OFFICE OF THE SUPERINTENDING ENGINEER
NORTH CIRCLE, SOLID WASTE MANAGEMENT SECTOR
KOLKATA METROPOLITAN DEVELOPMENT AUTHORITY
bkpal.kmda09@gmail.com
BLOCK - A, 5TH FLOOR, UNNAYAN BHAWAN, SALT LAKE, KOLKATA - 700 091
নগর উন্নয়ন ও পৌর বিষয়ক বিভাগ, পশ্চিমবঙ্গ সরকার
URBAN DEVELOPMENT AND MUNICIPAL AFFAIRS DEPARTMENT
GOVERNMENT OF WEST BENGAL

e-NIT No.: 10/SE(NC)/SWM/KMDA of 2024-2025 dated: 20.01.2025

Memo No.: 788/SE(NC)/SWM/KMDA/G-27 Date: 20.01.2025

ABRIDGED e- NOTICE INVITING TENDER

1. **Invitation**: The Superintending Engineer (Civil), North Circle, SWM Sector, KMDA invites online e-tenders in two part system (Part-I Technical Bid and Part-II Financial Bid) from eligible, reliable, resourceful and experienced agencies/firms/companies/individual contractors with sufficient financial ability, having credential and acumen in executing similar nature of works in any Government/Government Undertaking/Autonomous Bodies/Semi-Government/Statutory Authorities and or Local Bodies etc., within the last 5 (five) years from the date of issue of this e-NIT, for the below-mentioned works:

Sl. No.	Name of Work	Estimated Value of the work (₹)	Earnest Money Deposit (₹)	Time of Completion	Cost of Tender Document
(1)	Construction of a four storied Ujukhana (toilet block) with elevator system, main entrance gate, renovation of existing pond, road etc., in connection with Furfura Mazar (Furfura Darbar Sharif), including construction of a single storied Choto Ujukhana, boundary wall, installation of paver blocks etc. and other allied works (all with architectural beauty), as per scope, at Furfura Gram Panchayat, under Furfura Sharif Development Authority (FSDA).	₹2,17,80,209.41 (Say, ₹2,17,80,209.00)	₹4,35,604.00	365 days (Three Hundred and Sixty-Five days)	Nil

Note:

(i) Corrigendum/addendum if any would be published on the website only.

(ii) Bidders are requested to submit relevant document only. Submission of irrelevant and unasked documents may lead to cancellation and/or rejection of candidature of the bidder, without any intimation.

2. Intending bidders may download the tender documents from https://wbtenders.gov.in directly with the help of his/her Digital Signature Certificate and the Earnest Money should be deposited online either by Net Banking (through any Nationalised Bank/Scheduled Bank) or through RTGS/NEFT as per requirement of the system, as per GO no. 3975-F(Y) dt. 28.07.2016 of Finance Department, Government of West Bengal. Further details may be available from the office of the undersigned or from the KMDA website: https://kmda.wb.gov.in/.

3. **Last date & time of submission of bids through online is 21.02.2025 up to 14:55 hours.**

BIJAY KRISHNA PAL
Superintending Engineer (Civil)
North Circle
Solid Waste Management Sector
Kolkata Metropolitan Development Authority

Memo No.: 788/1(20)/SE(NC)/SWM/KMDA/G-27 Date: 20.01.2025

Copy forwarded for kind information and necessary action to:

1. The Chief Executive Officer, KMDA
2. The Secretary, KMDA
3. The Chief Engineer, SWM Sector, KMDA (RS)
4. The Chief Engineer, SWM Sector, KMDA (AI)
5. The Chief Engineer, SD Sector, KMDA
6. The Chief Engineer, Water Supply Sector, KMDA
7. The Chief Engineer, Liquid Waste Management Sector, KMDA
8. The Chief Engineer, Housing Sector, KMDA,
9. The Chief Engineer, R&B Sector, KMDA
10. The Chief Engineer, E&AM Sector, KMDA
11. The Chief Engineer, PM&C Sector, KMDA
12. The Chief Engineer, EM Sector, KMDA
13. The Executive Officer, Furfura Sharif Development Authority and Sub-Divisional Officer, Serampore
14. The Director of Finance, KMDA
15. The Superintending Engineer, Planning Circle, SWM Sector, KMDA
16. The Superintending Engineer, South Circle, SWM Sector, KMDA
17. The Accounts Officer, SWM Sector, KMDA.
18. The Deputy Secretary, P.R.O., KMDA along with 4 (four) copies of the e-NIT for publication in at least three leading daily News Papers and uploading this NIT on KMDA website and Government of West Bengal website
19. Notice Board, North Circle, SWM Sector, KMDA
20. Office copy

Superintending Engineer (Civil)
North Circle
Solid Waste Management Sector
Kolkata Metropolitan Development Authority

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URBAN DEVELOPMENT AND MUNICIPAL AFFAIRS DEPARTMENT
GOVERNMENT OF WEST BENGAL

e-NIT No.: 10/SE(NC)/SWM/KMDA of 2024-2025 dated: 20.01.2025

Memo No.: 788/SE(NC)/SWM/KMDA/G-27 Date: 20.01.2025

DETAILED e- NOTICE INVITING TENDER

1. **Invitation**: The Superintending Engineer (Civil), North Circle, SWM Sector, KMDA invites online e-tenders in two part system (Part-I Technical Bid and Part-II Financial Bid) from eligible, reliable, resourceful and experienced agencies/firms/companies/individual contractors with sufficient financial ability, having credential and acumen in executing similar nature of works in any Government/Government Undertaking/Autonomous Bodies/Semi-Government/ Statutory Authorities and or Local Bodies etc., within the last 5 (five) years from the date of issue of this e-NIT, for the below-mentioned works:

Sl. No.	Name of Work	Estimated Value of the work (₹)	Earnest Money Deposit (₹)	Time of Completion	Cost of Tender Document
(1)	Construction of a four storied Ujukhana (toilet block) with elevator system, main entrance gate, renovation of existing pond, road etc., in connection with Furfura Mazar (Furfura Darbar Sharif), including construction of a single storied Choto Ujukhana, boundary wall, installation of paver blocks etc. and other allied works (all with architectural beauty), as per scope, at Furfura Gram Panchayat, under Furfura Sharif Development Authority (FSDA).	₹2,17,80,209.41 (Say, ₹2,17,80,209.00)	₹4,35,604.00	365 days (Three Hundred and Sixty-Five days)	Nil

Note:

(i) Corrigendum/addendum if any would be published on the website only.

(ii) Bidders are requested to submit relevant document only. Submission of irrelevant and unasked documents may lead to cancellation and/or rejection of candidature of the bidder, without any intimation.

2. Intending bidders may download the tender document from https://wbtenders.gov.in directly with the help of his/her Digital Signature Certificate and the Earnest Money should be deposited online either by Net Banking (through any Nationalised Bank/Scheduled Bank) or through RTGS/NEFT as per requirement of the system, as per GO no. 3975-F(Y) dt. 28.07.2016 of Finance Department, Government of West Bengal. Further details may be available from the office of the undersigned or from the KMDA website: https://kmda.wb.gov.in/.

3. **Submission of Tender**:

(a) Pre-qualification/Technical Bid and Financial Bid both will have to be submitted online concurrently duly digitally signed in the website https://wbtenders.gov.in, as per time schedule stated herein under. Time will be recorded as per service clock.
(b) Financial Bid of the prospective tenderers will be opened only if the tenderer qualifies in the Technical Bid. The decision of the Tender Inviting Authority (TIA) will be final and in no case challenge against such decision will be entertained.

4. **Time schedule and important information for downloading, uploading, and opening of the Tender Documents:**

No.	Item		Detailed time schedule
a)	Date & time of uploading (publishing) of e-NIT and other documents (online)	:	28.01.2025 at 18:45 hours
b)	Documents download starting date (Online)	:	28.01.2025 from 18:45 hours
c)	Documents download ending date (Online)	:	21.02.2025 up to 14:45 hours
d)	Last date for bidders/ contractors/agencies to submit Supplementary Questions/Queries (arising out of site visits only) e-mail: bkpal.kmda09@gmail.com	:	06.02.2025 up to 11:00 hours Queries are to be submitted to: **Superintending Engineer (Civil)** North Circle, SWM Sector, KMDA Block - A, 5th Floor, Unnayan Bhawan, Salt Lake City, Kolkata – 700 091 **Contact: +91/0 94323 78545** **Note:** All queries are needed to be submitted through e-mail only.
e)	Pre-bid meeting	:	06.02.2025 from 16:00 hours **Venue:** Office of the Superintending Engineer (Civil), SWM Sector, KMDA at Unnayan Bhawan, Block-A, 5th Floor, Salt Lake City, Kolkata – 700 091
f)	Issue of response (corrigendum, if any)	:	06.02.2025 after 18:00 hours [visit Govt. website: https://wbtenders.gov.in]
g)	Starting date & time for sub-mission of tender through on line	:	28.01.2025 from 18:55 hours
h)	Last date & time limit for sub-mission of tender through on line	:	**21.02.2025 up to 14:55 hours**
i)	Scheduled date & time for opening the Part-I tender document (Technical Bid)	:	24.02.2025 after 15:00 hours
j)	Date of uploading the List of technically qualified bidders (Online)	:	To be notified later in https://wbtenders.gov.in

No.	Item		Detailed time schedule
k)	Scheduled date & time for opening Part-II tender document (Financial Bid)	:	To be notified later in https://wbtenders.gov.in
No financial information should be uploaded to the folder marked for technical bid.			

Tenders will be opened by the **Superintending Engineer (Civil), North Circle, SWM Sector, KMDA** or his authorized representative in presence of the tenderer or their authorized representatives who may like to be present.

5. **Eligibility criteria for the bidders:**

A) The bidder should have the credentials as detailed below:

(i) Technical:

The prospective bidder shall have satisfactorily completed, as a prime agency during the last 5 (five) years, prior to date of issue of this notice, execution of at least one any civil work, comprising building works etc., of 40% of the estimated amount put to tender, or must have completed similar nature of multiple works (more than one) of 30% of the estimated amount put to tender or must have completed 80% of work of any running project of similar nature, in a single tender, amounting to 40% of the estimated amount put to tender, under the authority of State/Central Government, State/Central Government undertaking/Autonomous Bodies/Statutory bodies constituted under the statute of the State/Central Government or local bodies.

(ii) Financial:

The Bidder shall have an average Annual Turnover of at least 40% of estimated amount put to tender, in the last 3 (three) Financial Years, immediately preceding the last date of submission of bid, (as per the annual financial statements) (Average Annual Turnover), as certified by the statutory auditor of the Bidder.

In the Financial Year immediately preceding the last date for submission of tender through online, the Bidder's net worth (as per the annual financial statements) should be **positive**, as certified by the statutory auditor of the Bidder.

Bidder shall submit a Bank Solvency Certificate of minimum of 40% of estimated amount put to tender, obtained within last six months from the last date of submission of bid online.

B) Other terms and conditions of the credentials:

i) Payment certificate will not be treated as credential.

ii) Completion Certificate issued by the Executive Engineer or equivalent competent authority of a State/Central Government, State/Central Government undertaking, Autonomous/Statutory bodies constituted under the statute of the State/Central Government or local bodies on the executed value of completed/running works will be considered as Credential.

iii) No credential will be considered as valid unless it is supported by work order, price schedule or BOQ of work and completion certificate mentioning the date of completion issued by the competent authority not below the rank of the Executive Engineer or equivalent or competent authority of a State/Central Government, State/Central Government undertaking, Autonomous/Statutory bodies constituted under the statute of

the State/Central Government or local bodies. The Completion Certificate should indicate the value of the work (equal to booked expenditure).

N.B.: Estimated amount, Date of Completion of the project & detail communicational address of Client must be indicated in the Credential Certificate.

C) Scanned copy of Certificate of Incorporation/Registration of firm or company (Memorandum and Articles of Association, if any), PAN Card, Professional Tax Certificate with up-to-date challan, valid Income Tax Returns (for last 3 financial years), valid 15 digit Goods and Services Taxpayer Identification Number (GSTIN) under GST Act, 2017 and up-to-date challan, latest valid Trade License, last 3 financial years' audited Balance Sheet, Credentials, Work Orders, Completion Certificates, Payment Certificates, Bank Solvency Certificate (of minimum 40% of estimated amount put to tender) within six months from the last date of submission of bid online, valid Provident Fund Registration Certificate with up-to-date challan, ESI Registration Certificate with up-to-date challan and other supporting documents, valid Electrical Contractor's License and Supervisory License, Registration Certificate and/or trade license for supply of machineries, all annexure as annexed, etc. must be submitted duly digitally signed at desired location in the website https://wbtenders.gov.in.

D) Scanned Copy of one affidavit before the 1st Class Executive Magistrate will have to be submitted mentioning the correctness of the documents and a declaration of penalty debarment etc. faced by him under any Government/Semi-Government/Autonomous Body/Institution through online at desired location.

E) Joint Ventures/Consortiums are not allowed to participate in the bid.

F) **Earnest Money**: The tenderer shall have to deposit requisite initial earnest money along with the tender document in prescribed manner failing which the tender shall be rejected and treated as non-responsive. The balance earnest money if any to fulfill 2 (two) percent of the estimated value is to be deposited before the time of execution of formal agreement.

The bidder should have the credential:

Technical:

Sl. No.	**Name of work**	**Estimated Value of the work (₹)**	**The prospective bidders shall have satisfactorily completed, as a prime agency during the last 5 (five) years, prior to date of issue of this notice, execution of any civil work, comprising building works etc. of: -**		
			1 (one) completed work of	**Completed multiple works of (more than one)**	**Completed 80% of any single running work of**
			Minimum amount (₹)	**Minimum amount (₹)**	**Minimum amount (₹)**
(1)	Construction of a four storied Ujukhana (toilet block) with elevator system, main entrance gate, renovation of existing pond, road etc., in connection with Furfura Mazar (Furfura Darbar Sharif), including construction of a single storied Choto Ujukhana, boundary	₹2,17,80,209.41	₹87,12,084.00	₹65,34,063.00	₹87,12,084.00

Sl. No.	Name of work	Estimated Value of the work (₹)	The prospective bidders shall have satisfactorily completed, as a prime agency during the last 5 (five) years, prior to date of issue of this notice, execution of any civil work, comprising building works etc. of: -		
			1 (one) completed work of	Completed multiple works of (more than one)	Completed 80% of any single running work of
			Minimum amount (₹)	Minimum amount (₹)	Minimum amount (₹)
	wall, installation of paver blocks etc. and other allied works (all with architectural beauty), as per scope, at Furfura Gram Panchayat, under Furfura Sharif Development Authority (FSDA).				

Financial:

Sl. No.	Name of work	Estimated Value of the work (₹)	The prospective bidders shall have the following Financial Credential to participate in the Bidding Process		
			Annual Average Turnover for the last three FY: 2021-22, 2022-23 & 2023-24	Net Worth for the FY: 2023-24	Bidder shall submit Solvency Certificate from any Nationalised Bank in India of
			Minimum amount (₹)	Minimum amount (₹)	Minimum amount (₹)
1.	Construction of a four storied Ujukhana (toilet block) with elevator system, main entrance gate, renovation of existing pond, road etc., in connection with Furfura Mazar (Furfura Darbar Sharif), including construction of a single storied Choto Ujukhana, boundary wall, installation of paver blocks etc. and other allied works (all with architectural beauty), as per scope, at Furfura Gram Panchayat, under Furfura Sharif Development Authority (FSDA).	₹2,17,80,209.41	₹88 lakh	Positive	₹88 lakh

6. **Security Deposit:**

The amount of Security Deposit shall be 10% of the contract value. The amount already deposited as Earnest Money Deposit (EMD) will be converted as initial security deposit.The successful bidder must submit the balance amount of 2% of the contract price, i.e., the tendered amount, if submitted EMD is less than 2% of the contract value, before execution of formal agreement. Balance security of 8% of the amount of each running account bill, will be recovered from each and subsequent bill till the balance of the amount of security deposit is realised.

7. **Security Period (SP)/Defect Liability Period (DLP)**

Security Period (SP)/Defect Liability Period (DLP) of the work shall be considered as **5 (five) years** from the date of actual completion of work in full. During the period of DLP, the agency/contractor is liable to make good of any kind of damage happen in the structure, so constructed/erected by him, at his own cost. Before completion of DLP, the project must be handed over to concerned ULB for Operation and Maintenance, with full satisfaction of the Authority.

8. **Release of Security Deposit**

(i) **No** security deposit shall be refunded to the contractor for 1st 3 (three) years from the date of actual and successful completion of work;

(ii) **30% of the security deposit** shall be refunded to the contractor on expiry of **4 (four) years** from the date of actual and successful completion of work;

(iii) The balance **70% of the security deposit** shall be refunded to the contractor on expiry of **5 (five) years** from the date of actual and successful completion of work;

This period of **5 (five) years**, from the date of actual and successful completion of work, may be treated as the **Security Period/Defect Liability Period** of the contract. This supersedes the **clause 17** of tender form no.1.

9. **Additional Performance Security**

As per Order no. 4608-F(Y) dated 18.07.2018, an Additional Performance Security shall have to be submitted by the successful bidder, when the Bid rate is 80% or less of the estimated amount put to tender and no increase in scope of work of project during execution phase.

To ensure the quality and proper execution of the work, in public interest, the Additional Performance Security @ 10% of the tendered amount shall have to be submitted by the successful bidder, if the accepted bid value is 80% or less of the estimated amount put to tender.

The Additional Performance Security shall have to be submitted in form of Bank Guarantee from a Scheduled Bank, valid up to the date of completion of the contract (including Security/Defect Liability Period), before issuance of Work Order.

If the bidder fails to submit the Additional Performance Security within 7 (seven) working days from the date of issue of Letter of Acceptance/Letter of Intent or the time period as mentioned by the tender inviting authority, his Earnest Money will be forfeited and other necessary action as per NIT/RfP, like blacklisting of the contractor, may be taken. The Bank Guarantee shall have to be valid up to end of the contract period (including Security Period/Defect Liability Period) and shall have to be renewed accordingly, if required.
The Bank Guarantee shall be returned immediately on successful completion of the contract, i.e., on completion of Security Period/Defect Liability Period only. If the bidder fails to complete the work successfully, the Additional Performance Security along with Security Deposit lying with KMDA, shall be forfeited at any time during the pendency of contract period as per relevant Clauses of the Contract, after serving proper notice to the contractor. Necessary provisions regarding deductions of Security Deposit from the progressive bill of the Contractor as per relevant clauses of the contract shall in no way affected/altered by provision of this Additional Performance Security.

While issuing Bank Guarantee (BG) in favour of Kolkata Metropolitan Development Authority (KMDA), the issuing applicant must mention receiver's details as ICICI Bank, IFSC: ICIC0006950, Branch- Salt Lake, Sector- I, in the BG text at which SFMS IFIN 760 message to be sent by the issuing bank to establish the authenticity of the given BG.

10. **List of common documents shall have to be uploaded by each tenderer at the time of Tender through online:**

    i) All annexures as annexed.
    ii) Certificate of Incorporation/Registration of firm or company (Memorandum and Articles of Association, if any)
    iii) Deed of Partnership (constituted/reconstituted/amended, if any) (only for Partnership Firms)
    iv) Income Tax Return (for the last 3 financial years)
    v) Audited Balance Sheet (for the last 3 financial years)
    vi) PAN Card
    vii) GST registration certificate with up-to-date challan
    viii) Latest Professional Tax paid challan and P-Tax Enrollment Certificate.
    ix) Latest valid Trade License
    x) Provident Fund Registration Certificate with up-to-date challan
    xi) ESI Registration Certificate with up-to-date challan
    xii) Latest valid Electrical Contractor's License and Supervisory License
    xiii) Technical Credential
        a) Work Order
        b) Completion Certificate for the work completed/running
        c) BOQ of work or price-breakup schedule
        d) Payment Certificate of the said work

    xiv) Current Bank Solvency Certificate (of minimum 40% of estimated amount put to tender) from a scheduled bank recognized by the Government of India, obtained within six months from the last date of submission of bid online.
    xv) Affidavit before Notary mentioning the correctness of the documents and declaration of penalty or debarment etc., before the issuance of this NIT.

11. The prospective bidders shall quote their rate in percentage above or below the estimated value of the work, maximum 2 (two) digits beyond/after the point, if any. If percentage rate quotation received beyond 2 (two) digits, after the point, from the lowest quoted bidder, the next lower value for above and higher value for below the contractual percentage (2 (two) digits after point) will be considered and restricted, e.g., if rate received between 2.7701% and 2.7799% above the estimated amount, the rate will be revised to 2.77% above only, and if rate received between 19.9901% and 19.9999% below the estimated value, the rate will be revised to 20% below the estimated amount and if so, the Additional Performance Security, as per norms, should have to be submitted by the lowest quoting and selected bidder. The tendered amount will be calculated based on the revised contractual percentage, as above.

12. The prospective bidders shall have in their full-time engagement experienced technical personnel with the sufficient knowledge of PERT/CPM, the minimum being one Civil Engineering Degree holder and one Civil Engineering Diploma holder (authenticated documents in respect of qualification and engagement shall be furnished for Technical Evaluation).

13. The prospective bidders must not have been debarred to participate in any tender invited by the KMDA during the last 5 (five) years prior to the date of this NIT. Such debar will be considered as disqualification towards eligibility (a declaration in this respect has to be furnished by the prospective bidders as per prescribed format without which the Technical Bid shall be treated as non-responsive).

14. **Language of Tender**:

    The bid and all related correspondences and documents shall be written in the English language. Supporting documents and printed literature furnished by the eligible bidder with the proposal may be in any other language if they are accompanied by an appropriate translation into English.

Supporting materials that are not translated into English shall not be considered. For the purpose of interpretation and evaluation of the Proposal, the English language translation shall prevail.

15. All materials required for execution of the work (as per BOQ) shall be supplied by the contractor at their own risk and cost.

16. **Bid validity**

    Bid shall remain valid for a period not less than **120 days** (one hundred twenty days) from the last date of submission of financial bid/sealed bid. If the bidder withdraws the bid during the period of bid validity, the earnest money as deposited will be forfeited without assigning any reason thereof.

17. The Tender Notice along with other documents like Tender Form-1, Terms and Conditions, BOQ and Corrigendum, if any etc. whatever documents uploaded by the department concern, shall be part and parcel of the Tender. The agency must go through carefully the Special Terms and Conditions uploaded by the department before quoting his/her rate.

18. The Tender Inviting Authority reserves to right to cancel the NIT due to unavoidable circumstances or may accept or reject any or all the tenders without assigning any reason what so ever. No claim in this respect will be entertained.

19. During scrutiny, if it is come to the Tender Inviting Authority that the credential or any other papers found incorrect/manufactured/fabricated, that tenderer will not be allowed to participate in the tender and that application will be out rightly rejected without any prejudice with forfeiture of earnest money forthwith.

20. The bidder may be debarred/suspended/restrained from participating any tender of Kolkata Metropolitan Development Authority (KMDA) at any stage on the following grounds:

A. GROUNDS FOR SUSPENSION/DEBARMENT/RESTRICTION

i) Submission of eligibility requirements containing false information or falsified documents.

ii) Submission of Bids that contain false information or falsified documents, or the concealment of such information in the Bids in order to influence the outcome of eligibility screening or any other stage of the bidding process.

iii) Unauthorized use of one's name/digital signature certificate for purpose of bidding process.

iv) Any documented unsolicited attempt by a bidder to unduly influence the outcome of the bidding in his favour.

v) Refusal or failure to post a self-declaration to the effect of any previous debarment/suspension/restriction imposed by any authority of State/Central Government, State/Central Government Undertaking/Statutory Bodies constituted under the statute of the Central/State Government.

vi) All other acts that tend to defeat the purpose of the competitive bidding such as lodging false complain about any bidder, lodging false complain about any officer duly authorized by the department, restraining any interested bidder to participate in the bidding process, etc.

vii) Assignment and subcontracting of the contract or any part thereof without prior written approval of the procuring entity.

viii) Whenever adverse reports related to adverse performance, misbehavior, direct or indirect involvement in threatening, making false complaints etc. damaging the reputation of the department or any other type complaint considered fit by the competent authority of the department, are received from more than one officer or at more than one occasion from individual officer.

ix) Refusal or failure to post the required performance security/earnest money within the prescribed time without justifiable cause.

x) Failure in deployment of technical personnel, engineers and / or work supervisor having requisite license/ supervisor certificate of competency as specified in the Contract.

xi) Refusal to accept an award after issuance of "letter of acceptance" or enter into contract with the authority without justifiable cause.

xii) Failure of the contractor, due solely to his fault or negligence, to mobilize and start work or performance within the specified period as mentioned in the "Letter of Acceptance", "Letter of Acceptance cum Work Order", "Work Order", "Notice to Proceed", "Award of Contract", etc.

xiii) Failure by the contractor to comply with its contractual obligations fully and faithfully without valid cause or failure by the contractor to comply with any written lawful instruction of the procuring entity or its representative pursuant to the implementation of the contract.

xiv) For the procurement of consultancy service/ contracts, poor performance by the consultant of his services arising from his fault or negligence. Any of the following acts by the consultant shall be construed as poor performance.

a) Non deployment of competent technical personnel, competent engineers and / or work supervisors;

b) Non deployment of committed equipment, facilities, support staff and manpower; and

c) Defective design resulting in substantial corrective works in design and/or construction;

d) Failure to deliver critical outputs due to consultant's fault or negligence; and

e) Specifying materials which are inappropriate and substandard or way above acceptable standards leading to high procurement cost.

f) Allowing defective workmanship or works by the contractor being supervised by the consultant.

xv) For the procurement of goods, unsatisfactory progress in the delivery of the goods by the manufacturer, supplier or distributor arising from his fault or negligence and/or unsatisfactory or inferior quality of goods, vis a vis as laid down in the contract.

xvi) Willful or deliberate abandonment or non-performance of the project or contract by the contractor resulting to substantial breach thereof without lawful and/or just cause.

B. CATEGORY OF OFFFNSE

i) First degree of offense: - Sl. No. 20.A. (i) to 20.A (xvi) to be considered as first degree of offense.

ii) Second degree of offence: - Any one of the offences as mentioned under 20.B (i) above,

committed by a particular bidder/contractor/supplier by more than one occasions, be considered as second degree of offense.

In addition to the penalty of suspension/debarment/restriction, the bid security/earnest money posted by the concerned bidder or prospective bidder shall also be forfeited.

(The same must be invariably part of the process of evaluation of bids.)

C. PENALTY FOR OFFENSE

i) **For committing 1st Degree of offense: -**
Disqualifying a bidder from participating in any tender process under Kolkata Metropolitan Development Authority up to 2(two) years.

ii) **For committing 2nd Degree of offense: -**
Disqualifying a bidder from participating in any tender process under Kolkata Metropolitan Development Authority for a period of 3(three) years.

21. List of technically qualified bidders will be published in the web portal only. Financial Bid will be opened within a short period after such publication. Therefore, bidders are requested to view the tender status on a regular basis. In case if there be any objection regarding pre-qualification/list of technically qualified bidders, that objection should be lodged to the Chairman, Tender/Bid Evaluation Committee within 24 hours from the date and time of publication of the list of qualified agencies and beyond that time schedule no objection will be entertained by the Tender/Bid Evaluation Committee.

22. Before issuance of the Letter of Intent (LOI), the tender inviting authority may verify the credential and other documents of the lowest tenderer if found necessary. After verification, if it is found that such documents submitted by the lowest tenderer is either manufactured or false, in that case, LOI will not be issued in favour of the tenderer under any circumstances.

For detailed information please visit the Government website: https://wbtenders.gov.in.

23. **GENERAL INSTRUCTIONS FOR E-TENDERING**

23.1. General guidance for e-tendering:

Instructions/guidelines for electronic submission of the tenders have been detailed above for assisting the contractors to participate in e-tendering.

23.1.1. Registration of Contractors:

Any contractor willing to take part in the process of e-tendering will have to be enrolled and registered with the Government e-Procurement system, through login onto https://wbtenders.gov.in.The Contractor is to click on the link for e-tendering site.

23.1.2. Digital Signature Certificate (DSC)

Each contractor is required to obtain a Class-II or Class-III Digital Signature Certificate (DSC) for submission of tenders, from the approved service provider of the Controller of Certifying Authority, Government of India (http://cca.gov.in) on payment of requisite amount. The Contractor can search the tender and download NIT and other tender documents electronically from computer, once he/she logs onto the website https://wbtenders.gov.in. This is the only mood of collection of the tender documents. A prospective Bidder shall be allowed to participate in the job either in the capacity of the individual or as a partner of a firm. If it is found applied several in single job all his applications will be rejected for that job.

23.1.3. Submission of Tenders:

General Process submission:
Tenders are to be submitted through online to the website stated in Sl. No. 3 (a) of the e-NIT, two folders at a time for each work, one is technical bid and the other is financial bid before the prescribed date and time using his/her Digital Signature Certificate.

23.2. **Technical Bid**:

Technical bid contains scanned copies of the following further in two folders.

a) Statutory cover containing:

i. NIT with all addendum & corrigendum (download & upload the same digitally signed)

b) Non-statutory cover containing:

i. All annexures as annexed.
ii. Certificate of Incorporation/Registration of firm or company (Memorandum and Articles of Association, if any).
iii. Deed of Partnership (constituted/reconstituted/amended, if any) (only for Partnership Firms)
iv. Income Tax Return (for the last 3 financial years)
v. Audited Balance Sheet (for the last 3 financial years)
vi. PAN Card
vii. GST registration certificate with up-to-date challan
viii. Latest Professional Tax paid challan and P-Tax Enrollment Certificate.
ix. Latest valid Trade License
x. Provident Fund Registration Certificate with up-to-date challan
xi. ESI Registration Certificate with up-to-date challan
xii. Latest valid Electrical Contractor's License and Supervisory License
xiii. Technical Credential
    a) Work Order
    b) Completion Certificate for the work completed/running
    c) BOQ of work or price-breakup schedule
    d) Payment Certificate of the said work

xiv. Current Bank Solvency Certificate (of minimum 40% of estimated amount put to tender) from a scheduled bank recognized by the Government of India, obtained within six months from the date of publishing of NIT.

xv. Affidavit before Notary mentioning the correctness of the documents and declaration of penalty debarment etc.

xvi. Technical Manpower details (to be deployed at project).

xvii. Confirmation of supply of minimum number of manpower during Operation & Maintenance (if any).

xviii. Local office address for communication.

NOTE:

Failure of submission of any of the above-mentioned documents, as stated in 23.2. a) & 23.2. b) of the General Instructions for e-tendering, will render the tender liable to summarily rejected for both statutory and non- statutory cover.

23.3. Financial Bid

The financial Bid should contain the following documents in one folder, i.e., Bill of Quantities (BOQ). The Contractor is to mention the rate inclusive of all incidental fees, taxes etc. through online in space marked for quoting rate in the BOQ.

Only downloaded copies of the above documents are to be uploaded, virus scanned & digitally signed by the contractor.

23.4. Opening & Evaluation of Tender

Technical Bid will be opened by the Superintending Engineer (Civil), North Circle, SWM Sector, KMDA. Intending tenderer may remain present if he/she so desire. Statutory Cover would be opened first and if found in order and correct, Non-Statutory Cover will be opened. If there is any deficiency in the Statutory and Non-Statutory documents, the tender will be summarily rejected.

Decrypted (transformed in to a readable formats) documents of the non-statutory folder will be downloaded & handed over to the evaluation committee.
List of technically qualified bidders will be uploaded only onto the designated Government website - https://wbtenders.gov.in.

NB:

While evaluation, the Evaluation Committee may summon of the tenders and seek clarification/information or additional documents or original hard copy of any of the documents already submitted and if they couldn't produce the same within the stipulated time frame, their bid will liable for rejection.

23.5. **Opening and evaluation of financial bid:**

Financial bid of Tenderers, declared technically eligible by the Tender Evaluation Committee, will be opened electronically from the web portal on the prescribed date and time.

23.6. Penalty for suppression/distortion of facts:

Submission of false document by tenderer is strictly prohibited.

BIJAY KRISHNA PAL
Superintending Engineer (Civil)
North Circle
Solid Waste Management Sector
Kolkata Metropolitan Development Authority

SPECIAL TERMS AND CONDITIONS OF THE CONTRACT (CIVIL)

1. GENERAL

All works are to be carried out in accordance with special terms and technical specifications as mentioned herein after.

1.1. In addition to the above, General specifications of the Schedule of Rates of Public Works Department, Government of West Bengal on Building Works for the year 2017, Sanitary, & Plumbing Works for the year 2017 and Road & Bridge Works for the year 2018, shall be applicable for works not covered by above.

1.2. In addition to the above General specifications of the schedule of rates of presidency Circle - I, P.W.D., Government of West Bengal (briefly referred to as the "P.C. Schedule" and as defined below) shall be applicable. The "P.C. Schedule" referred to above shall comprise the following two schedules (taken together) of Presidency Circle - I, P.W.D. Government of West Bengal for the year 2017. Schedule of rates for building materials and labour (briefly referred to as the building schedule).

1.3. The specifications for works not covered by the specifications referred in Clause - 1.1. or 1.2. shall be governed by the Bureau of Indian Standards Code of Practices. MoRTH Specification, IRC Codes of Practices and as per base practice according to the direction of the Engineer-in-Charge.

1.4. Unified Schedule of Rates of Irrigation & Waterways Department for the year 2018.

1.5. The contract documents are to be considered as a whole. The several documents forming the contract, are to be taken as mutually explanatory of one another. If, however, the stipulations of the different documents be at variance in any respect, one will override the others (only in so far as these are at variance) in order of precedence as given below:

(i) Letter of Intent (L.O.I.)
(ii) Notice Inviting Tenders
(iii) Special Terms & Conditions
(iv) Special Specifications
(v) Specific Priced Schedule
(vi) The Printed Tender Form (KMDA Form No.- I)
(vii) The Schedule (as defined on clauses - 1.1. above)
(viii) P. C. Schedule (as defined on clauses - 1.2. above)

2. ENHANCEMENT OF TENDER RATE

In no circumstances, the tendered rate shall be enhanced after acceptance of the tender.

3. EXPLANATION OF TERMS

Heading and marginal notes are only for convenience of reference and have no contractual significance.

Words importing the singular also includes the plural and vice-versa where the context so requires.

3.1. The words "Approved" or "Direct" appearing anywhere in the tender documents shall indicate (unless specifically mentioned otherwise) the approval or direction of the Engineer-in-Charge.

3.2. The term "At the site of work" or "Near the site of work" wherever it appears in the tender documents, shall mean anywhere within 150 (one hundred and fifty) meters from the actual site of work.

3.3. The word "Department" appearing anywhere in the tender documents, shall mean "Kolkata Metropolitan Development Authority (KMDA in abbreviation)".

3.4. The Engineer-in-Charge shall mean the Executive Engineer of the Division concerned as mentioned in the tender notice.

3.5. The Sub-divisional officer shall mean the concerned Assistant-in-Charge of the work authorised to carry out on behalf of the Engineer-in-Charge, general supervision, issue of day-to-day instructions and to approve materials and workmanship.

3.6. The words "Superintending Engineer" and "Chief Engineer" appearing anywhere in the printed tender form shall mean the concerned Superintending Engineer and the Chief Engineer of the particular wing of Sector concerned respectively.

4. CHARACTER OF SITE

Before submission of tenders, the intending tenderer shall inspect the site of work and get them thoroughly acquainted with the local conditions and difficulties under which the work will have to be carried out. They should consider, among others, the nature of soil, climate conditions of the locality, dearth of water in the area of work, condition of the existing roads, transport facilities, nonexistence of roads in many places etc. Extra cost involved due to above factors to be borne by the contractor and should, thereof, be included in the rates to be quoted by them.

5. INCIDENTAL FEES

All rates to be quoted by the contractors shall be inclusive of all incidental fees and charges, e.g., Royalties, Ferry charges, Octroi and Toll Tax of Materials, Electricity, Water and other charges of Municipalities or Statutory Bodies, Sales Tax, Goods & Services Tax (GST), Income Tax etc. Nothing extra will be paid against such account.

6. STATUTORY OBLIGATIONS

6.1. The Contractor shall give all notices and pay all fees required to be given by any statute or any regulation or bye-law of any local or other statutory authority which may be applicable to the works and shall keep KMDA indemnified against all penalties and liabilities of every kind for breach of such statute, regulation or bye-laws.

6.2. The Contractor shall indemnify the KMDA against any loss/harm and also against all claims, demands, suit and preceding on account of infringement of any patent rights, design, trademark or name of other protected rights in respect of any constructional plant, machine, work material thing process used for in connection with the work or temporary works.

7. SAFETY PRECAUTIONS

7.1. All necessary precautions are to be taken by the contractor for the safety of his workmen and of the general public. The work must be done in such a way as not to damage any property, existing structure or public utility services during work. Close cooperation must be ensured with other contractor or contractors working the area of work. All claims arising out of any damage to the existing structures or properties due to works of the contractor shall be borne by the contractor.

7.2. The Contractor shall provide necessary fencing and lighting arrangements around the trench excavated by him and / or at the site of work for the safety of his workmen and of the general public. Such arrangement shall not be paid for separately and the cost thereof shall be included in the Contractor's rate for the work.

8. IDLE LABOUR

Whatever may be the reason no claim for idle labour, additional cost of establishment, hire and labour charges for Tools & Plants will be entertained and shall be borne by the tenderer.

9. TRANSPORT

The Contractor shall arrange all transport including Railway Wagons required for carriage of all tools & plants, implements and materials etc. at their own risk and cost.

10. PUMPING, DEWATERING ETC.

The Contractor shall provide all pumping and other arrangements that may be necessary to remove from or keep out of foundations, trenches or any part of the structure under construction, water free (whether canal water, sub – soil water and water from any source, whatsoever). Such pumping or other necessary arrangements shall not be paid for separately and the cost thereof is to be included in the contractor's rate of relevant items of work.

11. WATER AND ELECTRICITY

The Contractor shall have to make his own arrangement for adequate supply of water and for electrical power that may be required for or in connection with execution of the work. All these will have to be done at contractor's own cost and expense and no separate payment for any of these shall be made, the cost thereof being deemed to be included in the rate for the work.

11.1. Arrangement for supply of piped water from existing service lines may not be possible. In that case the Contractor will have to make arrangements for supply of drinking water and all water required for execution of the work by sinking tube wells or other suitable alternatives that may be approved by the Engineer-in-Charge. Nothing extra will be paid for such account.

11.2. Electrical power from usual supply agencies may not be available. In that case the Contractor will have to make his own arrangement for electrical power through generator. Nothing extra will be paid for such account.

12. CLEARANCE OF SITE

12.1. Before starting any work, the work site where necessary, must be properly dressed after cutting, cleaning and clearing all varieties of jungles and shrubs including bamboo clusters or any undesirable vegetation, rubbish, sludge etc. from the site of works for which nothing will be paid extra.

12.2. The site must be cleared by the Contractor from time to time in the course of execution of the work.

12.3. On completion of work, all temporary works shall be removed by the Contractor. All scars of construction shall be obliterated and the whole site left in a clean and workman like manner to the entire satisfaction of the Engineer – in – Charge. No separate payment shall be made for these, the cost thereof being deemed to have been included in the Contractor's rate for the work.

13. SERVICEABLE MATERIALS

All serviceable materials obtained from excavation or from dismantling of existing structures shall remain the property of KMDA. The responsibility for stacking materials that are considered serviceable by the Engineer-in-Charge and hand delete over the same to the Engineer-in-Charge shall in custodian of with the Contractor and nothing will be paid on this account. In case of any loss or damage of serviceable materials prior to hand delete over the same as aforesaid full value thereof will be recovered from the Contractor's bill at rates as assessed by the Engineer-in-Charge.

14. UNSERVICEABLE MATERIALS

The contractor shall remove all unserviceable materials to the place as directed. He should level and dress the work site on completion of the relevant portion of work as per direction of the Engineer-in-Charge of work. No extra payment will be made on this account.

15. QUALITY OF MATERIALS

All materials brought to the site must be to the approval of the Engineer-in-Charge. Rejected materials must be removed by the Contractor from the site within 24 hours of the issue of orders to that effect. In case of non-compliance with such orders the Engineer-in-Charge shall have the authority to cause removal at the cost and expense of the Contractor and the Contractor shall not be entitled to claim any loss or damage on that account.

16. MATERIALS AND LABOUR

All materials and labour (skilled & unskilled) including their water supply, sanitation, procurement of food staff, medical aid etc. are to be arranged by the Contractor. Cost of transport of materials and labour and allied items aforesaid shall have to be borne by the Contractor and included in his rate for the work.

17. UNSKILLED LABOUR

For all items of work under contractor unskilled labourers will have to be local labourer. Normally, without the consent of the Engineer-in-Charge, no unskilled labourer shall be imported from any district other than that where the work is to be executed imported labourers could be engaged with the permission of the Engineer-in-Charge, when the exigency or progress of works demands. Seventy percent of the unskilled labours shall never the less have to be recruited locally.

18. CONTRACTOR'S AGENT OR REPRESENTATIVE

18.1. The contractor shall not assign the agreement or sublet any portion of the work. The contractor shall appoint authorised representative and requisite technical personnel in respect of one or more of the following purposes only.

(a) General day to day management of the work.

(b) To attend measurements when taken by KMDA officers and to sign the records of such measurements.

18.2. The selection of the authorised representative is subject to the prior approval of the Engineer-in-Charge and the contractor shall seek in writing such approval giving therein the name and address of the representative he wants to appoint and the specific purpose for which the representative will be authorised for. Even after initial approval, the Engineer-in-Charge may issue at any subsequent date, revised directions about such authorised representative and the contractor shall be bound to abide by such directions. The Engineer-in-Charge shall not be bound to assign any reason for any of his directions with regard to the appointment of authorised representative.

18.3. The provisions of power of Attorney, if any, must be to the approval of KMDA, otherwise KMDA shall not be bound to take consignee of such power of Attorney.

18.4. Any notice, correspondence etc. issued to the authorised representatives or left at his address will be deemed to have been issued to the contractor himself.

The provision of a notarized power of Attorney, if any, must be to the approval of the Department, otherwise the Departmental shall not be bound to take cognizance of such power of attorney. The authorised agent or representative, when appointed by the contractor, as per provisions of the contract for supervision of works on their behalf, shall either be a Degree or Diploma holder in Engineering.

19. SITE OFFICE

The Contractor shall have an office adjacent to the work site as may be approved by the Engineer-in-Charge, where all directions and notice of any kind what so ever, which the Engineer-in-Charge or his

representative may desire to give to the Contractor in connection with the contract may be left and the same when left at or sent be post to such office or delivered to the Contractor's authorised agent or representative shall be deemed to be sufficiently served upon the Contractor.

20. GODOWN, LABOUR SHED ETC.

20.1. The contractor shall make his own arrangements for storage space and godown for his tools and plants, materials etc.

20.2. The Contractor shall arrange for temporary sheds latrines, water supply etc. for the accommodation of the use of his staff. These shall be properly maintained all through the period of construction in clean and hygiene condition to the satisfaction of the Engineer-in-Charge.

20.3. The locations of godown, stacking place other temporary structures must be to the prior approval of the Engineer-in-Charge. The land, if available within the site will be given free of rent. Any land outside the work site as may be required for the purpose will have to be arranged by the Contractor himself at his own cost.

20.4. On completion of the work all sheds, godown, vats, platform etc. erected by the Contractor for constructional purpose, shall have to be removed by him at his own cost and the ground restored to its original condition to the satisfaction of the Engineer-in-Charge.

21. SITE ORDER BOOK

21.1. The contractor shall within 7 (seven) days of the receipt of the order to take up works, supply at his own cost SITE ORDER BOOK to Assistant Engineer concerned. The site order book shall be kept at the site of work under the custody of the Assistant Engineer or his authorised representative. The site order book shall have machine numbered pages in triplicate. Directions or instructions from KMDA officials issued to the contractor will be entered (in triplicate) in the site order book (except when such directions or instructions are given by the separate letters). The contractor or his authorised representative shall regularly note the entries in the site order book and also record thereon the action taken or being taken by him complying with the said directions or instructions or any relevant point relating to the work, contractor or his authorised representative may take away the duplicate page of the work order book for his own record.

21.2. The first page of the work order book shall contain the following particulars:

(a) Name of the work.
(b) Reference to contact no.
(c) Date of opening the site order book.
(d) Name and Address of the Contractor (with phone no. if any).
(e) Signature of the contractor.
(f) Name and Address of the authorised representative who is authorised to act on behalf of the Contractor.
(g) Specific purposes for which the contractor's representative is authorised to act on behalf of the Contractor.
(h) Signature of the authorised representative dully attested by the contractor.
(i) Signature of the Assistant Engineer concerned.
(j) Date of written order to commence work.
(k) Time of completion of work with date.
(l) Extension of time granted, if any.
(m) Date of actual completion of works.
(n) Date of recording of final measurements.

Entries vide (m) & (n) above shall be filled in on completion of work and before the site order book is recorded in the office of the Assistant Engineer concerned.

22. ADDITIONAL ITERMS BEYOND THE SCOPE OF THE CONTRACT:

22.1. During the process of execution of the job under the contract if any additional item of works quantities beyond the scope of contract is required to be done as per the opinion of the Engineer-in- charge, such additional items and quantities shall have to be executed by the contractor as supplementary items when so directed by the EIC.

22.2. Notwithstanding what has been stated in clause 12 of the printed tender form, rates of supplementary items of works will be determined according to sub-clauses in order of precedence as given below.

22.2.1. The rates shall be analysed to the maximum extent possible from the rates of allied items of work appearing in the specific priced schedule.

22.2.2. To complete the analysis, if necessary, the rates appearing in the "Schedule" (as defined under clause-1.1. above) shall be applicable for the portion remaining after application of clause-22.2.1.

22.2.3. To complete the analysis, if necessary, the rates appearing in the "P.C. Schedule" (as defined under clause-1.2. above) shall be applicable for the portion remaining after application of clause-22.2.1 and 22.2.2.

22.2.4. If the analysis cannot be completed even after application of clause- 22.2.1, 22.2.2 and 22.2.3 above, the balance shall be determined from the market rates of material and labour.

22.2.5. The contractual percentage shall be applicable in regard to the portion of the analysis based on clause 22.2.1, 22.2.2 and 22.2.3 above.

22.2.6. Profit inclusive of overhead charges shall be added at the rate of 10(ten) percent in regard to the portion of the analysis based on clause-22.2.4 above.

23. Issue of KMDA Materials

23.1. No departmental materials shall be issued to the agency by any extent. All materials are needed to be procured by the agency as per requirement at site and as decided by the EIC.

23.2. Materials, so procured, will be checked by the EIC at site. Upon approval of the EIC, the agency can use his materials as per his/her requirement.

23.3. The contractor itself shall be responsible for any damage or loss of such materials and the department will not take any responsibility of such damage or loss, by any circumstances.

23.4. The contractor shall also have to satisfy the EIC regarding the proper utilization of such materials.

23.5. The contractor should have to submit the Manufacturer's Test Certificates (MTCs) and challans as and when he/she procures materials for his/her site, batch wise. The materials, if needed, should have to be tested at any NABL accredited laboratory, as per decision and direction of the EIC. If it is so required, departmental officers may visit the manufacturer's workshop for verification of its certification and methodology of production of such material. All such costs would have to be borne by agency itself.

23.6. The consumption of different materials of construction against the various items of works will be assessed on the basis of the 'chart for consumption of materials', given in the P.C. Schedule, unless specifically mentioned otherwise in the technical specifications. If any item is not available in the 'Schedule', the same shall have to be obtained from 'P.C. Schedule'. The permissible

variation as given in the preamble to the said chart for consumption of materials will normally apply provided what has been stated under the clauses. The EIC under special circumstances shall be component to allow (for recorded reasons) for a greater variation.

24. WORK PROGRAMME

The Contractor, on receipt of the letter of acceptance of his tender, shall submit to the Engineer-in-Charge the work programme in the form of CPM Network chart and or in Bar Chart, each in triplicate for his approval.

24.1. The work must be taken up within 7 (seven) days from the date of issue of work order and be complete in all respects within the specified time of completion as mentioned in Detailed Notice Inviting Tender.

24.2. The Contractor shall submit the work programme clearly showing the materials, men and equipment and a time table divided into four equal periods of progress of the work for the approval of the Engineer-in-Charge who will have authority to make additions, alteration and substitution to such programme in consultation with the Contractor, unless the same is subsequently found impracticable in some or all respect, in the opinion of the Engineer-in-Charge and is modified by him. The stipulations laid down in clause – 2 of the condition of contract in the printed tender form regarding the division and progress as provided in the said clause, shall be deemed to have been sufficiently complied with if the actual progress of work does not fall short of the progress as laid down in the approved time table for one – fourth, half and three fourth of the time allowed for the work. The work programme shall be submitted in the form of CPM Network chart and or in Bar Chart each in triplicate.

25. SETTING OUT OF WORK

25.1. The contractor shall be responsible for the true and perfect setting out of the works and for the correctness of the position, levels, dimensions, and alignment of all parts of the work. If at any time during the progress of the work any error shall appear or arise on the position, levels, dimensions, or alignment of any parts of the works the contractor on being directed to do so by the Engineer-in-Charge shall at their own expenses rectify such error to the satisfaction of the Engineer-in-Charge.

25.2. Any setting out that may be done or checked by the Engineer-in-Charge or his representative or any line or level that may have been given or checked by either of them shall not in any way relive the contractor of his responsibility for the correctness thereof.

25.3. Before starting the work, the Contractor must at his own cost and expense, erect temporary pillars as may be required in suitable places as directed by the Engineer–in–Charge. These pillars, from which the layout of all-important levels and alignment will be fixed, must be at such locations and of such a nature as not to be disturbed in the process of construction. The Contractor shall provide all instruments, appliances and labour required for setting out of the works and for the use and attendance upon the Engineer – in – Charge and / or his authorised representative whenever required for any purpose in connection with the works.

26. WORKING DRAWINGS

26.1. It is to be clearly understood that drawings forming a part of the tender documents are only for the purpose of indicating the type and nature of work involved. These are subject to be subsequently modified and/or supplemented by other drawings as required during actual execution of the work.

26.2. All works shall be carried out in conforming to drawings approved by KMDA. In token of such approval the drawings shall bear the signature of the Engineer-in-Charge before the same are

issued for execution of the work in accordance there with. Such approval on drawings may be furnished on piecemeal as and when required during the progress of the work. The Contractor shall keep in touch with the Engineer-in-Charge about the drawings that may be under checking or in the process of approval and keep him informed well in advance of the particular drawing and drawings he would next require for the smooth progress of work.

27. WORKMANSHIP AND TESTING

27.1. All materials and workmanship shall be of the respective kinds described in the contract and shall be subject from time to time to such tests as the Engineer-in-Charge may direct at the place of manufacture of fabrication or on the site or at any such place. The Contractor shall provide assistance, instruments, machines, labour and materials as the Engineer-in-Charge may require for examining, measuring and for testing the works and the quality, weight or quantity of the materials used and shall supply samples for testing as may be selected and required by the Engineer-in-Charge. Necessary charges shall be borne by the Agency.

27.2. The Contractor shall keep in mind that officials of quality control unitof KMDA may be deputed at the site of works for testing of materials and workmanship. The Contractor shall extend necessary help in performing such tests at their own cost.

27.3. The Contractor shall also keep in mind that KMDA may provide 3rd party agency viz. Jadavpur University, Indian Institute of Engineering, Science and Technology, Shibpur, Indian Institute of Technology, Kharagpur etc. at the site of works for testing of materials and workmanship in addition to KMDA Quality Control unit. If any discrepancies arise regarding results between KMDA Quality Control and 3rd party quality, the decision of Tender Accepting Authority will be final. Necessary charges shall be borne by the Agency.

28. CO-OPERATION AND CO-ORDINATION WITH OTHER CONTRACTORS

During the pendency of this contract KMDA shall have the liberty to engage a number of contractors for ancillary works (not provided in this contract) on completion of any part of the job and the contractor shall extend co-operation to other contractors.

29. COMPLETION DRAWINGS

Immediately on completion of the work, the Contractor shall submit completion drawings, made in autoCAD software, 6 (six) hardcopies (preferably in A1 sheet), including the original softcopies (autoCAD and pdf formatted) of the same, each for all the works executed by him under the contract, for approval of the Engineer-in-Charge and concerned Local Body. It will be Contractor's responsibility to work at site, taking confidence to both the EIC and Local Authority. Final Payment will be made only after signing of Completion Drawings by both the EIC and Local Authority. The Contractor's rate shall be inclusive of such costs.

30. TOOLS AND PLANTS

The Contractor shall install tools and plants including HOT MIX PLANT at the land to be arranged by him at his own cost and he/they shall have to provide necessary approach road to the plant site from the site of work at his own cost.

Mobilization and installation of TOOLS and PLANT shall have to be completed by the Contractor at his own cost within 30 (Thirty) days from the date of receipt of the letter of acceptance of his Tender or the provisional work order, whichever is later, failing which the contract will be liable to termination with forfeiture of the amount of initial security as per detailed N.I.T. that may be lying with KMDA at that time without any reference to the contractor.

31. GUARANTEE AND MAINTENANCE

The Contractor shall stand guarantee for the works done by him for a period of 36 (thirty-six) months from the date of completion of work. Any defects and short comings due to defective construction shall have to be made good by the Contractor at his own cost and expense inclusive of all cost of materials and labours. The Contractor shall have to make good the damages due to natural wear and tear at his own cost and expense inclusive of all cost of materials and labours. The Contractor shall have to maintain the assets for the entire guarantee period. The rate to be quoted by the Contractor shall be inclusive of all such costs.

32. REGISTRATION OF ESTABLISHMENT AND COLLECTION OF CESS

As per Building and other construction workers (RECS) Act 1996 and Building and other construction workers Welfare Cess Act 1996 and rules framed there under, the contractor employing more than ten construction workers should obtain registration from the registering officer (Assistant Labour Commissioner at regional labour offices) and an amount @ 1% as Cess shall be deducted from the progressive bill for the work executed as per G. O. No. 853 – F dated 01. 02. 2006 issued by Finance department, Govt. of W. B., Finance Dept. Memo No. 6895 – F dated 11. 09. 2006 and Memo No. 100 (7A)/LC dated 30. 08. 2006 from the Labour Commissioner, W. B.

33. EARNEST MONEY

Earnest money deposit of amount written in invitation for tender shall be deposited online either by Net Banking (through any Nationalised Bank/Scheduled Bank) or through RTGS/NEFT as per requirement of the system: https://wbtenders.gov.in. The Earnest money deposit shall be valid for a period of not less than one hundred twenty (120) days from the date of tender submission. Tenders not accompanied by an Earnest money deposit shall be out rightly rejected as non-responsive without showing any reason whatsoever. Earnest money of unsuccessful tenderers will be refunded automatically, without any interest thereon within 90 days after award of the contract to the successful tenderer. The successful tenderer shall have to submit an additional amount against Earnest Money @ 2% of the estimated value, as mentioned in the e-NIT, in the form of Demand Draft drawn in favour of "KMDA" of a nationalised/scheduled Indian Bank, payable at Kolkata.

The Earnest money will be forfeited:

- If the tenderer withdraws his tender during the period of tender validity.
- If the tenderer does not accept the correction of his tender price pursuant to provision of contract.
- If successful tenderer fails within the specified time limit to execute the Formal Agreement with the Employer or to furnish the required performance security.

33.1. DEPOSITION OF ADDITIONAL EARNEST MONEY FOR SUCCESSFUL TENDERER

The successful tenderer shall have to deposit 2% of the contract amount less the initial earnest money in the form of Demand Draft in favour of KMDA during execution of formal agreement with KMDA as initial security Deposit (if any).

34. SECURITY DEPOSIT:

The amount of Security Deposit shall be 10% of the contract value. The amount already deposited as Earnest Money Deposit (EMD) will be converted as initial security deposit. The successful bidder has to submit the balance amount of 2% of the contract price, i.e., the tendered amount, if submitted EMD

is less than 2% of the contract value, before execution of formal agreement. Balance security of 8% of the amount of each running account bill, will be recovered from each and subsequent bill till the balance of the amount of security deposit is realised.

35. **Additional Performance Security**

As per Order no. 4608-F(Y) dated 18.07.2018, an Additional Performance Security shall have to be submitted by the successful bidder, when the Bid rate is 80% or less of the estimated amount put to tender and no increase in scope of work of project during execution phase.

To ensure the quality and proper execution of the work, in public interest, the Additional Performance Security @ 10% of the tendered amount shall have to be submitted by the successful bidder, if the accepted bid value is 80% or less of the estimated amount put to tender.
The Additional Performance Security shall have to be submitted in form of Bank Guarantee from a Scheduled Bank, valid up to the date of completion of the contract (including Security/Defect Liability Period), before issuance of Work Order.

If the bidder fails to submit the Additional Performance Security within 7 (seven) working days from the date of issue of Letter of Acceptance/Letter of Intent or the time period as mentioned by the tender inviting authority, his Earnest Money will be forfeited and other necessary action as per NIT/RfP, like blacklisting of the contractor, may be taken. The Bank Guarantee shall have to be valid up to end of the contract period (including Security Period/Defect Liability Period) and shall have to be renewed accordingly, if required.

The Bank Guarantee shall be returned immediately on successful completion of the contract, i.e., on completion of Security Period/Defect Liability Period only. If the bidder fails to complete the work successfully, the Additional Performance Security along with Security Deposit lying with KMDA, shall be forfeited at any time during the pendency of contract period as per relevant Clauses of the Contract, after serving proper notice to the contractor. Necessary provisions regarding deductions of Security Deposit from the progressive bill of the Contractor as per relevant clauses of the contract shall in no way affected/altered by provision of this Additional Performance Security.

While issuing Bank Guarantee (BG) in favour of Kolkata Metropolitan Development Authority (KMDA), the issuing applicant must mention receiver's details as ICICI Bank, IFSC: ICIC0006950, Branch- Salt Lake, Sector- I, in the BG text at which SFMS IFIN 760 message to be sent by the issuing bank to establish the authenticity of the given BG.

36. DEFECT LIABILITY PERIOD (DLP)

Defect Liability Period (DLP) of the work shall be considered as **5 (five) years** from the date of actual completion of work in full. During the period of DLP, the agency/contractor is liable to make good of any kind of damage happen in the structure, so constructed/erected by him, at his own cost. Before completion of DLP, the project must be handed over to concerned ULB for Operation and Maintenance, with full satisfaction of the Authority.

37. RELEASE OF SECURITY DEPOSIT

(i) **No** security deposit shall be refunded to the contractor for 1st 3 (three) years from the date of actual and successful completion of work;

(ii) **30% of the security deposit** shall be refunded to the contractor on expiry of **4 (four) years** from the date of actual and successful completion of work;

(iii) The balance **70% of the security deposit** shall be refunded to the contractor on expiry of **5 (five) years** from the date of actual and successful completion of work;

This period of **5 (five) years**, from the date of actual and successful completion of work, may be treated as the **Security Period/Defect Liability Period** of the contract. This supersedes the **clause 17** of tender form no.1.

38. There shall be no addition/deduction of any contract price on account of rise /fall in the cost of labour and/or materials or any other items which may affect the cost of the execution of works. Only the effect due to change of tax structure by legislation will be applicable.

39. INCOME TAX

Income tax will be deducted from the contractor's bills at the rate in accordance with the orders/circulars of the Government of India, that will be in force during the contractual period. The tenderer shall declare his permanent income tax account number (PAN) issued by the income tax authority in the tender.

40. SALES TAX/GOODS & SERVICES TAX (GST)

Sales tax/GST will be deducted from the contractor's bills at the rate in accordance with the orders/circulars of the Government of West Bengal in force during the contractual period. The tenderer shall declare his Goods and Services Tax Registration Number in the tender.

41. NECESSARY INFORMATIONS REGARDING TENDER

41.1. No claim will be entertained due to delay in making payment of any bill related to work.

41.2. No extra claim will be entertained for any change in design and drawing that in the opinion of the Superintending Engineer may be necessary for the work.

41.3. No departmental materials will be supplied to the agency. Consumption of such materials will be calculated from measurements entered in measurement book of the department and will be checked with the procurement challan.

41.4. Terms of payment: interim payments against individual items of price schedule on percentage pro-rata basis depending on the progress of the concerned items of the work accepted by the EIC. In case of any dis-agreement between the E.I.C & Contractor, the decision of the Superintending Engineer will be final and binding upon both the parties.

41.5. The rates against different items should be reasonable and commensurate with one another. Any rate which in the opinion of the authority accepting tenders, is absurdly high or absurdly low in comparison to the quoted rates of other items may lead to rejection of the tender.

41.6. All the specifications stated in the tender documents shall form overall scope of the work. In case of any dispute regarding the works, the decision of the Superintending Engineer (Civil), North Circle, SWM Sector will be final & binding upon the Contractor.

41.7. If required, designs and drawings submitted by the agency shall have to be checked and verified by any recognized University/Institute i.e., Jadavpur University, Indian Institute of Engineering, Science and Technology, Shibpur or Indian Institute of Technology, Kharagpur etc., and the cost of which shall be borne by the contractor.

41.8. All necessary tests as suggested by the E.I.C. relating to the works shall be conducted by the contractor at their own cost.

41.9. Any left-out components stated in the specification of the pay items of the tender documents shall have to be done by the tenderer without having any extra claim.

41.10. Rate shall be quoted in the respective items as specified in the price schedule of the tender document only not in tender form no. 1.

41.11. The agency may Visit the working site before quoting their rates.

41.12. All the Civil drawings submitted by the agency shall have to be approved by the Superintending Engineer (Civil), North Circle, SWM Sector, KMDA.

41.13. No extra Claim shall be entertained by the department for executing shoring/shit pilling/dewatering that shall be necessary as per site condition.

42. ACCEPTANCE OF TENDER

The acceptance of tender will rest with the concerned Superintending Engineer (Civil), North Circle, SWM Sector, KMDA who does not bind himself to accept the lowest tender and reserves to himself the authority to reject any or all the tenders received without assigning any reason thereof.

43. WITHDRAWAL OF TENDER

A tender once submitted shall not be withdrawn within a period of 120 (One Hundred Twenty) days from the last date of receipt of tenders. If a tenderer withdraws his tender within this period without giving any satisfactory explanation for such withdrawal, he shall be disqualified from submitting any tender for works under North Circle, SWM Sector, KMDA, for a minimum period of 1 (one) year.

44. COPIES OF AGREEMENT

The contractor shall within 7 working days from the date of receipt of the letter of acceptance of his tender submit 5 (Five) additional copies of the full set of the contract documents.

44.1. The documents required for the additional copies of the contract will have to be purchased by the contractor from the office of the concerned Executive Engineer, SWMSector, KMDA. All the copies must be duly completed as per the original and signed on every page by the Contractor before submission of the same to the concerned Executive Engineer, SWMSector, KMDA within the specified date and time. Drawings and other documents attached to the tender shall also be attached to all the copies of the agreement.

45. LEVELS ETC.

The contractor must erect temporary pillars at his own cost, as many as required, in suitable places as directed by the Engineer-in-Charge, before starting the work, from which the contractor shall layout all important levels and alignment jointly with the Departmental Engineers. All instruments, threads, pegs, nails, flags etc. required for setting out the alignment and levels etc. shall also be supplied by the contractor at his own cost.

The contractor will be responsible for accurate setting out and constructing the whole of the work in accordance with the Bench Mark, centre line etc. as directed by the Engineer-in-Charge and the contractor must supply for their own and for the Departmental Engineer's use all the instruments, leveling staff, tapes etc. and other things that may be required for this purpose. The sight Rails shall be fixed at suitable intervals which should not be more than 30.0 M. apart.

TECHNICAL SPECIFICATION
CIVIL WORKS

(A) MATERIALS

GENERAL:
All materials to be used in works shall conform to the Indian standard specification as published by ISI from time to time (and in the absence thereof as approved by the Engineer-in-Charge).

A. BRICKS:

All bricks shall be of approved quality of standard specification, made of good brick, earth, uniform deep red, cherry or copper colour, thoroughly burnt in kiln (machine made) without being verified, regular in shape and size, sound, hard, homogenous in texture, true to shape and of standard dimensions and shall be free from cracks, flaws, stones, or humps of any kind and shall not show appreciable signs of effloresce either dry or subsequent to soaking in water. The size of bricks shall be 23.9 Cm x 11.9 Cm x 6.9 Cm The brick shall emit a clear ringing sound of being struck and have a minimum crushing strength of 105 kg/Sq. Cm. All the bricks which absorb water 20%if their own dry weight after 24 immersion in cold water, shall be rejected.

B. COARSE AGGREGATES FOR CEMENT CONCRETE WORKS:

(i) Stone chips of stone ballast for cement concrete (plain or reinforced) shall be hard, or uniform or fine texture, trap quality, free from faults or planes of weaknesses and free from weathered faces. The ballast of chips must be free from loam, clay or any surface coating, free from organic matter or other impurities and screened free of dust. Stone of black and hard variety as is generally available from queries in pakur or chandil areas will be normally used. Stone aggregates from other sources may also be used provided the same is found suitable in the opinion of the engineer in charge. The opinion of Engineer-in-Charge must be recorded in writing. The ballast or chips shall be obtained by breaking from large blocks and must be more or less cubical in shape.

Size of Course aggregates:

For any of the following nominal sizes of a graded coarse aggregate, grading shall be in conformity with requirements laid down in Indian standard specifications IS: 383 – 1970 as shown in table 1.

IS Sieve Designation	Percentage Passing for Graded Aggregate of Nominal Size			
	40 mm	20 mm	16 mm	12·5 mm
(1)	(8)	(9)	(10)	(11)
80 mm	100	—	—	—
63 mm	—	—	—	—
40 mm	95 to 100	100	—	—
20 mm	30 to 70	95 to 100	100	100
16 mm	—	—	90 to 100	—
12·5 mm	—	—	—	90 to 100
10 mm	10 to 35	25 to 55	30 to 70	40 to 85
4·75 mm	0 to 5	0 to 10	0 to 10	0 to 10
2·36 mm	—	—	—	—

Table - 1

When coarse aggregates brought to the site is ungraded, single size coarse aggregates of different nominal sizes, conforming to the requirement vide Table No. - 2 given below shall be mixed at site with the other ingredients of concrete either directly in the mixture or in the proportion indicated in Table No. – 3.

IS Sieve Designation	Percentage Passing for Single-Sized Aggregate of Nominal Size					
	63 mm	40 mm	20 mm	16 mm	12·5 mm	10 mm
(1)	(2)	(3)	(4)	(5)	(6)	(7)
80 mm	100	—	—	—	—	—
63 mm	85 to 100	100	—	—	—	—
40 mm	0 to 30	85 to 100	100	—	—	—
20 mm	0 to 5	0 to 20	85 to 100	100	—	—
16 mm	—	—	—	85 to 100	100	—
12·5 mm	—	—	—	—	85 to 100	100
10 mm	0 to 5	0 to 5	0 to 20	0 to 30	0 to 45	85 to 100
4·75 mm	—	—	0 to 5	0 to 5	0 to 10	0 to 20
2 36 mm	—	—	—	—	—	0 to 5

Table – 2

Sl. No.	*Cement concrete mix*	*Nominal size of aggregate*	*Parts of aggregate of size 50 mm.*	*Parts of aggregate of size 40 mm.*	*Parts of aggregate of size 20 mm*	*Parts of aggregate of size 12.5 mm*	*Parts of aggregate of size 10 mm.*
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*
1.	*C.C1:6: 12*	*63mm*	*9*		*3*		
2.	*C.C.1:6:12*	*40mm*		*9*	*3*		
3.	*C.C.1:5:10*	*63mm*	*7½*		*2½*		
4.	*C.C. 1:5:10*	*40mm*		*7½*	*2½*		
5.	*C.C.1:4:8*	*63mm*		*6*	*2*		
6.	*C.C.I:4:8*	*40mm*		*6*	*2*		
7.	*CC. 1:3:6*	*63mm*	*4½*		*1½*		
8.	*CC. 1: 3 : 6*	*40mm*		*4½*	*1½*		
9.	*CC. 1:3:6*	*20mm*			*4½*		*1½*
10.	*C.C.1:2:4*	*40mm*		*2½*	*1*		*1½*
11.	*C.C.1:2:4*	*20 mm*			*3*		*1*
12.	*C.C.1:2:4*	*12.5mm*				*3*	*1*
13.	*C.C. 1:½:3*	*20 mm*			*2*		*1*

Table - 3

Notes: The proportion indicated in table - 3 above are by volume. These proportions may be varied somewhat by the Engineer-in-Charge after making sieve analysis of the aggregates brought to the site, when considered necessary, for obtaining better density and strength of concrete, vide ratio in the tune of 0 - 25.

All-in-Aggregate: If combined aggregates are available, they need not be separated into fine and coarse, but necessary adjustments may be made in the grading by the additional of single sized aggregate. The grading of the all-in-aggregate, when analysed, as described in IS: 2386 (Part I) shall be in accordance with Table - 4.

I.S.Seive Designation	Percentage passing for all-in-aggregate	
	40mm Nominal size	20mm Nominal size
1	2	3
80 mm	100	
40 mm	95-100	100
20 mm	45-75	95-100
4.75 mm	25-45	30-50
600 micron	8-30	10-35
150 micron	0-6	0-6

Table - 4

(ii) Gravel, if specified for use as coarse aggregates in cement concrete works, must be hard absolutely free from surface and on being broken, the fractured surface must indicate a uniform and fine texture free from lamination or planes of weakness. It shall be thoroughly washed and free from any foreign elements.

(iii) Jhama chips for cement concrete work shall be obtained by breaking good quality jhama bats, must not be spongy or with any coating of foreign materials and homogenous in texture. The chips shall be of more or less cubical in shape.

All coarse aggregate for concrete works must be well graded. These shall be screened for removal of dust, and if so necessary in the opinion of the Engineer-in-charge, shall be washed at cost and expenses of the contractor.

C. COARSE AGGREGATE FOR LIME CONCRETE WORKS:

(i) Brick aggregate for lime concrete and in foundation or flooring shall consist of approved, clean, hard and well burnt jhama khoa. The khoa must be well graded and unless otherwise specified shall pass through 32 mm. ring.

(ii) Brick aggregate for LIME TERRACING WORK on roof shall of khoa broken from 1st class brick bats and unless otherwise specified shall pass through 25 mm ring and be suitably graded.

D. SAND:

All sand shall be clean, sharp and free from clay, loam, organic or any other foreign matter and shall be obtained from approved source. The contractor shall get the samples of sand to be used in different kinds of work approved by the Engineer-in-Charge before using the same in work. Sand, which in the opinion of the Engineer-in-Charge or his representative is dirty, must be washed to his satisfaction at the cost and expenses of the contractor.

(i) Sand for all cement concrete work must be coarse. The sand shall pass through a mesh, 4.75 mm square measured in the clear. Sand shall not be used for concrete works of it contains more than 10% of fine grains passing through a 76-mesh sieve as used for cement test, nor should the fineness modules be less than 2.00 unless specific permission is obtained from the Engineer-in-Charge.

(ii) Medium sand may be used for cement mortar for masonry, plaster, etc. and also for bituminous works of road. Fineness modules shall be between 2.0 to 1.8 Sand filling in plinth, where specified may be done with fine sand, fineness modules shall be between 1.8 to 1.5 contractor shall obtain the approval of the Engineer-in-Charge regarding the source from

which fine aggregate is obtained. Unless otherwise specified it shall be obtained from Mogra, preferably.

E. SURKI:

Surki shall be made from well burnt 1st class brick bats, ground to pass through a mesh 2 mm. each way, and shall be perfectly clean and free from any foreign matter.

F. LIME:

All lime shall be freshly burnt and slaked and screened before use. The slaking should be done at site of work. Lime for works including roof terracing shall be bisra, satna or other approved stone lime. The specification covers lime as used in construction of buildings and other structure as described below (refer P.W.D. standard specifications, chapter II and IS: 712 - 1973).

a) Quick lime shall mean a calcined material, the major part of which is calcium oxide in natural association with a relatively small amount of magnesium oxide and capable of slaking with water.

b) Fat lime shall mean the lime which has high calcium oxide content (between 95 and 100%) and is dependent for setting and hardening on the absorption of carbon-di-oxide from the atmosphere. This is defined as Class - C in IS: 712 - 1973 which is used for finishing coat in plastering, white washing, etc., and with addition of pozzolanic material (surki) for masonry mortar.

c) Hydraulic lime shall mean the lime which contains small quantities of silica and alumina and/or iron oxide which are in chemical combination with some of the calcium oxide content, giving a putty or mortar that has the property of setting and hardening under water.

d) Hydrated lime shall mean a dry powder resulting from treatment of quick lime with water enough to satisfy its chemical affinity for water under the conditions of hydration.

CLASSIFICATION OF LIME

Class - A: Eminently hydraulic lime (containing 25% to 30% of clay) used for foundation and other hydraulic structures shall be supplied as hydrated lime only and should be used particularly in any masonry work below G. L. It should be noted here that no masonry work below G. L. should be taken up with the use of any other lime, other than specified hydraulic lime. In case of doubt, if any, in respect of hydraulic lime being used in work below G. L. it is preferable not to use lime mortar at all below G.L.

Class - B: Semi hydraulic lime (containing 15% to 20% of clay) used for mortar for masonry work.

Class - C: Fat lime used mainly for lime punning, white washing and with suitable admixture, such as surki or any other pozzolanic material to produce artificial hydraulic mortar.

G. CEMENT:

(a) Cement shall confirm to IS: 269 - 1989, IS: 455 - 1976, IS: 8112 – 1989, i.e. it may be PPC, PSC or OPC of 33 or 43 Grade of approved make.

(b) No cement excepting those approved by KMDA shall be used in work or left unused at the site by the contractor. Cement at site shall be stored in dry weather proof godowns (shed) built at the cost of the contractor in stacks which are not higher than 10 bags. Sufficient space shall be provided for circulation and ratio of bags in order to minimize the time of storage of

any of the bags. The floor of the godown shall consist of wooden planks raised at least 45 Cm. from ground and joints frouted with cement mortar.

(c) The contractor after purchase of cement from any authorised dealer/supplier shall satisfy himself and the Engineer-in-Charge about the quality of the same. In case the Engineer-in-Charge has any doubt regarding the quality of cement, the same shall be tested at the contractor's own expenses and make sure that the cement is of approved quality conforming to IS specifications, cement which is partially set or which is lumpy or cracked is to be treated as damaged and shall be removed from site immediately.

H. STEEL:

All steel shall be made clean and free from loose mill scales, dust, loose rust and coats of paints, oil or other coatings, any scale or loose rust shall be removed before use, even though, the same may have been tested by the Engineer-in-Charge in KMDA, for which necessary charges would have to bear by the agency, as and when required. No steel excepting those supplied by the authorised dealer/supplier shall be used in work or brought to site by the contractor.

(a) Mild steel reinforcement bars shall be of 'Grade – I' and shall conform to the latest edition of IS: 432.

(b) Where deformed high strength reinforcement bars are specified. The contractor shall use Tor steel confirming to the latest edition of IS: 1786 and IS: 1139. No reinforcement steel (HYSD bars) other than **SAIL/TATA/RINL**, will be permitted to use at any circumstances.

I. TIMBER:

All timber shall be of best quality well-seasoned and/or well treated for preservation and protection against decay etc. It shall be uniform in substance, straight in fibers, free from large of dead knots, sap, flaws, sun-cracks, shakes or blemishes of any kind. Any insect damage or splits across the grain shall not be permissible. The colour of the timber shall be uniform throughout, firm and shining with a silky luster when planed and shall not emit dull sound when struck.

GLASS:

All glasses shall be of the specified type, colour, visibility and sound shall be free from cracks, flaws, specks, bubbles and blemishes and shall not weigh less than 7.4 kg/Sqm unless otherwise specified.

J. TIMBER DOORS, WINDOWS, ETC. AND THEIR FITTINGS:

(i) Door and window works shall be carried out as per detailed drawings or as directed by the Engineer-in-Charge. Specified timber shall be used, and swan in the direction of the grains and shall be straight and square.

(ii) Fittings shall be of iron, brass, aluminium or as specified. These shall be well made, reasonably smooth and free from sharp edges, corners, flaws and other defects. Screw holes shall be counter sunk to suit the head of the specified wood screws. Iron fittings bright or black enameled or copper oxidized. Brass fittings shall be finished bright (brass), oxidized, or chromium plated (Electroplated) and aluminium fittings shall be finished bright or anodized, or as specified. Fittings shall be got approved by the Engineer-in-Charge before fixing. In case of renewal of works, the new fittings shall, as far as possible match with the existing ones. Screws shall be driven home with screw driver and not hammered in.

K. PAINTS ETC.:

All paints shall be delivered in strong containers, marked with the colour of the paint, brand, volume of paint content in liters and of the best quality of approved make and brand as approved by the Engineer-in-Charge. Under no circumstances shall the paint be diluted with linseed oil or otherwise. Any paint or enamel although of approved brand which so hardness in the container that it cannot be readily broken up with a stirrer to a smooth uniform painting consistency shall be rejected. Any paint or enamel too thick for proper brush application shall be rejected. The approved brands of Synthetic Enamel Acrylic Emulsion, distempers, ready mixed oil bound paint are given in the chart annexed.

APPROVED BRANDS OF DIFFERENT TYPES OF PAINTS AND PRIMER

Sl. No.	Description	Shalimar Paints	ICI	Jension & Nickolson	Asian Paints	Killick Nixon Ltd.
1.	a) 1st quality synthetic enamel (IS 2932) (Hi – gloss) b) Steel and wood primer	Superlac synthetic	Dulux synthetic	Borolac	Apcolite Synthetic paint	—
2.	a) Wall paint	—	—	—	—	Snowcem Plus

(B) EXECUTION

GENERAL:

All works shall be carried out in proper workman like manner. Items of works not covered by the following shall be carried out as per best practice according to the Engineer-in-Charge and to his entire satisfaction. "Unless otherwise specified in this section or in the description of them, the cost of all stages of works mentioned here under shall be deemed to have been included in the rates of items provided in the Schedule".

1. EXECUTION OF FOUNDATION AND FILLING UP TRENCHES:

1.1 Foundation when excavated to the level shown in the drawing shall be shown to the Engineer-in-Charge and, if on account of bad ground or for any reason whatsoever, he decides to go deeper with the foundation, the contractor shall excavate further to the depths required by the Engineer-in-Charge. In no case shall the foundation soling or concrete be laid prior to receiving orders to that effect from the Engineer-in-Charge or his authorized representative.

1.2 Excavation shall include throwing the excavated earth at least one meter or half the depth of excavation, whichever is more, clear of the edge.

1.3 The excavated areas around the foundations of structures are to be filled up properly to the required levels with the earth obtained from excavation or other materials asdirected, well rammed after watering and consolidated in layers not exceeding 15 Cm. at a time. The quantity for this item of work will be measured on the basis of quantity of excavation paid for less the volume occupied by the structure in foundation.

2. LIME CONCRETE:

2.1 Lime concrete in foundation or in the flooring shall be prepared by mixing graded jhama khoa with wet ground lime mortar, as specified by the Engineer-in-Charge. Boxes of suitable size say 36 Cm x 26 Cm and 40 Cm deep shall be used for measuring the material. While measuring the aggregate, shaking, ramming or hammering shall not be allowed.

2.2 The mixing shall be done by hand or mechanical mixer when so specified.

2.3 Hand mixing shall be done on clear and watertight masonry platform of sufficient size to provide ample mixing area. Brick aggregates shall be well soaked with water for a minimum period of 2 hours. The specified wet lime mortar shall be laid on the top of the aggregate. The whole shall then be turned over and over with addition of necessary quantity of water till uniform mix of required consistency is obtained. The consistency of concrete shall be such that mortar shall not tend to separate from the coarse aggregate. Lime concrete shall be laid (and not thrown) in layers while it is quite fresh. Each layer shall be thoroughly rammed and consolidated before the succeeding layer is placed. Consolidated thickness of such layer shall not exceed 1.5 Cm. Joints where necessary shall be staggered in different layers. Ramming shall be done by heavy iron hammers 4.5 kg. to 5.5 kg. and the area of the hammer shall not be more than 300 Cm^2 each and it shall be continued till skin of mortar covers the surface completely.

Concrete laid on the particular day shall be consolidated thoroughly on the same day before the work is topped. Ramming on the following day shall not be done.
After the concrete has begun to harden i.e. about 24 hours after its layering, the curing shall be done by keeping the concrete damp with moist gunny bags, sand, or any other material approved by the Engineer-in-Charge for minimum period of 7 (seven) days. Till then, masonry and flooring work over the foundation or base concrete shall not be started.

CEMENT CONCRETE WORK (PLAIN OR REINFORCED):

2.4 **GENERAL:**

P.C.C. shall mean plain cement concrete R.C.C. shall mean reinforced cement concrete.

2.4.1 All concrete work, plain or reinforced shall be carried out strictly in accordance with this specification and any working, drawing or instructions given from time to time to the contractor. The relevant clauses of IS 456 :2000 shall also to be followed.

2.4.2 **ALLOW IN RATES FOR CONCRETE ITEMS:**

Apart from various factors mentioned elsewhere in the tender, rates quoted for all concrete items shall include for:

a) All labour, materials, use of equipment, tools and plants etc.

b) All necessary operations for the proper volume batching, mixing, handling, transporting, placing, mechanical vibration, consolidation, curing of concrete as directed, hacking of concrete surfaces where they hards to receive plaster (but the plaster on concrete surface shall be measured and paid separately under respective plaster items) etc.

c) Pouring concrete around reinforcement for reinforced concrete work but reinforcement shall be measured and paid for separately, unless otherwise stated in the tender.

d) Rates quoted for all concrete items shall include for concreting of structural members of any shape and sections as per drawings including providing slopes to slabs, beams, chajjas, canopies, etc. wherever required from work shall be measured and paid separately.

e) Allowing work of other agencies being carried out by then like laying conduits, boxes, pipes, clamps, etc. as directed before laying concrete and coordinating with other agencies viz. Electrical, Air-conditioning, ventilation, fire contractors and other agencies working on site.

f) Filing the bolt holes (of the shuttering) on concrete surface with cement mortar 1.3 and finishing the same as directed by the Engineer-in-Charge.

g) The contractor's rate shall allow for wastage in all materials as well as tests of materials and concrete.

2.4.3 No concrete shall be cast in the absence of the Engineer-in-Charge or his authorized representatives. The contractor's engineer shall personally check that both the form work and reinforcement have been correctly placed and fixed, and shall satisfy himself that all work preparatory to the casting in completely ready, before intimating Engineer for final inspection and approval and for which purpose at least 24 hours' notice shall be given by the contractor.

2.5 **MATERIALS:**

2.5.1 **CEMENT:**
Cement shall be strictly according to the Clause - G of the Technical Specification laid down above.

2.5.2 **FINE AGGREGATE:**

Fine aggregates for cement work shall be sand conforming to the Clause No. - D of the Technical Specification laid down above.

2.5.3 **COARSE AGGREGATES:**

2.5.3.1 Coarse aggregates unless otherwise specified, shall consist of hard, dense, tough, durable, clean and uncoated crushed rock of Chandil or pakur variety.

2.5.3.2 The aggregates shall be more or less cubical. Elongated and flaky chips shall be avoided. Aggregates shall be free from injurious amounts or alkali, organic matter and other deleterious materials. The maximum amount of deleterious materials shall not exceed the amount specified in the relevant I. S. Specification.

2.5.3.3 Aggregates may be 'Graded Aggregated' or 'Single Size Aggregates' combined to the proportions as laid down in Clause No. B of the Technical Specifications laid down above. Choice of aggregate shall be entirely the discretion of the Engineer-in-Charge.

2.5.3.4 Where so directed by the Engineer-in-Charge aggregates shall be washed by approved methods at contractor's own cost.

2.5.3.5 The sample of coarse aggregates for concrete work shall be produced before the Engineer-in-Charge for his approval and the whole work shall be done with the coarse aggregates conforming to the approved sample.

2.5.3.6 **MATERIALS:**

Maximum size of aggregate shall be restricted to 5 mm less than the minimum clear distance between the main bars in case of reinforced concrete work.

2.5.4 **WATER:**

Water used for both mixing and curing shall be portable and free from injurious amounts of deleterious materials which are likely to affect the strength or durability of concrete. Water containing any sugar shall not be allowed for use. Also, water which fails to satisfy the following requirements shall not be used.

a) To neutralize 200 ml sample of water, it should not require more than 10 ml of 0.1 normal HCI.
b) To neutralize 200 ml sample of water, it should not require more than 2 ml of 0.1 normal NaOH.
c) Water should not contain solids in exceeds of the following:

Organic	200 mg/liters
Inorganic	3000 mg/liters
Sulphate (as SO_4)	500 mg/liters
Chloride (as Cl)	2000 mg/liters for P. C. C.
Chloride (as Cl)	1000 mg/liters for R. C. C.
Suspended matter	2000 mg/liters

The pH value of water shall be between 6 to 8.

2.6 **PROPORTIONING OF INGREDIENTS:**

2.6.1 Aggregates and cement shall be mixed in the proportion laid down in the schedule. No concrete leaner than 1:2:4 nominal mix shall be used for reinforced concrete work. In case, strength instead of mix of concrete is specified in the item the mix to be adopted and the slump to be allowed to give the

specified strength and proper workability shall be determined previously by experiments with representative samples of the materials to be used and under conditions similar to those to be adopted in the actual job. These experiments are to be done by the contractors at their own cost under the direction and supervision of the Engineer-in-Charge. When the mix to be adopted is decided upon it shall in no case be altered without specific written permission from the Engineer-in-Charge. The contractors shall, however, remain fully responsible for producing concrete of specified strength in the actual job.

2.6.2 The minimum compressive strength for different grades of concrete with nominal mix shall be as follows while tested on 15 Cm. cubes at 28 days after mixing, test being conducted in accordance with I. S. 516 – 1989.

1:1½:3 mix concrete	200 kg/Cm^2
1:2:4 mix concrete	150 kg/Cm^2
1:3:6 mix concrete	100 kg/Cm^2

The above minimum strengths of different grades of concrete should be obtained On Works Test as defined in IS 456 :2000.

2.6.3 For the purposes of ensuring the above strengths during actual construction the contractors shall carry out, if so desired by the Engineer-in-Charge, Preliminary tests as defined in IS 456 :2000on 15 Cm cubes at 28 days after mixing in which case the minimum compressive strength shall be as follows:

1:1½:3 mix concrete	200 kg/Cm^2
1:2:4 mix concrete	200 kg/Cm^2
1:3:6 mix concrete	135 kg/Cm^2

2.6.4 The cost of carrying out such Works Tests and Preliminary Tests shall be entirely borne by the contractors and no extra claim whatsoever shall be entertained on this account. This point shall be taken into consideration while quoting rates.

2.6.5 In case of fine aggregate, allowance will have to be made for bulking. As the bulking of sand may vary from day to day and at different parts of the day on account of varying moisture contents, frequent tested for bulking shall be carried out with the sand to be used and the amount of bulking allowed for in the field mix so as to keep the actual properties constant throughout. Cost of all such tests shall be borne by the contractors.

2.7 MIXING OF CONCRETE:

Concrete shall be mixed in a Mechanical mixer. Mixing shall be continued until there is a uniform distribution of materials and the mass is uniform in colour and consistency. The mixing time from the time of adding water shall be in accordance with IS: 1971 - 1968, but in no case, mixing shall be done in less than two minutes.

2.7.1 Hand mixing shall not be permitted except in unavoidable circumstances, but the same shall be purely at the discretion of the Engineer-in-Charge. When hand mixing is permitted by the Engineer-in-Charge it shall be ensured that the mixing shall continue until the mass is uniform in colour and consistency. The contractor shall also use 10% extra cement lover the design requirement for hand mixing for which no extra payment shall be made to the contractor.

2.7.2 The mixed concrete shall have slump as decided by the Engineer-in-Charge for a particular job or a part of a job. All arrangement for frequent test of slump of concrete are to be made by the contractor at his own cost.

2.8 PLACING AND COMPACTION OF CONCRETE:

2.8.1 Before placing the concrete, the forms shall be cleaned of all loose materials. When concrete is deposited against stone work, brick work or other surface likely to absorb moisture, such surface must be thoroughly wetted immediately prior to deposition of concrete. Depositing concrete under water shall not be allowed without specific permission of the Engineer-in-Charge and in the case the concrete shall contain at least 10% more cement than that required for the same mix placed in the dry, for which no extra payment will be made to the contractor.

2.8.2 All concrete shall be placed in position as rapidly as possible before initial set commences. Concrete shall not be dropped into position from a height of more than 1 meter. The concrete shall be deposited a nearly as practicable in its final position to avoid re – handling. Care shall be taken to avoid segregation of cement and displacement of reinforcement.

2.8.3 During placing and also immediately after deposition, the concrete shall be thoroughly compacted by the use of approved mechanical vibrators until the concrete has been made to penetrate and fill all the spaces between and around the steel reinforcements and other embodied fixtures and in the corners of form work in such manner as to ensure a solid mass entirely free from voids. While vibrating the concrete care should be exercised to ensure that there is no segregation of aggregates of mortar. Sufficient number (of concreting of 1.5 Cum. per hour) of adequate capacities shall be used for compaction of concrete. In special cases where mechanical vibrators cannot be used the concrete may be thoroughly compacted by ramming, packing etc., with prior permission of the Engineer-in-Charge. The workability of the mix shall be controlled to suit such mode of compaction.

2.8.4 Concrete after being placed and compacted shall not be jarred, walked on or otherwise disturbed during initial setting.

2.9 CONSTRUCTION JOINTS AND EXPANSION JOINTS:

2.9.1 Concreting shall be carried out continuously up to construction joints the position and arrangement of which shall be predetermined in consultations with the Engineer-in-Charge. Rest, recess for meals etc., shall be subject to the approval of the Engineer-in-Charge. All joints in beams and other horizontal members are to be formed by inserting temporary vertical boards against which the concrete to be deposited can be properly rammed, In the case of horizontal joints any excess water shall be removed from the surface after the concrete is deposited and before it has set.

2.9.2 When the work has to be resumed on a surface which has partly or wholly set such surface shall be well roughened and all loose materials removed. The surface shall then be swept clean thoroughly wetted and covered with a 19 mm. layer of mortar composed of equal parts of cement and sand. Such works shall be held to be covered by the rates quoted for concrete works. No separate claim for such works shall be entertained.

2.9.3 Expansion joints shall be provided where required. Details of the joints and filler to be used shall be as per relevant specification and shall be approved by the Engineer-in-Charge. Contractor must submit the details well in advance for approval.

2.9.4 All concreting work should be so programmed as not to necessitate work at night. If for any reason this becomes imperative the contractor shall obtain previous permission of the Engineer-in-Charge and take proper precautions to ensure satisfactory execution of work. No extra charges will be paid on this account.

2.10 PROTECTION AND CURING:

2.10.1 The contractor shall adequately protect freshly laid concrete from rapid drying at the top due to strong sunshine, drying winds, etc. and also from running of surface water and shocks.

2.10.2 The contractor shall make satisfactory arrangements to protect freshly laid concrete during showers by providing the tarpaulins on top and sides at their cost failing which the casting of concrete shall be stopped at the risk and cost of the contractor.

2.10.3 All concrete shall be cured with fresh water for a minimum period of 14 (fourteen) days after concreting or as advised by the Engineer-in-Charge. Horizontal surfaces shall be kept covered with water prone by means of bundhs and vertical surface by burlaps kept constantly wet with water sprays. Mere sprinkling of water on vertical surfaces without sacks and burlap will not be allowed.

2.10.4 The rates quoted by the contractor for concrete shall include all cost of protection and curing of concrete.

2.11 TEST FOR CONCRETE:

Tests shall be conducted accordance with relevant IS Code of practice.

a) The contractor shall provide all labour, materials and appliances required for making test specimens for experiments and for testing the quality of concrete going into the job. All costs in connection with carrying out Works Tests and Preliminary and any other related tests in the Central Laboratory, KMDA or National Test House or any other laboratory approved by the Engineer-in-Charge / appointed consultant shall be entirely borne by the contractor and no extra claim whatsoever shall be entertained on this account.

b) Work test cubes shall represent the quality of concrete incorporated in the work. The concrete for preparation of one set of cubes shall be taken from one batch of mixed concrete discharge from mixer. Each set of specimens shall generally consist of 4 nos. 15 Cm. size cubical specimens. Occasionally set of specimens will however be made as per direction of the Engineer-in-Charge/appointed consultant for provision of testing of 2 specimens for 7 (seven) days strength. The specimens shall be moulded in accordance with the relevant Indian Standard Code of Practice.

c) The minimum of one set of 4 specimens (occasionally 6 nos. as mentioned in (b) above) shall be taken for every 20 Cum. or part thereof of concrete poured and they shall be considered and representative for said quantity.

d) The specimens shall be cured as per I. S. Code of practice. Out of four specimens (occasionally six as stated in (b) above) in each set of Engineer-in-Charge will arrange to have any two tested in the Central Laboratory, KMDA, or any the laboratory approved by the Engineer-in-Charge in case of deficiency in strength after 28 days curing, if however, the contractor so desires, the Engineer-in-Charge may send the remaining two specimens for testing of strength at the National Test House, Alipore whose report shall be binding on all parties concerned. Two specimens out of six specimens, occasionally made may, however, be tested for 7 (seven) days strength if the Engineer-in-Charge so desires. If a set passes the 7 (seven) days strength requirement but fails in the 28 (twenty-eight) days' strength requirement, the acceptance of the concrete, represented by the set shall be determined on the basis of 28 (twenty-eight) days strength only. 7 (seven) days' strength result may be used as a guide to adjust the design of the mix for future concreting.

e) The test specimens will be initialed, numbered and dated jointly by the contractor's engineer and the Engineer-in-Charge of his authorized representative.

f) A proper register of test specimens shall be maintained showing all relevant details viz. reference to structural member receiving the batch of concrete from which the specimens are cast, mark on specimens, mix of concrete, date and time of casting, water cement ratio, slump, crushing strength required for 7 (seven) days sand 28 (twenty eight) days, crushing

strength obtained after 7 (seven) days (if conducted) and 28 (twenty eight) days, laboratory in which tested, reference to test certificate and any other information.

2.12 **ACCEPTANCE CRITERIA FOR ACCEPTANCE OF CONCRETE OF A SPECIFIED GRADE SHALL BE IN ACCORDANCE WITH IS 456 : 2000**

2.12.1 If any one out of 10 consecutive test cubes show a deficiency in strength up to a limit of 10% but the average strength of all test module equals the stipulated strength, the concrete will be deemed to be satisfactory, but if the average fails to reach the stipulated strength the concrete will be deemed less satisfactory and a deduction of 1% shall be made from the cost of such volume of concrete as will be determined by the Engineer-in-Charge to be represented by 10 test moulds. If two of the 10 consecutive test cubes show a deficiency in strength up to a limit of 10% deduction of 2% will be made on the cost of such concrete. If out of consecutive test cubes three are deficient in strength up to a limit of 10%, 5% deduction on cost of such concrete will be made. If more than three test specimens prove deficient in strength up to a limit of 10% the concrete will be rejected and shall be replaced by concrete of stipulated strength at the entire cost of the contractor. The Engineer-in-Charge, may however, allow such concrete to remain in position but in that event a deduction of 10% from the cost of such concrete will be made.

2.12.2 If only one out of 10 consecutive test cubes fail deficient in strength by more than 10% but not more than 205, 2% deduction in cost of such volume of concrete as will be determined by the Engineer-in-Charge to be represented by the 10 test moulds shall be made. If two out of 10 specimens show similar deficiency, a deduction of 10% on cost of such concrete may be accepted by the Engineer-in-Charge after a deduction of 205 from cost of such concrete. If more than three test cubes cross the limit of 10% deficiency in strength the concrete will be rejected, dismantled and replaced by the concrete of specified strength. The entire cost of such replacement will have to be borne by the contractor.

2.12.3 In no cases, however, any test mould should register a strength less than 30% of the stipulated strength. If any one of the group of 10 shows such results the entire concrete will be rejected and this will have to be replaced by concrete of stipulated strength at the cost of the contractor. In all cases of concrete of deficient strength, the volume of concrete on which reduction in rate will apply or which will be replaced by good concrete of adequate strength will be determined by the Engineer-in-Charge and his decision of in such matters will be final.

2.12.4 When any rejected concrete shall have to be dismantled and replaced and replaced to the satisfaction of the Engineer-in-Charge by the contractor free of cost to the employer, it shall be carried out carefully to not disturb the adjoining portion of the structure. If any damage is done to the embedded items or adjacent structures, the same shall also be made good free of charge by the contractor to the satisfaction of the Engineer-in-Charge.

2.12.5 In no case, any extra rate shall be paid for any concrete showing strength higher than specified strength.

3. STEEL REINFORCEMENT:

3.1 Tor steel reinforcement bars (HYSD Fe415/Fe500/Fe550 or else of higher yield strength) of make SAIL/TATA/RINL and approved by the Tender Inviting Authority/Engineer-in-Charge in KMDA, shall be used for reinforcement in reinforced cement concrete work.

3.2 Before the reinforcement bars are cut, the contractor shall study the lengths of bars required as per drawings and shall carry out cutting only to suit the sizes required as per drawings. The contractor's rate shall include the cost of initial straightening of the bars whenever necessary and removing oil, paint, grease, mud and any loose rust scales and other incidental works in this connection.

3.3 Reinforcement shall securely be placed in position and frilly supported and wedged by precast concrete blocks of suitable thickness at sufficiently close intervals so as to ensure the desired cover at every place. Where necessary, separator bars and chairs of suitable dimensions are to be provided by the contractor.

3.4 Bends, cracks, hooks, etc., or steel reinforcements shall be carefully formed and shall be maintained according to the stipulations of the relevant IS Code. Heating of reinforcement to facilitate bending will not be permitted. If any bend shows signs of brittleness or cracking, the rod shall be removed from the site. The reinforcement shall be securely bound at every intersection of bars with 16-gauge black annealed wire.

3.5 If bars of exact required length are not available, these shall be cut from such lengths of available bars as will involve minimum wastage in cut pieces. Number of laps in reinforcement shall be kept to the minimum. The position, staggering etc. of laps shall be subject to the approval of the Engineer-in-Charge, Laps occurring in bars in tension and compression shall have a minimum length as stipulated in IS Code (40 times the diameter of bars in the case of tension and 25 times the diameter of bars in the case of compression).

3.6 If desired by the contractor, welding by gas or electricity may be permitted by the Engineer-in-Charge in lieu of laps of reinforcement under suitable conditions and with suitable safeguards.

No extra payment shall be made to the contractor if he/she opts for welding.

3.7 Payment for the reinforcement work shall be made on the calculated weight of steel reinforcement as will be obtained from drawing excluding the weight of binding wires. Only such laps, dowels, chairs and pins in reinforcements as approved by the Engineer-in-Charge or shown on drawings shall be paid for. The contractor shall allow in his quoted rates for all wastages which will not be paid for separately.

4. SHUTTERING AND STAGING:

4.1 GENERAL:

The contractor shall be responsible for the preparation and for the design of shuttering, propping and staging required for all R. C. C. works. They shall supply the drawings for above well in advance before the proposed date of concreting of any particulars unitand get approval to the same by the Engineer-in-Charge. The contractor shall be very careful for design and erecting of staging so as not to cause any damage to the structure or to the workmen and supervisory staff, and they shall be very careful regarding the safety of such staging. The contractor shall remain entirely responsible for the safety of shuttering and staging.

4.2 Materials:

4.2.1 Sufficiently rigid steel shuttering must be used for retaining walls, beams, columns, slabs, lift walls etc. In other cases, like chajjas, lintels, shelves etc. timber shutter may be used. In cases of columns ply board shuttering (12 mm.) may be used subject to the approval of Engineer-in-Charge. In other cases, 25 mm. to 30 mm. thick wooden shuttering with hard wood or 9 mm. to 12 mm. thick approved quality ply board shuttering may be used approved by Engineer-in-Charge. All form works must be made reasonably tight against leakage of liquid from concrete. It is the contractor's responsibility to ensure that the forms are checked for water tightness just before concerting operations starts and to make good any deficiencies. If instructed by the Engineer-in-Charge tarred building papers or polythene sheets shall have to be used by the contractor without by extra charge for the same.

4.2.2 Staging shall be made of steel pipes (Acro Bars) approved by the Engineer-in-Charge. Salbullah props may be used in some cases like lintels, Tins, chajjas etc. subject to the approval of Engineer-in-

Charge. Bamboo props shall never be used unless it is specifically permitted by the Engineer-in-Charge.

4.3 **WORKMANSHIP:**

4.3.1 The form shall conform to the shapes, lines and dimensions to suit the R. C. C. members as shown on drawings. From works shall be adequately designed to support the full weight of workers, staff, freshly laid concrete and reinforcements without yielding settlement or deflection and to ensure good and truly aligned concrete finished in accordance with the construction drawings.

4.3.2 The scaffolding shall be carried out to afford adequate and shall remain in position until the newly constructed work is able to support itself. Props shall be securely braced against lateral deflection. The spacing of struts shall be designed to carry loads imposed on it without undue deflection of the members supported by the props. The spacing of props shall be approved by the Engineer-in-Charge and any alteration suggested by him shall be carried out at the contractor's expenses. Bracing shall be provided without extra cost. Splicing of staging may be permitted by the Engineer-in-Charge under specific circumstances.

4.3.3 All rubbish, particularly chipping, shabings and saw dust must be removed from the interior of the form before the concrete is placed and the form work in contact with the concrete shall be cleaned and thoroughly wetted before the concrete is placed. Oiling shall not be permitted when the surface are intended to receive plaster.

4.4 **STRIPPING OF SHUTTERING:**

In normal circumstances and where ordinary Portland cement is used forms of vertical sides shall be struck after expiry of the periods as per IS 456 :2000, unless otherwise directed at site by the Engineer-in-Charge.

All forms work shall be removed without such shock or vibrations as would damage the concrete. Proper precaution shall be taken to all for the decrease in the rate of hardening that occurs with all cements in cold weather.

4.5 **TOUCHING UP:**

Surfaces which become exposed on removal of shuttering shall be carefully examined by the Engineer-in-Charge. If any shape projections are detected, those shall be removed under the instructions from the Engineer-in-Charge. After the examinations by the Engineer-in-Charge all holes and honey combs shall be made good with the process suggested by the Engineer-in-Charge and for this purpose nothing will be paid extra to the contractor. The contractor shall not touch surface of the concrete until and unless specifically directed by the Engineer-in-Charge.

5. BRICK WORK:

5.1 All brick works shall be carried out with 1st class bricks of approved quality. Cement Mortar shall be prepared by mixing sand ad cement in specified proportion. Sand shall be measured on the basis of its dry volume. In case of damp sand, its quality shall be increased suitably to allow for blockage. Water used for preparation of mortar shall be potable and free from deleterious organic materials.

6. DAMP PROOF COURSE:

This shall be laid to specified thickness over walls for the full thickness of the super structure walls. The surface shall be leveled and prepared before laying the cement concrete. Edges of damp proof course shall be straight, even and vertical side shuttering shall consist of wooden form and shall be

strong and properly fixed so that it does not get disturbed during compaction and the mortar does not leak through. The concrete mix shall be of workable consistency and shall be tamped thoroughly to make a dense mix. When the sides are removed, the surface should come out smooth without any honey combing. The damp proof course shall be laid continuous and the surface shall be double checkered. Damp proof course shall be cured for at least seven days, after which it shall be allowed to dry. Water proofing materials of approved quality shall be added to the concrete mixture in accordance with the manufacturer's specifications stating the quality of water proofing material in liters or kg. per 50 kg. of cement and will be paid for separately.

7. CEMENT PLASTER:

The proportion for mortar for exterior or interior plaster shall be as specified in the item of work. The plaster shall be of thickness as specified and the surface shall be similarly cured as for cement concrete. The moulding shall be carried out as shown in the drawing and shall be separately measured in overall lengths unless otherwise specified in the items. Interior corners and edges of openings if so, directed by the Engineer-in-Charge shall be rounded off or chamfered with the same mortar for which no extra payment will be allowed. All cement concrete surface should be chipped off properly before taking up the plastering work. The walls to receive plaster shall be thoroughly cleaned off moss and blisters before the commencement of work.

8. WHITE WASHING, COLOUR WASHING:

8.1 PREPARATION OF SURFACE:

All surfaces for white washing colour washing and painting shall be thoroughly brushed free from mortar dropping and foreign matter and prepared to the satisfaction of the Engineer-in-Charge before application of the treatment. Before white washing all the nails etc. have to be removed from the walls and all nails or other holes, small depressions or damages in plaster on wall surface shall be filled or repaired to original condition with lime paste. Old surfaces spoiled by smoke and greasy soot shall be sprinkled with surki and water and rubbed with brick bats or steel wire brushes or steel scrapers. The surfaces shall then be broomed to remove all dust and shall be washed with clean water.

8.2 PREPARATION OF WHITE WASH:

The white washing is to be done with 5 parts of stone lime and one part of shell lime with necessary gum (2 kg. per Cum. of lime) using indigo as necessary and to be mixed as per standard practice.

8.3 PREPARATION OF COLOUR WASH:

Colour washing shall have a primer of white wash and shall be of shade as approved by the Engineer-in-Charge. Sufficient quantity of colour wash enough for complete job shall be preparation one operation to avoid any differences in shade.

8.4 APPLICATION OF WHITE AND COLOUR WASH:

The operation for each coat shall consist of four consecutive strokes of the brush one horizontally from right to left and the next form left to right and the third stroke bottom upward and the fourth from top downward before the previous stroke dries. Each coat shall be allowed to dry before the next coat is applied. No portion of the surface shall be left out initially to be patched up later on. The brush shall be dipped in white wash or colour wash pressed lightly against wall full swing of hand. The white wash on ceiling should be done prior to that on walls.

8.5 **PROTECTIVE MEASURE:**

Surfaces of doors, windows, floors, articles of furniture, beams, burghas etc. and such other parts of the buildings not to be white washed or colour washed shall be protected from being splashed upon. Such surfaces shall be cleaned of white or colour wash splashes, if any.

9. PAINTING:

All surfaces for painting shall be properly sand papered and cleaned and where necessary good quality putty shall be used to hide all holes, cracks, open joints etc. The rate for painting shall include all such works. Paint shall be applied with approved brushes and surfaces shall be sand papered after every coat. All work when completed shall present a smooth, clean, solid and uniform surface, to the satisfaction of the Engineer-in-Charge.

9.1 **SYNTHETIC ENAMEL PAINT:**

Synthetic enamel paint of approved brand and manufacturer and of the required shade be used for the top coat and an undercoat of shade to match the top coat as recommended by the manufacturer shall be used. Under coat of the specified paints of shade suited to the shade of the top coat shall be applied and not allowed to dry overnight. It shall be rubbed next day with the finest grade of wet abrasive paper to ensure a smooth and even surface free from brush marks and all loose particles dusted off. Top coats of specified paint of the desired shade shall be applied the under coat is thoroughly dry. Additional finishing coats shall be applied if found necessary to ensure uniform surface.

10. ARTIFICIAL STONE FLOORINGS:

10.1 The artificial stone flooring shall be laid in panels of shape and size as directed. The casting of the panels will be so programmed as to prevent bonding on the freshly laid panel with adjacent panels.

10.2 Unless otherwise specified, the underlay shall be with graded stone chips 12 mm. down the thickness of topping shall be of 10mm. thick and colouring pigment as may be required shall only be added with the topping, the topping and the underlay shall not be laid in one operation. After laying the 'Underlay' the surface shall be left out to dry. The topping shall be laid only after the underlay has sufficiently dried and initially set and after thoroughly brushing with hand wire brush and sweeping clean and after application of slurry. The topping shall be finished with an English crewel and a piece of clean dry linen. During all the stages, the required level shall be carefully observed and maintain. Suitable grading, where required shall be provided in the flooring for water drainage as directed by the Engineer-in-Charge.

10.3 The corner between floor and wall shall be round off as directed by the Engineer-in-Charge for which no separate payment shall be made. All cement concrete surfaces should be chipped off properly before taking up the flooring work.

11. CAST IN SITU TERRAZZO FLOORING

11.1 **MATERIALS**

11.1.1 The aggregates used in terrazzo topping shall be marble aggregates of required colour. Marble powder used in terrazzo topping shall pass through I. S. Sieve 30.

11.1.2 Aggregates for terrazzo under layer as well as the base concrete shall conform to the requirements of ordinary cement concrete.

11.1.3 Cement used for floor finish work shall be ordinary cement or white cement of approved quality.

11.1.4 Pigments incorporated in terrazzo shall be of approved make and brand and of permanent colour.

11.1.5 The dividing strip may be of copper, brass, aluminium, plastic, glass or similar materials. Metallic devising strips shall have a protective coating of bitumen. The thickness of strip shall not be less than 1.5 mm. and width not less than 20 mm.

11.2 AGGREGATES AND PROPORTIONING

11.2.1 The under layer shall be of cement concrete 1:2:4 size of coarse aggregate not exceeding 10 mm. The thickness of terrazzo topping shall be not less than the following, depending upon the grads and size of chips used.

Grade No.	Size of Chips	Minimum thickness of Topping
00	1 to 2 mm.	6 mm
0	2 to 4 mm.	
1	4 to 7 mm.	9 mm
2	7 to 10 mm.	12 mm

11.2.2 The mix terrazzo topping shall consist of cement with or without pigments, marble powder, marble aggregates and water. The proportions of cement and marble powder shall be 3 parts of cement and one part of powder by WEIGHT. For every part of cement marble powder mix, the proportion of aggregates by VOLUME shall be as follows depending upon the size and grade of marble aggregates:

Size of Aggregates	Proportion of Aggregate to Binder Mix
For grades 00, 0 and 1	1¾ part
For grades 2	$1^{1}/_{3}$ parts

11.2.3 The proportions of cement shall be inclusive of any pigments added to cement. The proportion in which pigments are mixed with ordinary cement or white cement to obtain different colour to the binder shall be as IS: 2114 – 1962 or as directed by the Engineer-in-Charge.

11.3 WORKMANSHIP

11.3.1 The underlay of cement concrete (1:2:4) shall be done according to the specifications of ordinary cement concrete.

11.3.2 Terrazzo topping shall be laid while the under layer is still plastic but is hardened sufficiently (normally between 18 and 24 hrs).

A cement slurry, preferably of the same colour as the topping shall be brushed on the surface immediately before laying is commenced. The terrazzo topping shall be compacted thoroughly by tamping or rolling and trawelled smooth. Excessive trawelling or rolling in early stages shall be avoided. The compaction shall ensure that air is cleared from the mix.

11.3.3 The surface shall be left dry for air curing from duration of 12 to 18 hrs and then be cured by allowing water to standing pools over it for a period of not less than 4 days.

11.3.4 Grinding and polishing may be done cither by hand or by machine. The first and second grinding shall be done with carborundum stone of Grit size 60 and 80 respectively. After each grinding, the surface shall be washed clean and coated with neat cement grout of the same colour (without marble powder) of cream like consistency and then shall be allowed to dry for 24 hours and wet cured for 4 days. The third grinding shall be done with carborundum stone of Grit size 120 to 15 and the surface shall then be washed clean and allowed to dry for 11 hours and wet cured for 4 days. The fourth grinding shall be clone with carborundum stone of Girt size 320 to 400 and the surface shall then be washed clean and rubbed hard with felt and slightly moistened oxalic and acid powder (5 grams of oxalic acid powder per Sqm. of floor area shall be adequate) and finally the surface shall be washed clean with dilute oxalic acid solution and dried.

11.3.5 During all the stages, the required level shall carefully observed and maintained. Suitable grading where required shall be provided in the flooring for water drainage as directed by the Engineer-in-Charge. The corner between floor and wall shall be rounded off or as directed by the Engineer-in-Charge for which no separate payment shall be made.

12. TERRAZZO WORKS IN PRE – CAST TILES

12.1 The specification for materials and proportioning of aggregates for pre-cast tiles work shall be same as of cast in SITU terrazzo work.

12.2 The tiles shall be manufactured with hydraulic press under approved pressure. The size of the tiles shall be as directed by the Engineer-in-Charge.

12.3 Before setting of the precast tiles an underlay of lime mortar (3:1) of required thickness to meet necessary slope and gradients shall be made. The sides of the tiles shall be set with admixture of pigments and white cement. The tiles shall be so laid that the joints remain truly straight and perpendicular or any other pattern as directed by the Engineer-in-Charge.

12.4 The grinding and polishing of the precast terrazzo work shall be according to the specifications as laid down in the Clause No. 13.3.4 of cast in SITU terrazzo work.

13. RAIN WATER PIPES

The rain water pipes shall be of the materials and of the size as specified. All rain water pipes shall have suitable grating as directed at the inlet openings at roof and shall be fitted and fixed in proper position with necessary offsets, clamps, shoe, Y – junctions and other accessories as required and as directed by the Engineer-in-Charge. The pipes are to be fixed to walls in cement mortar (1:4) with necessary clamps and nails, suitable teak wood blocks being fixed on the walls to receive the nails. Y - junction shall be used at the top of the pipe and the vertical leg thereof shall be provided with a cowl. All joints are to be properly packed. In case the hole is made much larger than the size of the pipe, cement concrete (1:2:4) shall be used to fill the annular space. The pipes with fittings etc. are to be painted with 2 coats of paint.

14. DOOR, WINDOW FRAMES AND SHUTTERS

All doors, window frames must have plaster rabbit 12 mm x 12 mm and rabbit for receiving shutter at least 12 mm deep. Wood work shall not be painted, oiled or otherwise treated before it has been approved by the Engineer-in-Charge. All portion of timber abutting against or embedded in masonry or concrete shall be painted with boiling coal tar, before being placed in position. In place of coal tar, use of approved wood primer shall be permitted. In case of doorframes without sills, the vertical members shall be buried in floor 40 mm. deep. Where sills are provided these sills shall be sunk in the floor to 40 mm. depth and shall rest on damp-proof course. Sills shall be provided, where so directed. The door frames without sills while being placed in position, shall be provided with temporary wooden bracing or dry bricks well wedged between the styles at the sill-level. These shall

be retained to keep the frames from warping during construction. The frames shall also be protected from damages during construction. The shutters shall be so fixed that while closing, the left-hand leaf of the shutters is closed first and the right-hand leaf of shutter overlaps on the left-hand leaf. The overlapping shall be minimum 20 mm. solid wood panels shall be made out of one or more pieces of timber of not less than 125 mm. in width. In order to avoid warping, splitting and cracking, normally piece not exceeding 200 mm. in width should be used. When made from more than one piece, the pieces shall be joined with a continuous tongued and grooved joint, glued together and reinforced with metal dowels. The grains of the solid panel shall run along the longer dimension of the panel. The corners and edges of panels shall be finished as shown in drawings and these shall be feather tongued into styles and rails, a tolerance can be allowed upto 1 mm. Styles and rails shall be properly and accurately mortised and tensioned. Rails which are more than 180 mm. in width shall have two tendons. Styles and end rails of shutters shall be made out of one piece only. Lock and intermediate rails exceeding 200 mm in width may be made out of one or more pieces of timber, but the width of each piece shall not be less than 75 mm. where more than one piece of timber is used, they shall be jointed with a continuous tongued and grooved joint glued together and reinforced with metal dowels at regular intervals not exceeding 200 mm. or pinned with not less than three 40 mm. rust proof pins of the lost head type. Joined pieces of timber shall belong to the same pieces. The tendons shall pass clear through styles. When assembling a leaf, styles shall be left projecting as a horn. The style and rails shall have 12 mm. groove in paneled portion for the panel to fit in. the joinery works shall be assembled and passed by the Engineer-in-Charge and then the joints shall be pressed and secured by bamboo pins of about 6 mm. diameter. The horns of style shall be swan off.

Glass panes shall be fixed by wooden beading having mitred joints. A thin layer of putty shall be applied between glass panes and sash bars and also between glass panes and the beading. Fixing of glass panes with simple putty and beads shall not be permitted. Putty shall be prepared by mixing one part of white lead with three parts of finely powdered chalk and then adding boiled linseed oil to the mixture to form in a stiff paste.

15. DOORS WINDOWS, CLAMPS OR HOLD FASTS

15.1 Unless otherwise specified the clamps shall be fixed to other side of the frame with screws. For the purpose of receiving clamps a recess of at least 12 mm deep of suitable size shall be cut into the frame. After fixing the frame true to plumb with the clamps, the exposed face of the clamps shall be covered by a thin wooden covering fixed with screws.

15.2 The side of the door, window frames, which remain in contact with masonry, shall invariably be painted with a protective coat of paint.

16. SCHEDULE OF FITTINGS

16.1 Fittings shall be of iron, aluminum or as specified. These shall be well made, reasonably smooth and free from edges, comers, flaws and other defects. Screw holes shall be counter sunk the head of specified wood screws. All hinge pins shall be of steel and their riveted heads shall be well formed.

Iron fittings shall be finished bright or black enameled or copper oxidised brass fittings shall be finished bright (brass), oxidised or chromium plated (Electroplated) and aluminum fittings shall be finished bright or anodised or as specified. Fittings shall be got approved by the Engineer-in-Charge before fixing.

16.2 Screws used for fittings shall be of the same metal and finish as the fittings. However anodized brass screws or chromium brass screws shall be used for fixing aluminum fittings.

16.3 Fittings shall be fixed in proper position as shown in the drawings or as directed by the Engineer-in-Charge. These shall be truly vertical or horizontal as the case may be. Screws shall be driven home with screw driver and not hammered in. Recesses shall be cut to the exact size and depth for the counter sinking of hinge.

17. ANTITERMITE TREATMENT

Termite control in existing as well as new building structure is very important, as the damage likely to be caused by the termite to wooden members of building and other house hold articles like furniture, clothing, stationery, etc. is considerable Antitermite treatment can be either (1) During the time of construction i.e. pre constructional chemical treatment or (2) After the building has been constructed i.e.
treatment for existing building.

Prevention of the termite from reaching the super structure of the building and its content can be achieved by creating a chemical barrier between the ground from where the termite come and other contents of the building which may from food for the termites. This is achieved by treating the soil beneath the building and around the foundation with a suitable insecticide.

18. BRICK BAT COBA TERRACE WATER PROOFING TREATMENT

INTRODUCTION

Cement based Brick Bat Coba is a suitable replacement of terrace waterproofing due to its good adhesion with concrete, flexibility to withstand temperature difference, resistant to ultra violet ray and some insulation effect giving it a much longer life of the structure.

Various waterproofing compounds used in this treatment are unique products of reputed manufacturers like Sika Qualcrete Pvt. LTD. Rolf Construction Chemical Pvt. Ltd., Pidilite Industries Ltd. Conforming to ASTM C-494-81 Type: A and IS: 2645 - 1975.

A) HORIZONTAL SURFACE

Operation - I: Concrete surface is cleaned thoroughly and construction joints, if any, are raked opened. Chemical admixed cement slurry is applied on the concrete surface to fill the cracks and other porous area.
Operation - II: A layer of broken bricks/bats is laid over 15/20 mm thick (1:4) cement mortar admixed with non-shrink chemical at a gradient of 1 in 120 or as specified. The joints are usually kept between 15 to 20 mm and l/4th of the joints filled with the same mortar and cured.

Operation - III: Top is provided with a layer of 20 mm thick cement mortar (1:4) admixed with non-stick chemical, filling. The remaining joints and finished smooth with chequered marks.

B) PARAPET/VERTICAL WALL

Operation - IV: Surface is cleaned thoroughly up to the required height (usually 300 mm above the finished surface is adequate) and a coat of cement slurry is applied as in operation - I.

Operation - V: A vatta (Gola) is provided at the junction of slab & vertical wall by hand packing brick khoa in chemical admixed cement mortar (1:4) and finished with a 20 mm thick (1:4) above mortar smoothly. All the mouths of R. W. pipes and other joints finished properly. Curing is done by pending for at least 7 days.

Note:

a) Different chemicals used are plastocrete N @ 0.5%, No leak - CP @ 1.5%, pidiproof- LW @ 0.40%, RBM @ 140 ml /bag of cement, RSM @ 250 ml/bag of cement and Top Seal - 107 (2 coats) or Roft Hyguard (1-coat)

b) A typical sectional detail has been shown in the drawing enclosed herewith in page 68.

19. SANITARY AND PLUMBING WORKS

19.1 GENERAL

19.1.1 All sanitary and plumbing work shall be carried out in proper workman like manner. Items of works not covered by the following specifications shall be carried out as per best practice according to direction of the Engineer-in-Charge and to his satisfaction. Unless otherwise specified here or in the description of items the cost of all stages of works mentioned here under shall be deemed 10 have been included in the rates of items provided in me schedule.

19.1.2 All sanitary and plumbing works should conform to plumbing services as laid down in the "National Building Code of India, 1970".

19.1.3 All cutting holes, chases, trenches etc., at any place necessary in connection with sanitary and plumbing works and subsequent mending damages as per specification and as directed shall be carried out without any extra payment unless otherwise expressly specified.

19.1.4 Safe guarding and proper maintenance in original condition of all sanitary and plumbing works till the handing over of the work shall be responsibility of the contractor.

19.1.5 If not mentioned otherwise in the items themselves, all materials including fittings shall conform to standard laid down by the B. S. I, and bear I. S. I, certification mark where such standardisation has been made. All other materials must be of best quality conforming to the standard laid down by the B. S. I, and duly approved by the Engineer-in-Charge.

19.2 PIPE LINES AND FITTINGS

19.2.1 Unless otherwise specifically mentioned in the hems of work, all sanitary works's shall be of Parryware, Hindustan sanitary ware, Nycer and should bear ISI certification marks, all CP fittings are.to be of "Esco/Jaguar/ Mark brand" all polythene fittings are to be of "Atlas / Pradip / Emco / Grip last" brand.

19.2.2 All G.I. fittings shall be of approved make, as per stipulation on the bill of quantities. For installation of G.I pipe line ail fittings and specials as may be necessary shall have to be fitted and fixed to the line.

19.2.3 The joints of pipes, fittings & accessories shall be made as specified here under and unless otherwise specified, no separate payment shall be allowed,

(i) G.I pipes fittings, valves and cocks with jute and white lead paint.

(ii) Cast iron soil pipes and fittings shall be joined either, the half of the depth of the annular space between spigot and socket shall be packed with up spun yam and the remaining half to be filled up with molten lead well caulked with caulking tools.

or the half of the depth of the annular space between socket and spigot shall be packed with tarred gasket and the remaining half filled up three quarters with valamoid and the top quarter with cement mortar (4:1) and shall Be finished beveled at 45 degrees.

The type of jointing to be adopted in the work shall be as specified in the respective items in the bill of quantities.

(iii) In case of S.W pipes and fittings, the half of the depth of the annular space between socket and spigot shall be packed with tarred gasket and the remaining half shall be filled up with cement mortar (3:1) and shall be finished beveled at 45 degrees.

19.2.4 The joints for C.I soil pipes and fittings shall be tested through smoke test and any defects found shall be rectified thereafter up to the complete satisfaction of the Engineer-in-Charge.

19.3 FLUSHING CISTERN

19.3.1 Flushing cistern of I.P.W.C. & E.P.W.C. will be 10.00 liters pull and let go or low-down cistern types as specified. Flush pipes for urinals shall be made of G.I pipes or polythene pipes with fittings or lead pipes as may be directed by the Engineer – in –Charge. Flushing cistern or urinals shall be automatic flushing and of approved type.

19.4 PAINTING

19.4.1 All G.I and C.I pipes lines and fittings for sanitary and plumbing works shall have to be painted outside with two coats of paint of approved brand and shade. No separate payment shall be allowed on this account and rates of respective items shall be deemed to be inclusive of the work.

19.4.2 All flush pipes and cisterns shall have to be painted two coats with approved shade and brand over a coat of approved primer. No separate payment shall be allowed to the contractor for this purpose.

19.5 SANITARY APPLIANCES

19.5.1 INDIAN TYPE W.C. PANS

The W.C pan shall be of white vitreous china of specified size and pattern wash down type unless otherwise specified. It shall be of back flush inlet type. The pan shall be of approved best quality and shall bear the mark of the manufacturer. The pan shall be provided with a 100 mm 'P' or 'S' trap as specified in the item with minimum 50 mm water seal.

FIXING

The W.C Pan shall be sunk or raised from the general floor as specified, but its surrounding floor shall be sloped towards the pan. Care shall be taken so that the pan is not damaged in the process of fixing; if damaged in any way, it shall be replaced immediately. It shall be fixed in a proper cement concrete base of 1:3; proportion (with a wire netting where required) taking care that the cushion is uniform and even without having any hollows between the concrete base and pan.

The joint between the pan and the trap shall be made with cement mortar 1:1 with jute hessian gasket soaked in coal tar and shall be leak proof.

19.5.2 EUROPEAN TYPE W.C. PAN:

Shall be readily flushed, of wash down type, shall bear the mark of an approved firm and shall be of best quality. The closet shall be of vitreous china were having integrated trap 'P' or 'S' type with or without vent hold right or left as directed.

PLASTIC SCAT AND COVER

These shall conform to IS: 2548-1967. These shall be made of moulded synthetic materials, which shall be tough and hard with high resistance to solvents and shall be free from blisters and other surface defects and shall have C.P. brass hinges and rubber buffers. These shall be free from twist and the underside shall be flat and underside edge shall be arised. Each sezat seat shall have at

least four rubber buffers of suitable size. All seats and covers shall be finished smooth. The seat shall be fixed in position by using chromium plated brass hinges and screws.

19.5.3 **URINAL**

LIPPED FRONT URINAL

The urinal shall be of flat back lipped front basin of required dimensions of white vitreous chinaware of an approved make as specified. Urinals shall be fixed in position by using wooden plugs and brass screws. It shall be at a height of 65 cm. From the stamping level to the top of the lip of the urinal unless otherwise directed by the Architect Employer each urinal shall be connected to a 32 mm N.B. white PVC waste pipe with clamps which shall discharge into a channel or floor trap, or as specified.

PAINTING

The inside of the invisible portions of the fittings and brackets connected with urinal basin shall be painted with approved bituminous paint and outside of the brackets, etc. shall be painted with 2 coats of 1" quality synthetic enamel paint with a cost of metal primer to give an even shade to match the colour of surrounding walls. The cost of such painting shall be included in the rate quoted for the concerned tender items.

OVER FLOW

The cistern shall be provided with 15 mm polythene overflow pipe and mosquito proof coupling of the approved municipal design with 0.05 mm dia. Perforations.

19.5.4 **WASH HAND BASIN**

The basins shall be of whiter vitreous china of approved pattern. The size of the Basin shall be as specified. The basins shall be approved quality and make. The height of front edge of wash basin from floor level shall be 80 cm.

FITTINGS

Each wash had basin shall be provided with pillar tap as specified, having a centered tap hole with C.P. protruded nose pillar cock heavy type. This must be included with 32 mm dia. C.P. basin waste, C.P. Bottle trap and concealed G.I. waste pipes or white PVC waste pipe of required length with C.P. brass couplings as stated in the respective schedule of items.

FIXING

The basins shall be supported on a pair of C.I. concealed type brackets embedded in wall or C.I. cantilevered brackets fixed in position by means of wooden cleats and screws as required, of embedded in cement concrete (1:2:4). C.I. brackets are painted with 2 or more coats 1" class synthetic enamel plaint over a coat of primer.

The waste pipe shall discharge into the floor trap inlet or as specified.

19.5.5 **SINKS**

The sink shall be of white glazed fire clay conforming shall be of IS: 771-1963 of approved quality and brank. The size of the sink shall be as specified.

FITTINGS

Each sink shall be provided with C.P. brass bottle trap or white PVC waste pipe, C.P. brass waste, etc. The fittings shall be of approved quality.

FIXING

The sink shall be supported oil M.S. fabricated or C.I. cantilever bracket to match with sink profile, embedded or fixed into position by means of wooden cleats and Screws or embedded in wall with concrete 91:2:4). Brackets shall be fixed in position before the dado work is done. The brackets shall be painted with approved shade and colour to match with the surrounding finish. The height of front edge of sink from the floor level shall be 80 cm.

The G.I. or white PVC waste pipe shall discharge into floor trap inlet.

19.5.6 **DRAINING BOARD**

One end of the board shall rest on sink and the other end shall be supported on G.I. bracket embedded in cement concrete (1:2:4) block 100 x 75 x 150 mm. The brackets used shall be of cantilever type or wall fixed type as for the sink.

19.5.7 **MIRROR**

The mirror shall be superior sheet glass with edges rounded off or beveled, as specified. It shall be free from flaws, specks or bubbles. The size of the mirror shall be 60 x 45 cm unless specified otherwise and its thickness shall not be less than 5.5 mm. It shall be uniformly silver plated at the back and shall be free from silvering defects. Silvering shall have a protective uniform covering of red lead paint. It shall be mounted on the asbestos sheet and shall be fixed in position by means of C.P. brass dome shaped screws over rubber washers and rawl plug firmly embedded in wall.

19.5.8 **GLASS SHELF**

Glass shelf shall consist of an assembly of glass shelf, with anodized aluminum angle frame to support the glass shelf. The shelf shall be of best quality with edges rounded off, and shall be free from flaws, specks or bubbles. The size of the shelf shall be 60 x 12 cm unless otherwise specified and thickness not less than 5.5 mm. The shelf shall have C.P. brass brackets/which shall be fixed with C.P. brass screws to rawl plug firmly embedded in the walls.

19.5.9 **PILLAR TAPS**

Pillar taps shall be of chromium plated brass and shall conform to IS: 1795-1974. The nominal size of the pillar tape shall be 15m or 20mm., as specified. The nominal bore of the pipe outlet to which the tap is to be fitted shall designate the nominal size.

Every pillar tap complete with its component parts shall withstand an internally applied hydraulic pressure of 20 gm/cm^2 maintained for a period of 2 minutes during which it shall neither lean nor sweat.

19.5.10 **WATER CONNECTION**

Water connection to flushing cistern, wash hand basin shall be by means of white PVC connector or C.P. connector with stop cock as specified in the respective items.

19.5.11 **URINAL PARTITION**

Unless otherwise specified, partition for urinal shall be shaped out of 20mm thick x 900 mm x 600mm / white marble. Fixing shall be done by inserting the portion approx. 75 mm. Inside wall

and grouting the same in cement concrete 1.2:4. All the exposed surfaces and edges shall be properly grout to shape and polished. Joint with wall to be finalised with white cement.

19.5.12 **CHANNELS**

19.5.13 Where channels are to be provided, these must be 100m dia. A specified in the schedule of quantities, block floor channel, with stop and top — and with hole. The channels of urinals shall be provided with approved removable C.P. dominal grating.

19.5.14 **TOWEL RAIL**

The towel rail with bracket of brass C.P. or anodized aluminium as stated in schedule of Hems shall be of approved shape and design. The size of the rail shall be as specified. The brackets shall be fixed by means of C.P. brass screws or Rawl Plug firmly embedded in wall.

19.5.15 **TOILET PAPER HOLDER**

The paper holder shall be of white vitreous chinaware of recessed type / and the rate shall include chase cutting of walls, setting in cement sand mortar and making good the all-round joint with white cement.

19.5.16 **H.C.I. SOIL, WASTE AND VENT (ANTISYPHONAGE) PIPES & FITTINGS:**

(a) H.C.I. Pipes and Fittings:
The heavy cast iron pipe and fittings should be of I.S.I, make marked pipes and fittings conforming to IS: 3989 and IS: 1729 of latest editions. The pipes shall be free from cracks and other flaws.

The interior of pipes and fittings shall be clean and smooth and painted inside with approved anti-corrosive bituminous paint.

FIXING

The pipes and fittings shall be fixed to walls by using proper clamps. The pipes shall be fixed perfectly vertical or in a line as directed. All soil pipes shall be carried up above the roof and shall have H.C.I. vent cowl. Where pipes are laid along walls, the cast iron pipes are to be fixed 25mm.away from the wall surface. Cast iron bobbins with nails and clamps etc. are to be used for this purpose. Cost of these items shall be included in the item for pipes and specials.

Fabricated M.S. clamps / hangers may be used only on specific instructions of Architects / Employer. Where diversions or free suspended horizontal stretches of pipelines are to be provided. Payment for such fabricated M.S. clamps/ hangers shall be made separately as per schedule of items.

The ventilating pipe shall be carried to a height of at least 60cms. above the outer covering of the roof of the building. In the case of flat roof to which access for use in provided it shall be carried up to a height of 2 meters above the roof or as directed by Architect/owner. The access door fittings shall be of proper design so as not to form any cavities in which filth may accumulate. Doors shall be provided with rubber insertions and when closed and bolted these shall be water tight Connections between main pipe and the branch pipes shall be made by using branches and bends with access doors for cleaning. The waste from lavatories, kitchen, basin, sinks, baths and other floor traps shall be separately connected to respective waste stack. The waste stack of lavatories shall be connected directly to manhole while the waste stack of others shall separately discharge over gully trap.

Sand cast iron floor trap shall be (P or S type) with minimum 50mm. seal and shall be of self-cleaning design. Floor trap exit shall be same as size of waste pipe.

JOINTING

The annular space between the sockets and spigots will be first well packed in with spun yarn leaving a depth of not less than half the depth of the sockets as measured from the lip of the socket for lead. However, the minimum quantity of lead to be used per point shall be as follows:

For 100 mm nominal dia. pipes - 1.25 kg of lead per joint

For 75 mm nominal dia. pipes - 0.87 kg of lead per joint

For 50 mm nominal dia. pipes - 0.56 kg of lead per joint

The joint may be leaded by using proper leading rings or by wrapping a ring of damp rope covered with clay round the pipe at the end of the socket leaving a hole through which lead shall be poured in. For pipes with sockets facing upwards 15 mm high clay round the socket edge may be used as guide for leading. The spigot shall be carefully centered in the socket by two or three laps of treated (soaked in hot coal tar and dried) spun yarn, twisted into ropes of uniform thickness, well caulked, into the back of the socket, leaving the requisite depth of the lead. The lumps of the yarn must be longer than the circumference of the pipe. No marking up of the pieces of yarns shall be allowed. The lead shall be rendered thoroughly fluid and each joint shall be filled in one pouring.

LEAD FOR JOINTS

It shall be bluish grey in colour very soft and malleable, readily melted, free from mixture of zinc or tin conforming to IS: 782-1966 of latest edition.

CAULKING:

After the joints have been run they must be thoroughly caulked until they are perfectly watertight. Caulking of joints will be done after convenient length of pipe has been laid and leaded. The leading ring shall first be removed with a flat chisel but leaving enough so that the joint can be finished 3 mm beyond the socket lace and then the joint caulked round three times with caulking tools of increasing thickness and hammer of 2 to 3 kg. Weight. Lead joints shall not be covered till the pipe line has been tested under pressure but the rest of the pipe line may be covered up to prevent expansion and contraction due to variation in temperature, and any lead outside the socket shall be removed.

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GENERAL TECHNICAL SPECIFICATIONS OF THE CONTRACT
ELECTRICAL WORKS

1. INTENT OF THE SPECIFICATION

1.1 This specification is intended to cover entire electrical wiring installation works consisting of supply, delivery, storage, fitting and fixing of brand new electrical wiring materials, accessories properly packed at site, as necessary for receiving power from electric service provider, drawing main line, sub main line through GI/PVC conduit/ Casing capping and conceiled/ Casing capping below false ceiling, distribution point wiring for light, fan, call bell, exhaust fan, distribution point wiring for 6/16 Amp socket outlets for utilities including earthing works and attachments as specified here in after and all other ancillary item of works required for building up a completely efficient and trouble free electrical wiring installation for individual rooms and common area utilities for the Kalyani Housing project (Ph- III).

1.2 This specification is also intended to test and commission the entire electrical installation and test operate all the equipments and accessories of the building in question as applicable and necessary at site of works, as per this technical specification including other terms, conditions and intents as specified in different sections of this document.

1.3 This specification is also covered for any item of works which may not have been mentioned here but is usual or necessary to complete this instant electrical wiring installation work shall be deemed to be included with this specification.

2. GENERAL REQUIREMENT & INFORMATION FOR GUIDANCE TO THE TENDERER

2.1 Requirement of drawing this specification is specifically meant for constructing / building up a complete electrical wiring installation work as specified for the purpose of supplying electrical power to different utility points located in the individual rooms under the building now under construction for the beneficiaries.

2.2 The installation work of all electrical equipment under this specification shall be carried out only by an electrical contractor, holding a valid license issued by the Government of West Bengal for carrying out installation work of the voltage classes involved, under the direct supervision of and by persons holding valid certificate of competency for the same voltage classes, issued by the state government.

2.3 The tenderer shall furnish with his tender the particulars of the license held by him for carrying out the entire electrical installation work against this specification.

2.4 The successful tenderer shall furnish to the purchaser the names and particulars of certificates of competency of supervisors and workers to be engaged for carrying out the entire electrical installation work against this specification.

2.5 At site of works, old age home is under construction now within the site area and this electrical wiring installation work under this tender is for providing power to different multi point utilities under individual rooms and common utility areas.

3. LOCATION OF SITE

The work under this contract shall have to be undertaken by the successful bidders at Furfura Graqm Panchayat, under Furfura Sharif Development Authority, under Solid Waste Management Sector, KMDA.

4. SCOPE OF WORKS

4.1 The job of wiring installation includes the SITC of below mentioned works but not limited to the following :

Complete supply, safe delivery at site and installation of GI/PVC conduit/ Casing capping and partly concealed type wiring complete in all respect with single core 'FR' PVC insulated wire of flexible copper conductor of different sections (1100 V grade) with continuous earth attachment of 1.5 Sq.mm. PVC single strand copper wire or as specified in BOQ originating from respective power distribution board and terminating to the termination chamber/ ceiling rose of light / fan / receptacles including individual main switches and common utility switches as required as in BOQ & as per direction of EIC

Complete supply, safe delivery at site and fixing of main distribution panel/boards, branch distribution boards, joint box / terminal box, inspection box, clamps, lighting fixtures, switch boards with switches, fan regulators mounted on it etc as required and as would be approved by the department during designing works including earth work as required and as per direction of EIC.

Complete supply, safe delivery at site and erection of ceiling rose, soldering lugs, crimping type lugs, terminal blocks, junction box, earth clamps, jointing and fixing materials including all consumables, switch board with switches, receptacles, all masonry works and mending good damages, electric and gas welding, fabrication of brackets, supports, hangers if required including supply of all steel materials, painting, testing and commissioning as required as per direction of EIC. It may be noted that the cost of such works shall be included in the offered rate and no extra cost for making of clamps, brackets would be measured separately and paid.
Complete supply, safe delivery at site and erection of all grounding materials for system grounding and distribution point wiring grounding as required as in BOQ & as per direction of EIC

All mending good damages of the work if damaged by the contractor to finish the entire building work to original finish and in good aesthetic appearance as required.

All painting works of the installation as required as in BOQ & as per direction of EIC

Any other works required to complete the work in all respect

4.2 Successfully carrying out following acceptance tests at field on each equipments and accessories

(a) Polarity of switches
(b) Insulation Resistance Tests
(c) Earth continuity tests
(d) Earth resistance Tests

4.3 Successfully carrying out commissioning and test operation on each distribution point wiring by putting the point on load. Arrangement of load (lamps) shall be the responsibility of the contractor.

4.4 The scope of work under this contract work shall also include but not limited to the following; -

(a) Taking delivery of departmental materials including their transport from the owner's store to the actual work site.

(b) Opening of equipments and accessories packing boxes where necessary, inspection and joint checking of stores with packing list for their completeness and condition along with the representative of the department.

(c) Appropriate action in case of any shortfall with the packing list

(d) Supply of all goods, mentioned else where, to undertake and to carry out the commissioning of the entire electrical installations.

(e) Supply of all required tools and plants to undertake and to carry out the contract job.

(f) Providing all hand holding support and promptest attendance against the call of the department and or end user during the guarantee period.

4.5 Preparation and submission of all drawings, data, display of notices, drawings as required and as specified elsewhere in this document.

4.6 Any other work which has not been mentioned here but otherwise incidental and necessary for completeness of the contract work shall be carried out by the contractor within the scope of work under this specification.

5. EXPLANATION OF TERMS

As regards the wiring work, the words 'wiring installation', 'fitting', 'mounting', 'Earth Continuity Conductor; 'light point', 'fan point', 'plug point' 'switch board' used in this specification shall mean as described below unless the context means otherwise.

5.1 Wiring installation: A termination of the fixed wiring partly to be done in GI/PVC conduit/ Casing capping from Distribution panel / lighting panel /Distribution board / switch board / junction box to individual fitting or from source to individual fitting through switch board including supply of all required materials & fittings, fabrication and erection of brackets & supports, if required, except otherwise stated else where.

5.2 Fitting: Lighting fixtures, switch board, regulator, switch, receptacle, junction box, MCB distribution board etc or any other item connected to the lighting distribution system.

5.3 Mounting: Fixing of the fitting in proper alignment as required including supply of all necessary hardware, masonry work, welding, gas cutting or any other material and consumables that may be required for proper fixing of the fitting.

5.4 Earth Continuity Conductor (ECC): The conductor, including any clamp, connecting to the earthing lead or to each other those parts of an installation which are required to be earthed.

5.5 230Volt, 2 poles, 3 pin receptacles: the receptacle shall be rated for 5 / 6 Amps at 230 volt, 2 poles, 3 pin with plug base and top for surface mounting type.

5.6 230 Volt, 2 pole, 5/6 pin receptacles: This shall be composite type plug and socket coupled with a disconnector switch designed for heavy load application and shall be with plug base and top for surface mounting type.

5.7 Switch board: This shall comprise of single and or multiple number of individual piano type switch (6 Amps rated) and or as the case may be, which shall be used for switching 'ON' and "OFF' operation of the lights / fans / receptacles etc.

6. GENERAL TECHNICAL SPECIFICATIONS

The electrical wiring installation comprising of casing capping wiring for indoor and outdoor lighting, ceiling fans, exhaust fans, power plug and sockets etc including all cabling works, grounding works and other items as would be required for satisfactory completion of the job. The general technical specifications of almost all major items have been generally described here in after for convenience and compliance of the tenderer. They are advised to quote their offer accordingly.

6.1 Type of Wiring

The type of wiring to be carried out under this contract shall be of GI/PVC conduit/PVC Casing-Capping type looping back system where wiring shall be done without any junction boxes or connector boxes on the line. All wires for wiring work shall be single core stranded 'FR' (flame retardant) PVC insulated and unsheathed wire for working voltages up to and including 1100 Volt with copper conductor and shall conform to latest revision of IS: 694 (P-I).

6.2 Reception & Distribution of Main Supply

Since the supply source shall be derived from the three /four wire source and distribution wiring has been envisaged on two wires / four wire systems for individual rooms, all main switches with

fuse shall be placed on the live conductor of the circuit and shall be placed at the point of entry of service line/ supply.

In designated electrical room of the building, a composite panel of adequate number of 415 volt TPN Distribution board shall be placed with multiple ways of different current rating (MCB) along with an incoming MCCB from where power to be fed to different sub distribution board located in the strategic position of the buildings. Sub distribution board shall consist of adequately rated isolator and single pole & neutral miniature circuit breaker.

From main distribution board located at designated electrical room, different cross section of wires as enumerated in the BOQ shall be drawn to the sub distribution boards to be positioned to match the site requirement or as per guidance of the department

The main switches, wherever used, shall be sheet steel enclosed and single pole, triple pole & neutral rated for individual rooms and various common utilities. No fuse or switches shall be placed on earthed neutral.

All main switches/Distribution boards shall be labeled and or marked by indelible paints for which it is designated.

6.3 Sub main wiring

From individual MCCB to distribution board suitable copper wire shall be drawn through GI / PVC conduit/ Casing capping pipe on surface above false ceiling and concealed partly below false ceiling.

6.4 Distribution Board

Distribution board, as mentioned shall be provided with DP isolator combining with miniature circuit breaker of adequate rating / setting chosen on the live conductor of each sub circuit and the earthed neutral conductor shall be connected to a common link and be connected of being disconnected individually for testing purpose. Each circuit shall be so protected so that in the event of fault, only the particular circuit gets disconnected.

6.5 Distribution wiring for light / fan / call bell / exhaust fan points

Distribution wiring to fan point /exhaust fan point shall consist of piano switch fixed at switch board, a ceiling rose fixed on a bakelite plate at roof/ wall as the case may be, switch board suitable for accommodating regulator including the circuit wiring from MCB to utilization point. In case of use of CI circular fan box in the ceiling during casting, no ceiling rose shall be used.

Distribution wiring to light point shall consist of necessary wiring from MCB BDB to utilization point including the circuit wiring, piano switch fixed on switch board, ceiling rose fixed on a bakelite plate at roof/ wall as the case may be at a height as per direction of EIC.

Distribution wiring to 6A 5 pin plug point consist of wiring from the switch board including the circuit wiring and the earth wire, 6A 5 pin socket and piano switch fixed at wall at a height as per direction of EIC.

Distribution Wiring to 5 pin 16 Amp power plug point shall consist of wiring from a separate way of MCB BDB to the point of utilization, 15A 5 pin 5 in one combined unit fixed at the wall at a height as per direction of EIC.

Ceiling rose shall be used for termination of wiring for fan, light, exhaust fan point at ceiling and on wall. Three plate ceiling rose shall be used for light, fan and exhaust fan point. Only one flexible cord shall be attached to a ceiling rose.

6.6 Wire cross section for different point wiring

The minimum required size of the conductor for internal distribution point wiring shall be as follows:

Sl. No	Type of point wiring	Minimum size of wire
1.	Light / fan /exhaust / call bell point	2 nos. 1 core -1.5 mm² copper & 1 no. Earth wire of 1.5 mm² copper
2.	Receptacle-6A	2 nos. 1 core -1.5 mm² copper & 1 no. Earth wire of 1.5 mm² copper
3.	Receptacle-16A	2 nos – 1 core-2.5 mm² copper & 1 no Earth wire of 1.5 mm² copper or as directed in other position of the document.

6.7 L.T. Panel Board:

The panel board shall be fabricated using CRCA M.S. sheet of 2.03 mm thick and painted with powder coated anti corrosive paint and provided with MCCBs as incoming and outgoing switching-cum-protection devices, for distribution power to the various loads as per the requirement of the system, readymade and modular construction designed for vertical floor mounting, cubicle type as per IS 13947 – I&II and IEC60947-I&II, IS8623 and IEC60439 and IS-2147 and IEC60529.

6.8 Cables & Wires

6.8.1. 1100 Volt grade power cable

6.8.1.1 1100 volt power cable shall be aluminium stranded conductor A2XFY PVC / XLPE insulated, PVC extruded inner sheath, single galvanized steel wire armoured having an overall extruded PVC sheathing and shall comply with latest revision of IS: 1554 (P-I)

6.8.1.2 Thermal properties of cable shall permit maximum conductor operating temperature of 70°C and short circuit temperature of 160°C. However, it shall be capable to withstand overload for short periods without any harmful effect on cable life. It shall also safely withstand short circuit current without any deformation of insulation or displacement of conductors.

6.8.1.3 The cables shall be tough and abrasion proof and shall have long service life.

6.8.1.4 The conductor shall be composed of either from high electrical purity aluminium wires or plain annealed high conductivity copper and conform to latest revision of IS:8130 -1976

6.8.1.5 The insulation shall be of high quality XLPE/ PVC base compound complying with requirements of Type-1 compound of latest revision of IS: 5831-1970. The insulation shall be applied by the process of extrusion.

6.8.1.6 The sheath shall be of PVC base compound complying with requirements of Type-6 compound of latest revision of IS: 5831-1970.

6.8.1.7 Armouring shall be applied over the inner sheath for all multicore cables. Outer sheath extruded over the armouring for multi core cables where as in case of un armoured single core cables, it shall be extruded over the insulation.

6.8.1.8 Outer sheath shall be embossed with manufacturer's name & brand, voltage grade and year of manufacture.

6.8.1.9 All the cables shall have ISI certification marks.

6.8.2. 1100 volt grade wires

All wires for wiring work shall be single core stranded Flame Retardant PVC insulated and unsheathed wire for working voltages up to and including 1100 Volt with copper conductor and shall conform to latest revision of IS: 694 (P-I).

6.8.3. Cables & Wire termination

For 1.1 KV grade LT power cables and wires (PVC / XLPE) having aluminium conductor, either soldering or crimping type joints are to be used. Extreme care and cleanliness shall be maintained to achieve satisfactory results in joints. All other necessary components and hardware (compression glands, lugs and jointing materials) for making a cable joints complete in all respect shall be within the contractor's scope.

6.9 Earthing

6.9.1. The installation shall generally be carried out in accordance with the Indian Electricity Rules 1956, as amended from time to time and in conformity with the requirement included in the Indian Standard Code of Practice for Earthing IS: 3043 -1987.

6.9.2. All terminal connections for earthing shall be carried out by soldering earth strips / wires with suitable lugs.

6.9.3. Pipe electrodes for earthing shall be made of galvanized steel of class 'B' Medium quality and shall not be smaller than either 50 mm 3.64 mm thick. The length of the pipe electrode shall not be less than 3.04 Mtr (10'). A hole shall be provided at 100 mm (4") from the top end to receive a 13 mm (½") dia galvanized bolts, nuts etc and the bottom end shall be chiseled out for penetration in the soil. Proper sizes of galvanized flat shall be connected securely on the properly cleaned surface of top end of pipe electrode by means of a 100 (4") long x 13 mm (½") dia GI bolts, nuts and double washers. The earth lid flat / conductor shall be protected mechanically by means of a continuous length GI protection pipe of suitable dia up to a height of 0.6 Mtr (2') above ground level and the same shall be completely filled with bitumen compound and topped up to over flowing. All galvanization shall be hot deep quality and the galvanization thickness shall be as per latest IS specification.

6.9.4. The distance between the pipe electrodes where multiple earthing is employed shall be at least not less than the length of electrodes and no two pipe electrodes shall be connected together in parallel.

6.9.5. The value of resistance to earth shall not exceed 1 (one) ohm.

7. Erection

7.1 Prior to erection of any equipment, the contractor, upon opening of the packing cases in presence of the departmental representative not below the rank of Technical Assistants shall ensure the quantity of the respective packing list items and their conditions for proper erection. If any defect / damage in any item are observed, the same shall be brought into the notice of manufacturers for remedial measure.

7.2 All wiring installations shall be made at site in a most Engineer like manner as per the direction of the Engineer-in-Charge observing all recommendations and guide lines of the individual equipment manufacturers.

7.3 All the appropriate tools and tackles as would be required for the proper installation works of any equipment and or requisitioned by the department for such purpose shall be arranged at site by the contractor before the work is started.

7.4 All sorts of consumables like cleaning solvent, emery cloth of various grades, grease, cotton waste, cloth, cement, stone chips, sand, bricks, non shrinking powder etc shall be provided by the contractor. The cost for such erection work covering all expenditure is included in the priced BOQ.

7.5 All false works, staging, scaffolding etc and as would be required for good workmanship shall be arranged by the contractor and same shall be removed by the contractor after completion of the erection works, mending all damages good in the civil structure.

7.6 All electrical installations shall comply with the requirements of Indian Electricity Acts and rules made there under and with any other regulations that may be applicable. The electrical installations shall only be carried out by authorized persons competent to undertake such work under the rules and regulations.

7.7 All connections for the internal wiring shall be terminated by crimping type lugs or soldered lugs.

7.8 Maximum number of wires in PVC conduit/ Casing capping pipe shall not exceed the limits specified in IS.

8. Painting

The painting works, unless other wise stated else where, shall be applicable for the following items as follows and as directed by the department and as mentioned in BOQ.

9. Tests

Before the wiring installation is put into service, following acceptance tests shall be carried out by the contractors in presence and to the entire satisfaction of EIC or his representative. The instruments used for testing shall be up to date calibrated.

9.1 Polarity of Switches

It shall be ensured by physical tests at site that all single pole switches have been fitted on the live side of the circuits they control.\

9.2 Insulation Resistance Tests

By applying a 1000 volt Megger between earth and the whole system of conductors or any section thereof with all fuses in place and all switches closed, all lamps in position or both poles of installation otherwise electrically connected together. The results shall not be less than 50 divided by the number of points on the circuit and less than 1megohm.

Between all conductors connected to one phase and all other conductors connected to the neutral or to the other phase conductors of the supply, after removing all metallic connections between the two poles of the installation and switching on all switches. The value of the insulation resistance shall be less than 1 megohm.

9.3 Earth continuity Test

The earth continuity conductor including metal conduits and metal sheaths of cables in all cases shall be tested for electrical continuity.

9.4 Earth resistance Tests

In order to ensure the effectiveness of the earth installation, the value of earth resistance shall be within 1 ohm.

9.5 Submission of Test Form

The contractor shall have to submit the test form duly filled in the test results for obtaining the power from the supply company.

Recommended Lux Values For Interior Illumination As per IS: 3646 (Part II) – 1966

Sl. No.	Classification of building	Illumination Lux	Sl. No.	Classification of building	Illumination Lux
1.	**HOME**		2.	**OFFICES**	
1.1.	Kitchen	200	2.1.	Entrance Hall & Reception	150
1.2.	Bathroom	100	2.2.	Conference Room, Executive Office	300
1.3.	Stairs	100	2.3.	General Office	300
1.4.	Garage	70	2.4.	Business machine operation	450
1.5.	Sewing & Dining	700	2.5.	Drawing Office, General Boards & Tracing	 300 450
1.6.	Reading (Casual)	150	2.6.	Corridor & Lift Cage	70
1.7.	Homework & sustained reading	300	2.7.	Stairs	100
			2.8.	Lift Landing	150
			2.9.	Main Distribution Frame room	150
			2.10.	Library Shelves, Stacks Reading Tables	 150 300

Technical Specification for three-step fountain:

Description of Item	**Nos.**
1. 2 HP Submersible Mono block pump single phase 220 Volots 50 Hz (of approved Make)	1 no.
2. Heavy Duty bass with 19 nos. adjustable nozzles	1 set
3. GI pipe and pipe fitting of approved make	1 lot
4. Heavy duty Brass ball joint	1 no.
5. Heavy duty valve made by brass	1 noi.
6. LED RGB lights made by heavy duty SS body 12 volts 36 watt	3 nos.
7. 3 and 4 core under water cable for pump and lights ISI mark	1 lot
8. Outdoor double door panel box made by heavy duty MS sheet along with powder coated including MCB Preventer / Contractor / Ammeter / Voltmeter / Push botton / Off On switch / Indicator / etc.	1 no.
9. SMPS for 12 volts lights	1 no.
10. RGB LED light controller	1 no.
11. SS made light stand for 3 nos of lights	1 set
12. Freight	
13. Installation, Commissioning and trial run	

Technical Specifications for the Elevator/lift of capacity 10 passengers (Indicative):
(Design Specifications are to be approved by the concerned EIC, Electro-Mechanical Sector, KMDA, before installation)

(a) Elevator Specifications:

1. Quantity	01 (Machine Room Less)
2. Type of Elevator	Passenger
3. Load / Capacity	10 P
4. Speed	1 m.p.s
5. Control	Microprocessor
6. Operations	V3F
7. No. of Openings	04 (G+3)
8. No. of Stops	04
9. Total Rise	09 Mtrs (approx)
10. Hoist Way (Required)	1950 mm x 1850 mm (Existing)
11. Machine room height (Required)	MRL
12. Car inside	As per Lift well size
13. Clear Door Opening (Required)	Front wall must not be constructed
14. Car Flooring	PVC Mat
15. Landing Entrance	Front wall must not be constructed
16. Car Enclosure	Stainless Steel 304 Hairline Finish
17. Car Entrance	800 mm x 2000 mm
18. Door Operation	Stainless Steel 304 Hairline Finish
19. Reduction Gear	Gearless
20. Motor	PS Motor
21. Power supply (Required)	440 V 3 Phase & 220 V 1 Phase
22. Position of Machine Room	MRL
23. Wire-Rope.	Usha Martin
24. Installation	04 Months
MAIN FEATURES :	
1. Up/Down Indicator	Yes
2. Energy Saving Tube light	Yes
3. Luminious call Indicator	Yes
4. Digital Car Position Indicator.	Yes
5. Door open Bell	Yes
6. Alarm Bell	Yes
7. Fault Indicator in Control Panel	
8. Attendant / Independent Service	Yes

SAFETY FEATURES :	
1. Over speed protection	Yes
2. Single Phase Protection	Yes
3. Reverse phase protection	Yes
4. Interlocking Switches	Yes
5. Over Load Protection	Yes
6. Phase Failure Protection	
7. Emergency Stop Switch.	Yes
OPTIONAL FEATURES :	
1. Fire Man Switch	Yes
2. VVVF Drive	Yes
3. Full Collective Selective Mode	
4. Duplex Control.	
5. Triplex Control	
6. Elevator Management System	
7. Auto Rescue System	Yes
8. Emergency Alarm Bell (Extra)	
9. Emergency Light	
10.Annunciators	Yes
11.	
12.	

(b) Other Specifications:

(i) MACHINE POSITION :
Directly above the hoist way.

(ii) HOIST WAY FINISHED DIMENSIONS :

1950 mm x 1850 mm (Existing)

(iii) LANDING ENTRANCE FINISHED DIMENSIONS:

Front wall must not be constructed

(iv) POWER SUPPLY TO HOIST WAY :
230 Volt, 50 Hz, Single Phase, with at least 2 light

(v) POWER SUPPLY TO MACHINE ROOM :
415Volt, 50 H z, 3 P hase, 4 W ire, with correct rating of fuse & ICPTN Switch (Preferably Havells, Crompton or Alstom make) and 230 V, 50 Hz, Single phase with correct rating of fuse & ICDP Switch (preferably Havells, Crompton or Alstom make) with 2 Light points & one 15 amps 3 pin socket point. Neutral must be firm.

vi) EARTHING :
Double earthing must be provided up t o machine room. Building should be earthed properly to avoid leakage current. Earth wire must not be used as neutral under any circumstances.

Figure: 1

Typical architectural view of Boro Ujukhana, beside the Furfura Mazar (Furfura Darbar Sharif)

Figure 2:

Typical architectural view of Choto Ujukhana

Figure 3:

Typical architectural view of main entrance gate of Furfura Mazar (Furfura Darbar Sharif)

Annexure 1:

Covering Letter

<To be printed on the Letterhead of the Applicant including full postal address, telephone, faxes and e-mail address>

Memo. No. Date:

To
The Superintending Engineer (Civil),
North Circle,
Solid Waste Management Sector,
Kolkata Metropolitan Development Authority,
Unnayan Bhawan,
Salt Lake City, Kolkata – 700 091

Subject: Submission of Tender for "**NAME OF THE WORK**".

Dear Sir,

1. We are submitting this tender for the work mentioned above and our Proposal is valid for a period of 120 days from 'bid submission closing date (online)' as mentioned in the Notice Inviting Quotation above.

2. We understand that KMDA is not bound to accept any or all quotations it may receive.

3. We declare that we have disclosed all material information, facts and circumstances, which would be relevant to and have a bearing on the evaluation of our Quotation and qualification.

4. We do, also, certify that all the statements made and/or any information provided in our bid, are true and correct and complete in all aspects.

5. We declare that in the event that KMDA discovers anything contrary to our above declarations, it is empowered to disqualify us and our Quotation from further participation in the bid evaluation process and to cancel the contract at any time during the contract.

6. We declare that if KMDA discovers any misrepresentation of facts at any point of time KMDA will have the right to forfeit the Earnest Money Deposit (EMD), Contract Performance Guarantee and debar us from participating in any bid in the future.

7. If our Proposal is accepted, we will furnish the Performance Security Deposit as mentioned in this NIT before signing the Contract Agreement.

Dated this _____date of _____2025,

(Signature)

Name:
Designation:
Name of Firm: **Company Seal**
Communication address:

Mobile no.:
WhatsApp no.:
e-mail ID:

Annexure 2:

Power of Attorney for Signing of Bid
(if required)
(To be executed on Non-Judicial Stamp Paper of appropriate value)

POWER OF ATTORNEY

Know all men by these presents, We, _____ (name of Firm/Company) incorporated under the laws of India and having its registered office at _____ do hereby constitute, nominate, appoint and authorize Mr./Ms._____(name), son/daughter/wife of _____ and presently residing at_____ who is presently employed with/retained by us and holding the position of _____ as our true and lawful attorney (hereinafter referred to as the "Attorney"/"Authorized Representative") to do in our name and on our behalf, all such acts, deeds, matters and things as are necessary or required in connection with or incidental to submission of our bid titled "**NAME OF THE WORK**", a Notice Inviting Tender (NIT) issued by the Kolkata Metropolitan Development Authority (the "KMDA") and subsequently for our selection as successful bidder including but not limited to signing of proposals and other documents and writings, participating in pre-bid meeting and other conferences and providing information/responses to the Authority, representing us in all matters before the Authority, signing and execution of all contracts including the Authorisation Agreement and undertaking consequent to acceptance of our proposal and generally dealing with the Authority in all matters in connection with or relating to or arising out of us Proposal for the said consultancy job and/or upon award thereof to us till the entering of the Agreement with the Authority.

AND, we do hereby agree to ratify and confirm all acts, deeds and things lawfully done or caused to be done by our said Authorized Representative pursuant to and in exercise of the powers conferred by this Power of Attorney and that all acts, deeds and things done by our said Authorized Representative in exercise of the powers hereby conferred shall and shall always be deemed to have been done by us.

IN WITNESS WHEREOF WE, _____ THE ABOVE-NAMED PRINCIPAL HAVE EXECUTED THIS POWER OF ATTORNEY ON THIS _____ DAY OF _____, 2025.

For (Signature, Name, Designation and Address)

Witnesses:

1) _____

2) _____

3) _____

Notarized

Accepted (Signature, name designation and address of the Attorney)

Instructions regarding Power of Attorney:

1. The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executants(s) and when it is so required the same should be under common seal affixed in accordance with the required procedure.

2. Wherever required, the executants(s) should submit for verification the extract of the charter documents and other documents such as a resolution/power of attorney in favor of the person executing this Power of Attorney for the delegation of power hereunder on behalf of the Applicant.

Annexure 3:

AFFIDAVIT
(BEFORE THE 1ST CLASS EXECUTIVE MAGISTRATE MENTIONING THE CORRECTNESS OF THE DOCUMENTS
AND DECLARATION OF PENALTY, DEBARMENT ETC.)

(To be executed on Non-Judicial Stamp Paper of any value, not less than ₹50/-)

One Affidavit before the 1st class Judicial Magistrate will have to be submitted mentioning the correctness of the documents and declaration of penalty, debarment etc. faced by the declarant under any Government/Semi-Government/Autonomous Body/Institution/Local Body in hard copy within stipulated date & time.

Points/Declaration to be furnished in the AFFIDAVIT:

(i) I (Name), Son of (Father's Name), residing at (Residential Address) having office at (Business Address) do hereby solemnly affirm and declare as follows:

(ii) Partnership Details:

(iii) Reference NIT No., Sl. No.

(iv) All Documents submitted by me are genuine, authentic, true and valid.

(v) All information furnished are true to the best of my knowledge & behalf. Department has got full right to cancel the same with penal measure, if any, in case any of the statements is proved to be false.

(vi) Neither any penalty or debarment was made against me nor against the firm in any way at any Government/Semi-Government/Autonomous Body/Institution.

(vii) That I am a citizen of India.

All above statements are true to the best of my knowledge and belief.

(Dated & Signature of the Tenderer)

Annexure 4:

CERTIFICATE

(To be submitted on Company Letterhead)

I/We have inspected the sites of works and have made me/us fully acquainted with the local conditions in and round the sites of works. I/We shall be bound by conditions laid down in the Notice Inviting Tender, Special Conditions, Specification and also KMDA Form No. – 1. I/We have gone through the Schedule of Rates of Public Works Department, Government of West Bengal on Building Works for the year 2017, Sanitary, & Plumbing Works for the year 2017, Road & Bridge Works for the year 2018, unified Schedule of Rates of Irrigation & Waterways Department for the year 2018, Schedule of Rates for Sewerage and Drainage Works and Water Supply Works, 2018-2019, of Urban Development and Municipal Affairs Department and General Specifications, now in force in the Public Works Department, Government of West Bengal and the code of practice by ISI and shall follow them as required unreservedly. I/We shall also uniformly maintain such progress with the work, as any be directed by the Engineer-in-Charge of the work to ensure completion of the same within the target date.

(Dated & Signature of the Tenderer)

Annexure 5:

DECLARATION BY THE TENDERER

(To be submitted on Company Letterhead)

I. I / We have inspected the site of works and have made me / us fully acquainted with local conditions on and around the site of works. I / We shall be bound by the conditions laid down in the Notice Inviting Tenders, Special Terms & Conditions, Special Specifications, General Specifications, Specific Priced Schedule and also printed Tender Form No. – I (as amended). I/We have gone through the latest amended "P. W. D. (Roads) Schedule", "P. W. D. (Bldg.) Schedule of Rates", B. I. S. codes of practices, relevant MoRTH specification and IRC codes of practices of the Special Terms and Conditions. My / Our tenders is offered taking due consideration of all the stipulations of contract documents. I / We shall also uniformly maintain such progress with the works as may be directed by the Engineer – in – Charge of the work to ensure completion of same within the target date.

II. My/Our Permanent Income Tax Account No. is **……..**

III. My/Our Goods and Services Tax Registration No. is **……..…..**

IV. a) I/We declare that I have no relative working under North Circle, SWM Sector of KMDA.

b) I/We declare that the under noted personnel of North Circle, SWM Sector of KMDA is related to me/us.

Name	Relationship	Designation with office address
Sri **……..….**	**…...……...……**	**…….....**

Postal Address with Telephone No.
& Mobile No. of the tenderer

_____

_____

(Dated & Signature of the Tenderer)

Annexure 6:

FORMAT OF THE BANK GUARANTEE FOR
ADDITIONAL PERFORMANCE SECURITY DEPOSIT
(To be executed on Non-Judicial Stamp Paper of appropriate value)

To
The Superintending Engineer (Civil)
North Circle
Solid Waste Management Sector
Kolkata Metropolitan Development Authority

WHEREAS …… [name and address of Contractor] (hereafter called "the Contractor") has undertaken, in pursuance of e-NIT No…….. and Tender No.: …….. [Tender No.], to execute the work of "**NAME OF THE WORK**" (hereinafter called "the Contract").

AND WHERAS it has been stipulated by you in the Said contract that the Contractor shall furnish you with a Bank Guarantee from a scheduled bank for the sum specified therein as 'ADDITIONAL PERFORMANCE SECURITY DEPOSIT' for compliance with his obligation in accordance with the Contract.

AND WHEREAS we …… [indicate the name of the Bank & Branch] have agreed to give the Contractor such a Bank Guarantee.

Now THEREFORE we……[indicate the name of the Bank & Branch) hereby affirm that we are the Guarantor and responsible to you on behalf of the Contractor, up to a total sum of ₹…… [amount of Guarantee]…… …… …… (amount in words). We undertake to pay you, upon your first written demand and without cavil or argument, a sum within the limit of₹ …… [amount of Guarantee] as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

We …… (indicate the name of the Bank &Branch) hereby waive the necessity of your demanding the said debt from the Contractor before presenting us with the demand.

We …… (indicate the name of the Bank & Branch) further agree to pay to you any money so demanded not withstanding any dispute or disputes raised by the contractor(s) in any suite or proceeding pending before any court or Tribunal relating thereto, our liability under this Present Absolute and unequivocal.
The payment/so made by us under this bond shall be a valid discharge of our liability or payment there under and the contractor(s) shall have no claim against us for making such payment.

We …… (indicate the name of the Bank & Branch) further agree that no change or addition to or other modification of the terms of the Contract or of the works to be performed there under or of any of

the Contract documents which maybe made between you and the Contractor shall in any way release us from any liability under this guarantee, and we hereby waive notice of the such change addition or modification.

We …… (indicate the name of the Bank & Branch) lastly undertake not to revoke this guarantee except with the previous consent of you in writing.

This Guarantee shall be valid up to …… [date of completion] it come into force with immediate effect and shall remain in force and valid for a period up to the time of completion of contract under the stated contract plus claim period of twelve months for the Bank Guarantee. Notwithstanding, anything mentioned above, our liability against this guarantee is restricted to Rs. ……. (Rupees in words) and unless a claim in writing is lodged with us within the validity period, i.e., up to…… of this guarantee all our liabilities under this guarantee shall cease to exist.

Signed and sealed this …… day of …… 2025 at ……

SIGNED, SEALED AND DELIVERED

For and on behalf of the BANK by:
(Signature)
(Name)
(Designation)
(Code Number)
(Address)

NOTES:

I. The Bank guarantee should contain the name, designation and code number of the officer(s) signing the Guarantee.

II. The address, telephone number and other details of the Head office of the bank as well of issuing Branch Should be mentioned on the Covering letter of issuing Branch.

Annexure 7:

Financial Capacity of the Applicant
(*See Clause 5 of Detailed e-NIT)*

Applicant Type: Single entity Applicant/Partnership Firm

Name of the Firm:
Address:
Contact no.:
E-mail ID:

(all figures are in ₹lakh)

Year	Financial Year 2021 - 2022	Financial Year 2022 - 2023	Financial Year 2023 - 2024	Average of last 3 (three) years
Total Annual Turnover (in ₹lakh)				
Net worth (in ₹lakh)				

Instructions:

1. *The Bidder shall provide the Audited Annual Financial Statements of the corresponding years. Failure to do so would result in the Proposal being considered as non-responsive. In case the annual accounts for the latest financial year are not audited and therefore cannot make it available, the applicant shall give an undertaking, to this effect and the statutory auditor shall certify the same. In such case, the applicant shall provide the audited annual reports for five years preceding the year for which audited annual report is not being provided.*

2. *A certificate from Statutory Auditor or may be from any Chartered Account (CA) firm should be provided as supporting document certifying the Financial Pre-Qualification.*

3. *Turnover certificate issued by the Chartered Accountant should bear UDIN.*

Note:

1. The financial year shall mean the period commencing from April 1 of any given year to March 31 of the succeeding year.

2. For purpose of this RfP, turnover ("the turnover") shall mean the average of annual revenues from execution of the projects during the preceding three financial years from the due date of submission of this bid. This shall not include capital grants/capital subsidies/donations/salaries/dividend/bonus /commission and interest income.

3. For the purposes of this RfP, net worth (the "Net Worth") shall mean:

(a) In case of Private Limited/Limited Companies incorporated under the Companies 1956 (or the Companies Act 2013) (or equivalent Act in case of Foreign bidder) shall mean the sum of subscribed and paid up equity and all reserves created out of the profits and securities premium account after deducting the aggregate value of the accumulated losses, deferred expenditure and miscellaneous expenditure not written off, as per the audited balance sheet, but does not include reserves created out

of revaluation of assets, write- back of depreciation and amalgamation (as prescribed in the Companies Act 2013).

(b) In case of Partnership Firms means partners' capital plus reserve & surplus.

(c) In case of individuals, means sum of all assets less liability.

4. All entity, whether single or Partnership Firm, must submit their Financial Statement in the given format, and submit necessary papers/documents in support, for verification.

Annexure 8:

NO CLAIM CERTIFICATE
(On company Letter-head)

Bidder's/Contractor's Name:
[Address and Contact Details] _____

_____

_____

_____

Contract/Tender Reference No.: _____ Date…….

To
The Executive Engineer
[Complete address of the Division office]

Sub: No Claim Certificate

Ref: i) Contract Agreement no.: _____ dated _____
for the work of: _____

_____

ii) LoI No.: _____

iii) Work Order No.: _____

We have submitted and signed the final bill amounting to ₹_____ (Rupees _____ _____only) as final settlement due to us for the work of ____ _____ _____under the above mentioned contract agreement.

On receipt of final bill amounts payable to us with this payment, we have no outstanding dispute of any description whatsoever regarding the amounts worked out as payable to us and received by us.

We hereby unconditionally and without any reservation whatsoever, certify that we shall have no further claim whatsoever, of any description, on any account, against SWM Sector, KMDA, under the contract above. We shall continue to be bound by the terms and conditions of the contract agreement regarding its performance till defect liability period.

Yours faithfully,

Signatures of Bidder's/Contractor's or
Officer authorised to sign the contract documents.
on behalf of the Bidder / Contractor
(Company Seal)

Date: _____

Annexure 9:

FORMAT FOR
HANDOVER AND TAKEOVER CERTIFICATE FOR THE FACILITIES AND/OR ASSETS CREATED BY
KOLKATA METROPOLITAN DEVELOPMENT AUTHORITY

(To be executed on the ULB letterhead and obtained before releasing Security Deposit of the agency)

1. Name of the Work : ……
   ……
   ……
   ……
2. Location : ……
   (address and probable coordinates)
3. E-NIT no. : ……
4. Name & address of the agency : ……
   ……
   ……
5. Letter of Intent (LOI), memo. no. : ……
6. Work Order (WO), memo. no. : ……
7. Estimated amount put to tender (₹) : ……
8. Final Bill value (₹) : ……
9. Date of actual Completion of Work : ……
10. Date of Joint Site Inspection : ……
    (must be conduction within Defect Liability Period of contract)

11. Date of takeover of the asset/facility : ……
12. Any observation/remark while taking over the asset from KMDA by the ULB:
    ……
    ……
    ……

13. **Endorsement** :

All the parties do hereby endorse this Handover and Takeover Certificate of the Project, as mentioned. The signing of this document accepts the handover of the asset(s), created by Kolkata Metropolitan Development Authority (KMDA). The project client/executing agency, here KMDA, is responsible for following up of any outstanding fund that may be required to be claimed for this project, due to the agency, if any.

PROJECT HANDOVER BY

_____
Dated Signature of
The Executive Engineer
_____ Division, SWM Sector, KMDA

PROJECT TAKEOVER BY

_____
Dated Signature of
The Chairperson/Chairman/Executive Officer
_____ Municipality/Municipal Corporation