6.0 ADDENDA/CORRIGENDA

Addenda/Corrigenda to the tender documents may be issued prior to the date of opening of tenders to clarify documents or to effect modifications in the design or contract terms. All addenda/corrigenda issued shall become part of tender.

7.0 RIGHT TO OWNER TO ACCEPT OR REJECT TENDER

The right to accept the tender will rest with the S.M.C. The S.M.C., however, does not bind itself to accept the lowest tender, and reserves to itself the authority to reject any or all the tenders received without assigning any reason whatsoever. Tenders in which any of the particulars and prescribed information are missing or are incomplete in any respect and/or the prescribed condition are not fulfilled are liable to be rejected.

In addition to the above, the tender will also be liable to be rejected outright if ---

- i the tenderer proposes any alterations in the works specified or in the time allowed for carrying out the work or any condition or correction made in any code or mode of schedule 'B' or specifications.
- ii Any of the page or pages of the tender is/are removed or replaced.
- iii All corrections, additions or pasted slips are not initialed by the tenderer.
- iv The tenderer or in the case of a firm, each partner or person holding the power of attorney thereof does not sign or the signature(s) is/are not attested by a witness.

8.0 RETENTION MONEY

As per memorandum. This amount will be deducted progressively from each running bill of the contract by the SMC the above referred retention money will be released on virtual completion of work in the final bill.

9.0 COLLECTION OF DATA TENDERERS' RESPONSIBILITY

The tenderer shall visit the site and acquaint himself fully of the site and no claims whatsoever will be entertained on the plea of ignorance or difficulties involved in execution of work or carriage of materials.

10.0 SIGNING OF THE CONTRACT

The successful tenderer shall be required to execute an agreement in the proforma attached with the tender documents within ten days of the receipt by him of the notification of acceptance of tender. In the event of failure on the part of the successful tenderer to sign the agreement within the above stipulated period, the acceptance of the tender shall be considered as cancelled and Earnest Money Deposit amount will be forfeited.

11.0 CO-ORDINATION OF WORK

The Engineer-in-charge shall co-ordinate the works of various agencies engaged at site to ensure minimum disruption of work carried out by different agencies. It must be the responsibility of the contractor to plan and execute the work strictly in accordance with site instructions to avoid hindrance to the work being executed by other agencies.

12.0 INTERPRETATION OF CONTRACT DOCUMENTS

- 12.1 Except if and to the extent otherwise provided by the contract, the provisions of the General Conditions of Contract and special conditions shall prevail over those of any other documents forming part of the contract. Several documents forming the contract are to be taken as mutually explanatory, should there be any discrepancies, inconsistencies, errors or commissions in the contracts or any of them, the matter may be referred to the Engineer-in-charge who shall give his decisions and issue to the contractor instructions directing in what manner the work is to be carried out. The decision of the Engineer-in-charge shall be final and conclusive and the contractor shall carry out the work in accordance with this decision.

12.2 Works shown upon the drawings but not mentioned in the specifications or described in the specifications without being shown on the drawings shall nevertheless be held to be included in the same manner as if they had been specifically shown upon the drawings and described in the specifications.

12.3 i The various documents forming the contract are the essential parts of the contracts and a requirement occurring in one is as binding as though occurring in all, they are intended to be mutually explanatory and complementary and to describe and provide for a complete work.

ii In the event of any discrepancies, the various documents forming the contract or in any one document, the following order of precedence should apply

a] Dimensions & quantities ---

i Drawings.

ii Schedule 'B' of the tender form.

On drawings, figures, dimensions, unless obviously incorrect will be followed in preference to shown 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/ directions 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

The contractor should take no advantage of any apparent error or commission in drawings or specifications and the Engineer-in-charge shall make such corrections and interpretations as necessary to fulfill the intent of the plans and specifications.

13.0 FORCE MAJEURE

Any delays in or failure of the performance of either part hereto shall not constitute default hereunder or give rise to claims for damages, if any, to the extent such delays or failure of performance is caused by occurrences such as Acts of God or the public enemy; expropriation or confiscation of facilities by Government authorities, compliance with any order or request of any Governmental authorities, acts of war, rebelling or sabotage or fires, floods, explosions, riots or illegal strikes. The contractor shall keep records of the circumstances referred to above and bring these to the notice of the Engineer-in-charge in writing immediately on such occurrences.

14.0 FORFIETURE OF RETENTION MONEY

Whenever any claim against the contractor for the payment of a sum of money arises out of or under the contract, the S.M.C. shall be entitled to recover such sum by appropriating in part or whole of the retention money of the contractor. In case, the retention money is insufficient or if no retention money has been taken from the contractor, then the balance or the total sum recoverable, as the case may be, be deducted from any sum then due or which at any time thereafter may become due to the contractor. The contractor shall pay on demand any balance remaining due.

15.0 NO COMPENSATION FOR ALTERATION IN OR RESTRICTION OF WORK

If at any time after the commencement of the work, the corporation shall for any reason 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 of the fact 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 the execution of the work in full, but which he did not derive in consequence of the full amount of the work not having been by reason of any alterations having been made in the original specifications, drawings, designs and instruction which shall not involve any curtailment of the works as originally contemplated.

16.0 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.

17.0 DRAWINGS TO BE SUPPLIED BY THE CORPORATION

17.1 The tender purpose drawings attached herewith

17.2 The detailed construction drawings shall be issued by the S.M.C. progressively during construction.

18.0 SETTING OUT WORKS

The Engineer-in-charge shall furnish the contractor with only the four corners of the work site and a level bench mark and the contractor shall set out the works and shall provide an efficient staff for the purpose and shall be solely responsible for the accuracy of such setting out.

19.0 RESPONSIBILITY FOR LEVEL & ALIGNMENT

The contractor shall be entirely and exclusively responsible for the horizontal and vertical alignment, the level and correctness of every part of the work and shall rectify any errors or imperfections therein. Such rectifications shall be carried out by the contractor at his own cost, when instructions are issued to that effect by the Engineer-in-charge.

20.0 DISCREPANCIES BETWEEN INSTRUCTIONS

Should any discrepancy occur between the various instructions furnished to the contractor, his agents or staff, or any doubt arises as to the meaning of any such instruction or, should there be an misunderstanding between the contractor's staff and the Engineer-in-charge's staff, the Contractor shall immediately report the matter in writing to the Engineer-in-charge whose decision thereon shall be final and conclusive and no claim for losses alleged to have been caused by such discrepancies between instructions, doubts or misunderstanding shall in any event be admissible.

21.0 INSPECTION OF WORK

The Engineer-in-charge or his representative will have full power and authority to inspect the works at any time wherever in progress, either on the site or at the Contractor's premises/workshops wherever situated, premises/workshop of any person, firm or corporation where materials are being made or are to be supplied, and the contractor shall afford or procure for the Engineer-in-charge or his representative every facility and assistance to carry out such inspection. 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 representative to visit the works 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 the purpose. Orders given to the Contractor's agent shall be considered to have the same force as if they had been given to the Contractor himself. The Contractor shall give not less than seven day's notice in writing to the Engineer-in-charge or his representative before covering up or otherwise placing beyond reach of inspection and measurement any other work in order that the same work may be inspected and measured. In the event of breach of the above, the same shall be uncovered at contractor's expense for carrying out such measurements or inspections.

22.0 TESTS FOR QUALITY OF WORK

All workmanship shall be of the respective kinds described in the contract documents and in accordance with the instructions of the Engineer-in-charge and shall be subjected from time to time to such tests at Contractor's cost as the Engineer-in-charge may direct at the place of manufacture or fabrication or on the site or at all or any such places. The Contractor shall provide assistance, instruments, labour and materials as are normally required for examining, measuring and testing any workmanship as may be required and selected by the Engineer-in-charge.

23.0 THE CORPORATION MAY DO PART OF THE WORK

Upon failure of the Contractor to comply with any instructions given in accordance with the provisions of this contract, the Corporation has the alternative right, instead of assuming charge of entire work, to place additional labour force, tools, equipments and materials on such parts of the works, as the Corporation may designate or also engage another Contractor to carry out the work. In such cases, the Corporation shall deduct from the amount which otherwise becomes due to the Contractor, the cost of such work and materials with 10% added to overall departmental charges and should the total amount thereof exceed the amount due to the Contractor, the Contractor shall pay the difference to the Corporation.

24.0 The Corporation shall not accept any offer submitted by the contractor on its own design. It should be specifically noted that wherever bank guarantee is required to be submitted, it should be from Nationalized Banks only.

25.0 Contractor to note that SMC shall appoint Project Management Agency /Third Party Agency for the supervision / inspection of the work and contractors are obliged to work under them. However, decision of SMC shall be final.

26.0 CONTROLLED MATERIALS (ESSENTIALITY CERTIFICATE) :

[i] As regards controlled materials, the corporation will help to arrange for the permit as far as possible and help the contractor in securing the same. All incidental charges not within procuring these materials shall be borne by the Contractor himself. Though the Corporation will help to manage 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 calendar month, the monthly returns in the prescribed forms as to the receipt and actual use of the controlled materials during the months.

[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 representative(s) desire(s).

27. PROCEDURE OF MEASUREMENT/BILLING OF WORK IN PROGRESS FOR EXTRA ITEMS :

MEASUREMENTS :

27.1 All measurements shall be in metric system as specified by joints measured by the representative of the Engineer-in-charge and the Contractor's authorised agent progressively. Such measurement will be got recorded in the measurement book by the Engineer-in-charge or his authorised representative and signed in token of acceptance by the contractor or his authorised representative.

27.2 All works shall be measured by standard measure and accordance to the rules and custom of the Public Works Department without reference to any local custom.

27.3 The measurements of work will be taken according to the usual methods in use in the Public Works Department and no proposals to adept alternative methods will be accepted. The Engineer-in-charge decision as to what is the usual method is use in the Public Works Department will be final.

27.4 The rate of any extra item or miscellaneous item to be executed shall be as per Government R&B SOR 24-25, SMC Storm Drainage S.O.R.2019-20, G.W.S.S.B. S.O.R. rate 2019-2020 and SMC S.O.R. 2024-25 (+)plus or (-) minus percentage or lower stated in the tender.

28.0 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, will 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.

29.0 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.

30.0 Contractors shall have to use maximum machinery for the work as per the direction of Engineer-In-Charge.

31.0 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.

32. DEFECTS LIABILITY PERIOD

The defects liability period as defined in General Conditions of Contract, shall be 12 months from the date of completion of work in all respect.

For the failure of the contractors in the matter of guarantee, testing, trial run, performance, commissioning and handing over and meeting the defects liability, the owner shall have the full right to make necessary recovery from security deposit as may be necessary.

33. TERMS OF PAYMENT

Billing for the job executed, would be done progressively according to the rules and practice followed by SMC.

34. The option for selection of the Make/product/Brand shall rest with Surat Municipal Corporation, i.e. the contractor shall have to supply the materials, equipments, plants of a make as approved by the Surat Municipal Corporation.

35. INCOME TAX

Income tax at the rate of 2% (or at the prevailing rate) on the gross amount billed shall be deducted from the contractor's bills as per section 194C of the Income Tax Act and relevant rules/laws from time to time prevailing.

36. INCOME TAX CLEARANCE CERTIFICATE

~~Attested copy of the latest income tax clearance certificate in the Performa prescribed by the Government of India should accompany the tender. The I.T.C. Certificate should be in the name of the firm/individual, quoting for the tender.~~

37. Wherever mentioned in the tender document, "Q.R.O." or "0" quantity means Quote Rates only and "B.O.Q." means Bill of Quantities.

38. No compensation of any item shall be paid in case any of the item is omitted i.e. not executed at all.

39. Responsibility of clear Construction and Demolition Waste (C.D. Waste)

It shall be sole responsibility of contractor to clear construction and Demolition waste (C. D. waste) by their own risk and cost. The contractor shall ensure that their site must be clear in all respect by disposing C. D. Waste generated during the work. If it's found that contractor is irregular and showing negligence to dispose C. D. Waste, then Surat Municipal Corporation is empowered to dispose the said C. D. Waste through Surat Municipal Corporation Authorized C. D. waste Contractor/ agency. All the necessary expenditure made towards disposal of this C. D. Waste shall be recovered from the contractor along with the administration charges and penalties. The Contractor shall have to dispose off Construction & Demolition waste at SMC suggested place/ site as per norms of SMC. Otherwise SMC will dispose the waste & charges decided by SMC will be recovered from contractor.

40. As a part of tender, the contractor shall have to carry out GIS mapping for project, as directed by engineer in charge. The contractor shall have to submit the certificates of concern GPS operator/ Lab or as directed by Engineer in Charge. All the expenditure/ Fees etc. for the GPS mapping shall have to be borne by the contractor. No extra payment shall be made for this.
41. All the prevailing taxes (i.e. GST etc.) in the tender shall remain to the contractors account and it shall not be reimbursed/ recovered, even if it changes during the contract period.
42. **Contractor has to collect the necessary data and drawing from Highway Authority/ Government Authority and also prepare and submit the essential documents and drawings, apply for the approvals, make necessary changes as proposed by Highway Authority/ Government Authority, follow up with Highway/ Government Authority and get the final approval as per the norms of Highway Authority/ Government Authority. Contractor has to fulfill all requirements of Highway Authority/ Government Authority for approval of pushing & laying the line at his own cost. Surat Municipal Corporation will only pay the statutory fees for approval of pushing and laying of pipeline parallel to road/Highway given by Highway Authority/ Government Authority.**
43. **Rate Quoted by bidder shall be inclusive of all taxes and GST as per prevailing rules applicable**

Executive Engineer,
South West (Athwa) Zone,
Surat Municipal Corporation,
Surat.

Signature of the Contractor.

19. GENERAL SPECIFICATIONS

1.0 GENERAL :

- 1.1 All the items occurring in the work and as found necessary during actual execution shall be carried out in the best workman like manner as per specification and the written order of the Engineer-in-charge.
- 1.2 Extra claim in respect of extra work shall be allowed only if such work is ordered to be carried out in writing by the Engineer-in-charge.
- 1.3 The Contractor shall engage a qualified Engineer for the Execution of work who will remain present for all the time on site and will receive instructions and orders from the Engineer-in-charge or his authorised representative. The instruction and orders given to the contractor's representative on site shall be considered as it will be to the contractor himself.
- 1.4 The work order book as prescribed shall be maintained on the site of the work by the Contractor and the contractor shall sign the orders given by the inspecting officers and shall carry out them properly.
- 1.5 Quantities specified in the tender may vary at the time of actual execution and the contractor shall have no claim for compensation on account of such variation.
- 1.6 Figured dimensions of drawings shall supersede measurements by scale,. Special dimensions in the specification shall supersede all other dimensions.
- 1.7 Use of I. S. Code shall mean its latest applicable version for respective items.
- 1.8 Please mention GST number & Party Code back side of Hard copy of Tender fee & EMD document, if fail to do so S.M.C. will be not be responsible

EXECUTIVE ENGINEER,
SURAT MUNICIPAL CORPORATION.
SURAT

SIGNATURE OF THE CONTRACTOR.

20. 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 overloading 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 satisfactory evidence that such 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 relevant 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 does not in any way relieve the contractor of his responsibility for the correctness, soundness and strength of the structure as per the drawings and specifications.

Executive Engineer,
South West (Athwa) Zone,
Surat Municipal Corporation,
Surat.

SIGNATURE OF THE CONTRACTOR: -

21. ITEMWISE DETAILED TECHNICAL SPECIFICATIONS

ITEM NO . 1 :

Excavating the road surface upto required depth including removing the excavated materials and depositing on the road side upto 50 mt lead etc. complete and as directed by Engineer-in-charge.

DESCRIPTION :-

The land width required for the roadway, gutters side slopes and catch water gutters shall be cleared of all trees having a 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 roads boundary or as directed at places within 50 metres 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 labour and materials such as lime, strings, pegs, nails, bamboos, stones, mortar, concrete etc. required for setting out establishing bench marks 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 authorised 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 the section including the road side gutters 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 lineouts 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 road way section shall first be excavated with vertical side for each lift and the sides slopes for that lift shall be excavated in steps. These steps shall be smoothened to the required slope when the excavation reaches the road formation. The contractor shall on no account excavate beyond the slopes or below the specific grade unless so directed by the Engineer in writing. If excavation is done below the specified level or outside the 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 required measurement ridges and deadmen to be left at specified intervals or places and kept in tact 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 under drainage, 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 materials 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 crosssections 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 excavation 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) Desposal 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 Executive Engineer/Engineer-in-charge.

ITEM NO . 2 :

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**
- (B) Bituminous Pavement**
- (C) Non Bituminous Pavement**
- (D) Removing existing kotah stone/Paver block**
- (E) Demolition including stacking of serviceable materials and disposal of unserviceable materials with all lead and lift**
- (i) RCC work**
- (F) Brick / Stone Masonary**

2.1.0 WORKMANSHIP :-

- 2.1.1 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.
- 2.2.1.2 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.

- 2.1.3 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 such that no damage is caused to the adjoining property.
- 2.1.4 Wherever required, temporary enclosures or partitions shall also be provided. Necessary precautions shall be taken to keep dust nuisance down as and where necessary..
- 2.1.5 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 to the ground (as not thrown) and then properly stacked as directed.
- 2.1.6 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 by the Engineer-in-charge.
- 2.1.7 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.
- 2.1.8 On completion of work the site shall be cleared of all debris rubbish and cleaned as directed.
- 2.2.0 Rates :
- 2.2.1 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.
- 2.2.2 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.
- 2.2.3 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.
- 2.2.4 The rate shall be for a unit of as per Schedule-B.

ITEM NO. : 3

Providing and laying cement concrete 1:2:4 (1 Cement : 2 coarse sand, 4 graded stone aggregate of 20 mm nominal size) including providing and fixing reinforcement as specified in drawing with necessary bending, binding and placing in position and also including form work of sheeting of steel sheet so as to form necessary centering shuttering propping etc. complete and as directed by Engineer-in-charge.

'(A) R.C.C. kerb 300 mm depth and 100 mm width. '(B) R.C.C. kerb 450 mm depth and 100 mm width.

3.1.0 MATERIALS :

- 3.1.1 Water shall conform to specification of material M-1.

- 3.1.2 Cement shall conform to specification of material M-2
 3.1.3 Sand shall conform to specification of material M-3
 3.1.4 Cement mortar shall conform to specification of material M-4
 3.1.5 Stone coarse aggregates for nominal mix concrete shall conform to specification of material M-5
 3.1.6 Mild steel bars shall conform to specification of material M-7
 3.1.7 High yield strength steel deformed bars shall conform to specification of material M-8
 3.1.8 Mild steel binding wire shall conform to specification of material M-9
 3.1.9 Shuttering shall conform to specification of material M-10

3.2.0 WORKMANSHIP :

3.2.1 The proportion of the concrete mix shall be 1:2:4 (1 Cement 2 coarse sand, 4 graded stone aggregate 20 mm nominal size) The concrete work shall have exposed finish and even surface.

Grade	Total quantity of dr aggregate by volume per 50 Kg. of cement t 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 (1:3:6)	220 Liters		32 Liters
M-150 (1:1.5:3)	160 Liters		30 Liters
M-250 (1:1:2)	100 Liters		27 Liters

3.2.2 The water cement ratios shall not be more then those specified in the table. Workability of the concrete shall be controlled by maintaining a water-cement ratio.

3.2.3 For reinforced concrete work, coarse aggregates having a size a 20 mm gernally considered satisfactory.

3.2.4 REINFORCEMENT STEEL :

The reinforcing 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.

3.2.5 PROPORTIONING OF INGREDIENTS :

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 if its dry volume and in case if damp sand, allowances for bulkage shall be made.

3.2.6 MIXING :

For all work, concrete shall be mixed in a mechanical mixer which alongwith 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.

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.

3.2.7 INSPECTION :

Contractor shall give the Engineer-in-charge due notice before placing concrete in the forms, to permit him to inspect and accepted. Centering, design and its erection shall be got approved from the Engineer-in-charge.

3.2.8 CURING :

Curing shall be done for atleast 14 days continuously from date of placement of concrete.

3.2.9 SAMPLING AND TESTING OF CONCRETE :

Samples from fresh concrete shall be taken as per I.S. 1199- 1959 and cubes shall be made, cured and tested at 7 days and 28 days as per requirement in accordance with I.S. 516-1959. The average strength of the group of cubes cast for each day shall not be less than the specified cube strength of 150 Kg/Sq.cm. at 28 days.

3.2.10 STRIPPING :

All formwork shall be removed without causing any shock or vibrations as would damage the concrete.

3.2.11 Providing and laying H.Y.S.D./M.S. bars shall consists of furnishing and placing reinforcement to the shape and dimensions shown as on the drawings or as directed by Engineer-in-charge.

Steel shall be clean and free from rust and loose mild scale at the time of fixing in positions and subsequent concreting.

Reinforcing steel shall conform accurately to the dimensions given in the bar bending schedule as directed. Unless otherwise specified a 'U' type hook at the end of each bar shall invariably provided to maintain reinforcement.

All the reinforcement bars shall be accurately placed in exact position 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.

3.2.12 PROVIDING FORMWORK OF SHEATING OF STEEL SHEETS :

The formwork shall conform to the shape, lines and dimensions of directed and be so constructed as to remain sufficiently rigid during the placing and compacting the concrete. Adequate arrangements shall be made by the contractor to safe guard against any settlement of the formwork during the course of shuttering, centering, scaffolding, bracing etc. shall be as directed.

The sheatings of steel sheets and plates of steel shall be used to obtain the desired smooth exposed finish of surface.

3.2.13 STRIPPING TIME :

In normal circumstances and where ordinary cement is used forms may be struck after expiry of following periods :-

Period

(A) Sides of walls, columns and vertical faces of beams. 24 to 48 hours.

3.2.14 CENTERING :

The centering to be provided shall be got approved. It shall be sufficiently strong to ensure absolute safety of the form work and concrete work before and after pouring concrete.

3.2.15 INSPECTION :

The centering and formwork shall be inspected and approved by the Engineer-in-charge before concreting. But this will not relieve the contractor of his responsibility for strength, adequacy and safety of formwork and centering. If there is a failure of formwork or centering, Contractor shall be responsible for the damages to the work, injury to life and damage to property and personal.

3.3.1 MODE OF MEASUREMENT AND PAYMENT :

3.3.1 The rate includes cost of all materials, labour, tools required for executing the complete item including all the kinds of incidental and/or miscellaneous expenses.

3.3.2 The rate shall include carting of cement and steel from Municipal Store to worksite.

3.3.3 The rate shall be for a unit of one running metre.

ITEM NO . 4 :

Removing and resetting of paver block of walk way with necessary sand/pan filling and make in line and level with necessary vibrating using cojmpactor machine and as directed by Engineer-in-charge.

4.1 RAW MATERIAL

4.1.1 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.

4.1.2 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.

4.1.3 WATER :-

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

4.1.4 OTHER MATERIALS :-

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

4.2 PAVER BLOCKS 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.

4.3 LAYING OF PAVER BLOCKS :-

4.3.1 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.

4.3.2 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 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.

4.4 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 be 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 blocked 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.

4.4.1 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.

4.4.2 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
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 blocks shall not exceed 3 mm with not more than 1% in any 3 m x 3 m 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.

4.4.3 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.

4.5 SAMPLING AND TESTING PROCEDURES FOR PAVER BLOCKS :-

4.5.1 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.

4.5.2 SAMPLING FOR TESTING :-

Sampling for testing of paver blocks shall be done in accordance with Appendix-A.

4.5.3 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.

4.5.4 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.

4.5.5 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 $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$ 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 $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$ 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 machines 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
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 speciments 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:

$$\text{Absorption, kg/m}^3 = \frac{A-B}{B-C} \times 10000$$

$$\text{Where Absorption percent} = \frac{A-B}{B} \times 100$$

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. : 5

Removing /Resetting of 100 mm thick readymade C.C. kerb M-20 (size 300mm x 380mm) and 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. completed and directed by Engineer-in-charge.

5(A) For regular edge of footpath

5(B) For rounding at the edge of footpath (for fanningportion) (No.x2 - 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 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.

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 to be fix	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 401mm swivel parallel and 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 strength	Marking (MPa)	Characteristic bending (MPa)	Minimum bending strength
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 non-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 trafficking 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/SKID 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 plished) under laboratory conditions to replicate the performance of kerb during their life under traffic conditons. For more details please contact interpave.

Kerb and edgings are mainly used as edge restrains 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 velucular areas kerb, edging and channel units will inevitably be overrum or suffer side impact from vehicle tyres sometime in there service life. By selecting the appropriate units and ensuring correct insallation they will give long an durable service.

TOLERANCES:

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

Length:

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

Other dimintions:

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

Other parts : 5% to 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:

- Preparatiojn of support layers.
- Construction of unit foundation.
- Laying to line and level.
- Pedding of units.
- Haunching of units.

The unit foundation itself must be supported, eithef on an extension to the underlaying pavement sub layers or, for thhin pavements (e.g. edgings on pedestrain footwaysd), 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 reshly mixed concrete.

2. Units bedded on a mortar bed on top of a hardened concrete race or onto 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 in true vertical 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 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 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 to 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 fork lift 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 removed 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 . 6 :

Providing and fixing interlocking type Rubber Moulded cement concrete paver block of approved shape, design and colour having 60 mm thickness (M-35) purchased from SMC's approved paverblock manufactuer only and fixing on fine sand bedding. Item includes levelling by using vibratory plates compacted machine. Item also includes all material colour, equipments, tools, plants, watering, cleaning etc. complete.

Without Colour

With Colour

6.1 RAW MATERIAL

6.1.1 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.

6.1.2 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.

6.1.3 WATER :-

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

6.1.4 OTHER MATERIALS :-

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

6.2 PAVER BLOCKS 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.

6.3 LAYING OF PAVER BLOCKS :-

6.3.1 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.

6.3.2 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 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.

6.4 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 be 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.

6.4.1 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 recompactd 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.

6.4.2 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
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 blocks shall not exceed 3 mm with not more than 1% in any 3 m x 3 m 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.

6.4.3 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.

6.5 SAMPLING AND TESTING PROCEDURES FOR PAVER BLOCKS :-

6.5.1 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.

6.5.2 SAMPLING FOR TESTING :-

Sampling for testing of paver blocks shall be done in accordance with Appendix-A.

6.5.3 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.

6.5.4 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.

6.5.5 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 $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$ 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 $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$ 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 machines 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 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 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:

$$\text{Absorption, kg/m}^3 = \frac{A-B}{B-C} \times 10000$$

$$\text{Absorption percent} = \frac{A-B}{B} \times 100$$

Where

- 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 . 7 :

Supplying and filling fine sand (Pana) in 75 mm/100 mm/150mm (Avg.) compacted thickness over the base including necessary compaction, watering etc. complete. Item includes levelling by using vibratory plates compacted machine and as directed by Engineer-in-charge.

7.1.0 MATERIALS :

7.1.1 Fine sand (Pana) shall conform to specification of material M-3.

7.2 WORKMANSHIP :

7.2.1 Fine sand (Pana) shall be supplied to worksite and staked at suitable place. It shall be got approved by Engineer-in-charge. Fine sand (Pana) shall be filled in compacted thickness of 150 mm. It shall be compacted and watered thoroughly.

ITEM NO . 8 :

Providing and laying Granular Sub Base conforming to grading V of Table 400.00 grading II of compacted thickness of 150 mm with specified graded stone metal and sand mixed in pugmill and laid with mechanical means spreading with motor grader and compacting with ST roller having minimum 80-100 kN static weight to achieve desired density of 98% of MDD including all materials, labour, machinery with all leads and lifts etc., complete.

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.

ITEM NO . 9 :

Preparation of subgrade with compacting, levelling and consolidation of subgrade with miniroller/plate vibrator machine including watering and filling in depression which occur during the process as directed by Engineer-In-Charge.

As per requirement

ITEM NO . 10 :

Providing and laying cement concrete 1:5:10 (1 Part of cement : 5 Part of coarse sand : 10 Part of graded stone aggregate of 40 mm nominal size) in 75 mm thick and curing complete excluding cost of formwork etc. complete. (A) Foundation and plinth.

10.1.0 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.

10.2.0 WORKMANSHIP :

10.2.1 General :-

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

10.2.2 Proportion of Mix :-

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

10.2.3 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 break down 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 mixer 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.

10.2.4 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 cms to 20 cms.

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.

10.2.5 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.

10.3.0 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. 11 :

Providing and setting 50 to 60 mm thick rough 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 directed by Engineer-in- charge.

Size : 2'0" x 1'0"

Size : 1' x 1' (40 to 50 mm thick)

11.1.0 MATERIALS :

11.1.1 Water shall conform to specification of material M-1.

11.1.2 Cement shall conform to specification of material M-2

11.1.3 Sand shall conform to specification of material M-3

11.1.4 Cement mortar shall conform to specification of material M-4

11.1.5 Rough kotah stone shall conform to specification of material M-11

11.2.0 WORKMANSHIP :

11.2.1 The rough 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.

11.2.2 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.

11.2.3 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).

11.2.4 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).

11.2.5 CURING :

The paving area of footpath shall be kept wet with damp sand or watered atleast for seven days.

The water table shall be laid in required gradient so that water can drain out easily.

11.3.0 MODE OF MEASUREMENT AND PAYMENT :

11.3.1 No deduction shall be made nor extra shall be paid for any opening in watertable area upto 0.1 R.mt.

11.3.2 The rate shall include providing and setting of rough kotah stones.

11.3.3 The rate shall include the cost of all materials, labour and tools involved in all the operation as described above.

11.3.4 The rate shall be for a unit of one R.mt.

ITEM NO. : 12

Providing and setting 35 to 50 mm thick rough kotah stone paving for Footpath in line, level and if 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 directed by Engineer-in- charge.

12.1.0 MATERIALS :

12.1.1 Water shall conform to specification of material M-1.

12.1.2 Cement shall conform to specification of material M-2

- 12.1.3 Sand shall conform to specification of material M-3
- 12.1.4 Cement mortar shall conform to specification of material M-4
- 12.1.5 Rough kotah stone shall conform to specification of material M-11
- 12.2.0 WORKMANSHIP :
- 12.2.1 The rough 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.
- 12.2.2 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.
- 12.2.3 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).
- 12.2.4 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).
- 12.2.5 CURING :
The paving area of footpath shall be kept wet with damp sand or watered atleast for seven days. The water table shall be laid in required gradient so that water can drain out easily.
- 12.3.0 MODE OF MEASUREMENT AND PAYMENT :
- 12.3.1 No deduction shall be made nor extra shall be paid for any opening in watertable area upto 0.1 R.mt.
- 12.3.2 The rate shall include carting of rough kotah stones from Municipal Store to worksite.
- 12.3.3 The rate shall include the cost of all materials, labour and tools involved in all the operation as described above.
- 12.3.4 The rate shall be for a unit of one Sq.mt.

ITEM NO. : 13

Removing and resetting rough kotah stone kerb stone in required size & thickness in line, level and in truly vertical position, including joints in CM 1:3 (1 Part of Cement, 3 Part of Coarse sand) with sufficient ramming, smoothing pointing in C.M. 1:1 (1 Cement : 1 Coarse sand) including watering etc. complete and as directed by Engineer-in-charge.

13.1 MATERIALS :

- 13.1.1 Water shall conform to specification of material M-1.
- 13.1.2 Cement shall conform to specification of material M-2
- 13.1.3 Sand shall conform to specification of material M-3
- 13.1.4 Cement mortar shall conform to specification of material M-4
- 13.2 WORKMANSHIP :
- 13.2.1 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.
- 13.2.2 Before resetting the stones the watertable the bottom surface shall be watered and rammed properly. The surface shall be levelled to the proper gradient so that water drain out easily.
- 13.2.3 Resting of rough kotah stones for watertable shall be carried out as per the detailed specification of Item No.5 using the rough kotah stones obtained from existing footpath.
- 13.2.4 On completion of resetting work the site shall be cleared off all rubbish and cleaned as directed.

- 13.3 MODE OF MEASUREMENT AND PAYMENT :
- 13.3.1 The rate shall include the cost of all materials, labour, and tools involved in all the operations described above except rough kotah stones.
- 13.3.2 The rate shall be for a unit of one Sq.mt.

ITEM NO. : 14

Removing and resetting rough kotah stone paving 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 and as directed by Engineer-in-charge.

14.1 MATERIALS :

- 14.1.1 Water shall conform to specification of material M-1.
- 14.1.2 Cement shall conform to specification of material M-2
- 14.1.3 Sand shall conform to specification of material M-3
- 14.1.4 Cement mortar shall conform to specification of material M-4

14.2 WORKMANSHIP :

- 14.2.1 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.
- 14.2.2 Before resetting the stones the watertable the bottom surface shall be watered and rammed properly. The surface shall be levelled to the proper gradient so that water drain out easily.
- 14.2.3 Resting of rough kotah stones for watertable shall be carried out as per the detailed specification of Item No.7 using the rough kotah stones obtained from existing footpath.
- 14.2.4 On completion of resetting work the site shall be cleared off all rubbish and cleaned as directed.
- 14.3 MODE OF MEASUREMENT AND PAYMENT :
- 14.3.1 The rate shall include the cost of all materials, labour, and tools involved in all the operations described above except rough kotah stones.
- 14.3.2 The rate shall be for a unit of one Sq.mt.

ITEM NO. 15 :

Removing and resetting 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 and as directed by Engineer-in-charge.

15.1 MATERIALS :

- 15.1.1 Water shall conform to specification of material M-1.
- 15.1.2 Cement shall conform to specification of material M-2
- 15.1.3 Sand shall conform to specification of material M-3
- 15.1.4 Cement mortar shall conform to specification of material M-4

15.2 WORKMANSHIP :

15.2.1 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.

15.2.2 Before resetting the stones the watertable the bottom surface shall be watered and rammed properly. The surface shall be levelled to the proper gradient so that water drain out easily.

15.2.3 Resting of rough kotah stones for watertable shall be carried out as per the detailed specification of Item No.7 using the rough kotah stones obtained from existing footpath.

15.2.4 On completion of resetting work the site shall be cleared off all rubbish and cleaned as directed.

15.3 MODE OF MEASUREMENT AND PAYMENT :

15.3.1 The rate shall include the cost of all materials, labour, and tools involved in all the operations described above except rough kotah stones.

15.3.2 The rate shall be for a unit of one Sq.mt.

ITEM NO. : 16

Dismantling carefully existing sewer trap chamber upto required depth and raising the same upto new footpath level with B.B. masonry in C.M. 1:6 (1 Part of Cement: 6 Part of coarse sand) including 12 mm thick cement plaster in C.M. 1:3 (1 Part of Cement: 3 Part of coarse sand) and fixing C.I. cover etc. complete and as directed by Engineer-in-charge.

16.1.0 MATERIALS :

16.1.1 Water shall conform to specification of material M-1.

16.1.2 Cement shall conform to specification of material M-2

16.1.3 Sand shall conform to specification of material M-3

16.1.4 Cement mortar shall conform to specification of material M-4

16.1.5 Bricks shall conform to specification of material M-6

16.2.0 WORKMANSHIP :

16.2.1 Before laying the mortar the existing chamber shall be dismantled upto required depth and frame shall be removed with due care. All debris shall be removed. The surface shall then be thoroughly wetted. All free water removed and then coated with neat cement grout. The cover frame shall be fixed at required level so that cover could be fixed at road level surface.

16.2.2 Required B.B. masonry work in C.M. 1:6 (1 part of cement, 6 part of coarse sand) shall be carried out and cover frame shall be fixed properly at road level.

16.2.3 The inside and outside surface of chamber shall be plastered in C.M. 1:3 (1 part of cement, 3 part of coarse sand).

16.2.4 Curing shall be done for atleast seven days.

16.3 MODE OF MEASUREMENT AND PAYMENT :

16.3.1 The rate shall include the cost of dismantling the existing chamber raising the chamber upto required level etc.

16.3.2 The rate shall include carting of cement and steel from Municipal Store to worksite.

16.3.3 The rate shall includes cost of all materials, labour, tools required for executing the complete item.

16.3.4 The rate shall be for a unit of one number.

ITEM NO. 17 :

Supplying and fixing RCC collars (300 mm dia) for tree plantation including all taxes, carting, loading, unloading etc. complete.

R.C.C. collar of various diameters of required length with collars shall be supplied by the contractor as per terms and condition attached herewith at end of this item and fixing as per Engineer instruction.

The rate shall be for a unit of one number.

ITEM NO.18 :

**Providing & fixing interlocking type cement concrete paver block of approved shape & design having 60 mm thickness (M-40) purchased from SMC's approved paver block manufactures only on fine sand bedding. Item includes levelling by using vibratory plates compacted machine. Item also includes all material, Labour, equipments, tools, plants, watering, cleaning etc. complete.
For Road Junction 80 mm thick (M-50)**

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.

PAVER BLOCKS 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 BLOCKS :-

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 be 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.

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 completely 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 m 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.

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.

SAMPLING AND TESTING PROCEDURES FOR PAVER BLOCKS :-

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.

SAMPLING FOR TESTING :-

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

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.

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°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 20°C + 5°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 machines 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 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 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 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:

$$\text{Absorption, kg/m}^3 \text{ A-B} \\ = \frac{\text{A-B}}{\text{B-C}} \times 10000$$

$$\text{Absorption percent A-B} \\ \text{Where } \frac{\text{A-B}}{\text{B}} \times 100$$

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.19:

Excavation for 27 Cm wide and 25 CM deep Gishi is asphalt bit. road erection of concrete wall as a road divider and removal for 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.

19. MODE OF MEASUREMENT & PAYMENT

19.1 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.

19.2 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 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.

- 19.3 The rate for reinforcement includes cost of steel binding wires, its transporting from departmental store to work site, 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.
- 19.4 The rate shall be for unit of one Kg.

This item should be executed as per MORTH

ITEM NO.20 :

Providing and fixing in position readymade cement concrete Water Drain Slab (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.

(A) Readymade cement concrete Water Drain Slab (600 x 300 x 100 mm)

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	$Z_{f_{ck}} + 0.825 \times S.D.$ (established standard deviation rounded off to nearest $0.5N/mm^2$)
ii)	M-35	
iii)	M-40	
iv)	M-50	
v)	M-55	

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)

S1 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 mm	Traffic Examples of Application
(1)	(2)	(3)	(4)	(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. 21

Supplying & fixing 75 mm thik RCC Pre-cast Tree guard / grating in floor flush with adjoining paverblock paving of Vyara Tiles Company, Krishna Precast Or Equivalent.

TG-2 GREY SL 800*800*75MM (4.00 PCS = 1 SET) Item consider from model road approval tender

-----Self exp.-----

ITEM NO. 22

Providing and laying cement concrete guard stone in proportion 1:1:5:3 (1 Cement : 1.5 Coarse Sand : 3 Graded Stone Aggregate 20 mm nominal size) size and shape as per the drawing including necessary excavation steel form work and white Washing etc. complete (Cement and Steel contractor own supply).

(A) Excavation for foundation upto 1.5 m. depth including sorting out and stacking of useful materials and disposing of the excavated stuff up to 50.0 mt. lead

(a) Soft rock not required blasing metal carpet cutting.

Excavation shall consist of the removal of materials for the constructures of foundation for roads and other similar structure, in accordance with the requirements of these specifications and the lines and dimensions shown on the drawings or as indicated by the Engineer-in-charge. The work shall include all necessary sheeting, shoring, bracing draining and pumping, and the removal of all longs, stumps groups and other deleterious matter and obstructions necessary for placing the foundations, trimming bottoms of excavation back filling and clearing up the side and the disposal of all surplus material.

After the site has been cleared, the limits of excavation shall be set true to lines, ourves and slopes.

Excavation shall be in asphalt road, hardmurrum, metal road, rubble soling which any be required or split with craw bars, chiselling, wedings, grafting tools or pick or both and shavel. The classification of excavation shall be decided by the Engineer-in-charge and his decision shall be final and binding on the contractor.

Excavation shall be taken to the width of the lowest step of the foundation. The contractor at his own expenses shall put up necessary shorting, strutting and planking or cut slope to a safe angle or both with due regard to the safety of personal and works and to the satisfaction of the Engineer-in-charge.

The depth to which the excavation is to be carried out shall be as shown on the drawing, unless the type of material encountered is such as to require changes, in which case the depth shall be as ordered by the Engineer-in-charge.

Where water in met with in excavation due to stream flow seepage, springs, rain or other reasons, the contractor shall take adequate measures such as bailing, pumping, constructing diversion cannels, drainage channels and other necessary works to keep the foundation trenches dry when so required end to protect green concrete/ masonary against damage by erosin or sudden rising of water level. The methods to be adopted in this regard and other details thereof shall be left to the choice of the contractor but subject to approval of the Engineer-in-charge. Approvel of the Engineer- in-charge shall however not relieve the contractor of the responsibility for the adequacy of dewatering, and protection arrangement and for the quality and safety of the work.

Pumping from the interior of any foundation enclosur shall be done in such a manner as to preclude the possibility of the movement of water through any fresh concrete. No pumping shall be permitted during the placing of concrete on for any period of a last 24 hours thereafter, unless it is done from suitable sump separated from the concrete work by a water tight well or other similar means.

The bottom of the foundation shall be levelled both longitudinally and transversely or stepped as direct by the Engineer-in-charge. Before concrete is laid the surface shall be slightly watered and rammed. In the event of excavation having been made deeper than that shown on the drawing or as otherwise ordered by the Engineer-in-charge the extra depth shall be made up with concrete or masonry of the foundation grade at the cost of the contractor. Ordinary filling shall not be used for the purpose to bring the foundation to level. If there are any slips or blows in the excavation these shall be removed by the Contractor at his own cost.

Trenches and foundation pits shall be securely fenced. Provided with proper caution signs and marked with red lights at night to avoid accidents. The contractor shall take adequate protective measures to see that the excavation operation do not affect or damage adjoining structures, existing pipe lines electric Telephone cable etc. contractor shall be fully responsible for any damage to adjoining structure pipe line etc.

Backfilling shall be done with approved material after concrete or masonry is fully set and carried out in such away as not to cause thrust on any part of the structure. All space between foundation masonry or concrete and the sides of excavation shall be refilled to the original surface making due allowance for settlement in 250 mm loose layers which shall be watered and compacted.

All the excavated material shall be the property of the corporation where the excavated material is directed to be used in the construction of embankment, it shall be directly deposited at the required location.

All useful material, not intended for use in the bank, shall be stacked neatly on Corporation land as directed by the Engineer-in-charge within 50 metres lead. Unsuitable and surplus materials not intended for use in any part of the road shall be disposed of as directed by the Engineer-in-charge.

The Contractor shall take all necessary measures for the safety of traffic during construction and provide, erect and maintain such barricades including signs making lights and flagmen as may be required by the Engineer-in-charge for the information and protection of traffic approaching or passing through the section of the highway under improvement. Before taking up any construction an phased programme for the control of traffic on the highway shall be drawn up in consultation with the Engineer-in-charge.

Excavation for structures shall be measured in cubic metres for each class of material encountered, limited to the dimensions shown on the drawing or as directed by the Engineer-in-charge. Excavation over increased with cutting of slopes shorting, shuttering and planking shall be deemed as convenience for the contractor in executing the work and shall not be measured and paid for separately.

The concrete unit rate for the item of excavation for structure shall be paid in full for carrying out the required operation including.

1.0 Setting out.

2.0 Construction of necessary shorting and bracing and their subsequent removal.

3.0 Removal of all logs, stumps, grubs and other deleterious matter and obstructions for placing the foundations including firming of bottoms of excavations.

4.0 Foundation sealing, dewatering including pumping.

5.0 Backfilling clearing up the site and disposal of all surplus material within all lifts leads.

6.0 All labour, materials, tools equipment safe guards and incidental necessary to complete the work to the specification.

Excavation shall be for ordinary soil such as vegetable or organic soil, turf, silt, sand, loam, clay, mud, black cotton soil, soft shale or soft murrum, a mixture of these and similar materials which yields to the ordinary application of pick and shovel, rake or other ordinary digging equipment. Removal of gravel or any other nodular materials having diameter in any one direction not exceeding 75 mm. occurring in such strata shall be deemed to be covered under this category the classification of excavation shall be decided by the Engineer-in-charge and his decision shall be final and binding on the contractor.

(B) Providing & laying cement concrete 1:2:4 (1 cement : 2 sand : 4 graded stone agg 20 mm nominal size) & curing comp. Include. Cost of form work but exclu. Cost of reinforcement for reinforced concrete work in

2.1.0 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.

2.2.0 General :-

2.2.1 The concrete mix is not required to be designed by preliminary tests. The proportion of the concrete mix shall be 1:2:4 [1 cement: 2 coarse sand: 4 graded stone aggregate 20 mm nominal size] by volume. Concrete work shall have exposed concrete surface or as specified in the item.

2.2.2 The designation of 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.

2.2.3 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 to 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 an upper limit	35 Liters
M-150 (1:3:6)	220 Liters		32 Liters
M-150 (1:1.5:3)	160 Liters		30 Liters
M-250 (1:1:2)	100 Liters		27 Liters

2.2.4 The water cement ratios 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.

2.2.5 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.

2.2.6 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.

2.2.7 For reinforced concrete work, coarse aggregates having a nominal size of 20 mm generally considered satisfactory.

2.2.8 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.

- 2.2.9 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.
- 2.2.10 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.
- 2.3.0 **WORKMANSHIP :**
- 2.3.1 **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 cabin 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.
- 2.3.2 **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.
- 2.3.3 **Mixing :-**
- 2.3.3.1 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.
- 2.3.3.2 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.
- 2.3.3.3 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.

2.3.4 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.

2.3.5 Inspection :

2.3.5.1 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.

2.3.5.2 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.

2.3.6 Transporting and laying :-

2.3.6.1 The method of transporting and placing concrete shall be as approved. Concrete shall be so transported and placed that no contamination, segregation or loss of its constituent material takes place.

2.3.6.2 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.

2.3.6.3 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.

2.3.6.4 Unless otherwise agreed to by the Engineer-in-charge, concrete shall not be dropped into place from a height exceeding 2 metres.

2.3.6.5 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.

2.3.6.6 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.

2.3.6.7 Concrete shall be judged to be compacted when the mortar fills the spaces between the coarse aggregate and begins to cream upto form an even surface. Compaction shall be completed before the initial setting starts i.e. within 30minutes 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.

2.3.7 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 absorbant 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. Masonary 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.

2.3.8 Sampling and Testing of concrete :-

2.3.8.1 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.

2.3.8.2	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 there of.

Note:- Atleast 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.

2.3.8.3 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 proportion 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.

2.3.9 Stripping :

- 2.3.9.1 The Engineer- in- charge shall be informed in advance by the contractor of his intention to struck the form work. While fixing the time for removal of form work, due consideration 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 period specified in the Item No.4 for respective item of form work.
- 2.3.9.2 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 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.
- 2.3.9.3 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 holder 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.
- 2.3.9.4 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.

(C) Form work (mould) of M.S. Plate and Angle for casting gaurd stone.

MATERIALS :

The formwork for making precast gaurd stone of required size shall be fabricated by using 14 gauge M.S. sheet and M.S. Angle of size 25 x 25 x 5 mm. The M.S. Sheet and angle shall be free of rust and shall have smooth surface so as to render even surface to the guard stones, so cast therein.

WORKMANSHIP :

The formwork (Mould) shall be convenient for casting as well as removal of the guard stone, after casting and shall include strutting, bracing and adequate arrangements for movementless casting.

After each guard stone is cast and removed the mould shall be thoroughly scrapped and cleaned and then applied with linseed oil of approved manufacturers before the next guard stone is cast.

REMOVING THE FORM WORK (MOULD) :

The Pre-cast guard stones shall be taken out of the formwork (Mould) after 24 hours and shall be cured for 14 days with the help of damp ganny bags or water pond. While taking out the pre- cast guard stones for the mould, care should be taken that no edge or corner of the guard stone is broken and by chance, if it is the case, the same shall be made good at his own cost.

White washing with lime on decorated wall surface (Two coat) to give an even shade including thoroughly brooming the surface to remove all dirt, dust, mortar drops and loose scales of lime wash and other foreign matter.

MATERIALS :

Lime for white washing shall be unslaked lime 'C' class. It is produced from nearly pure lime stone. Lime shall comply with standards and test laid down in I.S. 712-1964.

Sars and Gums shall be of approved quality.

Materials shall also confirm to general specifications of the materials.

(D) WHITE WASH :

The lime (C) Class shall be dissolved in a tub with sufficient quantity of water (4.5 Lit./Kgs.) and the whole well and thoroughly mixed and stirred uptill it attains consistency at thin cream and allowed to rest or 24 to 48 hours.

The mixture then shall be stained through cotton cloth clean/gum/saras dissolved in hot water shall be added at rate 2 gm./litres of lime to prevent white washing coming off easily when rubbed.

PREPARATION OF SURFACE :

Before new work is white washing, the surface shall be thoroughly brushed free mortar dropping and foreign matter. In the case of old work, all loose pieces and scales shall be scraped off and holes in plaster as well as patches of less than 50 Sq.mt. area shall be filled up with mortar of same mix. Where so specifically ordered by the Engineer-in-charge. The entire surface of old white wash shall be thoroughly removed by scrapping and this shall be paid of seperately.

APPLICATION :

The white wash shall be applied with moonj brushes to the specified number of coats. The operations for each coat shall consist of a stroke of the brush given from the top, downwards, another from the bottom upwards over the first stroke and similarly one stroke horizontally from the right and another from the left before it dries.

Each coat shall be allowed to dry before the next one is applied. Further each coat shall be inspected and approved by Engineer-in-charge before the subsequent coat is applied. No position of the surface shall be left out initially to be patched up later on.

For old work, after the surface has been prepared, coat of white wash shall be applied over the patches and repairs. Then single coat or two or more coats of white wash as stipulated in the description of the item shall be applied over the entire surface. The white washed surface should be supersent a uniform finish through which the plaster patches do not appear. The washing on ceiling should be done prior5 to that on walls.

RATES :

The rate shall include the cost of all materials and labours involve in all the operation described above. The payment shall be made on per No.basis inclusive A,B,C,D items.

ITME NO.23

Providing and laying cement concrete guard stone in proportion 1:2:4 (1 Cement : 2 Coarse Sand : 4 Graded Stone Aggregate 20 mm nominal size) size and shape as per the drawing including necessary excavation steel form work and white Washing etc. complete (Cement and Steel contractor own supply).

ITEM NO.24:

Painting two coats of enamel paint over priming coat after removing entire whitewash/colourwash surface dirt, dust foreign matter & also incl. preparing the surface even & sand papered smooth etc. comp.

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 enamel paints shall conform to M-44 B.

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 removed greas and perspiration of hand marks. The surface 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 angles to the surface, so that bristles thereafter will collect the correct amount of paint when dipped again in to a paint container. The primery 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 panels angles of mouldings etc. shall be left on the work.

Specials care shall be taken painting over bolts, nuts, rivets 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 obtained directly from approved manufacturers are 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 reasons, 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 greases 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 get 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 pumicestone and cleaned of dust before the next coat is applied. No hairmarks 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 surface 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) Dimensions shall be measured to the nearest 0.01 mtr.

(b) Areas shall be worked out to the nearest 0.01 sq.metre.

No deductions 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 (Vide specifications for item relevant to paint and polishing)

Sr. No.	Description of work	How measured	Multiplying factor
1.	Pannelled or framed and braced of ledged and battened or ledged and braced joinery cleats etc. shall be deemed to be included 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 of or glazed journey.	Measured flat (not girthed) including chowkhat or frame etc. shall be deemed cleats, Edges, chocks to be included in the item.	1.0 For each side)
5.	Full Ventilationed or or louzered jonery.	Measured flat (not girthed) including chowkhat or cleats etc. shall be deemed to be included in the item.	1.0 For each side)
6.	Weather boarding	Measurement flat (not girthed) supporting frame work 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 one 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 one 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	1.00 for painting cover

		members shall not be measured separately.	
12.	Gates and open palisade fencing including standards.	Measurement flat over all No deductions shall 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 deductions 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 cover shall be measured seperately).	1.10(for each side)
15.	Plaing 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, fittings 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 lowerened 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.25:

Painting two coats of enamel paint (Excluding priming coat) over previously painted wall with even shade & surface after removing dirt, dust foreign matter etc. comp.

Details specification same as per Item No.24 and paint specification and as directed by Engineer-in-charge.

EXECUTIVE ENGINEER,
SOUTH WEST (ATHWA) ZONE
SURAT MUNICIPAL CORPORATION
S U R A T.

SIGNATURE OF THE CONTRACTOR.
ADDRESS:-
DATE:-