TAMIL NADU HOUSING BOARD

SUPERINTENDING ENGINEER
(SPECIAL PROJECT CIRCLE-II)
NO: C-48 II Avenue AnnaNagar
Chennai-600040, Tamil Nadu.
Phone No:26280020
Fax No: 044-26280020.

Name of Work: Pre-Qualification Tender - Development work such as filling low lying area providing on site cc road and culverts, storm water drain etc for the construction of 6877 EWS flats (Stilt+13floors) in block no 8 T.S no 2at Eranavoor village , Thiruvallur district.

TAMIL NADU HOUSING BOARD
PRE- QUALIFICATION SCHEDULE

COVER – 'A'

NAME OF WORK :- Pre-Qualification Tender – Development work such as filling low lying area providing on site cc road and culverts, storm water drain etc for the construction of 6877 EWS flats (Stilt+13floors) in block no 8 T.S no 2at Eranavoor village , Thiruvallur district.

VALUE OF WORK: Rs.1950 Lakhs (including GST @ 12%)
(Approximate)

EMD AMOUNT :- Rs. 10,00,000 /-

TAMIL NADU HOUSING BOARD

OFFICE OF THE SUPERINTENDING ENGINEER, SPECIAL PROJECT CIRCLE-II, CHENNAI-40.

TENDER NOTICE NO: SPC-II . 010 / 2022 - 2023 **Dated: 10.05.2022**

Sealed pre-qualification tenders in two cover system are invited for the following work by the Superintending Engineer, Special Project Circle II, Tamil Nadu Housing Board, c-48 Anna Nagar, Chennai – 600 040.

Sl. No.	Description of work	Approximate value Rs.	EMD Amount Rs.
1	**Development work such as filling low lying area providing on site cc road and culverts, storm water drain etc for the construction of 6877 EWS flats (Stilt+13floors) in block no 8 T.S no 2at Eranavoor village , Thiruvallur district**	**1950.00 Lakhs**	**10,00,000/-**

Last Date for receipt of above tenders **14.06.2022** upto 11.00 am., Date of Opening of tender **14.06.2022** at 11.30 am., Date of availability of tender document **06.06.2022 to 13.06.2022** at 1.00 PM. Cost of tender document **Rs.15,750/-** including GST.

CONDITIONS FOR ISSUE OF TENDER DOCUMENTS:

1. The Contractors registered (the registration certificate should be reclassified and renewed upto date) under class-I in TNHB, PWD, TNPHC, TNSCB and other Government / Quasi Government Departments with appropriate monitory limit are eligible to participate in the tender.
2. The tenderer should have executed similar nature of works costing more than 50% of the Value of work put to tender, in a single contract with the last 5 years period. A certificate from the concerned department not below the rank of Superintending Engineer / Executive Engineer Should be furnished.
3. The undersigned reserves right to reject / cancel the tender without assigning any reason therefore.
4. Further particulars and tender documents can be had from the Office of the Superintending Engineer, Special Project Circle II, Tamil Nadu Housing Board, Anna Nagar, Chennai – 600 040.
5. The tender schedule can also be downloaded from the website www.tenders.tn.gov.in at free of cost. If there are any corrections /omissions in the Tenderer will be noticed in the web site only.

Superintending Engineer/SPC-II

Special Project Circle-II,
Tamil Nadu Housing Board,
C-48, 2nd Avenue, Anna Nagar,
Chennai-600 040.

IMPORTANT INFORMATIONS TO THE TENDERERS FOR FILLING UP OF TENDER IN THE TENDER SCHEDULE

1. The contractors are requested to read the detailed specification in Schedule A and quote the rates clearly in the tender sheet. Quoting the rates in the tender Schedule-A sheet for all the items will only be taken up for comparison and final.

2. The contractor should make sure that the rates both in figures and words filled up in the Schedule-A.

3. The Contractors are requested to fill up the rates neatly without over writing. Otherwise the decision of the TNHB on these rates to be taken up for comparison is the final.
4. The tenderer / Contractor will make their own arrangements to procure and use the cement and steel (as per IS Standards and its latest amendment from time to time) required for the work..
5. The cement brought and used should confirm to IS No. 268 of 1976 and steel should confirm to IS No. 432/64 and 1786/79 (its latest amendment if any). It should be clearly understood that the rate quoted by the tenderer/contractor is inclusive the cost of 43 grade ordinary Portland cement / SRC and steel and other incidental charges such as conveyance, loading, unloading, stacking at site and testing charges etc., complete.
6. The tenderer / contractor will produce test certificate obtained from any one of the Govt. institutions for cement and steel brought to site. As and when required by the Department the cement and steel brought to the site shall be tested by the Department from any one of the approved Govt. institutions and only when the test results confirm to the ISI specification they will be allowed to be used in the works.

7. The contractors registered (the registration certificate should be re-classified and renewed upto date) under Class-1 in PWD,TNPHC,TNSCB, and other Government/ Quasi Government Department with appropriate monetary limit are eligible to participate in the Tender.

Contractor **No of Correction** **Superintending Engineer**
Special Project Circle-II

8. Tenderer enclose a certificate from the concerned Department not below the rank of Superintending Engineer/ Executive Engineer that they have executed works within a period of five years.

9. The tenderer should have executed works of similar nature costing more than 50% of the value of the work put to tender in a single contract in Government with the last five years period.

10. Tenderer should be an assesses of Income Tax and attested copy of latest income tax & Sales tax clearance certificate should be enclosed along with their requisition.

11. The tenderer should enclose registration, previous performance, nature and value of the work done etc.

12. Withdrawal of Tender on any circumstance after submission will not be entertained.

13. The Tender schedule is not transferable.

14. Tenderer should not make any corrections in the Downloaded Tender Document Schedule.

15. The Tenderer / Contractor should follow the above instructions without fail.

16. In case of any discrepancy between the tender documents downloaded from website and the master copy available in the office, the later will prevail and will be binding on the Tenderer. No claim on this account will be entertained.

Contractor **No of Correction** **Superintending Engineer**
Special Project Circle-II

17 .For PQ system, the tender should be accompanied by **2 separate envelopes "A"& "B"** duly super scribed on it, the name of work, reference No. and the due date of tender with the name of the tenderer and sealed with the following particulars.

Envelope A - Should contain Earnest Money Deposit in the form Prescribed and Should **contain filled in pre-qualification schedules**

Envelope B – **Should contain filled in price schedule**

All the Two envelopes should be enclosed in an overall envelope duly sealed and super scribed with the name of the work, reference No., due date of tender and the name of the tenderer and addressed to the Superintending Engineer/ SPC-II /TNHB, Chennai-40 who is tender inviting authority.

At the time and date notified above for opening the overall envelope and cover "A" will be opened. If any of the bidders indicates the price in envelope "A" the bid will not be read out and be rejected. The envelope "B" of those who confirm to the pre qualification requirement will be opened in the presence of those who choose to be present on the later date. The date and time will be informed to them well in advance.

Contractor **No of Correction** **Superintending Engineer**
Special Project Circle-II

TAMIL NADU HOUSING BOARD
ANNEXURE
PAYMENT OF EMD AND SECURITY DEPOSIT PRESCRIBED ACCEPTABLE FORM

Circular No. CE / TC / 5/ 98 dated 10-06-98

I EMD will be accepted in the following form only and any other form for payment of EMD will not be accepted.

1) Demand Draft / Banker's Pay orders / Banker's cheque drawn in the name of Exe. Engineer /Tamil Nadu Housing Board of Division concerned (subject to realization of cash) or irrevocable Bank Guarantee drawn from any nationalized/Scheduled bank in India.

2) A deposit at call receipt duly pledged to the Exe. Engineer / Tamil Nadu Housing Board of concerned Divisions.

(Note item 1 and 2 shall be from Nationalized Bank / Schedule (Indian) Bank)

3) Government Securities / Bonds / Certificates duly endorsed / pledged in favour of the Exe. Engineer / Tamil Nadu Housing Board of Division concerned.

4) NSC / KVP pledged in favour of Exe. Engineer / Tamil Nadu Housing Board Division concerned, along with the letter triplicate confirming the pleading scrips to the Exe. Engineer / Tamil Nadu Housing Board (This is not applicable to companies and Institutions)

(Note : Item 3 & 4 above shall be valid for 150 days from the date of opening of Tender (i.e. maturity date of above shall be on or after 150 days from the date of opening of tenders)

II. The successful tenders / Suppliers should furnish security deposit (Including EMD furnished in other forms) in the form of small saving scrip's / Deposit accounts.

1) NSC / KVP pledged in favour of the Exe. Engineer / Tamil Nadu Housing Board Division concerned along with the letter in triplicate confirming the pledging the scrip's to the Exe. Engineer / Tamil Nadu Housing Board (This is not applicable for companies / Institutions)

2) Other Small Savings scripts / Deposit accounts with the compliance of the stipulation stated in (1) (as application in this case)

3) The security deposit in the form of Irrevocable bank guarantee from nationalized banks /scheduled banks

III. The above are applicable to the Tenderer / firms situated in TamilNadu only. The tenderers from other states shall remit EMD / SD by means of cash receipt from the TNHB, Division office concerned, Bankers Demand Drafts, Bankers Pay order, payable to the EE / TNHB. Division concerned. Other form of payment of EMD / SD. will not be considered in respect of the tenderers from other states.

IV. In case of Companies / Institutions will be accepted towards SD, selected Small saving scrip's like KVP, NSC. Time Deposit will not be accepted for EMD / SD. The companies / Institutions, if furnished for EMD / Security Deposit shall give letter indicating the name of the post office and its value and confirming to have been furnished by them towards EMD / S.D. for the tender / Agreement under reference.

V. Actual purchase cost of small saving scrip's will alone be taken as the amount paid by the Tenderer / Contractor. The maturity value will not be considered.

VI. This shall form part of tender schedule / Agreement and shall supersede any other stipulations made stated elsewhere in the tender schedule / Agreement.

Contractor **No of Correction** **Superintending Engineer**
Special Project Circle-II

TAMIL NADU HOUSING BOARD

ADDITIONAL PARTICULARS TO BE FURNISHED BY THE TENDERER

1. Attested copy of the Registration Certificate (The Registration Certificate should be reclassified and renewed upto date in PWD / under class I in PWD ,TNPHC,TNSCB and other Government/Quasi Department with appropriate monetary limit are eligible.

2. Attested Copy of Solvency Certificate issued by the Competent Authority (not below the rank of Tahsildar) issued not earlier than one year and along with E.C. in case of more than one year.
3. Command of Labour, Tools and plants, financial soundness.
4. Performance Certificate issued by the Concerned Department.
5. Credential of the Tenderer for the past five years issued by the authority not lower than the rank of Executive Engineer.
6. To produce the proof of having executed / completed **similar nature of works** under a single contract more than 50% of value of work put to tender in Government department, with in the last five years period.
7. The balance works value in Tamil Nadu Housing Board and other Government Departments should be furnished in the affidavit and the third party certificate in each department executing authority should be enclosed for evidence.
8. The list of works in each works has been taken into account from the Board Tender Register and from other departments. The evidence should be obtained from the executing authority.
9. If any work found left from the list of Balance works in the affidavit and Board Tender Register, the tender may be liable for rejection without any correspondence.
10. Tenderer must produce a certificate from the concerned department not below the rank of Superintending Engineer/Chief Executive Officer that they have executed works within a period of five years.
11. The Income Tax Clearance Certificate valid on the date of opening of tender should be enclosed along with tender.
12. The current Sales Tax Clearance Certificate valid on the date of tender should be enclosed along with tender.
13. The rate tender shall be valid for a period of **90 days** after the date of opening of rate tender.

CONTRACTOR **NO. OF CORRECTIONS** **SUPERINTENDING ENGINEER**

The Tender should be accompanied by **two separate envelopes "A, & B"** duly superscribed on it, the name of work reference No. and the due date of Tender with the name of the tenderer and address and sealed with the following particulars.

Envelope : "A" should contain EMD in the form prescribed and filled in pre qualification schedules.

Envelope : "B" should contain filled in price schedule

All the two envelopes properly sealed separately each should be enclosed in an over all envelope duly sealed and superscribed with the name of the work, reference No., due date of tender and name and address of the tenderer and addressed to the Superintending Engineer, (SPC-II) Tamil Nadu Housing Board, C48,2nd Avenue/ AnnaNagar, Chennai - 600040.

At the time and date notified above for opening, the overall envelope and cover "A will be opened. If any of the bidders indicated the price in Envelope "A" or the bid will not be read out and be rejected. The Envelope "B" of those who confirm to the pre qualification, requirement will be opened in the presence of those who choose to be present on a later date, time and place will be intimated to them well in advance.

The time of receipt of Tender will be at 11-00 a.m.

The time of opening of Tender will be at 11.30 a.m.

CONTRACTOR **NO. OF CORRECTIONS** **SUPERINTENDING ENGINEER**
SPECIAL PROJECT CIRCLE-II

PRE-QUALIFICATION SCHEDULE
Schedule - I Structure and Organization

1.	Name of the Company	:
	Address	:
	Telephone No.	:
	Telex No.	:
II.	Description of the Company (For e.g. General, Civil Engineering Contractor, Supplier of Equipment etc.,)	:
III.	Classification of Registration	:
IV.	Name and Address of the Bankers	:
V.	No. of years of Experience as a General Contractor	:
VI.	Number of years of Experience as a Sub Contractor	:
VII.	Name and address of Partners or Associated Companies to be involved in Project and whether parent/ Subsidiary/other	:
VIII.	Name and address of Companies who will be involved in the electrical work	:
IX.	Organization chart showing the structure of the company including names and positions of directors and key personnel to be attached	:

Note : Particulars for Item II to VI and IX should be furnished. separately for each partner.

Contractor **No. of corrections** **Superintending Engineer**

SCHEDULE II FINANCIAL CAPABILITY

I. Name of the Firm :

II. Financial Positions
- a) Cash :
- b) Current Assets :
- c) Current Liabilities :
- d) Working Capital :
- e) Net worth :

III. Income Tax Permanent No./GIR No :

IV. Annual Turnover as per the Income tax Act :
- a) During 2016-2017:
- b) During 2017-2018:
- c) During 2018-2019:
- d) During 2019-2020:
- e) During 2020-2021:

V. Annual Income as per Income Tax Return :
- a) During 2016-2017:
- b) During 2017-2018:
- c) During 2018-2019:
- d) During 2019-2020:
- e) During 2020-2021:

VI. Financial Resources
- a) Own Resources :
- b) Bank Credits :

Note : Income Tax Clearance Certificate to cover Item No. IV & V and Certificate of financial soundness from Bankers are to be enclosed.

Contractor **No. of corrections** **Superintending Engineer**

SCHEDULE III TECHNICAL COMPETENCE

S.No.	Designation	Name	Qualification	Professional Experience and details of works carried out	Remarks
1	2	3	4	5	6
	Project Manager				
	Works Manager (Civil)				
	Works Manager (Mechanical)				
	Engineer In charge of Design office				

Contractor **No. of corrections** **Superintending Engineer**

SCHEDULE - IV MAN POWER

	With the Applicant's Pay Role	No. that could be made available for the work
1. No. of Engineering graduates :		
2. No. of Administrative graduates :		
3. No. of Skilled employees :		
4. No. of Unskilled employees :		

Contractor **No. of corrections** **Superintending Engineer**

SCHEDULE - V - MACHINERY

Sl. No	Name of the Equipment	No. of Units	Kind & make	Capacity	Age & conditions	Present location	Present Book value	Remarks
1	2	3	4	5	6	7	8	9

CONTRACTOR **NO. OF CORRECTIONS** **SUPERINTENDING ENGINEER**

SCHEDULE - VI –A-EXPERIENCE

Please fill in information about the works completed of the past 5 years

Sl. No	Name & location of the works	Name of the customer who awarded the work	Contract value	Scheduled time for completion	Date of commencement of work	Date of completions of work	Remarks
1	2	3	4	5	6	7	8

Note: Certificate from the customers for the completion of the respective works should be enclosed.

CONTRACTOR **NO. OF CORRECTIONS** **SUPERINTENDING ENGINEER**

SCHEDULE - VI –B-EXPERIENCE

Please fill in information about all the works in progress including those where the company has received a letter but a formal contract has not yet been signed.

Sl. No	Name of the works & its location	Name of the customer who awarded the work	Contract value	Scheduled date of completion	Date of commence-ment of work	Value completed & certified	Percentage of Physical completion	Remarks
1	2	3	4	5	6	7	8	9

Note: Copies of work orders issued in respect of works not commenced and certificate from the customers regarding the stage of completion of works in progress should be enclosed.

CONTRACTOR **NO. OF CORRECTIONS** **SUPERINTENDING ENGINEER**

SPECIMEN COPY OF AFFIDAVIT TO BE TYPED IN NON-JUDICIAL STAMP PAPER OF Rs. 100/- AND TO BE ATTESTED BY NOTARY PUBLIC

AFFIDAVIT

I / We ..... aged ..... years Son of ....do hereby solemnly and sincerely affirm and declare as follows for and on behalf of the Firm.

1) Balance work on hand being executed in Private/Public undertakings and Government Departments as on date is Rs.....

2) No. of Staff in our firm are as detailed below :

   a) Managers :

   b) Engineers :

   c) Diploma Holders :

   d) Skilled workers :

3) No. of Current and incomplete contract running under pre-qualification bid :

4) Any of our contract was not terminated for the past five years.

5) If any information given is found to be concealed at a later date, the contract will be terminated forthwith without prejudice to the rights thereon consequent on termination and the bidder will be black listed.

6) I / We agree for debarring tendering for one year if any facts are suppressed.

SIGNATURE **SIGNATURE OF NOTARY PUBLIC**

SEAL

CHECK LIST FOR THE DOCUMENTS TO BE ENCLOSED ALONG WITH THE PRE-QUALIFICATION TENDER :

1. All covers are sealed with **Arakku Seals** (covering all joints and corners)
2. Attested copy of the Registration under appropriate class.
3., Attested copy of the Firms Registration
4. Attested copy of Registered Partnership Deed

5. Attested copy of the Experience Certificate for having executed work of similar nature under single contract (the work should have been completed)

6. Affidavit in Rs. 100/- Stamp paper containing the following information.

   a. List of personnel in the firm

   b. List of Tools and plants available

   c. Balance works on hand

   d. Paragraph stating that

      i) No work was terminated under Penal clause and

      ii)"We agree for debarring if any facts are found suppressed by us"

7. Third Party certificate for the correct value of Balance works on hand as stated in item 6(c) and duly attested and there should be no variation. If the work order is shown as balance work in 6(c), it should be clearly indicated in the covering letter that the said work has not been commenced with reasons in which case third party certificate is not necessary.

8. Attested copy of solvency certificate from Revenue Authority for the stipulated value.
9. EMD in prescribed form.
10. Attested copy of the latest Income Tax Clearance Certificate.

11. Attested copy of latest Sales Tax Clearance Certificate. If it is a new case proof of Registration is to be furnished.

12. Attested copy of latest Tools and plants certificate to be duly certified by Chartered Accountant.
13. Attested copy of latest Balance Sheet to be duly signed by Chartered Accountant.

14. Attested copy of latest Bankers Certificate indicating O.D. facility and balance amount on hand.
15. Attested copy of Quality Certificate and performance certificate separately from the S.E. / Chief Executive authority for the works executed.

CONTRACTOR NO. OF CORRECTIONS SUPERINTENDING ENGINEER

ADDITIONAL PARTICULARS TO BE FURNISHED BY THE TENDERER.

1. Attested copy of the Registration Certificate.

2. Attested copy of latest solvency certificate issued by the Competent authority (not below the rank of Tahsildar)

3. Details of works completed / progress in the Tamil Nadu Housing Board and other Government Department (Name of work, Value of work, timely completion etc.)

4 Command of Labour, tools and plants, financial soundness.

5. Performance Certificate issued by the concerned Department.

6. Credential of the tenderer for the past five year issued by the authority not lower than the rank of Executive Engineer.

7. To produce the proof of having executed work of **similar nature of work and costing not less than 50%** of the value of work out to tender in a single contract in Government Department works .

8. The Balance works value in Tamil nadu Housing Board and other Government Department should be furnished in the affidavit and the third party certificate in each department executing authority should be enclosed for evidence.

9. The list of works in each works has been taken into account from the Board Tender Register and from other department. The evidence should be obtained from the executing authority.

10. If any work found left from the list of balance works in the affidavit and Board Tender Register, the tender may be liable for rejection without any correspondence

CONTRACTOR **NO. OF CORRECTIONS** **SUPERINTENDING ENGINEER.**

TAMIL NADU HOUSING BOARD
TENDER NOTICE No. 10 /2022-23
Office of the Superintending Engineer/Special Project –II

Tenders will be received by the Superintending Engineer /Special Project Circle-II , Tamil Nadu Housing Board, at his Office at 2nd Avenue , Anna Nagar, Chennai – 40 up to 3.00 PM. On **14.06.2022 .** for the work of **– Development work such as filling low lying area providing on site cc road and culverts, storm water drain etc for the construction of 6877 EWS flats (Stilt+13floors) in block no 8 T.S no 2at Eranavoor village , Thiruvallur district.**

1. The Tender should be in the prescribed form obtainable from Office of the Superintending Engineer, Tamil Nadu Housing Board. The tenders will be opened by the Superintending Engineer, Tamil Nadu Housing Board or his delegate at the place on the date afore mentioned. The tenderers or their agents are expected to present at the time of opening of tenders. The Tender receiving officer will on opening each tender prepare a statement of the attested and unattested corrections therein and hand it over to the tenderers concerned and initial all such corrections in the presence of the tenderer. If any of the tenderers or their agents finds it inconvenient to be present at the time, then, in such case the tender Receiving Officer will on opening the tender of the absentee tenderer make out a statement of the unattested corrections and communicate it to him. The absentee tenderer shall then accept the statement of corrections without any question whatsoever.

2. Tenders must be submitted in sealed covers and should be addressed to the Superintending Engineer, Tamil Nadu Housing Board with the name of the tenderer and the name of the work being noted on the cover.

If the tender is made by an individual it shall be signed with his full name and his address shall be given. If it is made by a member of the firm, it shall be signed with the co-partnership name by a member of the firm who shall also sign his own name, and the name address of each member of the firm shall be given. If the tender is made by a corporation, it shall be signed by duly authorised officer, who shall produce with his tender, satisfactory evidence of his authorization. Such tendering corporations may be required before the contract is executed, to furnish evidence of its corporate existence.

3. Each tenderer must also send a certificate of Income Tax from the appropriate income tax Authority in the form prescribed therefore. This certificate will be valid for one year from the date of issue for all tenders submitted during the period.

In the case of proprietary and partnership firm it will be necessary to produce the certificate aforementioned for the proprietors and for each of the partners as the case may be.

If the tenderer is a registered contractor and if a certificate for the current year had already been produced by him during the calendar year in which the tender is made it will be sufficient if particulars regarding the previous occasion on which the said certificate was produced are given.

All tenders received without certificate as aforementioned will be summarily rejected.

CONTRACTOR NO. OF CORRECTIONS SUPERINTENDING ENGINEER.

4. Each Tenderer must pay as earnest money, a sum of **Rs.10,00,000/-(Rupees Ten Lakhs Only.) in favour of Executive Engineer / FSE.Division, TNHB, Nandanam,Chennai-35.** enclose with this tender the challan in original. This earnest money will be refunded to the unsuccessful tenderer on application after intimation is sent of rejection of the tender or at the expiration of **90 days** from the date of tender, whichever is earlier. The earnest money will not be received in cash, cheque or Bank Guarantee. Tenders accompanied by cheque, cash or bank guarantee will be summarily rejected.

5. The earnest money will be retained in the case of the successful tendering and will not carry any interest it will be dealt with as provided for in the tender.

* Name of work

**Alternatively the earnest money deposit to the required value will be accepted in any one of these forms.

i) **Crossed demand draft on any nationalized banks** / NSC **in favour of Executive Engineer/ FSE.Division, TNHB, Nandanam,Chennai-35. Payable at Chennai**

6. When a tender is to be accepted, the tenderer who is under consideration shall attend the office before the end of the period specified by written intimation to him. If the tenderer fails to attend the office before the end of the period specified, his tender will not be considered. He shall forthwith upon intimation being given to him of acceptance of his tender make a security deposit, it will be in formed to the successful tenderer on acceptance of tender and sign agreement in the proper departmental form for the due fulfillment of the contract. This security deposit together with the earnest money and the amount with held according to Clause 64-1 of the General Condition of the TNBP shall be retained as Security for the due fulfillment of his contract. Failure to enter into the required agreement or to the make the Security deposit as defined in this paragraph shall entail forfeiture of the earnest money. The written agreement to be entered into between the contractor and the Superintending Engineer shall be foundation of the rights of the both the parties and the contract shall not be deemed to be complete until the agreement has first been signed by the contractor and then by proper officer authorised to enter into contracts on behalf of the Housing Board.

7. The tenderer shall examine clearly the TNBP and General Condition of and sign the copy of the TNBP and its addenda volume in token of such study before submitting his tender unit rates which shall be for finished work in site. He shall also carefully study the drawings and additional specifications and all the documents which form part of the agreement to be entered into by the accepted tender. The Tamil Nadu Building Practice and other documents connected with the contract such as specifications plans descriptive specifications sheet regarding materials etc., can be seen at any time between 11.00 a.m. and 5.00 p.m. on office of the Superintending Engineer aforementioned.

* A copy of the set of contract documents can also be had on payment of **Rs.15, 750.00 inclusive of taxes (Rupees Fifteen Thousand Seven hundred and fifty inclusive of taxes)** for each set which **will not be refunded on any account**. The tenderer's attention is directed to the requirement for materials under the clause "Materials and workmanship" in the Preliminary. Materials confirming to the Indian Standards Specifications shall be used on the work and the tenderer shall quote his rates accordingly.

CONTRACTOR NO. OF CORRECTIONS SUPERINTENDING ENGINEER.

8. Every tenderer is expected, before quoting his rates to inspect the site of the proposed work. He should also inspect quarries, and satisfy himself about the quality and availability of materials. In every case the materials must comply with the relevant standard specification. Samples of materials as called for the standard specifications, or in this tender notice or as required by the Executive Engineer in any case, shall be submitted for the Executive Engineer's approval before the supply to site of work is begun.

The Tamil Nadu Housing Board will not, however, after acceptance of a contract rate pay any extra charges for load or for any other reason, in case the contractor is found later on to have misjudged the materials available. Attention of the contractor is directed to the "Preliminary Specification" regarding payment of seigniorage tools etc.

9. The Tender's particular attention is drawn to sections and clause in the Standard "Preliminary Specification" dealing with.

1. Test, Inspection and rejection of defective materials and work.
2. Carriage
3. Construction plant;
4. Water and Lighting
5. Cleaning up during progress and for delivery;
6. Accidents;
7. Delays;
8. Particulars of payment;

* To be struck out if such copies are not be issued for sale.

The contractor should closely peruse all the specification clause which govern the rate which he is tendering.

10. A Schedule of quantities accompanies this tender notice. It shall be definitely understood that the Superintending Engineer, aforementioned does not accept any responsibility for the correctness or completeness, of this schedule and that this schedule is liable to alterations by omissions, deductions or additions at the discretion of the Executive Engineer, Tamil Nadu Housing Board or as set forth in the conditions of contract. The tenderer will however base his lump sum tender on this schedule of quantities. He should quote specific rates for each item in the Schedule and the rates should be in Rupees and Paise. The rates should be written both in words and figures and the units in words. The tenderer should also show the totals of each item and the grand total of the whole contract. The schedule "A" accompanying the lump sum tender shall be written legibly and free from the erasures, over writings of conversions of figures, corrections, where unavoidable should be made by crossing out, initialing dating and rewriting.

11. Tenders offering a percentage deduction from or increase on the estimate amount and those not submitted in proper form or in due time will be rejected. Rates or lump sum amounts for items not called for shall not be included in the tender. No alteration which is made by tenderer in the contract from the conditions of contract, the drawings, specification, quantities accompanying same will be recognized and if any, such alterations are made the tender will be avoided.

12. The tenderer should work out his own rates without reference being made to the Tamil Nadu Housing Board current schedule of rates or to the estimate rates which are not open for inspection by tenderers.

13. The attention of the tenderers is directed to the contract requirements as to time of beginning work, the rate of progress and the dates for the completion of the whole work and its several parts, the following rate of progress and of proportionate value of work done from time to time. As will be indicated by the Executive Engineer's certificates of the value of work done will be required. Date of commencement of this programme will be the date on which the site (for premises) is handed over to the contractor.

CONTRACTOR NO., OF CORRECTIONS SUPERINTENDING ENGINEER

Period after date of commencement	Percentage of work completed (based on contract lump-sum amount)
1 st Month	**10% (50% of filling work)**
2nd Month	**25% (100% of filling work)**
3rd Month	**45%**
4th Month	**60%**
5th Month	**80%**
6Th Month	**100% of the Whole work to be completed .**

Note : The period to be entered in Column (1) for the purpose of defining the rate of progress may be fixed by Executive Engineer to suit each case

14. No parts of the contract shall be subject without written permission of the Superintending Engineer, not shall transfer be made by power of attorney authorised to receive payment on the contractor's behalf.

15. If further necessary information is required, the Superintending Engineer of the Tamil Nadu Housing Board will furnish such but it must be clearly understood that tenders must be received in order, and according to instructions.

16. The Superintending Engineer or other sanctioning authority reserves the right to reject any tenders without assigning any reason therefore.

17. Preference in the selections from among the tenders will be given. Other things equal, to those who are themselves professionally qualified or who undertake to employ qualified men at their cost to look after the work. The tenderers should therefore state in clear terms whether they are professionally qualified or whether they undertake to employ technical staff and if so to give their professional qualifications or of the staff to be employed. In case the selected tenderer is one who has undertaken to employ technical staff under him he should see that one of the staff is always at site of the work during hours personally checking all items of work and paying extra attention to such works as may demand special attention e.g., reinforced concrete works etc.,

18. A tenderer submitting a quotation which the tender accepting authority considers excessive and / or indicate of the insufficient knowledge of current prices or definite attempt at profiteering will tenderer himself liable to be debarred permanently from tendering or for such period as the tender accepting authority may decide.

CONTRACTOR NO. OF CORRECTIONS SUPERINTENDING ENGINEER

19. The fact of submitting the tender implies that the tenderers actually inspected the site of works and have examined before tendering the nature and extend of various kinds of soil at various depth and have based their tenders on such examination by them and no future representation in this regard will be consideration.

20. A statement giving brief particulars of equipment and resources that will be put at the disposal of the work under the following classifications should accompany the tender.

a) Equipment (Transport for materials viz., lorries and carts, concrete mixers)

b) Organization (i) technical and (ii) unskilled.

c) Resources in materials like teakwood, steel, etc., and extent to which departmental help is not required for procurement of materials and transport of the same.

d) Methods that will be adopted up the work to ensure completion within or less than the time fixed for completion.

21. The Superintending Engineer, reserves to himself the right of allotting the different sub-works to different contractors or to one and the same contractor as he may decide after the receipt of tenders.

22. The Contractors are liable to pay a penalty of not exceeding one percent of the estimated value of work for non employment of the technical staff if the value exceeding Rs. 50,000/-

23. The cost of materials supplied will be recovered from the bills or any other amounts due to the contractor.

CONTRACTOR NO. OF CORRECTIONS SUPERINTENDING ENGINEER

OFFICE OF THE SUPERINTENDING ENGINEER

TAMIL NADU HOUSING BOARD

TENDER

To

The Superintending Engineer
Special Project circle-II
Tamil Nadu Housing Board
Anna Nagar,
Chennai-40

Date 2022

Sir,

I / We, do hereby tender and, if this tender accepted, undertake to execute the following work, viz., **Development work such as filling low lying area providing on site cc road and culverts, storm water drain etc for the construction of 6877 EWS flats (Stilt+13floors) in block no 8 T.S no 2at Eranavoor village , Thiruvallur district.**

as shown in the drawings and described in the specification deposited in the Office of the Superintending Engineer, Nandanam, Tamil Nadu Housing Board, with such variations by way of alterations of additions to, and omissions from the said works and method of payment as are provided for in the conditions of contract for the sum of Rs. .... (in words and figures) ....…….. ....
or such other sum as may be arrived at under the clause of the Standard Preliminary specification relating to "Payment of lump-sum basis or by final measurement at unit price".

I *I* We have also completed the price list of items of Schedule 'A' annexed (in words and figures) for which I *I* We agree to execute the work and receive payments on detailed final measurement at Unit Prices.

I *I* We hereby distinctly and expressly declare and acknowledge that, before the submission my / our tender I *I* We have carefully followed the instructions in the tender notice and have read the Tamil Nadu Detailed Standard Specification and the Preliminary Specifications therein and that I *I* We have made such examination of the contract documents and the plans, specifications and quantities and of the location where the said work is to be *done* and such investigation of the work required to be done and

CONTRACTOR **NO. OF CORRECTIONS** **SUPERINTENDING ENGINEER**

in regard to the material to be furnished as to be enable me *I* us to thoroughly understand the intention of the same and the requirement, covenants, agreements, stipulations and restrictions contained in the contract, and in the said plans and specification and distinctly agree that I / We will not hereafter make any claim or demand upon the Board based upon or arising out of any alleged misunderstanding or misconception, of mistake on my *l our* part of the said requirements, covenants, agreements, stipulations restrictions and conditions.

I *I* We being a registered contractor enclose an income-tax verification *I* have already produced and income-tax verification certificate in respect of (here particulars of the previous occasion on which the certificate was produced should be given).

I / We enclose herewith a challan for the payment of the sum of Rupees (in words and figures) .... as earnest money not to bear interest. If my / our tender is not accepted; this sum shall be returned to me / us on my *I* our application when intimation is sent to me / us of rejection or at the expiration of 150 Days from the date of this tender whichever is earlier. If my / our tender is accepted, the earnest money shall be retained by the Board as security for the due fulfillments of the contract. If upon written intimation to me / us by the Superintending Engineer indicating that my / our presence is required for the purpose of enquiry. I / We fail to attend the said office before the end of period specified on such intimation, and if upon intimation being given to me *I* us by the Superintending Engineer of acceptance of my / our tender. I / We fail to make the additional security deposit or to enter into the required agreement as defined in clause 4 of the tender notice. Then I / We agree to the forfeiture of earnest money. A notice required to be served on me / us hereunder shall be sufficiently served on me *I* us personally or forwarded to me / us by post (registered or ordinary) or left at my / our address given herein such notices shall be sent by post be deemed to have been served on me *I* us at the time when-in due course of post it would be delivered at the address to which it is sent.

I / We fully understand that the written agreement to be entered into between me *I* us and the Board shall be the foundation of the rights of both the parties and the contract shall not be deemed to be complete until the agreement has first been signed by me *I* us and then by the proper officer authorised to enter into contracts on behalf of the Board.

I am / We are professionally qualified and my / our Qualification are given below:

Name	Qualifications

CONTRACTOR NO. OF CORRECTIONS SUPERINTENDING ENGINEER

I / We will employ the following technical staff for supervising the work and will see that one of them is. always at site during working hours personally checking all items of works and paying extra attention to such works as require special attention (e.g) Reinforced Concrete Work.

Name of Members of technical Staff proposed to be employed	Qualifications

Note : a) The last two clauses should be scored out if the cost of the works involved is less than Rs. 10,000/-

b) The tenderers should score out the last clause or the penultimate according as they are themselves professionally qualified or undertake to employ technical staff under them.

CONTRACTOR **NO. OF CORRECTIONS** **SUPERINTENDING ENGINEER**

RATE OF PROGRESS

(Fill in under Notice)

Period after the commencement of	Percentage of work to be completed on the whole work

CONTRACTOR **NO. OF CORRECTIONS** **SUPERINTENDING ENGINEER**

TAMIL NADU HOUSING BOARD

PRE- QUALIFICATION SCHEDULE

COVER – 'B'

NAME OF WORK - Development work such as filling low lying area providing on site cc road and culverts, storm water drain etc for the construction of 6877 EWS flats (Stilt+13floors) in block no 8 T.S no 2at Eranavoor village , Thiruvallur district.

VALUE OF WORK: Rs. 1950.00 Lakhs (Including GST @ 12%)
(Approximate)

EMD AMOUNT : Rs.10,00,000/-

Schedule-A

TAMIL NADU HOUSING BOARD

SCHEDULE OF APPROXIMATE QUANTITIES FOR THE WORK OF

Name of the Work : Development work such as filling low lying area providing on site cc road and culverts, storm water drain etc for the construction of 6877 EWS flats (Stilt+13floors) in block no 8 T.S no 2at Eranavoor village , Thiruvallur district.

The quantities here given are those upon which the lump sum tender cost for the work is based but they are subject to alteration, omission, deduction or addition, as provided for in the conditions of the contract and do not necessarily show the actual quantities of the work to be done. The unit rates noted below are those governing payment for the extras or deductions or omissions or alterations according to the conditions of contract as setforth in the preliminary specification of the Tamil Nadu Building practice and other conditions of specifications of this contract.

It is to be expressly understood that the measured work is to be taken nett. (Not withstanding any custom of practice to the contrary) according to the actual quantities when in place and finished according to the drawings or as may be ordered from time to time by the Executive Engineer, as the cost calculated by measurement or weight at the respective prices quoted are for the work in situ and in every respects.

Contractor. **No.of corrections.** **Superintending Engineer,**

Name of the Work: Development work such as filling low lying area providing on site cc road and culverts, storm water drain etc for the construction of 6877 EWS flats (Stilt+13floors) in block no 8 T.S no 2at Eranavoor village , Thiruvallur district.

Sl. No	Quantity	Unit	Description	TNBP .No	Rate in figures and words	Unit in words and in figures	Amount
1.			Earthwork excavation in sand silt or other loose soil wet sand or silt, light black cotton, sandy loam soil and to the required depth as may be directed except in hard rock requiring blasting inclusive of shoring strutting and baling out water wherever necessary, depositing the surplus earth in places shown clearing and levelling the site with an initial lead of 10 metre and lifts as specified hereunder etc., all complete in all respects complying with relevant standard specification Including refilling (OPEN EXCAVATION)	**17 23& 24**			
a	**3107.74**	**M^3**	a) 0 to 2 m depth			**1 Cum (One Cubic Metre)**	
b	**2341.88**	**M^3**	b) 2 to 3 m depth			**1 Cum (One Cubic Metre)**	
2	**41276.78**	**M^3**	Supplying and filling in foundation and basement with Stone dust in layers of 150mm thickness well watered rammed and consolidated complying with relevant standard specifications including cost of filling Stone dust as directed by the Departmental officers.	**25**		**1 Cum (One Cubic Metre)**	
3	**1021.01**	**M^3**	Cement concrete 1:3:6 (One of cement, Three of M sand and Six of hard broken stone jelly) for foundation and flooring using 40 mm size broken stone jelly inclusive of shoring, strutting, baling out water wherever necessary ramming, curing etc.,	**28**		**1 Cum (One Cubic Metre)**	

			for foundation concrete and for encasing the end pipe line complete in all respect complying with relevant standard specifications and as directed by the departmental officers.				
4	**5356.17**	**M^3**	Cement concrete 1:5:10 (One of cement, five of M sand and ten of hard broken stone jelly) for foundation and flooring using 40 mm size broken stone jelly inclusive of shoring, strutting, baling out water wherever necessary ramming, curing etc., complete in all respect complying with relevant standard specifications and as directed by the departmental officers.	**28**		**1 Cum (One Cubic Metre)**	
5	**5307.78**	**M^3**	Cement concrete 1:2:4 (One of cement, two of sand and four of hard broken stone jelly) for foundation and flooring using 20 mm size broken stone jelly inclusive of shoring, strutting, baling out water wherever necessary ramming, curing etc., complete in all respect complying with relevant standard specifications and as directed by the departmental officers.	**28**		**1 Cum (One Cubic Metre)**	
6			Cement Concrete **M30 Design Mix** for all reinforced cement concrete works namely Pile cap,Grade beam, Column and other similar works and other similar structures etc.with water cement ratio not exceeding 0.45 and minimum cement content of 400 Kg per Cubic Metre,.using ordinary Portland cement, M sand, 20mm size coarse aggregates, necessary approved admixtures as per requirement . excluding the cost of reinforcement grills, fabrication charges, shuttering and centering but including all leads and lifts, pumping using line pump or boom placer, scaffolding wherever necessary,laying,vibrating, finishing, curing etc all complete in all respects complying with relevant standard specifications and as directed by the departmental officers.	**30**			
a	**747.73**	**M^3**	FOR FOUNDATION AND BASEMANT			**1 Cum (One Cubic Metre)**	

7			Supply and erecting, centering for sides and sofits including supports and strutting up to 3.29 mt high for plane surfaces such as RCC slabs, rectangular beams, Tee (or) Ell beams, lintels, Bed Blocks, slabs, landing beam, canopy side slab or boxing or vertical slabs, rectangular or square or round columns etc. as detailed below with all cross bracings using MS sheets of size 90cm x 60cm and BG 10 stiffened with welded MS angles of size 25mm x 25mm x 3mm for boarding laid over silver oak or country wood joist of size 10cm x 6.5cm spaced at about 90cm centre to centre and supported by casurina props 10cm to 13cm dia spaced about 75cm center to centre or at nsuitable intervals etc. complete complying with standard apecification and as directed by the Departmental officers.	**30**			
a	**25624.09**	**sqm**	a)Providing form work for foundation & Basement etc., complete in all respect complying with relevant standard specifications and as directed by the departmental officers.	**30**		**1 sqm (One square metre)**	
8	**259.21**	**MT**	Supplying, fabricating and placing in position of Mild steel/Ribbed Tor steel grills for reinforcement for all RCC works in foundation and basement , superstructure etc., including the cost of labour charges, brushes, binding wire, bending, tying, etc., complete in all respects complying with relevant standard specification and as directed by the departmental officers.	**30 & 8**		**1MT (One Metric Tonne)**	
9	**525.40**	**sqm**	Finishing the top of flooring with cement concrete 1:3 Ellis pattern flooring 20mm thick in cement concrete 1:3(One of cement and Three of stone jelly) using 10mm and less hard broken stone chips (No M sand to be used) including laying ,curing, finishing..etc complete complying with relevant	**39G**		**1 sqm (One square metre)**	

			standard specifications and as directed by departmental officers.				
10	**1598.30**	**sqm**	Plastering in C.M 1:3 (one of cement and three of P sand) 10mm thick for bottom of sunshade, ceiling in all floors, including hacking the RCC surface, providing necessary water bond using same mortar mix wherever necessary and scaffolding, curing ,finishing etc all complete in all respects complying with relevant standard specification and as directed by the departmental officers.	**56 & 57**		**1 sqm (One square metre)**	
11	**13095.63**	**sqm**	Plastering with cement mortar 1:5 (One of cement and five of P sand) 12mm thick With Water Proof Compound finished with neat cement including, providing band cornice scaffolding curing etc., complete complying with relevant standard specification and as directed by the departmental officer	**56 & 57**		**1 sqm (One square metre)**	
			Water Supply Arrangements:				
12			Supplying, laying, fixing and jointing the following PVC pipes as per ASTM D - 1785 of schedule 40 of wall thickness not less than the specified in IS 4985 suitable for plumbing by threading of wall thickness including the cost of suitable PVC/GI specials like Elbow, Tee reducers, Plug , union, bend, coupler, nipple etc., wherever required below ground level including the cost of Teflon tape, laying to the proper gradient and alignment ,earth work excavation ,Refilling ,ramming ,testing etc., complying with relevant standard specifications & as directed by the departmental officers				
a	**6567.86**	**RMT**	65 mm dia pvc pipes			**1 Rmt (One Running Metre)**	

b	**904.23**	**RMT**	100 mm dia pvc pipes			**1 Rmt (One Running Metre)**	
13	**539**	**Nos**	Supplying & Fixing of SFRC cover slab of Size 60 cm x 60 cm including benching channeling fixing cover slab in position curing finishing etc., complete in all respects. directed by the the departmentalofficers and as per standard specifications.			**1 No (Each)**	
14	**2204**	**Nos**	Supplying & Fixing of C.I. steps with cover including the cost of labour etc, complete in all respects and as directed by the departmental officers and as per standard specifications.			**1 No (Each)**	
15	**115**	**Nos**	Supplying and fixing of Sintex Dust - Bin 660 liter Capacity with 4 wheels (GBRW 66-04) including all charges all complete., etc., all complete as directed by the departmental officers and as per standard specifications.			**1 No (Each)**	
16			Supplying,delivery, laying and jointing of the following size stone ware soft glazed pipe,slant and specials with spigot and socket ends confirming to ISI speccification 651/1992 grade A of best approved quality including laying to correct levels, slopes and alignment as shown in place including jointing the S,W Pipes and specials with tarred yarn and cement mortar 1:1 (one of cement and one of sand)including earth work excavation in all soils and sub soils except hard rock rock requiring blasting but including shoring, strutting, pumping and dewatering wherevernecessary Cement concrete 1:2:4 (One of cement two of sand and four of hard broken stone jelly using 40mm stonejelly for encasing concrete for end pipe (plain				

			concrete) and testing of complete pipe line with water and all other incidental charges such as barricading lighting watch and ward etc and refilling the treches with excavated earth in layer of 150mm thick without damaging the tested sewer line after the pipes are laid, joited and tested S.W. pipes and special and tarred yarn and diposing of surplus earth as directed by the deparmental officers etc complete for the following depth				
a	**3564.41**	**RMT**	a) 1.50m depth(225 mm dia s.w.pipe)			**1 Rmt (One Running Metre)**	
b	**1689.35**	**RMT**	b) 3.00m depth(300 mm dia s.w.pipe)			**1 Rmt (One Running Metre)**	
17			Construction of rectangular manhole of size 0.90Mx1.50M internal as per detailed type design drawing No PH/TNHB/2/86 to depth here under and fixing of 450 mm dia steel fiber reinforced cement concrete (SFRC) manhole frames and cover and plastic steps inside the chamber for the following depth including earth work excavation in all soils and sub soils except hard rock requiring blasting but including shoring, strutting, timbering. pumping and dewatering, refilling the sides of manhole with excavated earth disposing the surplus earth at places shown by the officers and laying foundation concrete in Cement concrete 1:3:6 (One of cement three of sand and six of hard broken stone jelly) using 40mm stone jelly. Brick work in Cement mortar 1:3 (One of cement and three of sand)				

			using chamber burnt II class table moulded bricks of size 9"x4 3/8"x23/4" Plastering out side with cement motor 1:3 (One of cement and three of sand) 12mm thick Plastering inside with cement motor 1:3 (One of cement and three of sand) 20mm Thick. Cement concrete 1:1.5:3 (One of cement one and half part of sand and Three part of hard broken stone jelly) using 20mm stone jelly excluding the cost and fabrication of steel but including moulding curing benching and channeling etc., all complete and as directed by officers				
a	**350**	**Nos**	a) 1.50 metre depth manhole (225 mm dia s.w.pipe)			**1 No (Each)**	
b	**165**	**Nos**	b) 2.50 metre depth manhole (300 mm dia s.w.pipe)			**1 No (Each)**	
18	**14**	**Nos**	Supply, delivering, erection and commisioning of suitable submersible pumpset with DOL starter as per specifications 20 - 100 Cum /hr discharge, 50m head and RPM 1450 speed, Non return Ball valve 100 mm dia, delivery pipeline of 100 m to 150m long included necessary civil works and all complete of best approved quality brand as directed by departmental officers			**1 No (Each)**	
19	**79**	**Nos**	Labour Charges for erection of Submerssible Pumpset 5 HP up to 10HP into the borewell as directed by the Department officers			**1 No (Each)**	
20	**3245**	**RMT**	Supplying and laying of PVC Insulated flat type 4 sqmm copper cable confirming IS694/90 with ISI mark for three phase submercible pumpset including hire charges for laying cable below ground level including earthwork,refillin,cost of materials and labour etc complete as directed by the Department officer etc.,			**1 Rmt (One Running Metre)**	

21	**1185**	**RMT**	Drilling of 150mm (6") dia vertical clear bores in Hard Rock in any habitation to any required depth as directed by the officers concerned including labour charges for inserting M.S/P.V.C casing pipe to any required depth assembling in the drilled hole including welding joints if necessary, grouting the casing pipes including conducting proper yield test at final depth (by providing 90 degree 'V' notch fitted in a formed enamel and the correct yield at the time of free flow in the channel while flushing the bore after completion of drilling including transportation , crew and fuel charges for rigs and supporting vehicles from one place to another etc., all complete and as directed by departmental officers			**1 Rmt (One Running Metre)**	
22			Supply and delivery of following dia P.V.C Casing pipe and specials as per IS 12818/1992 of approved quality for Bore well etc all complete as directed by the Departmental officers				
a	**592.50**	**RMT**	150mm dia Pvc pipe			**1 Rmt (One Running Metre)**	
b	**592.50**	**RMT**	150mm dia Slotter Pvc pipe			**1 Rmt (One Running Metre)**	
C	**79.00**	**Nos**	150mm dia Pvc end cap			**1 No (Each)**	
23	**1185.00**	**RMT**	Labour charges for inserting 150 mm dia PVC pipes assembly (with or without slots) in the drilled hole including jointing PVC pipes with couplers with cement paste complete and supplying and packing annular space with pebbles of good quality etc., all complete and as directed by departmental officers.			**1 Rmt (One Running Metre)**	

24	**158.00**	**hr**	Charges for developing the Bore well with Air compresser of 600CFM Capacity including Transportation, Labour and fuelcharges for compressor as directed by departmental officers and conducting Yield test by 'V' notch method all complete as directed by the departmental officers			**1 hr (One hour)**	
25	**79.00**	**Nos**	Supplying and delivering erection of pumpset with DOL starter of suitable for 150 mm dia borewell of delivery head 15m and discharge of 200lpm with nesecessary testing for mortor, clamps and all fittings of best approved quality all complete as directed by the departmental officers.			**1 No (Each)**	
26	**79.00**	**Nos**	Suppllying and fixing of G.M Non return valves 50mm dia of approved make and Quality as per IS specifications etc complete and as directed by the departmental officers.			**1 No (Each)**	
27			Supplyig and fixing of 150mm dia & 100mm dia First quality cast iron pipe suitable for road crossing areas including the cost of suitable CI specials like coupler, nipple etc., wherever required below ground level including the cost of all materials, laying to the proper gradient and alignment ,earth work excavation ,Refilling ,ramming ,testing etc., complying with relevant standard specifications & as directed by the departmental officers				
a	**474**	**RMT**	a) 150mm dia cast iron pipe			**1 Rmt (One Running Metre)**	
b	**474**	**RMT**	b) 100mm dia cast iron pipe			**1 Rmt (One Running Metre)**	

			Electrical Arrangement				
28	**1580**	**RMT**	Supplying and laying of HDPE pipe 50mm dia size of approved best quality with ISI mark as per IS specification for submersible motor having pressure 10 kg / cm including laying , cutting, Jointing etc., all complete and as directed by departmental officers (The quality of pipe should be got approved from the EE/TNHB before use)			**1 Rmt (One Running Metre)**	
29	**1975**	**RMT**	Nylon rope of good auality tying the motor in proper way and as directed by the departmental officers			**1 Rmt (One Running Metre)**	
30	**24**	**Nos**	Supply and fixing of 3 phase **panel Board DOL starter** of approved make and quality as per IS specifications suitable for designed pumpset of submersible satisfying the duty conditions with two level guard,auto start,labour charges etc.,all complete & as directed by the departmental officers			**1 No (Each)**	
31			Supplying and fixing of G.M Gate valves of approved make and Quality as per IS specifications etc complete and as directed by the departmental officers.				
a	**33.00**	**Nos**	65mm dia			**1 No (Each)**	
b	**6.00**	**Nos**	100 mm dia			**1 No (Each)**	
32	GST @ 12 % Extra Over the Quoted rate =						
	TOTAL (Including GST) =						

(Rupees ---------- Only)

Note: Contractor has to sign in all the pages of Schedule-A

Contractor. No.of corrections. Superintending Engineer

Note:

1. Tenderer should quote rate in the prescribed department tender Schedule A form itself.
2. The rates quoted by the tender should be inclusive of all demand.
3. The tenderer shall furnish the brand name for all the materials
4. The tenderer shall make good of damaged portion while fixing and the same shall be match with the existing surface.
5. Guarantee : 12 Months from the date of handing over of Electrical and mechanical pump set for water supply system and entire Fire fighting system in good working condition.
6. Free Maintenance Period : One year from the date of handing over of the entire fire Fighting system in good and satisfactory working condition.

Contractor. No.of corrections. Superintending Engineer

TAMIL NADU HOUSING BOARD

SCHEDULE 'B'

Name of Work : Development work such as filling low lying area providing on site cc road and culverts, storm water drain etc for the construction of 6877 EWS flats (Stilt+13floors) in block no 8 T.S no 2at Eranavoor village , Thiruvallur district.

Sl.No	Name
1	Road Measurement & alignment drawing
2	Cross section of CC Road
3.	Cross section of storm water drainage
4.	Culvert Drawing
5.	Cross section of Sump Drawing
6.	Cross section of drain
7.	Cross section of Manhole
8.	Sewer line drawing
9.	Storm water drainage flow diagram and sewer line
10.	Topographical survey plan drawing

Contractor **No.of corrections.** **Superintending Engineer**

IMPORTANT IN FORMATIONS TO THE TENDERERS

1. The tenderer / Contractor will make their own arrangements to procure and use the cement and steel (as per IS Standards and its latest amendment from time to time) required for the work.

2. The cement brought and used should confirm to IS No. 268 of 1976 and steel should confirm to IS No. 432/64 and 1786/79 (its latest amendment if any). It should be clearly understood that the rate quoted by the tenderer/contractor is inclusive the cost of 43 grade ordinary Portland cement / SRC and steel and other incidental charges such as conveyance, loading, unloading, stacking at site and testing charges etc. complete.

3 The tenderer / contractor will produce test certificate obtained from any one of the Govt. institutions for cement and steel brought to site. As and when required by the Department the cement and steel brought to the site shall be tested by the Department from any one of the approved Govt. institutions and only when the test results confirm to the ISI specification they will be allowed to be used in the works.

GENERAL SPECIFICATIONS

NOTE:

The General Technical Specifications shall be those confirming to the INDIAN STANDARD SPECIFICATIONS as published by BUREAU OF INDIAN STANDARDS (BIS) from time to time with all amendments published upto the date of submission of Tenders.

In the absence of any definite provision in the afore said specifications, reference may be made to the specifications prescribed in the Tamil Nadu building practice and where even these are silent, the construction shall confirm to sound Engineering practice as approved by the Engineer. In case of any dispute arising out of the interpretation of the above, the decision of the Engineer, shall be final and binding on the contractor.

Contractor **No. of corrections** **Superintending Engineer**

The term Indian Standard Specifications herein after referred to as IS means the relevant Indian Standard Specifications with all Amendments published up to the date of submission of tenders.

A Statement of relevant IS applicable to this context, is enclosed.

LIST OF INDIAN STANDARDS

Sl.No.	Short Title	I.S. Number	TNBP Number
I.	**Cement**		
	1. Specifications for ordinary Portland Cement	**8112 – 1976**	**10**
	2. Specification for Portland Pozzolana Cement	**1489-1976**	**10 A**
II.	**AGGREGATES**		
	1. Specification for coarse and fine Aggregate from natural source for concrete	**383-1970**	**5 & 7**
	2. Specification for sand and Masonry Mortars	**2116-1980**	**7**
	3. Method of Tests for 45iameters45 for concrete	**2386-1963 (Part I to VII)**	**7**
III.	**BUILDING STONES**		
	1. Method of test for Determination of strength properties of natural building stones. Part - I Compressive Strength Part - II Transverse Strength Part - III Tensile Strength Part - IV Shear Strength	**1121-1974 (Part I to IV)**	**35**
	2. Method of Measurement of buildings and civil engineering works	**1200-1976 (Part – IV)**	
	3. Specification for fly-ash for use as Pozzolana and 45iameters	**3812-1981 (Part I)**	
	4. Method of Measurement of building and Civil Engineering Works Part – XII plastering and pointing	**1200-1976 (Part – XII)**	

Contractor **No. of corrections** **Superintending Engineer**

IV.	**CONCRETE** 1. Method of Measurement of building and Civil engineer works Part-II concrete works	**1200-1974 (Part II)**	
	2. CONCRETE WORKS e of practice for plain and reinforced concrete	**456-2000**	**28,30**
	3. Method of test for strength of concrete	**516-1959**	
	4. Code of practice for laying in situ cement concrete lining on canals	**3873-1978**	**28,30**
	5. Method of sampling and analysis of concrete	**1973 (Part I to IX)**	
	6. General requirements for concrete Vibrators – immersion type	**1199-1976** **1791-1968**	
	7. Specification for Concrete Vibrating tables	**2505-1980**	
	8. Method of Test for permeability or cement and concrete	**2514-1963**	**28,30**
	9. Specifications for flyash for use as Pozzolana as admixture for 46iameter	**3085-1965**	
	10. Specification for Portable swing weigh batch for concrete (Single and double bucket type)	**3812-1966 (Part II)**	

Contractor **No. of corrections** **Superintending Engineer**

V.	**EARTH WORK** 1. Method of Measurement of building and Civil Engineer Works Part-I Earth work 2. Safety code for excavation works 3. Method of test for soils Part II Determination of water content 4. Method of test for soils Determination of moisture content Dry density relation using light compaction 5. Method of test for soils Determination of Dry density of soils in place by sand replacement method 6. Method of test for soils Determination of dry density of soils in place by the core cutter method	**1200-1974 (Part I)** **3764-1966** **2720-1973 (Part II)** **2720-1980 (Part VII)** **2720-1975 (Part XXVIII)** **2720-1975 (Part XXIX)**	**20, A, B, C, 23, 24, 25** **19, 26**
VI.	**OTHER SUBJECTS** 1. Safety code for scaffolds and Ladders Part I Scaffolds 2. Safety code for scaffolds and ladders Part II Ladders 3. Recommendations on stacking and storage of construction materials at site	**3696-1966 (Part I)** **3696-1966 (Part II)** **4082-1977**	

In addition to the Indian Standard Specifications, the specifications prescribed in Tamil Nadu Building Practice (TNBP) shall also be followed, where IS specification are not available.

Contractor **No. of corrections** **Superintending Engineer**

TAMIL NADU HOUSING BOARD

SCHEDULE 'C'

ADDITIONAL SPECIFICATION

1.The contractor shall make his own arrangements for clean fresh water for use on the work and shall meet all charges therefore.

2.The broken stone for concrete and RCC work shall be granite as passed by the Executive Engineer.

3. SAND & BRICK: **M- sand** will be used in all cases. The bricks shall be stock bricks or good country br1cks of fairly uniform size, shape, colour and well burnt.

4. All iron works or steel work of every kind, except such as is to be embedded in cement concrete shall immediately on arrival at the site be, properly scrapped and wire brushed and given a priming coat of lead paint without claim for extra.

5. The teakwood shall be of best Indian Teak wood only and shall be subject to inspection and approval by the Executive Engineer before use on work country wood where specified shall be best and known for scantling and uniform planks.

6. Holes and chases for electric wiring, water supply and drainage etc., shall be provided as directed during the progress of work without any claim for extra,

7. All external corners, edges of beams, edges of doors and windows openings etc. shall be finished sharp using rich mortar if necessary and also finished truly vertical or horizontal as the case may be. The rates for plastering shall include the cost of finishing as above. No extra for finishing the corners, edges of beams, etc., will be paid. The construction of the building will be deemed to be complete only if all the items of work including finishing items contemplated herein are executed. Concrete works.

8. The arrangement of M.S./RTS rods for reinforcement for each RCC works shall be in accordance with working drawings supplied.

9. The contractor has to use steel sheets over wooden frames, providing the required finish to the underside of the slab. Centering and form work shall be provided to the extent and area ordered by the Executive Engineer during the execution. The payment for centering works will be paid after the concrete is laid.

10. All cement concrete for RCC works shall be machine mixed and vibrated.

11. All lime mortar shall be ground in a mortar mill as per TNDSS (MDSS).

12. The rate for brick work in all floors includes the labour charges for fixing the frame of doors and windows and fixing G,I. Pipe outlets for windows and per sub clause 14 of TNDSS (MDD.No.31).

13. The rate for plastering includes providing cornice, band cornice, ceiling cornice, and skirting wherever necessary as directed by the departmental officers.

14. It is not obligatory to supply any materials (controlled or non-controlled) required for the construction, which are not available in the general stores and the contractor is expected to make; his own arrangements. The quality of these materials shall conform with, the specification given in ISI. If the material is available in the general stores, the contractor should use that materials only and the cost there of will be recovered as per the ANNEXURE. The cost of materials supplied will be recovered from the bills or any other amount due to contractor.

Contractor **No. of corrections** **Superintending Engineer**

15. M.S. Rod, RTS Rod should be cut and placed as reinforcement with proper care according to the available rod at site, so as to ensure the minimum wastage possible.
Note: No separate charge will be paid to the contractor for straightening the M,S. Rods, RTS Rods if happens to be bend or in coils.
16. The cement brought by the contractor for use on work should be carefully stocked in approved stores and should be used on works as and when required with proper care .
17. All the dismantled portion should be made good, plastered and cement painted etc., to match original surfaces.
18. If the rates are not separately called for, for similar items of works in the works in the different floor the contractor should quote one rate applicable for all the floors indicated in the detailed plans. Any claims for such items floor wise will not be entertained under any circumstances.
19. If night work required to fulfill the agreed rate of progress, all arrangements shall be made by the contractor inclusive of lighting without any claim for extra rate.
20. Rates: The tenderer shall quote their rates for the finished items of work only as given in the schedule. It shall be clearly understood that no increase in rate tendered for will be permissible on any account.
21. The contractor should not employ the labour below the age of 12 years.
22. The rate for all the items shall be quoted for in the metric units.
23. The tenderer, shall examine closely the general condition of contract of the Tamilnadu Detailed Standard specification issued in the G.O. Ms. No.2659, dt.23.12.1970 and to see the copy kept in the division office in token of such study before submitting his tender. Unit rates which shall be for finished work insite.
24. The electrical works should be executed by a person or firm holding 'A' grade or 'B' grade license issued by Electrical Wireman, Supervisor, contractors, licensing Board and Government of Tamil Nadu.
25. Once the offer of the tenderer is accepted by the Board, If either the tenderers choose to withdraw this tender or for any reason refused to execute the agreement and comply with the terms of the tender and agreement, the amount deposited by the tenderer towards the EMD and A.S.D, shall be forfeited and tenderer shall not be entitled to refund the same (CE/TC/7/79) dt. 14.3.79.
26. The contractor should take risk insurance against fire, other usual risk for all or any loss or damages occasioned by or arising out of acts of God, and in particular un precedent flood, volcanic eruption . earth quake or other· convulsion of nature, invasion, the act of foreign enemies, hostilities or warlike operations (before or after declaration of war) rebellion, military or usurped power, such policy should cover the construction period against the risk by the contractor at his /their own cost and produce to the concerned Executive Engineer & Superintending Engineer within one month from the date of execution of the agreement failing which the TNHB shall be entitled to take out what ever policy as may be required to cover those eventualities and to effect recovery towards the cost of such policies from the contractor's payments with a penalty of 50% on the cost of such policies'.

Contractor **No. of corrections** **Superintending Engineer**

27. The consumption of lead must be in accordance with the Table, VIII of MDSS No.109. any additional consumption of lead must be intimated to Executive Engineer and Admn. 0fficer, who will then decided the necessity.

28. The pipes should not be covered until the Executive Engineer tests and approve the work. If it is covered it must be uncovered by the contractor at his own cost without claiming extra.

29. Any extension of time may not be granted by the authority, unless the delay caused is on departmental side.

30. The contractor should agree for the change of Arbitrator due to change in incumbency or due to change in territorial Jurisdiction.

a. For Claims upto Rs.10,000/- S.E. of TNHB
b. Rs.10,001/- to Rs.50,000/- C.E of TNHB
c. Rs.50,001/- and above referred to the court (CE/TC/24/83, dt.7.9.83).

31. The EMD,SD shall be released only after the expiry of six months period from the date of completion of the work(After release of final Bill). **(CE/TC/24/1983 dated 07.09.1983)**

The Board would retain Retention money deposit recovered from the contractor for 2 years after the date of completion of work in order to enable the departmental officer to watch the effect to all reason of the work. After completion of 2 years the contractor should produce an Indemnity bond for a further period of 3 years.

In this regard As per CE circular Memo. No . TC1/19369/2014 dated 19.08.2014) . Refund of Retention Money Deposit after receipt of Indemnity Bond after completion of work (After release of final Bill) to refund the entire amount with the following conditions.

a) The contractor should produce irrecoverable Bank Guarantee for the **Total Retention money deposit** for the period of **two years** from the date of completion of work**(After release of final Bill).**

b) The contractor has to make payment of interest charges at the **rate of interest force** in Board 60 days before the lapse of irrecoverable Bank guarantee, failing which the Bank guarantee has been encashed and the interest charges will be deducted and the Balance amount to be paid to the contractor.

32. In case of tender at 10% less than the estimate value 1% (One) of the estimate value shall be collected in one lump sum as additional security deposit.

33. It is obligatory on the part of the contractor to effect recovery of Employees Provident fund subscription from Employees who work more than 60 days and remit to the Regional provident Fund Commissioner.

34. The contractor is bound by all the conditions of clauses of the standard preliminary specifications as amended from time to time. If in the course of the contract any G.O. is issued introducing new conditions or clauses (for PWD / other Departments) supplemental agreement must be executed by the contractor.

35. The Security deposit shall be paid by the contractor in the form of small savings scripts and also in the form of Irrevocable Bank guarantee from nationalized banks/scheduled banks can also be accepted and it has to be duly verified with concern bank for genuiness.

Contractor **No. of corrections** **Superintending Engineer**

36. Contractors special attention is invited to clause 27 and 38 of the preliminary specification on TNDSS and he is requested to provide his own expenses, shed, latrine, and urinal for his workmen.

37. In respect of the work being transferred from any other circles / Divisions, subdivisions, the S.E, E.E, AEE and A.E who is incharge of Circle / Division / subdivision having jurisdiction over the work shall be competent to exercise all the powers and privileges reserved in favour of the Government.

38. Water closet, basins urinals, sinks and other sanitary ware shall be of approved make as required in the relevant items. The fixing of these should be in accordance with the special specifications after the completion of the work.

39. The work shall be carried out with least hindrance of the adjoining building and the contractor shall be responsible if any damage caused to the existing fixtures, electrical fittings etc., in the course of execution and the contractor shall make good any such damages without claim for extra.

40. The clamps of G.I. pipes fittings should not be spaced more than 3'-0" apart from the wooden plug for pipe and bracket fittings should be properly fixed in C.M. 1:3 in holes made in and not hammered into the walls. The size of plugs should be not less than I "square at this end and at the other end with the depth of not less than 3".

41. The contractor should procure approved quality of paint only in containers. The above container should be used in the present of the Assistant Executive Engineer and got approved before use. On any account paint in other than original container will not be allowed for use.

42. The contractor shall form his own approach road to the work sites for which no extra will be due to him. On completion of work the contractor shall not be permitted to remove the materials laid for formation of road. If the contractor is allowed to use the existing roads, he shall maintain them in good condition at his own cost throughout the period of contract.

43. The work should be executed in accordance with the circular instruction of the CE issued time to time. Copy of the circular instructions can be perused in circle office during office hours.

44. Copy of latest income tax clearance certificate should be enclosed along with the tender.

45. An authenticated credential in support of experience for the similar works done so far should be enclosed.

46. EMD will be 1% upto Rs.20.00 Lakhs of estimate value plus 1/2% of the amount by which the estimates value exceeds Rs.20 Lakhs

47. **Security deposit will be 2% of the contract value minus of the EMD already remitted along with the tender.**

48. Recovery under Revenue Recovery Act: - Whenever any amount has to be paid by the contractor in view of termination of the contract by virtue of clause 57.4 (TNBP) or any amount that maybe due or may become due from the contractor under these present and the contractor is not responding to the demand for the payments of the said amount, then the Government, Tamilnadu Housing Board shall be entitled to recover the said amount, as per the provisions of the Tamilnadu Revenue Recovery Act. 1964 (Tami Nadu Act. V of 1864).

Contractor **No. of corrections** **Superintending Engineer**

49. Brick used should be of class designation 50 i.e. having a crushing strength of not less than 50 kg/cm^2.

50. The building materials like bricks, tiles etc., the finished products like concrete cubes etc., should be tested in recognized institution as directed by the departmental staff. The expenditure should be borne by the contractor.

51. The tenderers are requested to quote their validity of **tender upto 90 days** from the date of opening of the tender.

52. Impounding minimum 10cm of water over roofs for 48 hours before laying the weathering course and press tiles to check the water tightness. (vide. Memo.No.TC4/68839/95 dated 24.11.95)

53. Xerox copy of the certificate for the technical personnel's to be enclosed along with the tender.

54.Withheld amount towards effective performance of the contract do not exceed 10% of the total value of Contract. Present rule of with-helding 5% of bill amount may be followed .

55.Payment of liquidated damages and penalty payable by the contractor in the event of non-fulfillment of any or Whole of the contract.

56.Quantity variation is permissible, to the extend of 25% with prior approval of the authority who accepted the tender provided that total value including variation is within the power of officers concerned. Otherwise, orders of higher authority shall be obtained .

57.In the Case of discrepancy between the prices quoted in words and in figures, the lower of the two shall be considered.

58.The contractors should not be allowed to use water with Saline content. The usage of water with saline content is strictly prohibited.

59.The payment of security deposit, FDR from any Nationalized Bank can also be accepted apart from whatever small savings scripts available in vogue with an understanding from the concerned Bank to release the deposit to Tamil Nadu Housing Board on request unconditionally.

60.Withdrawal of tender on any circumstances after its submission is not acceptable. The name of such of those tenderers will be removed from the list of approved contractors and their tender will not be entertained thereafter and will be summarily rejected.

61.In the event of the work being transferred to any other Unit I Division Sub-division the Exe. Engr. And Admn. Officer, the Asst. Engineer who is in-charge of the unit Division I Sub-Division having jurisdiction even the above work shall be competent authority to exercise all these powers and privileges of Tamilnadu Housing Board and act on behalf of Tamilnadu Housing Board.

Contractor **No. of corrections** **Superintending Engineer**

62. All the Measuring tapes used on works by Departmental officers and Contractors, Suppliers shall be graduated only in metric units and shall bear the verification Stamping of the department of Legal Meterology (on the end book) Dual Marked (Metric and feet and inches) measuring tapes should not be used by the departmental officers / Contractor; Suppliers. All the tapes should be Confirming to the Standard of weights and measures (General) Rules 1987 (Board Circular memo No. TC4/66896/98dt: 6.10.99).

63 . The Government of Tamil Nadu by Act 15 of 1999 has introduced section 7F to the Tamilnadu General Sales Tax Act 1959 where in provisions have been introduced for 'Deduction of Tax at Sources in Works Contract' at the time of payment.

64. According to Section 7F of the TNGST Act 1959, every person responsible for paying any sum to any dealer for execution of works contract will deduct Sales Tax at source (from the dealers I Contractors) at the time of payment at the following rates.

i.Civil works contract : 2% of total amount payable to such dealers
ii.All other works contract: 4% of the total amount payable to such dealers.

The amount so deducted shall be deposited to the Assessing Authority of Commercial Tax Department within 7 days of the amount so deducted along with a statement in the prescribed form (Form)(XXVII).

65. For testing the concrete and aggregate the contractor must procure the following equipments and make them available at site.

a. Steel mould for making 15cm cube of concrete

b. Slump cone for testing consistency (slump test) the cone will be 30cm height truss casted cone with top and bottom 53iameters of 10 cm and 20cm respectively. In addition a steel rod 1.5cm dia and 50cm in length and with tamping and rounded is to be procured.

c. For finding fineness modules and coarse aggregate hand operated Sieve Shaker apparatus may be procured along with weighing machine for weighing the aggregate and the sand.

d. In the case of any breach of the terms of the contract the contract will be closed at the risk and the cost of contractor in addition to the forfeiture of the EMD and security deposit.

e. The testing is to be done at the contractor's cost for all building materials and also for concrete cubes.

f. The work shall be executed and measured as per metric dimension given in the schedule of quantities drawing etc. (F.P. units where indicated are for guidance only)g. Unless otherwise specified all the rates quoted by the contractor shall be for works at all levels of the buildings. h. Rates for every item of work to be done under this contract shall be for all lifts and leads, heights, depths, lengths and widths Except when specifically mentioned in the item, otherwise nothing extra will be paid on this account The rate for all item in which use of cement is involved is inclusive of charges for curing.

66. If at any time the Executive Engineer shall be of the opinion that the contractor is delaying commencement of the work or violating any of the progress of the site work as defined by the tabular statement rate of progress in the article of agreement, the Executive Engineer shall so advice the contractor in writing and at the same time demand complied. If the contractor neglects to comply with such demand within seven days after the receipt of such notice it shall these or at any

time thereafter be lawful for the Executive Engineer to determine the contract which determination shall carry with the forfeiture of the security deposit and the total of the amount withheld from the final bill together with value of such works as may have been executed and not paid for such proportion of such total sums as shall be assessed by the Executive Engineer.

67. Water and lighting : The contractor shall pay all fees and provide water and light as required from Municipal main or other sources and shall pay all charges therefore (including storage tanks, metre etc.) for the use of the works and workman unless otherwise arranged and decided as in writing with Executive Engineer.

The tenderer shall ensure that no damage is caused to the exiting structure / building whether it is Government owned or private owned etc. in the adjacent areas close preliminary to the proposed site and if any damage is caused due to pile driving etc. to the adjacent buildings it shall be rectified / compensated by the tenderer at his own cost of the satisfaction of departmental officers / owners of any private building affected (i.e) the contractor should indemnify the department against damages if any to adjacent building due to pile driving.

The contractor has to make his own arrangements for procuring water for construction purpose and curing should be done with water free from injurious amounts of deletion materials portable water are generally considered satisfactory for curing and mixing concrete and masonry. However the water to be used should be periodically tested at contractors cost for its suitability for using the construction work and got approved from Department Engineers.

Electricity : The contractor should make his own arrangements for obtaining electricity for all types of his use like lighting, welding, pumping and mosaic and marble polishing etc. Any damages to work resulting from rains or flame, any other cause until these work is taken over by the department after completion, will made good by the contractor at his own cost.

68.The mortar samples to be collected and sent for testing. If any deficiency is proved by the test the **entire structure should be demolished** and rebuilt at the cost of the contractor. **As per the MD/TNHB Memo. No PT1/25800/2012 dated 02.01.2015)**

69.**Retention Money Deposit @ 5 %** shall be recovered from the contractor in each bill based on the value of work done. **For other than standing contractor.**

70. **As per Circular Memo No. TC1 / 5273 /2018 dated.11.04.2018** – Buildings –Finding alternate material to sand – **Use of Crushed Stone Sand** – Standardized Concrete Mix in accordance with IS – 456 – 2000 for M20, M25 ,M30, M35, M40 grade of Concrete –Limit of the aerial distance from sea water Front-Instruction issued vide Government of Tamil Nadu Public Works Department Building Organisation – Circular Memo Random No.AEE /T10 / 57017 /2012 Dated:30.08.2012

Annexure- approved List of Crushed Stone Sand Manufacturing Units BY PWD Lr No. SE /P& D /57,58,60,61& 63 Assessment Committee / 2018 / dated.23.10.2018.

Contractor **No. of corrections** **Superintending Engineer**

TAMILNADU HOUSING BOARD
SCHEDULE-C

SPECIAL CONDITION FOR "WHITE WASHING"

1. Each coat of white wash shall be laid on with a brush and allowed to dry before the next coat is applied.

2. A stroke of the brush shall be given from the top down wards another from !he bottom upwards over the first stroke and similarly one stroke from the right and another from the left over the first brush before it dries. .

3. The No. of coats to be applied shall be as mentioned in the schedule.

4. The rate should be inclusive of wall cleaning, brushing and all patching must be scraped properly.

5. The old loose white wash is to be first removed and minor repairs to the plaster done, such as filling old holes etc.,

6. Each coat of white wash is to be allowed to dry and should 'be inspected by the subordinate incharge before applying the next coats.

7. The surface shall present a uniform white appearance without exhibiting any patching or hair cracks or streaks.

8. It is the responsibility of the contractor to clean the splashes on the wall, floor and other surfaces and articles to the satisfaction of the Executive Engineer.

9. The ladders, poles, scaffolding, etc. should be shoed with bags to prevent damages or scratching of the walls and floor.

Contractor **No. of Corrections** **Superintending Engineer**

SPECIAL CONDITION FOR TAXES

1. The taxes are applicable for the project with any tax/fund/Charges announced by the State/ Central Government will be recovered from the payment to the contractor without prior information and cannot be refunded. The rate quoted in the tender shall be inclusive of all Taxes prevailing rate of GST etc., as announced by the State/ Central Government. Any Charge in the existing levy charges announced by the State/ Central Government from time to time will be recovered from the payment to the Contractor without any prior information.

2. As per Notification No. 50/2018 Central Tax dated 13-9-2018 and G.O.Ms.No.122 dated 12-9-2018 issued by Government of Tamil Nadu, the provisions relating to Tax deduction at sources under section 51 of TNGST/CGST Act is notified to come into force from 1st October,2018. As per section 51 of the TNGST Act 2017, read with the above notifications, the following persons have to deduct tax at sources at the rate of one percent for (One percent for SGST + One percent for CGST) from the payment made or credited to the supplier of taxable goods or services or both, where the total value of such supply, under a contract, exceeds two lakhs and fifty thousand rupees.

Contractor **No. of Corrections** **Superintending Engineer**

SEWER CONDITIONS

1. Laying and Jointing of stone ware pipes and specials and testing of sewers

a) It shall be the responsibility of the contractor to make sure about soundness of the stoneware pipes and specials before lowering in to the trenches and laying in position. All sewer lines should be laid and jointed true to the correct levels as shown in the plans (or) as required by the Engineer in charge of the work in a mix of 1:1 mortar shall be used for jointing the pipes and specials after they are truly centered and caulked with tarred hemp yarn as per relevant specification of TNBP.

b) In case where the concrete bedding is to be laid below any sewer lines or in cases where the sewer lines are to be encased prior approval of the Engineer in charge of works should be obtained before carrying out the work. Such laying in concrete shall be in only in any trenches after necessary dewatering operations.

c) Laying Stone – ware pipes on concrete. In trenches where ordinary socket stoneware pipes are to be laid on concrete , the method to b adopted is as follows:

When the ground has been excavated to the proper depth and gradient a number of bricks are to be laid about 10 Rt. Apart , so that their top face are 3" to 6" below the bottom of the trenches as may be specified by the Engineer. A layer of concrete of the thickness to the depth of the bricks is then to be placed in the bottom to the width ordered by the engineer, the surface being formed true to gradient by means of straight edges , about 12 feet long which are to be worked from brick to brick.

When the concrete has set sufficiently, a series of special concrete invert blocks are fixed at about 2' to 2'6" apart and boned in so that their top surface may be exactly of the level of the sewer invert less than the thickness of the pipes . The correctness of the level of the pipes is to be ascertained by working a straight formed edge from the invert of each pipes to the special block ahead. The pipe must however be themselves boned occasionally as a check on the work and first pipe on any length must be very carefully bedded and boned into position.

The object to be obtained by the method above described is to ensure that the outside of the sockets shall be raised approximately one inch above the concrete bed in order to allow the joints to be made properly in the underside. In his prices for laying concrete the contractor must allow for doing the work in the manner above described including cost of bricks and blocks.

d) **Testing:**

All pipes sewer shall be tested before and after the filling of the trench or other excavations by and at the expense of the contractor, who shall provide the necessary appliances and water for the same. The test will only be made from manhole to manhole, after the manhole connected with in the length under test has been completely finished.

As soon as each line is laid in a trench the contractor shall arrange at his own cost for testing the pipe line as detailed below.

The test shall be for an hour or such longer period as may be decided by the Engineer in charge of the work. When pipes have been filled with water and air exhausted, the air cook shall be shut and water shall be poured in to a conical filter and funnel of 6" dia attached to the testing and filling pipe of the disc in the upper manhole until water remains in the funnel. The filler shall be so placed so as to have the top surface of the water in the funnel 3'-0" above the top of manhole (or) 6'0" above the invert of the pipe which will be usual test pressure for stoneware pipe joints.

If the water level does not fall more than the depth in the following table for different diameter of pipes in the length of 300 feet, the test shall be considered as satisfactory.

Dia of pipe in inches	Fall of water level
6"	½"
9"	¾"
12"	1"
15"	1 ½"
18"	1 ½"

Contractor **No. of Corrections** **Superintending Engineer**

In case of failure of the test due to any defect (or) cracks in the pipes and specials, or due to any leakage joints they shall be set right at the cost of the contractor by replacing the defective pipes and specials with new ones (or) by encasing the pipes (or) joints concerned to a thickness of 4" to 6" cement concrete with P.C.C 1:2:4 using ¾" hard granite jelly as may be directed by the Engineer in charge of the work. The slight sweating noticed on the body of the sewer pipes and specials shall be arrested by smearing with cement at the contractors own cost and without allowance for issue of cement. In case however perceptrative sweating are noticed on the body of the S.W .pipes and special (which are not due to crack but defective materials) the cost of replacing the pipe (or) encasing it in the cement concrete 1;2;4; will be the charge of the TNHB. The testing shall be reapplied as many time as may be necessary until the length is provided to be water tight. The water required for testing shall be clean.

2. **Manholes:**

a) **General:** Manholes shall be constructed in the alignment of the sewers in the position shown on the drawings or at such positions as the Engineer may direct. These shall be strictly in accordance with the details given in the type design and in the relevant standard specifications. The foundation , for the manholes shall be designed to suit the nature of the sub-soil water levels and the rate shall be quoted after satisfying water levels and the rate shall be quoted after satisfying the designs of the foundations of the manholes.

The rate for construction of manholes shall include earth work excavation in all soils with all leads and lifts shoring and strutting pumping and dewatering fixing of 18" or 20" dia manhole frame and cover C.I.steps , refilling sides, disposing of surplus earth etc., complete but excluding cost of manhole frame and C.I.steps which alone will be supplied by department at the sections stores.

b) **RECTANGULAR MANHOLES:**

These shall be constructed as per type design ph SHD 2 (or) latest with internal dimension of 3'0" x 3' 6' and depth to suit the levels. Manholes less than 8' from invert of sewer to ground level shall be built rectangular.

Excavation shall be made sufficient to admit for the trench being properly timbered and for the plastering the outside to be done satisfactorily. The bottom of the excavation shall be properly leveled up, rammed and made dry. The bed for the manhole shall be laid correct level with cement concrete 1:3:6 using 40mm blue granite jelly 9" thick. When the concrete is efficiently set , sidewalls shall be constructed with stock brick in C/M. 1:3. The stone ware connections through the walls shall be made and C.I. Steps shall be fixed in while the brick work proceeds. The inside and outside of manholes shall be plastered with C.M 1:3, ¾" & ½" thickness respectively. The manholes bottom shall be formed to the radius of the pipe and all side connection curved and channeled to enter the sewer at an angle of 45 degrees to the line of flow. After the invert and benching has been property completed, the walls shall be constructed up to their proper height. Corbelling and RC slabs shall be provided as shown in the drawing. Over these, CI frame and cover shall be fixed with cement concrete 1:3:6 using 20mm hard blue granite jelly. All sharp corners inside manholes shall be rounded off by a layer of cement 1:3 and the frames fixed. Where pipes pass through walls, 4 ½" thickness receiving arches shall be turned on the upper half of the pipes. If any pipe enters at such an angle that the relieving arch cannot be properly turned, the bricks shall be carefully cut and brought so as to fit closely and neatly against the pipe and stone or concreting relieving blocks shall be built in the wall on the pipe of depth equal. to two course brick work of width equal to that of the wall and length equal to the diameter of the pipe plus one foot. Such stone blocks are to be provided by the contractor at his own cost.

The stone ware dropping connections in manholes shall be secured to the walls of the manholes by 'U' clamps and shall be built in as and when the work proceeds, in accordance with the drawings and the above instructions. The cost of the works shall be paid separately. Cast iron steps which shall be supplied by the TNHB free of cost shall be built in each manhole as the work proceeds on being inserted to every four course of brick work horizontal distance, centre to centre of each row being one foot or as directed by the Engineer.

c) CIRCULAR MANHOLES:

Manholes more than 8 ft from surface to invert shall be built circular.

These shall be constructed as per Type design KR/TNHB No.7/70 with 4'0" dia., circular bottom and 6'6" conical top. The circular bottom shall be built with specially moulded stock bricks 1'1 ½" thick with C.M 1:3 .The special bricks shall be of two types type A shall measures 9" long 5" board on one side and 3 ½" at the other end 4-3/8" broad and 3" deep.

The conical top shall be formed by carbelling using radical bricks in C.M 1:3 on top of conical top, C.I manhole frame and cover of 18" or 24" shall be fixed on a layer of cement mortor 1:3, ¾" thick.

Other details such as plastering, channeling etc., shall be as specified for Rectangular manholes.

d) SUNK MANHOLES:

In case of sandy, soil and high sub soil water level sunk manholes as per design PM/SHB No.21/64 shall be adopted.

The specification for this type of manhole will be similar to Rectangular and circular manholes except that the manholes will be sunk with R.C curb and plugged with C.C. 1:2:4

The depth of sunk manhole specified with tender schedule in the distance from ground level to invert level. The tendered rates shall be for the works shown in the design RH/SHB No.21/63.

If extra depth of staining, plastering and plugging are to be provided over that shown in the drawing to with stand the sub soil water pressure, then these shall be measured and paid for as extra at the unit rates given in the tender schedule for the respective items.

3. COMPLETE SEWER LENGTHS AND FILLING TRENCHES:

a) Immediately a length of sewer has been tested and approved by the Engineer and after orders have been given by him for refilling, the contractor shall at his own expense fill – up all holes and trenches which has been made or dug, level ground and all heaps of earth which may have become surplus on instructions from the Engineer shall be carried away and leveled in low lying places within two miles. The contractor shall pay all costs, charges, damages, and expenses which may be incurred or sub stained on account of or in consequence of any accident which may happen because of holes and trenches connected with th work or leaving materials unfenced or in improper situation.

b) HOW REFILLING IS TO BE DONE:

As soon as the sewer is hydraulically tested, the contractor shall arrange for refilling the trench with prior approval of the Engineer. The trenches shall be carefully refilled with the excavated earth in layers of not more than 6" in thickness each layer being watered well and rammed for consolidertation. Refilling shall be done with great care so as not to damage either the pipes and specials or the joints. Any surplus excavated soil shall have to be depositing the earth in lowlying places or elsewhere in or out of the site as directed by the Engineer incharge of the works. The shoring planks in the trenches shall be removed using derric post and chain on pully blocks.

c) RESTORATION OF ROAD SURFACES:

After refilling is done, the road surface shall be reformed to the original levels using the materials obtained from the roads surface and maintained till the expiry of the maintenance period.

4. a) MAINTENANCE PERIOD:

The Contractor shall be responsible for the maintenance of all works completed in good condition to satisfaction by the Engineer **for 6 Months** after the completion of the works.

b) The Contractor shall after refilling the trenches, restore all roads surface and leave them clean. He shall also immediately arrange to clean the pipe lengths, complete the benching, and channeling of the adjacent manholes and if the lengths are perfects water tight and free from any defects , the manholes are free from leaks, the road surface disturbed by the contractor for his operation are restored in good condition using the materials removed. If the works are found to be satisfactory the maintenance period of this work will commence from the date of report of the contractor. During the period of six months following, if any subsidence takes place during the period he shall immediately make it good to the satisfaction of the Engineer.

Contractor **No. of Corrections** **Superintending Engineer**

c) During the period, the contractor, if ordered by the Engineer shall get the line retested hydraulically as often as may be ordered. If the retesting is not found satisfactory, he shall immediately make arrangements to set right the defect and intimation. The fact of having done so as to the Engineer for inspection period of maintenance already under gone will lapse and a fresh period of maintenance will commence only after the Engineer agreed send a report that the defects in the pipe line have been set satisfactorily and the road surface is also restores to its original condition.

d) After the expiry of the six months, period of maintenance the pipes in any length will be inspected and retested and if found the thoroughly clean and satisfactorily a written certificate to that effect will be issued by the Engineer and the length taken over. Until such a certificate has been issued to him the contractor will be fully responsible for the sewers and the road surface.

e) Contractor not to occupy the land etc., after notice from the Engineers: In no case shall the contractor continue to use or occupy or allow to be used or occupy any land, property whether belonging to the TNHB or not, either for the deposit of materials or plant or for any purpose what so ever after written notice for their removed had been issued by the Engineer, should the land be continued to be used by the contractor even after notice had been served on him, the contractor shall forfeit and on demand pay not less than a sum of Rs.20/- per day during the period the land or property are so used and occupied as foresaid from the time such notice had been given. He shall also be liable for all damages arising out of the occupation of the land after the notice had been served on him.

5. MEASUREMENT FOR SEWER LINE AND MANHOLES:

a) For the purpose of payment the length of sewer line in between any two adjacent manholes shall be measured over the top of the sewer between the inner faces of the two nearer walls of the manholes.

b) The depth of sewer line between any two adjacent manhole shall be taken to be the average of the depths measured from the ground level at the site of the manholes to the invert of the manholes.

c) The top levels of the manholes shall normally be the basis on which the depth of sewer pipes laid in between two adjacent manholes shall be measured and paid for. If in any reach the manholes are made to project above the ground level, so as to keep the top of manholes flesh with future formation level of the road, the sewer shall be laid for on the basis of the actual depths at which they are laid as measured from the existing ground levels and the extra masonry and cement plastering work involved in the manholes for the portion that projects above the existing ground level shall be paid separately.

In working out the depths of sewers and manholes the average depth of sewer and actual depth of manholes shall be rounded off to the nearest foot fractions less than half a foot being ignored and half a foot and over hold a foot being taken as a foot.

6. Removal of plants etc., from site the plants, tools and materials brought on to site by the contractor shall not be removed without the consent in writing of the Engineer.

7. PUMPING The contractor shall at his own expenses pump out or otherwise remove any water which may during the continuance of this contract be found in the mains, cutting, excavations, bank foundations, trenches or works and shall provide all dams, drains, shoots, sumps and other means necessary for keeping the works clear of water during their progress. The contractor shall at his own expenses keep the whole of the work thoroughly drains and clear of water below the lowest level of any part, So long as may required by the Engineer, and if considered necessary by the Engineer continuously day , and night , by hand or steam or oiler other pumps and engines. When required by the Engineer pipes are to be fixed and the pipes fixed outside the written .sanction of the Engineer to use any sewers (including those finished by themselves) to carry or as an outlet for any water or sewage.

8. **Provision for existing drainage:** The contractor shall make all necessary provisions for the conveyance, both temporary and permanent of the sewage and surface water now discharging through the existing sewers, pipes, culverts, channels, and drains. Such conveyance to be carried out in proper and work man like and sanitary to the satisfaction of the Engineer.

9. **Alignment:** The alignment shown on the plan is only approximate and cannot be taken as final. Actual alignment will be market out by the Engineer during execution and pointed out to the contractor in advance at every stage of work and the contractor shall provide necessary peg, threads and other materials required for making such alignment including necessary labour, The pegs shall be preserved till the work is started or completed.

10. **Gradient of sewers:** The sewers shall have the inclinations or gradients and shall be at such depths shown on the drawings but the inclinations and depths may be varied at any point as the work proceeds should it be so determined by the Engineer.

11. **Timber left in trenches**: The Engineer may order the timbering of trenches to be left in at any part of the works whether in his opinion damages might be done to adjoining property or streets if the timbering were withdrawn, he may also ordered timber to be left in as bearers under concrete or other foundation . The top of all timbering so ordered to be leveled shall be left 12" clear beneath the surface of the ground for timber ordered by the Engineer to be left in the contractor shall be paid at his schedule rates. No payment will made for timber left in without a written order from the Engineer. Similarly if the necessary for leaving timber in trenches in the opinion of the Executive Engineer had arisen from carelessness or neglect or lack of skill on the part of the contractor the timber so ordered to be left in the trenches, shall not be paid.

12 **Cutting pipes:** Where necessary and as ordered by the Engineer the contractor shall out the pipes and fix and join common collars for jointing spigot ends, the cut ends of the pipes shall be made truly at right with axis of the pipes.

13. **Works to be water tight**: The contractor shall construct the sewers, manholes and all other so that they shall be water tight. Should any leaks appear they shall be made good by him at this own expenses by taking down and building.

14. **Opening for examination**: No work shall be covered up until it has been examined by the Engineer and directions are given by him the that effect and if the contractor covers up any work before it has been examined he shall uncover the same when required by the Engineer at his own expenses.

15**. Slips and falls** : Every precaution must be taken against slips and falls of earth, clay rock , sand etc., in the excavation but in the event of any occurring the contractor shall remove the surplus arising from the slip or fall without payment from the state house Board and he shall make good the space caused by such and falls which may be outside of the dimension of the work ordered at his own cost.

16. Date of commencement and completion: The date of commencement is the date of handing over of the site after the agreement is signed by the contractor. The rate of progress fixed and intimated under caused 14 of the tender notice should be kept up on any account.

17. It shall be the duty of the contractor to arrange for the execution of the works in such a manner as to avoid the possibility of accidents to person or property at any stage of the progress of the work. Nevertheless he shall be held wholly responsible for any and every injury or damage to persons and properties of any description of the works, in spite of any precautions he may take during the execution of the works.

The contractor shall make good all damages and losses arising out of such accidents and shall indemnify the Board from all such claims and expenses on this account.

Contractor No. of Corrections Superintending Engineer

Specification:

Notice to Corporation Electricity Department Barricading Watching etc.,

Before commencing the work and also during the progress of the work the contractor shall give intimation to the concerned authorities viz., the corporation ,the highways department, electricity department, telephone department, traffic department attached to the police department or companies as may be required to the effect that the work is being taken up for execution in particular locality and necessary diversion of traffic and protection to these service may be arranged for. The contractor shall co-operate with the department concerned and provide for nursery barricading of road protection to existing underground cables, water mains, service pipe etc., met with during own expense watching an lighting arrangement by day and night and put up red flags at ends trenches and the required notice boards such as 'caution' 'Road closed for traffic' etc., the tranches and manhole pits shall be properly fenced and lighted during nights to prevent accident.

b) Contractor not to commence to work on private property until authorized. The contractor shall not commence any work in or upon under , across or through the any house, building , shed, yard area , roadway, rounds, garden or any other place being private property until authorized in writing by the Engineer do so.

c) Notice regarding shorting to owners of adjacent buildings. In any case in which works of shoring or other works for the protection or security of building are necessary the contractor shall within a reasonable period before the execution of such works serve notice upon the occupies of the building intended to be shown up or otherwise secured and up on all other parties entiled to notice apprising them that much work are necessary and that the contractor is to execute the same and will at a time to be specific in such works.

d) Supports to water main, cables etc., The contractor shall also provide and maintain at his own cost the necessary supports for the mains ,underground cables service pipes electric and tele phone post etc .,to afford best protection to them in consultation with the authorities in charge of various services to their satisfaction.

e) Temporary diversion of roads, drains etc.,

The contractor should make all necessary arrangements at his own cost for temporary diversion of roads, card trucks, foot paths, drains. Water course channels etc., should be neglect to do so , the same shall be done by the Engineer and the cost thereof recover from the contractor.

2) a) The work will be set out by the contractor whole will align different line as per the approved drawings furnished to him. He should also provide the necessary sight rails, straight.edges, pegs, etc., engaging his own labours. The levels of the sight rails shall be fixed by the contractors Engineers accordance with the drawings consulting the state Housing Board Engineers at site and get it approved by the Engineers in charge of the work. The contractor will be wholly responsible for the finished accuracy of the work in accordance with the drawings shall take every are that the pegs.sight rails pillar levels or lines are careful preserved from disturbances should be neglect these precautions he will be held responsible for all resulting consequence.

b) The trenches shall be taken up for execution in convenient and easy stretch and no case in long lengths of stretch work is an manageable length be taken up. All excavation shall be properly secured with sufficient timbering to avoid any slips etc., the length / lengths taken for sewer laying should be completed in every respect before taking up any further length or specified orders of the engineer should be obtained before taking up further lengths.

c) Items included under excavation.

Excavation shall near inter alia earth work excavation in any soil , removing, stacking and replacing soil, road metal etc., timbering, pumping, draining, filling in ramming providing water and watering , removing the surplus soil and forming banks or deposited where ordered and trimming and diverting water , sewage, sullage etc., watching lighting providing all materials plats, machinery and labour and doing everything necessary to complete the work satisfactorily.

d) Work not to interfere with traffic.

The excavated soil should be so handled and placed as not to interfere with the normal traffic. It there is no spot for depositing the soil in street or road, it shall be responsibility of the contractor to carry the soil at his own cost to such nearby distance as may be necessary and as directed by the " Engineer.

e) Crossing over trenches.

The Contractor shall provides necessary planks and sheet bridging over the excavated trenches for house holders and pedestrian cross over and also for vehicular crossings if and where required.

3. a) Timber to be delivered before work is commenced.

The Contractor shall immediately after the receipt by him of the letter of acceptance of his tender, deliver the site of the work sufficient timber comprising runners, poling boards, waling struts wedges and purchase all to the satisfaction of the Engineer for the efficient timbering of 600 line at feet of trench to the full depth of the deepest sewer shown the drawings or to a depth to be fixed by the engineer.

b) **Timbering Trenches:**

The contractor shall provide all the materials and securely timber all excavations to the entire satisfaction of the Engineer.

Drawing KR/TNHB No.20/70 shows the approved methods of timbering and the Engineer reserves the right of insisting that the work shall be done in accordance therewith or in accordance with such modification there of as he may consider necessary. Nothing in the foregoing shall relieved the contractor of his responsibility of making all excavations and adjoining building secure and safe.

c) Shoring scaffolding etc.,

The contractor shall at his own expenses and without extra charge make provision for all showing scaffolding centering lifting proping materials, labour and plant and building and shall properly and securely timber all trenches and other excavation to the satisfaction of the Engineer.

Schedule -C

Additional Specification

1. Filling material must be conveyed from the source specified if an any time during the Execution of work it is found that the filling material is transported from the area prohibited payment will not be made for the entire work.
2. Pre-Levels will be taken in the presence of the contractor or representative for the proposed filling area . The contractor should sign the pre levels.

3.(A) After completion , final levels will be taken. The contractor should sign the final levels also payment will be made based on the difference between the pre and final levels for the filled up filling material at difference stages.

(b) The full compaction should be ensured as tested by field and laboratory tests on soil spectimes.

4. If and intermediate payment is desired by the contractor, levels at the stage will be taken and quantity arrived at , a deduction in the quantity will be arrived at based on stage of compaction.
5. The decision of the Executive Engineer is final for proposing the quantity to be deducted and payment to be made for all bills.
6. Final payment will be made based on final levels after full compaction.
7. The contractor shall make his own arrangements for clean fresh water for use on the work and shall meet all charges therefore.
8. The contractor should pay the seinerage charges to mines department and submit the original bit of cost to division office for the release of payment.

Contractor No. of Corrections Superintending Engineer

SCHEDULE 'D'

Applicable to all cases of works where minimum of fifty workers are employed except works relating to roads, channels and canals.

For the Provision of Health and Sanitary Arrangement for the Workers.

The contractor's special attentions is invited to clauses of TNBP and he is requested to private at his own expense the following amenities to the satisfaction of the superintending Engineer.

1. FIRST AID At the work site there shall be maintained in a readily accessible place, first aid appliance and medicines including an adequate supply of sterilized dressings and sterilized cotton wool. The appliances shall be kept in good order. They shall be placed under the charge of the responsible person who shall be readily available during working hours.
2.
    a) Water of good quality fit for drinking purposes shall be provided for the work people on a scale of not less than a gallon per head per day.
    b) Where drinking water is obtained from an intermittence public water supply, each work place shall be provided with storage tank. Where such drinking water shall be stored.
    c) Every water supply storage shall be at a distance of not less 50 ft. from any latrine, drain or other source of pollution. Where water has to be drawn from an existing well which is within such of latrine, drain or any other source of pollution the well shall be properly chlorinated before water is drawn from it for drinking.
    d) All such well shall be entirely closed in and is provided with a trap door which shall be dust and water proof.
    e) A reliable pump shall be fitted to each covered well, the trap door shall be kept locked and opened only for cleaning or inspection which shall be done at least once a month.

Contractor. **No.of corrections.** **Superintending Engineer,**

3. Washing and Bathing places:

Adequate washing and bathing places shall be provided, separately for men and women. Such places shall be kept in Glean and drained condition. Bathing for washing should not be allowed in or near any drinking water well.

4. Latrines and Urinals:

They shall be provided within the premises of every work places, latrines and urinals in an accessible place and the accommodation separately for each of them. shall be on the following scale as directed by the Superintending Engineer in any particular case ;-

I) Where the No. of persons employed does not exceed 50~2 seats.

ii) Where the No. of persons employed exceed 50 but does not exceed 100.3 sets.

iii) For every additional 100.3 slats.

Except in work places provided with water flushed latrine connected with a water bore sewage all latrines shall be provided with respectable on dry earth system which shall be cleaned atleast four times daily and atleast twice during working hours and kept in a strictly sanitary condition, The acceptance shall be tarred inside and outside atleast once a year.

The excrete from the latrine shall be disposed off at the contractor's expenses to the out way pits approved by the local public health authority. The contractor shall also employ adequate No. of scavengers and conservancy staff to keep the latrine and urinals in a clean condition.

5. SHEDS DURING REST

At the work site these shall be provided free of cost two suitable sheds one for male and the other for Female for the use of labourers.

Contractor **No. of Corrections** **Superintending Engineer**

6. At every work place at which 50 or more women workers are ordinarily employed there shall be provided two huts of suitable size for the use of children under age of 5 years belonging to such women. One hut shall be used for infants games and play and the other as their shed room The huts shall net .e constructed on a lower standard then following.

i) Thatched roofs.

ii) Mud floors and walls.

iii) Planks spread over the mud floor and covered with matting.

The Use of the huts shall be restricted to children, their attendants and mothers of the children.

7. CANTEENS

A cooked food canteen on a moderate scale shall be provided for the bene1its of workers if it is a considered expedient.

8. SHED FOR WOMEN

The contractor should provide at his expense sheds for housing his workmen. The shed shall be on a standard not less than the cheep shelter type to live in which the work people in the locality are accustoms to a foot area of about 6' x 5' for 2 persons shall be provided the sheds are to be row with 5 ft. clear space between rows if conditions could permit. The work people shall be laid cut in units of 400 persons each unit to have a clear space of 40 ft,

Contractor **No. of Corrections** **Superintending Engineer**

TAMIL NADU HOUSING BOARD

Special Condition for Electrical Works
(To be enclosed in the Tender Schedule)

1. The work shall be carried out in accordance with the General specification for Electrical works and the code of practice for electrical wiring installation. IS. 732-1963 and I.S 3043 – 1965 and as amended upto date. All installation shall comply with the requirement of Indian Electricity Rules 1956 and Act and I.S code amended upto date.

2. Approval of the Engineer-in-charge shall be taken well in advance for all materials and brand of materials to be used on work by the contractors based on the approved brand of materials list enclosed in the tender. The choice of brand of materials from the approved list is the discretion of the Engineer in-charge and his decision will be final. The contractor is bound to use the brand of materials selected by the Engineer incharge.

3. Bad workmanship is liable to be rejected in to.

4. The contractor shall supply on completion of work, completed plan along with insulation, polarity and earth tests reports before the installation is handed over to the Engineer – incharge in good condition in triplicate. The tests should be carried out in the presence of Engineer – in – charge at Contractor's cost.

5. All repairs and patch work shall be neatly carried out to match the original finish and to the entire satisfaction of Engineer – In charge.

6. The contractor shall make his own arrangements at his own cost for all general and special T & P required on the job.

7. The contractor shall make his own arrangements for storage, of materials and watch and ward at his own cost, till the installation (completed work) is handed over to the Department after obtaining service connection from Electricity Board and testing the line. Any loss and tampering of materials for which the payment was made by the department will be made good by the Contractor at his own cost.

8. Issue of materials to the contractor wherever stipulated will be regulated to the needs from time to time depending upon the progress.

9. Materials stipulated for issue shall be taken over to the site of work and the safe custody till completion of the job is the responsibility of the contractor.

Contractor **No. of Corrections** **Superintending Engineer**

10. All the debris due to electrical works shall be removed from site by the Contractor as soon as the work is completed.

11. Electrical works shall be progressed by the Contractor side by side with the progress of the building work, burying of conduits for recessed portion shall be planned together with the building progress so that there is no hindrance to the building progress at any stage.

12. The internal E.I shall be ordinarily carried out according to the drawing supplied with the schedule of work subject to change made by the Engineer – in – charge.

13. The wiring route shall be marked at site first and get approval from the Engineer – in – charge before commencement of actual work. The work must be carried out as directed by Engineer – in – charge.

14. P.V.C.wiring shall be neatly painted with two coats of non cracking paint distemper suitable for painting P.V.C wire and of suitable colour to match the surroundings as per the direction of Engineer – in – charge.

15. In place where electrical conduit is required, to pass through wall RCC column / beam etc., the conduit shall be laid during the execution of work in consultation with the Engineer – in – charge So as to avoid the need for cutting the structure at a later date.

16. The teak wood materials such as fillets, specials, T.W. boxes and all materials shall be got approved from the Engineer – in - charge before use to ensure the quality of materials.

17.In the case of recessed conduit works, the M.S boxes shall also be recessed and covered with 1/8" (3mm) hylam / Bakelite sheet. The thickness of M.S.sheet shall not be less than 16 gauge thick.

18. Provision of fittings.

(a) All switch Boards shall be so placed that the bottom is normally 1.2 meter above floor level or such height as decided by the Engineer in-charge.

(b) All fittings shall be provided at 2.6 metre from the floor level or such height as decided by the Engineer in charge.

(c) The convenient 5/15 Amps plug socket shall be 23 cm above the floor level or such height as decided by the Engineer – in – charge.

(d) Wiring shall run normally at 2.6Metres above floor level or such height as decided by the Engineer in charge.

CONTRACTOR No. of Corrections Superintending Engineer

19. The materials issued if any by the department to the contractor, the cost will be recovered at the stores issue rate. If the contractor fails to return the surplus materials after completion of work, the cost will be recovered at double the stores issue rate or market rate whichever is higher.

20. Brass hinged brass hooks and eyes, single teak wood boards of 60mm minimum depth in case of open wiring and minimum depth of 200 mm in the case of concealed wiring and not less than 6.5 mm thickness shall be used on the works.

21.fixing of Wooden batterns. (a)The screws shall be used for fixing he wooden battern and accessoners at an interval not exceeding 50 cm. The thickness of patterns shall not be less than 10mm.

(b) The clips are provided on the wooden battern with screws / pins and spaced at an interval of 15 cm both in the case of horizontal and vertical run.

(c) Round block shall not be less than 75mm dia and 40 deep and fixed by means of 2 Nos screws.

22. (a).Piano type switches, sockets, outlets of approved make wherever needed shall be used for recessed boards after getting the approval of Engineer – in charge.

(b).Only brass screws shall be used for fixing, fittings, switches, plug and Sockets main boards and distribution boards and teak wood accessories etc., required for the wiring.

23. All conduct pipe shall be approved gauge (not less than 16 SWG, 14 SWG) solid drawn or lap welded, finished with galvanized stone enameled finish. The saddles used shall not be less than 24 gauge upto 55mm dia. Pipes and not less than 20 gauge for longer dia pipes.

24. The main earthing lead shall not be less than 8 SWG copper (4.06 mm) in case of copper wire earthing or 6 SWG G.I wire (493) in case of G.I wire earthing separate ear thing shall be provided for all mountings of main boards, distribution boards, 5/15 amps. Plug sockets with not less than 14 SWG of copper (2.03 mm)

Contractor **No. of Corrections** **Superintending Engineer**

25 Earthing shall conform to the relevant I S code, 3043 - 1966 the G I pipe earth electrode system is, adopted G 1 pipe shall be of medium class 38- 40 mm dia.,3.75 meters long. The electrode shall be buried in the ground vertically With its top not less than 20 cm. below ground level Normally an earth electrode shall provide 1.5 meters away from any building, In case of providing twin earthling the distance between the earth pits shall be 10 feet Alternate layers of charcoal or coke and salt of minimum 15,cm. thick are to be provided from the bottom of earth pit upto I meter below ground level and the masonry work, is to be carried out in brick with the cement mortar1:4 above the last layer and the top is to be covered with suitable cast iron frame and cover.

26'. The staircase light point wiring must be done by looping or piece wire system and switch must control phase or live wire only.

Looping in system is to be adopted for wiring Normally the looping of neutral to light, fan, plug, points etc. should be restricted to 3 points for a single wire from the switch board

27. The wooden batten and specials shall not be butt jointed and joints should be lap jointed.

28. The wiring must be done using bend and corners wherever necessary. Sharp bending or cable must be avoided.

29. The lighting circuit shall not have more than 10 points or a load of 800 watts. whichever is less

30. Power wiring shal1 be kept separate and distinct from the lighting wiring.

31. The contractor should be present at the premises at the time of effecting service connection by the Electricity Board authority and afford all facility for testing and commissioning the installation.

32 The contractor should provide sufficient leads for connecting the main switches to meters and cut outs provided by the Electricity Board at his own cost.

33. The apartment main switches and the main switches at the Electricity Board service connection boards should be numbered in paint for easy identification and the danger boards should be provided wherever necessary according to I. E. Rules and Act regulations.

34. Looping of neutral and connection wires in the switch boards must be carried out through mechanical connections and proper insulation shall be provided inside the switch wherever necessary to avoid short circuiting the system.

35 The scaffolding and the shed required for the electrical installation works should be put by the contractor at his own cost.

36. The Run off mains relates to the mains, run from the main switch inside the apartment to the mains switch provided for service connection by the Electricity Board authorities. The distribution box used shall be metallic enclosed type with fuse unit and natural link. The earthing for the main switches provided in the service connection Board should be properly interconnected and connected to the main earthling system.

Contractor No. of Corrections. Superintending Engineer

LIST OF HOUSE HOLD ELECTRICAL APPLIANCES

Circular No. / TC4 I 193 I 89 dt. 06-01-1989

Sl.. No.	House hold Electric & Electronics	Standard
1.	Electric immersion water heater	IS: 368-1983
2.	Storage type automatic electric water heater	IS:2082-1985
3.	Switches for domestic & similar purposes	IS I 3854-196V
4.	Rubber insulated cables (with copper conductor (voltage Upto 1 I 1 KKV.)	IS: 9968 (Part I) 1981
5.	Rubber insulated cables (with aluminum conductor 1981 (Voltage Upto 1 : 1 K.V)	IS: 9968 (Part 11)
6.	PVC insulated cables (for voltage upto upth 11 OOV)	IS: 694.1977
7.	PoJythylene insulated and PVC sheathed cables upto and including 1100 Voltage	IS : 1996-1997
8.	Electrical Irons	IS 1336.1985
9.	Electric Stoves	IS: 2994-1965
10.	Electric Hot plates	IS:1365-1983
11.	Domestic Electric food mixers (Liquidizers Blenders & Grinders)	IS : 4250-1980
12.	Electric Toasters	IS : 1287 -1965
13.	Electric Coffee percolaters (Non regulator type)	IS: 3514.1966
14.	Pomeatic Electric Cloths washing machines (Non. regulator type)	IS : 6390-1983
15.	Ele. Kettles and jugs for house and similar type	IS : 367-1983
16.	Electric Radiators	IS : 369-1983
17.	Electric Water boilers	IS : 3412-1985
18.	MAIN-operated electric shavers	IS : 71541973
19.	MAIN operated electric shavers	IS : 5152-1969
20.	Domestic electric cooking ovens	IS: 5790-1985
21.	Steam Irons	IS : 6290-1971
22.	Electric. Electronic hearing gads domestic use	IS: 5161-1969
23.	Portable hand-held mains operated electric massagers	IS:7137-1973

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Contractor **No. of Corrections** **Superintending Engineer**

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Sl.. No.	House hold Electric & Electronics	Standard
24.	Portable low speed food grinding machine	IS : 7603.1975
25.	Appliance connectors and appliance Inlets (Non-revertable three pin type) appliance	IS : 3010 (part-1)1965
26.	Appliance connector and appliance inlets (Part-II) 1965	IS :3010 (Non reversible three pin type) appliance inlets
27.	Termostats for use with electric water heater	IS : 3017-1985
28.	Cartidge typeheating elements water heater (Non embedded type)	IS : 3724-1966
29.	Resistances wire. tapes and strips for heating elements	IS : 3725.1966
30.	Solid embedded type electric heating elements	IS : 4158 -1985
31.	Mineral filled sheathed heating elements	IS : 4159.1983
32.	Thermostats for general electric ovens	IS : 4165-1967
33.	MICA insulated heating elements	IS : 6446 1972
34.	2 Amps switches for domestic and similar purposes	IS : 4949-1968
35.	Electric portable lamp stands and brackets	IS : 3481-1966
36.	Three pin plugs & sockets-outlets (First revision)	IS 1293-1967
37.	Three pin plugs made of resilents materials	IS: 6538-1971
38.	Bayonet Lamp Holders	IS:: 1258-1979
39.	Electric Instantaneous water heaters	IS : 8978-1985
40.	Single walled baking oven	IS I 8925-

Contractor **No. of Corrections** **Superintending Engineer**

TAMIL NADU HOUSING BOARD

List of Electrical Materials and Saniraty fittings & PVC Doors and Windows of approved Brand to be used in TNHB works

Sl.No.	Name of Materials	Company Name / Brand	IS No.
Electrical Items			
1	PVC Sheathed / Unsheathed Copper Cable 1100 V	FINOLEX, KUNDAN, ANCHOR, Q-FLEX, HAVELLS, JAIMAX GOLD, RALLISON, KRAFT, HPL, KEI MARISON,Balar Marketing PVT Ltd, The Roopa Electricals Pvt Ltd, Cybele Industries Limited, KEI industries Pvt Ltd,.	**IS 694:1991, IS-1554 PT- I 1998, IS 7098 PT- I 1996 LT & IS 7098 PT-II HT.**
2	Flush type switches, plug sockets power plug sockets staircase switches, Bell push switches and Ceiling rose, batten holder, etc.	RECORD, ANCHOR (ROMA MODULAR RANGE OF SWITCHES), LEADER, FINOLEX, KUNDAN,HPL,MARUDHAR,HAVELLS .	**IS 3854:1988**
3	Double / Triple pole Main, Switches.	STANDARD, HAVELLS, ZETA, HPL, GEM, L&T, BCH SIEMENS, SPUTNIK WITH ISI MARK, the supreme industries Limited	
4	Distribution Boards (Rewire able type)	MDS,JEM, HAVELIS, ZETA HPL, SPUTNIK WITH ISI MARK.	
5	Consumer unit with rewriteable Main switch and distribution fuse units for use in inside apartment other complexes.	MDS,ZETA, STANDARD & HAVELLS	
6	a)Miniature Circuit Breaket IS:12640-1(2000)	MDS, INDO-KOPP, HAVELLS, STANDARD, FINOLEX, BENTEC, INDO ASIAN.	**IS:12640-1(2000) IS 8828-1996**
	b) Miniature circuit breaket Distribution Board		
	c) Consumer unit with MCB Isolator for incoming and miniature circuit. Breaker for distribution circuit for inside complexes.		**IS 13032-1991**
7	Bulkhead fittings	K-LITE, MUNDRA, FLOUROCRAFT, GLOLITE, BAJAJ, PHILIPS & CROMPTON GREAVES,HAVELLS.	
8	PVC Electrical conduit Heavy gauge : Pipe	AVON PLAST (WITH ISI MARK) MERCURY,INDIAN TUBE AND PIPES,SUN BRAND,AERO PLAST	**IS 9537:Part 3 1983**
9	Hylem Sheet	3MM THICK WITH LAMINATION	

10	Light fittings	PHILIPS, BAJAJ, FINOLEX, ANCHOR,CROMPTON GREAVES, HMT, MYSORE LAMP, FIXOLITE WITH ISI MARK, Bentec India Ltd.	
11	L.T amoured UG gables	UNIVERSAL, CCA, UNIFLEX, PARAGON, ANCHOR , FINOLEX. & HAVELLS	
12	Ceiling Fan	USHA, CROMPTON, HAVELLS, ORIENT, ALMONARD, KHAITHAN, POLAR, RALLY & KEDIA	
13	FSUs for cubical/indutrial type panel boards	Siemens/GE/L&T & Standard	
Sanitary Pipes :			
1	**PVC Rigid Pipes for water supply** Size and Range: 20mm to 200mm & 2.5 kg to 10 kg pressure	FINOLEX, SUPREME, TRUE BORE, FLOW GUARD & PRINCE.	**IS 4985**
	Heavy presure Solvent Cemented Pipes **Size OD Wall thickness** **Min Max** 20 20.30 2.80 3.30 25 25.30 2.90 3.40 32 32.30 3.40 3.90 40 40.30 3.60 4.20 50 50.30 3.70 4.30	FINOLEX, SUPREME, TRUE BORE, FLOW GUARD & PRINCE.	**IS 4985**
	ASTM Heavy presure Pipes at 23° CSize Mean Schedule 40 Pressure inches OD Wall thickness Rating (MPa) Min Max --- 1/2	FINOLEX, SUPREME, FLOW GUARD & PRINCE.	**ASTM D-1785**

	21.24 2.77 3.28 4.14 3/4 26.57 2.87 3.38 3.31 1 33.27 3.38 3.89 3.10 1 1/4 42.00 3.56 4.07 2.55 1 1/2 48.11 3.68 4.19 2.28 2 60.17 3.91 4.42 1.93		
2	PVC Fittings	SUPREME,FLOW GUARD, FINOLEX & PRINCE the Supreme Industries Limited, Astral Poly Technic Ltd	**IS 7834 (Part 3)**
3	UPVC Soil, Waste and Rain Water (SWR) Drainage System	SUPREME, PARAS, FINOLEX & PRINCE, the Supreme Industries Limited	
	Nominal Tolerance Wall Thick Wall Thick outside on outside **Type-A** **Type-B** diameter diameter Min Max Min Max 50 +0.30 1.80 2.20 3.20 3.80 75 +0.30 1.80 2.20	**Note** :As per IS 13592-1992 **Type A** Pipes are recommended for use in ventilation pipe work and rain water application and **Type B** pipes are recommended for use in soil and waste discharge system.	**IS 13592 -1992**

	3.20 3.80 90 +0.30 1.90 2.30 3.20 3.80 110 +0.40 2.20 2.70 3.20 3.80 160 +0.50 3.20 3.80 4.00 4.60		
1	Hot & Cold water CPVC pipes& Fittings	FLOW GUARD,SUPREME(Life line), ESSCO, JAGUAR sanitary bath room fittings & Accessaries,FINOLEX, PRINCE MARVEL & PARSELANO the supreme industries Limited	**ASTM D-2846**
2	Water Storage Tanks (PVC)	SINTEX, LOTUS,INFRA,KAVERI the supreme industries Limited	**IS 12701 :1996**
3	UPVC Doors & Windows	SINTEX, POLYWOOD,QUTE Ectrusions PVT Ltd,WINTECH, SAMUROW WITH VESTAL the supreme industries Limited, AMD overseas Impex (India) Private Limited, Prominance UPVC Window Systems,Astral Poly Technic Ltd.	
4	Aluminium Doors & Window fittings	CROWN, CLASSIC WITH ISI mark	
5	G.P.C. Steel windows	NCL ALLTEK & SECCOLOR LTD.	
6	Floor & Wall Tiles.	JOHNSON, MARBITO ,KHAJARIA , SOMANY & STYLES BONZER-7,Orient Bell Limited,Aravind Ceremic Pvt Ltd,	
7	Painting works (First Class) with brand Name	(Dulux- I.C.I), (Luxol Hi-Gloss- Berger Paints), (Apcolite- Asian Paints), (Nerolac- Good Lass)venlac,surfa, Nippon Paint (India) Pvt Ltd,Surfa coats (India) Pvt Ltd.	
8	Steel Rods - with TMT ISI Mark	TATA, SURANA, PULKIT,SHYAM,ARS Fe500 TMT STEEL BARS,SISTRONG,SUJANA,JSW,AGNI,SIMHADRI,SRMT,JSPL,GBR Metals Pvt Ltd,Suryadev Alloys & Power (p) Ltd,Kamachi Industries Ltd,ARS steel & Alloy International PVT LTD,Sakthi Ferro Allyos India Pvt Ltd.	IS-1786 -2008
9	EWC,IWC Wash basin	PARRY WARE	
10	Pvc Door	QUIT SOLID, EXCEL PROFILE	IS 4020 (PART -16) 1998

Contractor No.of corrections Superintending Engineer

ADDITIONAL SPECIFICATIONS FOR QUALITY OF MATERIALS AND TESTS TO BE CONDUCTED

S.No.	Material to be tested	Sampling	Name of test	Permissible limits	Standards.
1.	**Water**	**Local Source: Lab Test once in 3 month.**	**Total Alkalinity**	**250 mg/I**	**IS 456-2000**
		Out Source: Lab Test once in a month	Total Dissolved Solids	3000 mg/I	IS 456-2000
		Lorry Load: Field Test – Litmus paper test for every load	Sulphates (SO4)	400mg/I	IS 456-2000 Clause 5.4
			Chlorides (CI)	2000 mg/I for concrete not containing embedded steel and 500 mg /I for reinforced concrete work	IS 456-2000 Clause 5.4
			Suspended Matter	2000 mg/I	IS 456-2000 Clause 5.4
			$_{p}$H Value	Not less than 6	IS 456-2000
2.	**Cement (43 Grade)**	**One test for every 300 Ton of Single Brand – test to be done if there is change in Brand.**	**Initial Setting time**	**Not less than 30 minutes.**	**IS 8112-1976**
			Final setting time	Not more than 600 minutes	IS 8112-1976
			Fineness of Cement	2250 sq.cm/gm	IS 8112-1976
			Soundness of Cement	Expansion not more than 10mm	IS 8112-1976
			Compressive strength of CM 1:3 cube		IS 8112-1976
			3 days (72+/-1 hr)	Not less than 230 kg / cm^2	
			7 days (168+ /-2 hr)	Not less than 330 kg / cm^2	
			28 days (672 + /-4 hr)	Not less than 430 kg/cm^2	

3.	**Steel (Deformed Bars (fe.415)**	**Every load and each diameter**	**Tensile Strength**	**15% more than the measured yield stress**	**IS 1786-1985.**
			Minimum yield stress	42.5 / kg / Sq.mm	IS 1786-1985
			Minimum percentage elongation	14.5	IS 1786-1985
4.	Sand	Every Load	Clay, fine silt and the dust	Not more than 5% of mass	IS 2116-1980
5.	Coarse Aggregate	Every Quarry	Crushing value of Alternatively	Not more than 45%	IS 383-1970
			Impact Value	Not more than 50%	IS 383-1970
6.	**Bricks**	**Lot Size – more than 1 Lakh bricks – number of Samples 20 Nos**	**Compressive Strength.**		**IS 1077-1986**
			For Class 35	Not less than 35 Kg / cm^2	
			For Class 50	Not less than 50 Kg / cm^2	
			Water absorption	The average water absorption of bricks shall not be more than 20% of weight	IS 1077-1986
			Efflorescence	the rating of efflorescence shall not be more than moderate	IS 1077-1986
7.	**Hydraulic Pressed tiles**	**One test for an area upto 1999 Sq.m and one additional test for every 1000 sq.m and part thereof.**	**Water absorption**	**Shall not exceed 15%**	**Part I of IS 2690 – 1993.**

			Flextural strength	Shall not be less than 15 Kg / Cm^2	IS 2690-1993
8.	**Mosaic Tiles**	**One test for an area upto 1999 sq.m and one additional test for every 1000 sq.m and part thereof.**	**Water absorption**	**Shall not be exceed 10%**	**IS 1237 – 1980.**
			Transverse strength	Shall not be less than 30 Kg/cm^2	IS 1237 – 1980
			Wear: Ave: Wear	Shall not be more than 3.5mm	IS 1237-1980
			Wear on individual Specimen	Shall not be more than 4mm	IS 1237-1980
9.	**Electric Cable**	**One test for each brand**	**Conductor Resistance at 20^0C**		**IS 694-1990**
			For1.5sq.mm cable For2.5sq.mm cable For4.0sq.mm cable	max.allowable limit 12.10 ohm/kmmax.allowable limit 7.40ohm /km max. lalowable limit 4.95 ohm/km	
10.	**Wood**	**One sample for each work**	**Lab Test – Moisture Test**	**Not more than 12%**	
			Field Test – Visual Observation	Free from rotten, unsound Knots (or) Knots incluster	IS 3629/1966
11.	**Cube test in Lab**		**Compressive Strength**		**IS 456 – 2000**
		$1m^3$ to $5\ m^3$ – 1 Set	M 15 (1:2:4)		
		$6m^3$ to $15\ m^3$ – 2 Sets	28 days	not less than 150 kg / cm^2	
		$16m^3$ to $30\ m^3$ – 3	7 days	not less than	

		Sets		100 kg / cm^2	
		31m^3 to 50 m^3 – 4 Sets			
		> 50 m^3 – 4 plus one for each addl.50 m^3	M 20 (1:1.5:3)		
			28 days	not less than 200 kg / cm^2	
			7 days	not less than 135 kg / cm^2	
12.	**Slump Test at site (Slump in cm)**	**Type work**	**With Vibration**	**Without Vibration**	
		Massconcrete, large section, roads and pavements	1.0 to 2.5	5.0 to 7.5	
		RCC foundation, substructures, thick walls & other heavy sections	2.6 to 5.0	4.0 to 11.5	
		Thinvertical sections Such as walls, beams, columns with congested reinforcement	4.0 to 5.0	10.0 to 17.5	
		When using concrete pump	8.0 to 10.0		

Contractor **No. of corrections** **Superintending Engineer**

TAMILNADU HOUSING BOARD

7. **TYPES OF EARTH ELECTRODES:**

7.1. **Rod and pipe Electrodes (Fig.4)**

7.1.1 These electrodes shall be made off metal rod or pipe having a clan surface not coveredby paint enamel or poorly conducting materials.

7.1.2 Rod Electrodes of steel or galvanized iron shall be at least 16mm in diameter and those of copper shall be at least 12.5mm in diameter.

7.1.3 Pipe electrodes shall not be smaller than 30mm internal diameter if made of galvanized Iron or steel and 100mm internal diameter if made of cast iron.

7.1.4 Electrodes shall, as far as practicable be embedded below permanent moisture level.

7.1.5 The length of rod and pipe electrodes shall not be less than 2.5m.

7.1.6 Except where rock is encount rod pipes and rods shall be drive to a depth of atleast 2.5m where rock is encountered at a depth of less than 2.5m the electrodes may be buried inclined to the vertical. In this case too the electrodes shall be at least 2.5m and inclination not more than 3.0m from the vertical.

7.1.7 Deeply driven pipes and rods are, however, effective where the soil resistivity decreases with depth or where substratum of low resistivity occurs at depth greater than those to which rods and pipes are normally driven.

7.1.8 Pipes or rods, as far as possible, shall be of one piece.

7.1.9. For deeply driven rods, joints between sections shall be made by means of a screwed coupling which should not be of greater diameter than that of the rods which it connects together.

7.1.10. To reduce depth of burial of an electrode without increasing the resistance, a number of rods or pipe shall be connected together in parallel. The resistance in this case is practically proportional to the reciprocal of the number of electrodes used so long as each is situated outside the resistance area of the other (See fig.5). The distances between two electrodes in such a case shall be not less than twice the length of the electrodes.

7.1.11 If necessary rod electrodes shall have a galvanized iron water pipe buried in the ground adjacent and parallel to electrode itself. It's one and shall be at least 5cm above the surfaces of the grounds and need not be more than 10cm. The diameter of the pipe shall be between 5cm and 10cm. The difference between the lengths of the electrode and that of the pipe if under the earth's surface not be more than 30cm and in no case shall the length of the pipe exceed that of the electrode.

TAMILNADU HOUSING BOARD

CONDITIONS FOR TRAINING OF APPRENTICES AS PER APPRENTICES ACT

The contractor shall comply with the provision of the Apprentices Act 1961 and the rules and orders issued there under from time to time. If he fails to do so his failure will be a breach of contract and the competent authority may at his discretion cancel the contractor or invoke any of the parties of breach of contract provided in the agreement. The contractor shall also be liable for any precautionary liability arising of account of any violation by his of the provision of the Act.

2) Contractor shall during the currency of the contract ensure engagement of the Apprentices in the categories mentioned below who may be assigned to him by Director of Employment and Training State Apprenticeship Adviser, Tamilnadu. The Contractor shall train time as required under the Apprentices Act 1961 ad the rules made there under and shall be responsible for all obligations of the employer under the said item including the liability to take payment to the apprentices as required under the said Act.

	Value of Contract	Category	To be appointed
1.	Above Rs.1.00 lakhs to Rs.3.00 lakhs	1. Building contractor	1
		2. Brick layer	2
2.	Above Rs.3.00 lakhs to Rs.10.00 lakhs	1. Building contractor	1
		2. Brick layer	1
		3. Diploma holder in Civil	1
3.	Above Rs.10.00 lakhs	1. Building contractor	1
		2. Brick layer	1
		3. Engineering Degree holder in Civil	1

3) Unless the contractor has been exempted from the engagement of Apprentices by the Director of employment of training/State Apprenticeship Advisor, a certificate to the effect that the contractor has discharged his obligation under the said Act satisfactory should be obtained from the director of Employment and Training/State Apprenticeship Adviser and the same should be provided by the Contractor, final payment in the settlement of the contract.

(Authority: G.O.M.s.No.866/Transport Department dated 12.8.70)

Contractor No. of Corrections Superintending Engineer

SPECIAL CONDITIONS FOR SENDING THE CEMENT CONCRETE CUBES FOR TESTING

The contractor should make arrangements for getting mould to the site for casting of cubes for testing of concrete strength.

1. Mould: The concrete mould' should be as per IS Specification (IS-516-1959) the Detail of which are as follows:

   The mould shall be of metal, preferably steel or cast iron, and stout enough to prevent distortion. It shall be constructed in such a manner as to facilitate the removal of the moulded specimen without damage and shall be so machined that when it is assembled ready for use, the dimensions and internal faces shall be accurate within following limits.

   The height of the mould and the distance between opposite faces shall be the specified size + 0.2mm. The angle between adjacent internal faces and top and bottom planes of the mould shall be 90. + 0.50. The interior faces of the mould shall be plane surface with a permissible variation of 0.03 mm. Each mould shall be provided with a metal base plate having a plane surface and to support the mould during the filling without leakage and it shall be preferably attached to the mould by springs for screws.

   The interior surfaces of the mould shall be thinly coated with mould oil to prevent adhesion of the concrete.

2. Compacting: The concrete shall be filled into the mould in layers approximately 5 cm. deep. each layer shall be compacted either by hand or by vibration as described below(as per ISI).

   When compacting by hand, the standard tamping bar shall be used and the stokes of the bar shall be distributed in uniform manner over the cross section of the mould as prescribed in I.S.I. and for cubical specimen in no case, shall be concrete be subjected to less than 35 strokes per layer for 15 cm cubes (as per I.S.I.). When compacting by Vibration each layer shall be vibrated by means of an electric or pneumatic hammer of vibrator (as Per I.S.I).

3. The concrete cubes shall be cured for 28 days and send on 29^{th} day. if the day falls on a holiday the cubes shall be sent on the next working day.
4. All the charges connected with the cube testing etc. shall be borne by the contractor.
5. If the concrete cube is found to be of lesser strength then reduction in agreement rates shall be adopted as per the powers delegated to Executive Engineers.
6. For working out the reduction of rates the following procedures will be adopted.

   When the strength of cubes tested is between 75% and 100% of the specified strength the agreement rates should be reduced proportionately to the allowable strength of concrete.

7. When the strength of cube tested falls below 75% of the allowable strength, the R.C. Component from where the cube samples are collected shall be rejected. However as an additional check, non-destructive test will be conducted through recognized institutions like Anna University etc., whether the concrete component can be rejected or reduced rate to be adopted will then be decided. However for working out the reduced rate, the cubes strength value only should be taken and worked out as given in par (6) above.

CONTRACTOR NO.OF CORRECTIONS SUPERINTENDING ENGINEER

TAMILNADU HOUSING BOARD
SCHEDULE - C
SPECIAL CONDITION OF "COLOUR WASHING"

1. Each coat of colour wash shall be laid on with a brush and allowed to dry before the next coat is applied.

2. A stroke of the brush shall be given from the top down wards another from the bottom upwards, Over the first stroke and similarly one stroke from the right and another from the left over the first brush before it dries.

3. The No. of Goats to be applied shall be as mentioned in the schedule.

4. The rate should be inclusive of wall cleaning, brushing and all patching must be scraped properly.

5. The old loose colour wash is to be first removed and minor repairs to the plaster done. such as filling old holes etc.,

6. Each coat of white wash is to be allowed to dry and should be inspected by the subordinate incharge before applying the next coats.

7. The surface shall present a uniform appearance without exhibiting any patching or hair cracks or streaks.

8. It is the responsibility of the contractor to clear the splashes on the wall, floor and other surfaces and articles to the satisfaction of the Executive Engineer.

9. The ladders, poles, scaffolding, etc. should be shoed with gunny bags to prevent damages or scratching of any surface.

10. The wash should be stirred continuously during use.

11. The contractor shall make a pattern of the colour for the Executive Engineers approval before applying

CONTRACTOR NO.OF CORRECTIONS SUPERINTENDING ENGINEER

TAMILNADU HOUSING BOARD

LIST OF APPROVED PAINT

(Circular No. CE/TC18/76 Dated: 20.07.76)

Name of the Paint Company	**Brand Name of the Paint**	
	Ist Class	**2nd Class**
1. British Paints	Luxel 3	Parrot
2. Asian Paints	Apoolite	Three Mangees
3. Good Loss	Nerolac	Glassolits
4. Johnsons & Nicholson	Rabbiclac	Jen Solin
5. Shalimar	Superlac	Duralac
6. I.C.I	Dulux	Dowell
7. Slundel	Pammall	Kinglac

Note: The EE &Ado concerned should follow the instruction given by the Chief Engineer /TNHB vide letter No Superintending Engineer/QC/12307-A /2017 dt.19.4.2017 regarding use of Products for the works.

CONTRACTOR NO.OF CORRECTIONS SUPERINTENDING ENGINEER

S C H E D U L E 'C'

Special conditions for Roads

1) This operation shall consists of quarrying or collecting the materials breaking, screening conveyance from quarry and stacking at the site of work in the manner in the clause 1 & 2 of MDSS No. 96 or as may be ordered by the Executive Engineer.
2) The spreading should be done in one layer or several layers as may be specified to the thickness defined in the schedule items.
3) Collecting and spreading should be carried out at the difference items and the same mile or in two at jointing miles.
4) The watering should ensure through consolidation of the earth bed-formation and binding of the several/ layers of metal, gravel, blind age of materials etc., at every stages as several operations are carried on to the specification of departmental officers.
5) The small chips make a suitable binder as a substitute for a sand or gravel or as in the case may be
6) Clay or black soil should not used as blind age.
7) The type of roller and weight to be used by the contractors or must confirm the departmental specifications.
8) Rolling should be commenced from the edges and carried on towards the centre of the road. No extra payment will be made for confirming strips.
9) Where the metal is confined by the road site strip the roller should be started half on the metal on the berm strip to prevent the metal being squeezed out.
10) The contractor should supply all tools and plants required in the several operation of the work even in the absence of the contrary instructions in the tender notice and provide for a cost of same in his unit rates such operations.
11) Blasted rocks will be measured in stacks. Payment will be measured in stacks, payment will be made based on pit measurement or stack measurement less 40% for voids whichever is less.

12-a) Initial levels of the scheme area will be taken and plan with levels will be countersigned by contractor. Jr. Engr. and AEE before commencing the work.

12-b) Final bill will be paid and deposit released after watching compaction etc., after one monsoon atleast levels will be taken, calculation of theoretical quantity as per levels will be taken shortage if any should be made good by contractor.

13) The contractors have to produce the Test certificate confirming to I.S. and other accepted codes and standards in support of the quality of materials procured. If the materials are found to be substandard or not confirming to the prescribed test standards the same will be rejected without any claim for damages whatever.

14) The Quoted rate shall be inclusive of cost of bitumen, bitumen emulsion, Conveyance and handling and storage charges and other requisites.

15) The department will not supply the bitumen and bitumen emulsion required for use in the work.

16) The contractor has to procure the bitumen of appropriate grade and emulsion as per specification required for the items of work as per standard specification and use it on the work.

17) All the requisites tests to ensure quality of bitumen have to be carried out before acceptance and certified.

CONTRACTOR NO.OF CORRECTIONS SUPERINTENDING ENGINEER

TAMILNADU HOUSING BOARD

Rules in respect of Power road rollers of the Tamil Nadu Housing Board conditions of Power Roller.

A.POWER ROLLERS

1. For consolidation work to be done by the tender/contractor and the rates should be inclusive of power rollers with driver and cleaners will be engaged and paid by tenderer/contractor towards hirecharges of power roller (including fuel etc.) per day, including pay of crew charges ,including cost of fuel, oil, grease etc. The E.E./Tamil Nadu Housing Board shall be the sole judge as to the responsibility of the Contractor in respect of break down or other causes.
2. The normal working period for a power road roller shall be 8 hours a day excluding after upon break and steaming up time. If the power roller works for more than 8 hours excluding the afternoon break and steaming up time, no hire charges shall be paid for the period worked in excess of 8 hours .
5. The contractor shall be responsible for the cost of replacing any loss of damage to the plant while it is in his charge fair wear and tear exempted. The E.E./Tamil Nadu Housing board shall be sole judge of what is "fair wear and tear' and his decision shall be binding on the contractor.
6. The contractor shall employ at his cost necessary watchman to safeguard the plant.
7. On the Contractor's failure to carryout any of provision in the for joint clause it shall be open to the Exe. Engr., Tamil Nadu Housing Board to have the work carried out departmentally and to recover the cost there of from the Contractor bill or from any other amounts due to the Contractor.

8.The out turn is to be as per the prescribed manner of sq.ft. per day.

FOR BLOCK TOPPING	1" thick	12000 Sft.
FOR GRAVEL SOLLING	2" thick	12000 Sft.
(in two layers of 3" thick each)	6" thick	8000 Sft.

For GRAVEL SOLLING 9" thick in

two layers of 4 ½ " tk. each	6000 Sft.
For metalling 1 ½" tk. 2 tk.	8000 Sft.
For metalling 3" tk.	5000 Sft.
For sand gravel mix 150mm thick	6400 Sft.
For sand gravel mix 200 mm thick	5200 Sft.

CONTRACTOR NO.OF CORRECTIONS SUPERINTENDING ENGINEER

ADDITIONAL CONDITION

Safety provision in the building industry conditions in additional to clause 36 preliminary specification of TNBP.

PART - I

ARTICLES - 1

1. Suitable scaffolds shall be provided for workmen for all work that cannot be safely done from ladder or by any other means.
2. A scaffold shall not be constructed, taken down or subsequently altered except,
   a). Under the supervision of a competent and responsible person and
   b). By competent workers possessing adequate experience in this kind of work.
3. Scaffolds shall be so constructed that no part thereof can be displaced in consequent of normal use.
4. scaffolds shall not be over loaded so far as practicable and shall be evenly distributed.
5. Before installing lifting gear on scaffolds special precautions shall be taken to ensure the strength and stability of the scaffolds.
6. A competent person shall periodically inspect scaffolds.
7. Before allowing a scaffold to be used by his workmen every employer shall satisfy as to whether the scaffold has been executed by his workmen or not be should taken step to ensure that it functions fully with the requirements of this article.

ARTICLES - 2

1. Working platform gangways and staircase shall be so constructed that no part thereof can sag unduly or unequally.
   a). Be so constructed and maintained to obviate from risks of persons tripping or slipping and
   b). be kept free from any unnecessary obstruction.
   c). Every working platform gangway working place and staircase shall be suitably forced

ARTICLE – 3

1. Every opening in the building or in a working platform shall except for the time to the extent required to allow the excess of persons or the transport or shirting of materials be provided with suitable means to prevent the fall of persons or materials.

2. When persons are employed on a roof where there is danger of falling from the height exceed that to be prescribed by national laws of regulations, suitable precautions shall be taken to prevent the fall of persons of materials.

3. Suitable precautions shall be taken to prevent persons being struck by articles which might fall from scaffolds or other working places.

ARTICLE – 4

1. Safe means of access shall be provided, to all working platforms and other working places.

2. Every ladder shall be securely fixed and of such length as to provide secure hand hold and foot held at every position at which it is used.

3. Every place where work is carried on and the means of approach there to shall be adequately lighted.

4. Adequate precautions shall be taken to prevent persons danger from electrical equipment.

5. No materials on the site shall be so attached or placed as to cause danger to any persons.

PART - II
GENERAL RULES AS TO HOISTING APPLIANCES ARTICLE - 5

1. Hoisting machines and tackle including their attachments enhotages and supports shall.
   a) be of good mechanical condition sound material and adequate strength and free from patient defects and
   b) be kept in good repair and in good working order.
2. Every rope used in hoisting or lowering materials or as a means of suspension shall be of suitable quality and adequate strength and free from patient defects.

ARTICLE - 6

1. Hoisting machines and tackle shall be examined and adequately tested after erection on the site and before use and be reexamined in position at intervals to be prescribed by national law or regulation.
2. Every chain ring, hook shackle, swivel and pulley block used in hoisting or lowering materials or as a means of suspension shall be periodically examined.

ARTICLE - 7

1. Every crane driver or hoisting appliances operator shall be properly qualified.
2. No persons under an age to be prescribed by national law regulations shall be in control of nay hoisting machinery including any scaffold which or gives signals to the operator.

ARTICLE - 8

1. In the case of very hoisting machine and every chain ring hook, shackle swivel and pulley block used in hoisting or lowering or as a means of suspension, the safe working load shall be ascertained by adequate means.
2. Every hoisting machine and all gear referred to in the proceeding paragraphs shall be plainly marked with the safe working load.
3. In the case of hoisting machine having a variable safe working load, each safe working load and the conditions under which it is applicable shall be clearly indicated.
4. No part of any hoisting machine or of any gear referred to in the paragraph (i) of this article shall be loaded beyond the safe working load except for the purpose of testing.

ARTICLE - 9

1. Motor gearing, transmission, electric wiring and other. dangerous parts of hoisting appliances shall be provided with sufficient safe guards.
2. Hoisting appliances shall be provided with such means as well reduce the risk of the accident descent of the load.
3. Adequate precautions shall be taken to reduce the risk of any part of suspended load becoming accidentally displaced.

PART - III

GENERAL RULES TO SAFETY EQUIPMENT AND FIRST AID ARTICLE - 10

1. All necessary personal safety equipment shall be kept available for the use of the persons employed on the site and be maintained in a condition suitable for immediate use.
2. The workers shall be required to use the equipment thus provided and the employer shall take adequate steps to ensure proper use of the equlpmentrby those concerned.

ARTICLE - 11

When work is carried on in proximity to any place where there is risk of drawing all necessary equipment shall be provided an kept ready for use and all necessary step shall be taken for the prompt reduce of any person in danger.

ARTICLE - 12

Adequate provision shall be made for prompt first aid treatment of all injuries pixelv to be sustained during the course of the work.

ARTICLE - 13

Where large work place are situated in cities, towns or in their sub-urban and no beds are considered necessary owing to the proximity of city or town hospital, suitable transport shall be provided to facilitate removal of urgent cases to the Hospitals, at their work places some conveyance facilities such as car shall be kept ready available to the injured person or persons suddenly taken seriously ill to the nearest hospital.

CONTRACTOR NO.OF CORRECTIONS SUPERINTENDING ENGINEER

TAMIL NADU HOUSING BOARD

TECHNICALLY QUALIFIED MEN SHOULD BE EMPLOYEDAS FOLLOWS:-

Sl.No.	Value of contract	Qualification and No. of Technical Assistants to be employed
1.	**2.**	**3.**
1.	Up to Rs.1 lakh	No technical Assistants need to be employed, However, if the Officer who accept the agreement feels that the nature of work requires a Technical Assistants, conditions may be stipulated in the tender notice that diploma holder in civil engineering or a retired Junior engineer may be employed.
2.	Upto 1 Lakh to Rs.3/- lakhs	One Diploma holder in Civil Engineering or not less than one retired Junior Engineer.
3.	Rs.3/- lakhs to Rs.10/- lakhs	One B.E. (Civil) or equivalent degree holder or not less than one retired sub-divisional officer (Assistant executive Engineer or Assistant divisional Engineer).
4.	Rs.10 lakhs to	One B.E. (Civil) or equivalent degree holder with three years experience in Civil Engineering works or not less than one retired sub divisional officer plus one diploma holder in Civil Engineer.
.	Rs.25/- lakhs to Rs.50 lakhs	One B.E. (Civil) or equivalent degree holder with thee years experience or not less than one retired sub-divisional officer (Retired Assistant Executive Engineer plus two Diploma holder in Civil or two retired Junior Engineers)
		ALTERNATIVE: One B.E. (Civil) or equivalent degree holder with three years experience or not less than one retired sub-divisional officer and one more B.E. (Civil) or equivalent degree holder).
6.	Above Rs.50/- lakhs	To be examined in individual class depending on the nature of work and the technical skill involved and defined in the Tender Notice regarding the number of qualified technical personnel to be employed by the contractor.
	2.	Penalty of Rs.500/- p.m. for Diploma holder and rs.1000/- p.m. for degree holder be levied in case of default on the part of contractors in following the norms laid down above.

Contractor **No. of corrections** **Superintending Engineer**

1	2	3
	3	The employment of Technical Assistant could be based only on the value of contracts. Engineer with Mechanical Engineering qualification and retired from Civil engg. Department are also suitable to supervise the Civil Engineering work because of their experience in Civil engineering field.
	NOTE	In case the contractor who is professionally qualified is not in a position to remain always at the site of the work during working hours personally checking all items of work and paying extra attention to such works as may demand special attention (e.g) R.C. work etc., he should employ technically qualified men (as prescribed for the work).

I am / we are professionally qualified and my / our qualification are given below:

NAME	QUALIFICATION

I / we will employ the following technical staff for supervising the work and will see that one of them is always at site during working hours personally checking all items of work and paying extra attention to words as required special attention (e.g.) reinforce concrete work.

Name of members of technical staff proposed to be employed	QUALIFICATIONS

In deciding the period of absence, the certificate from the Assistant Engineer in charge of the work counter signed by the Executive Engineer in charge shall be taken as the conclusive evidence and I / We shall be bound by such a certificate.

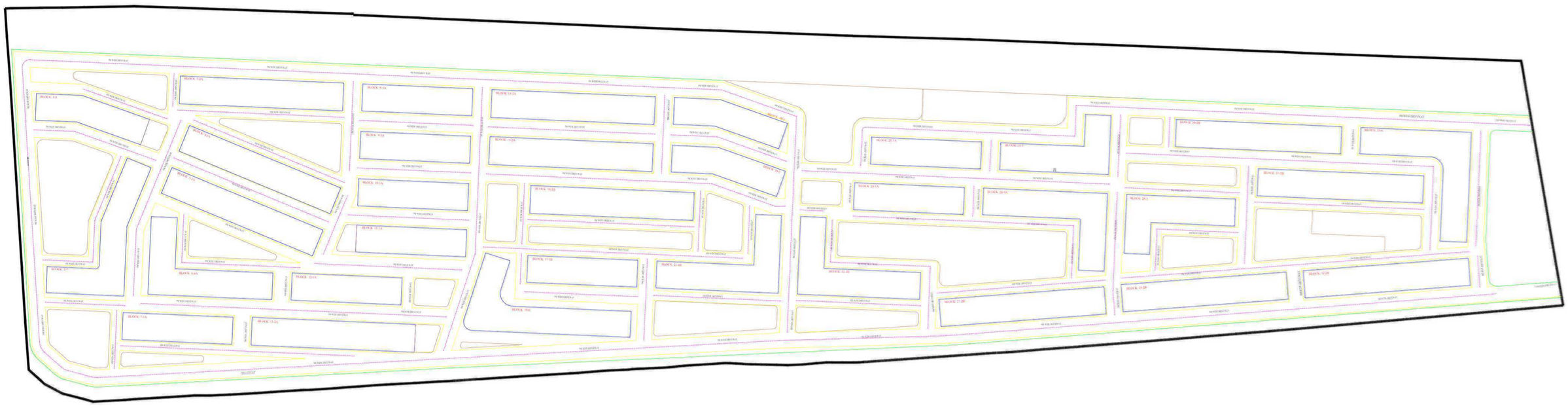
Contractor No.Of.Correction Superintending Engineer

TAMIL NADU HOUSING BOARD

DRAWINGS

NAME OF WORK : **Development work such as filling low lying area providing on site cc road and culverts, storm water drain etc for the construction of 6877 EWS flats (Stilt+13floors) in block no 8 T.S no 2at Eranavoor village , Thiruvallur district**

6877 EWS FLAT - STILT + 13 FLOORS AT ERNAVOOR, CHENNAI
ROAD MEASUREMENT & ALLIGNMENT DRAWING WITH BUILDING



AE

AEE

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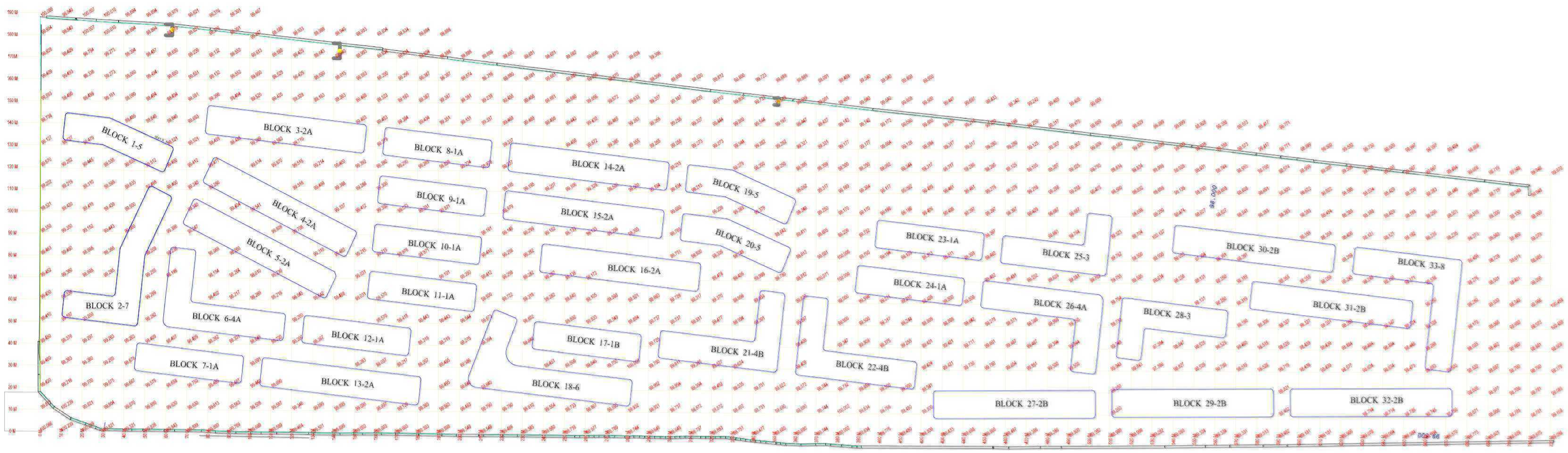
6877 EWS FLAT - STILT + 13 FLOORS AT ERNAVOOR, CHENNAI



LEVELS SURVEY PLAN

AE AEE EE & ADO SE

N

FILE NAME	ERNAVOOR-15-12-2021
SIZE	A1
DWG NO	REV 0

SITE AREA DETAILS

DESCRIPTION	SQ.MT	ACRES
TOTAL SITE AREA	110486.906	27.302

NOTES :-
1. All dimensions are in metres.
2. Surveyed on th December 2021.
3. BM : 100.000 Marked On (TNHB Grou-1)N/W Plinth wall top.
4. Spot level interval taken by as per site condition.
5. Contour interval 10m.
6. Boundary Shown by your site person.
Mr.K.Karunamoorthy, Mob:9444176084

SCALE: SCALE: 1:400

REFERECE DRAWING

REV.	DATE	SURVEYED	DRAWN	CHD	APPD
C					
B					
A					
0	15-12-2021	Sathish	Ganapathi	S.Shobana	

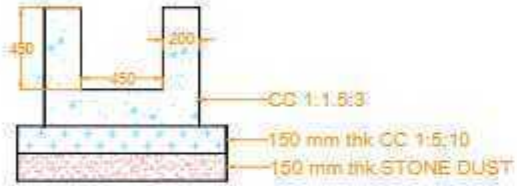
DWG TITLE: TOPOGRAPHICAL SURVEY PLAN

PROJECT: PROPOSED 6877 EWS FLATS SITE PLAN OF CCP FACTORY SITE IN BLOCK NO 8, TS .NO:- 2 PART (OLD SURVEY NO.29/2 PART, 3 PART, 4 PART) AT ERNAVOOR VILLAGE, THIRUVOTTIYUR TALUK, CHENNAI DISTRICT.

TAMILNADU HOUSING BOARD

CHIEF ENGINEER

1



SECTION A-A

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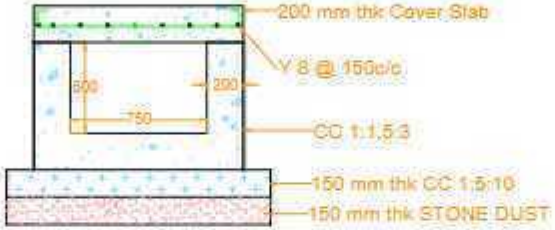

SECTION A-A

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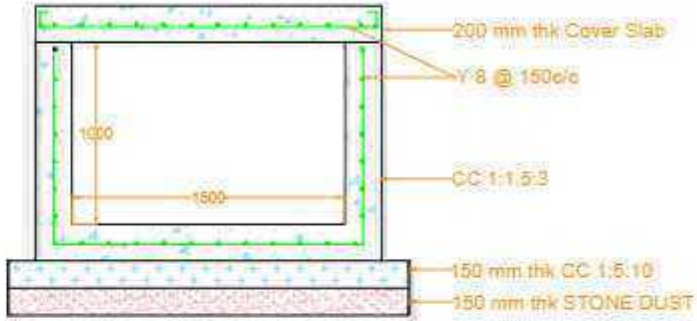

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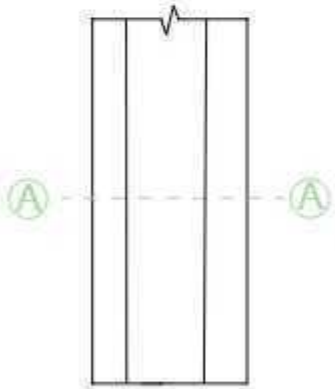
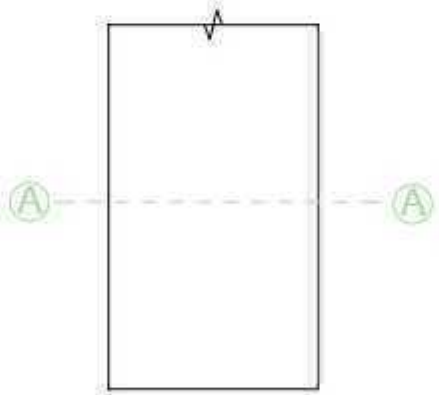
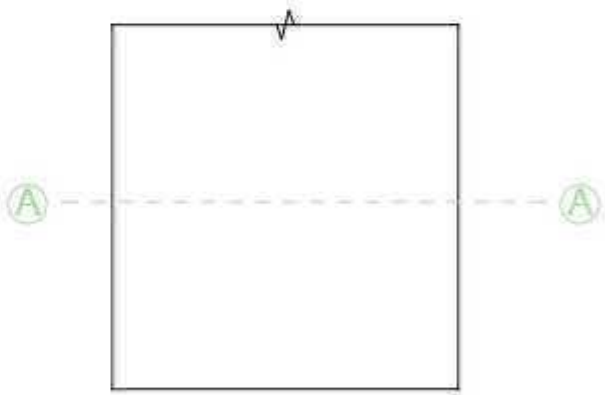
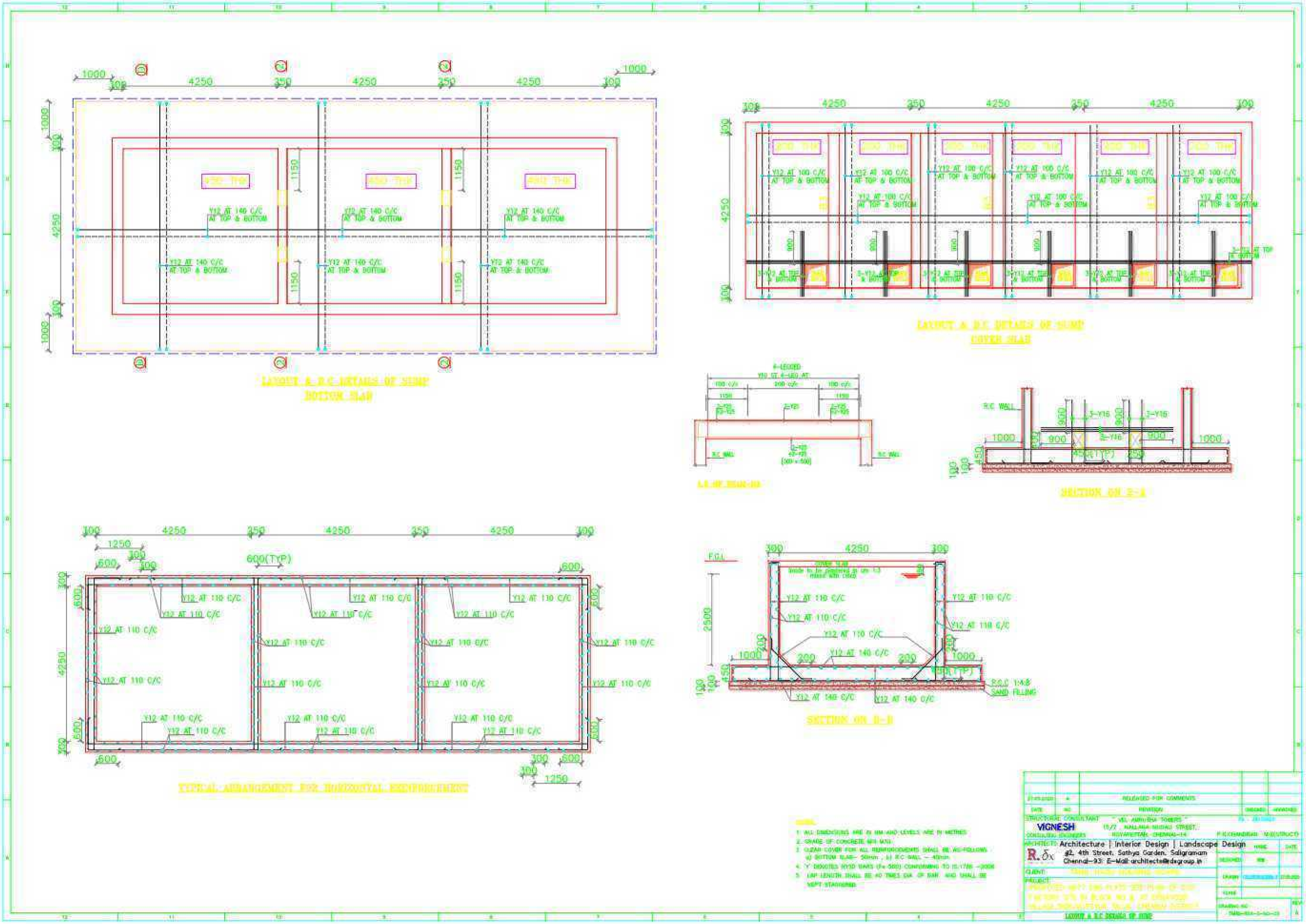


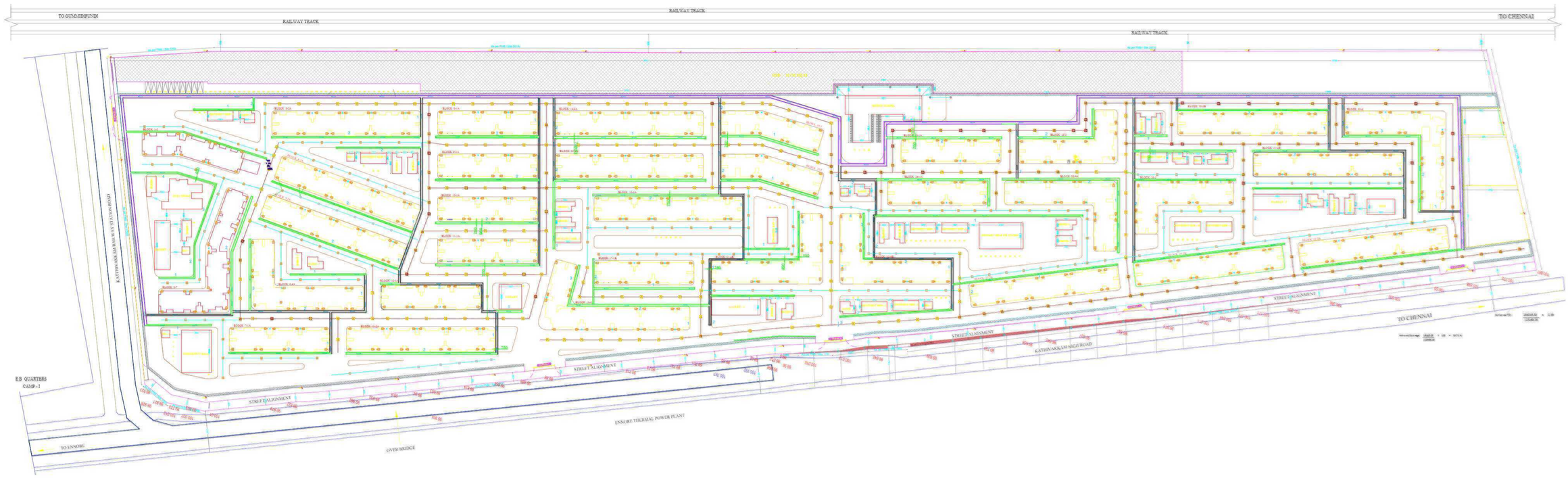




STROM WATER DRAINAGE DETAILED DRAWING

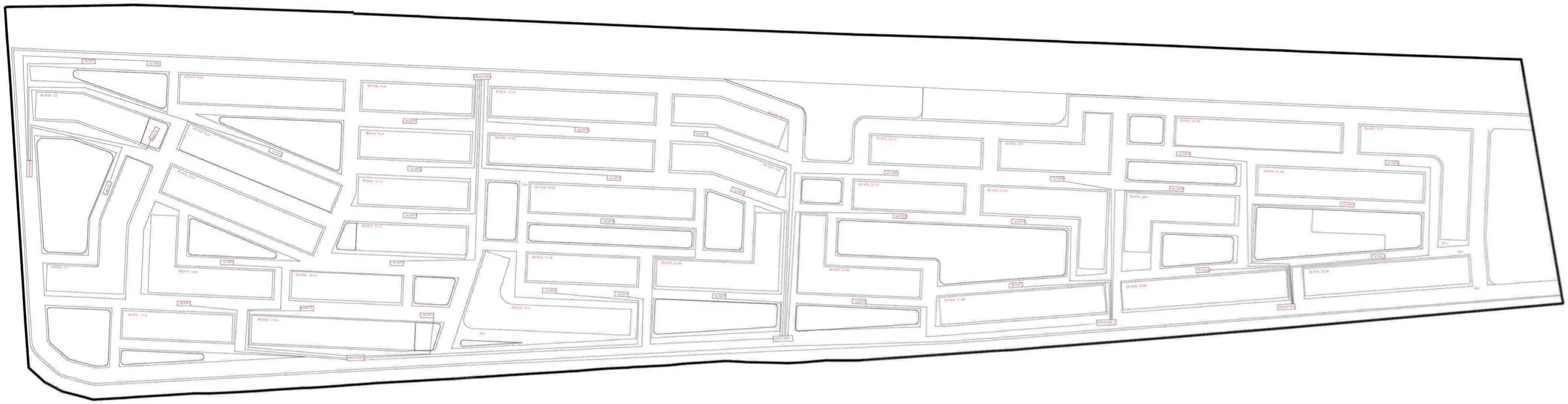

LAYOUT & R.C DETAILS OF SUMP BOTTOM SLAB
450 THK
Y12 AT 140 C/C AT TOP & BOTTOM
LAYOUT & R.C DETAILS OF SUMP COVER SLAB
200 THK
Y12 AT 100 C/C AT TOP & BOTTOM
3-Y12 AT TOP & BOTTOM
4-LEGGED
R.C WALL
SECTION ON 2-2
3-Y16
450(TYP)
TYPICAL ARRANGEMENT FOR HORIZONTAL REINFORCEMENT
600(TYP)
Y12 AT 110 C/C
SECTION ON B-B
F.G.L
COVER SLAB
Y12 AT 140 C/C
R.C.C 1:4:8
SAND FILLING
NOTES
1. ALL DIMENSIONS ARE IN MM AND LEVELS ARE IN METRES
2. GRADE OF CONCRETE M25 MIX
3. CLEAR COVER FOR ALL REINFORCEMENTS SHALL BE AS FOLLOWS
a) BOTTOM SLAB - 50mm , b) R.C WALL - 40mm
4. 'Y' DENOTES HYSD BARS (Fe 500) CONFORMING TO IS:1786 -2008
5. LAP LENGTH SHALL BE 40 TIMES DIA. OF BAR AND SHALL BE KEPT STAGGERED
RELEASED FOR COMMENTS
DATE
REVISION
STRUCTURAL CONSULTANT
VIGNESH
CONSULTING ENGINEERS
ARCHITECTS
Architecture | Interior Design | Landscape Design
#2, 4th Street, Sathya Garden, Saligramam
Chennai-93. E-Mail: architects@rdsgroup.in
CLIENT
PROJECT
DESIGNED
DRAWN
NAME
DATE
DRAWING NO
REV
A
LAYOUT & R.C DETAILS OF SUMP

NAME OF WORK : STROM WATER DRAINAGE FLOW DIAGRAM AND SEWER LINE



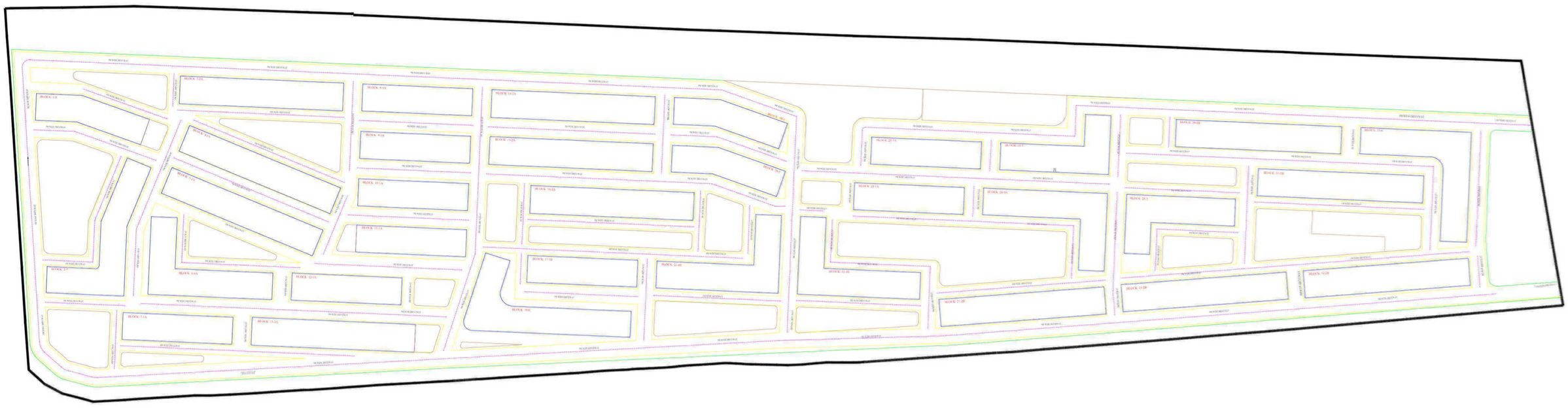
AE AEE EE

Name of Work: Providing Common Sump for Proposed Construction of 6877 MSB (Stilt + 13 floors) EWS Flats at Ernavoor,Chennai District.



AE **AEE** **EE**

6877 EWS FLAT - STILT + 13 FLOORS AT ERNAVOOR, CHENNAI
ROAD MEASUREMENT & ALLIGNMENT DRAWING WITH BUILDING

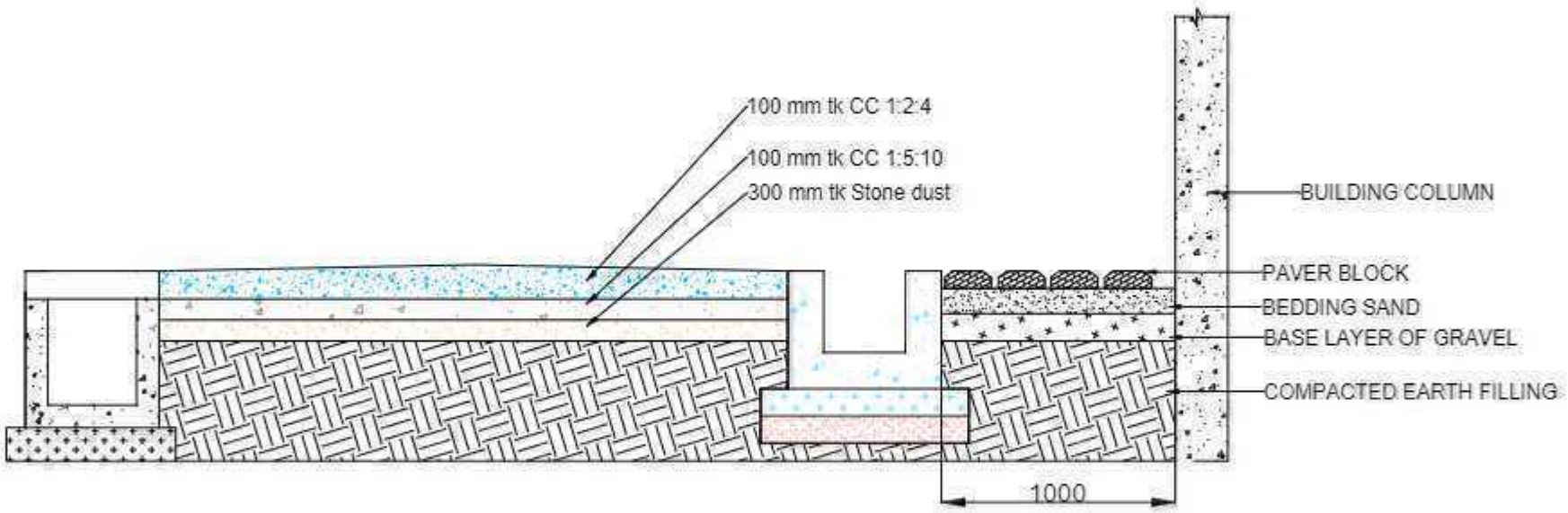


AE

AEE

EE

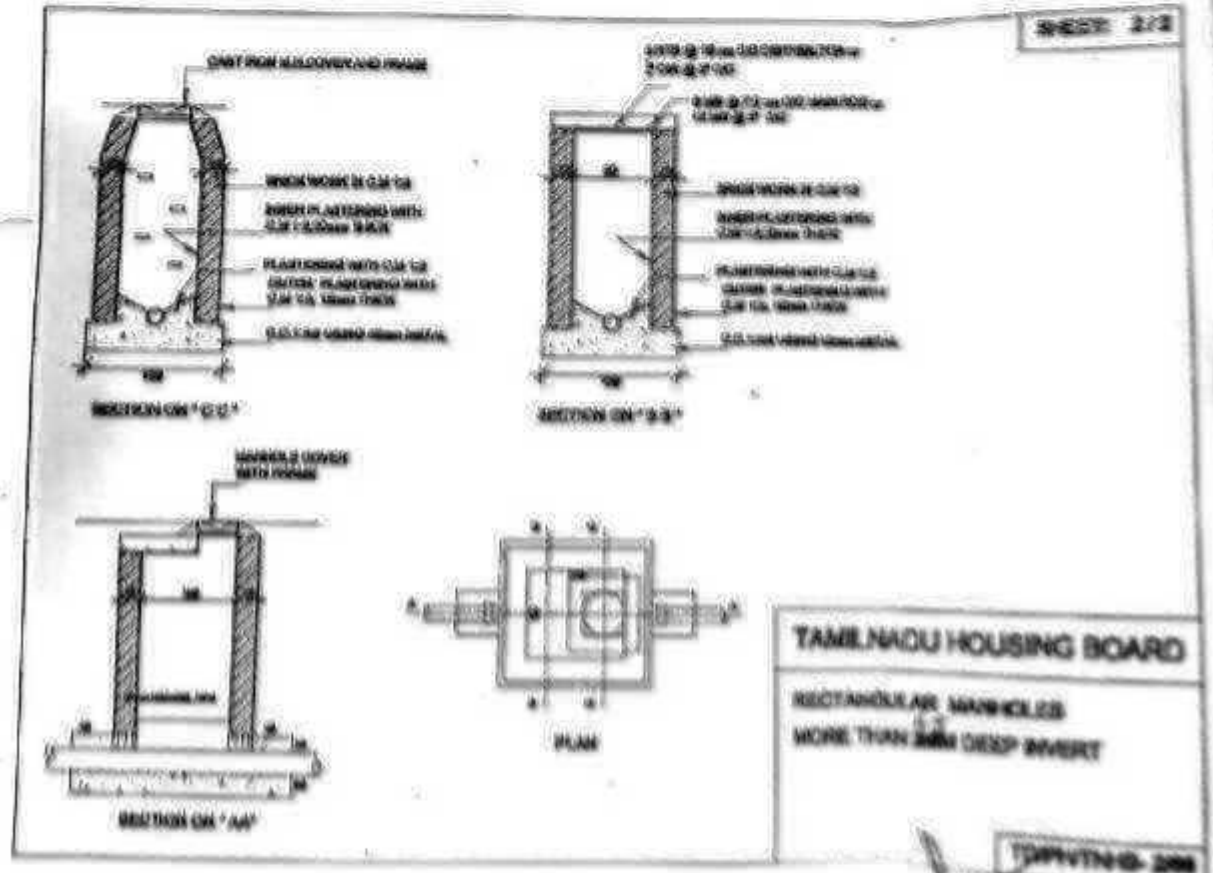
PROVIDNG ROAD FOR PROPOSED CONSTRUCTION OF 6877 (MSB)(STILT + 13TH FLOOR) EWS FLATS



CROSS SECTION OF CC ROAD CARRIAGE & STROMWATER DRAINAGE

AE AEE EE

Rectangular Manhole Drawing



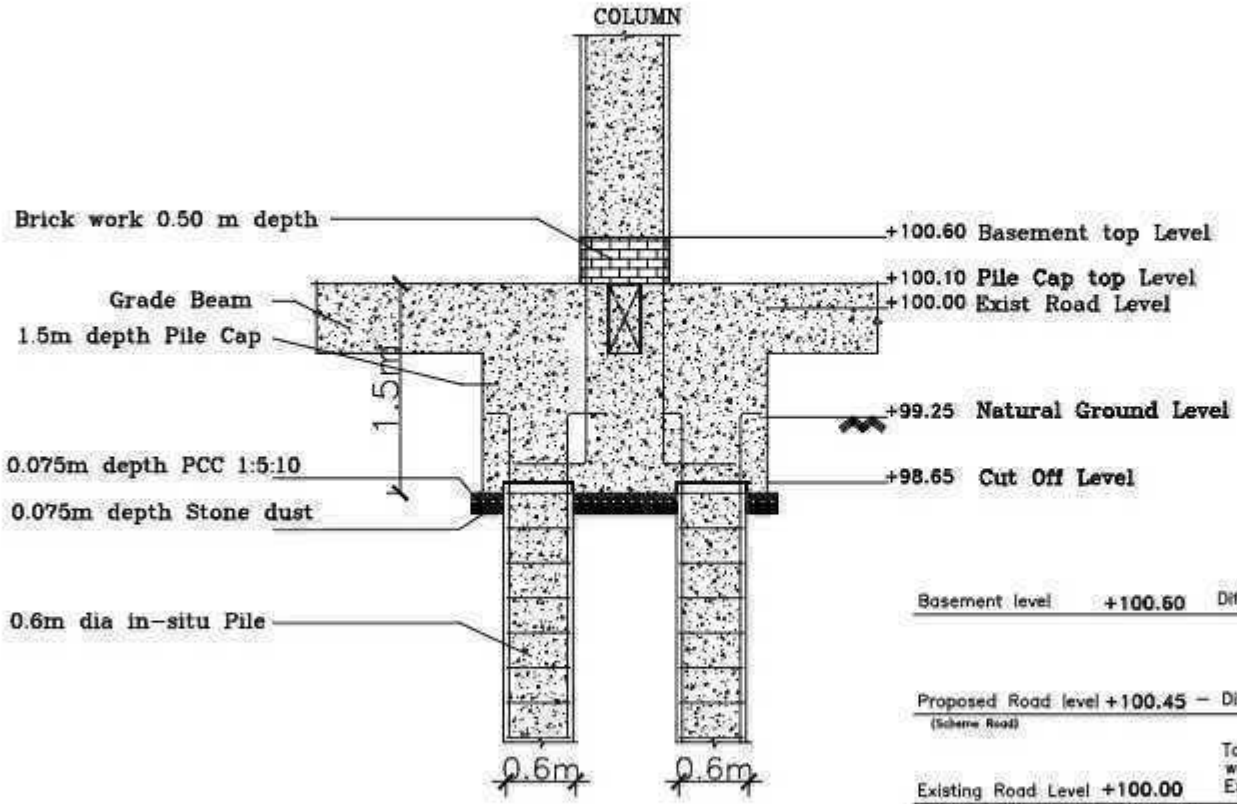
TAMIL NADU HOUSING BOARD

Foreshore Estate Division

Sketch Showing the Basement Level

for the Construction of 1118 EWS Flats (Stilt+13Floors) at Ernavoor Village

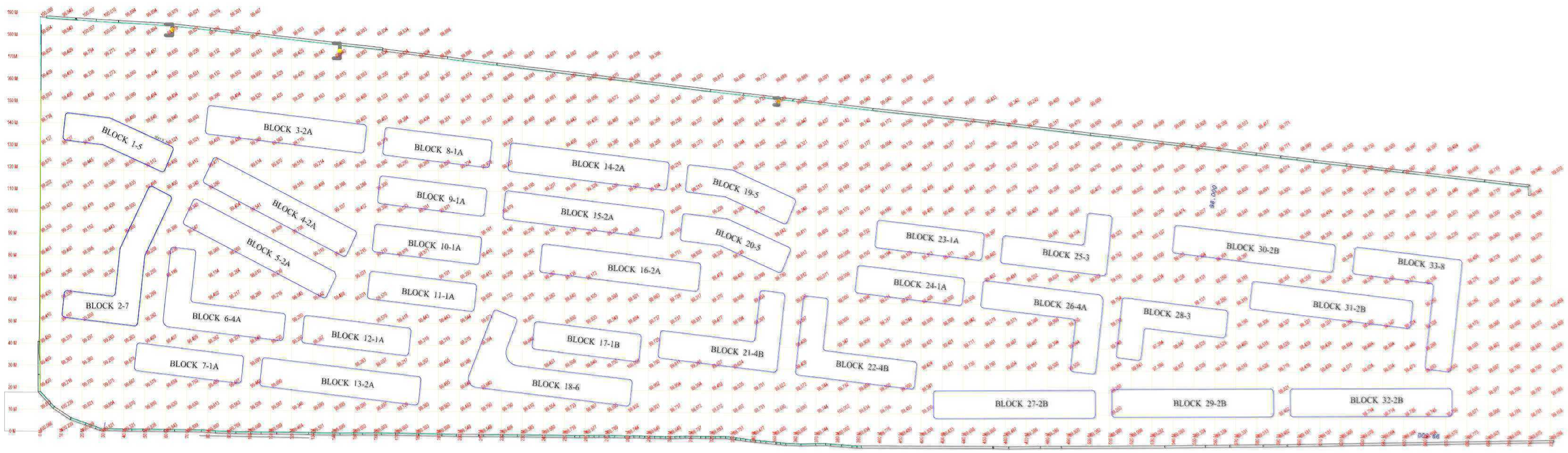
(Group 1 – Block No. 1, 2, 3, 4 & 5)



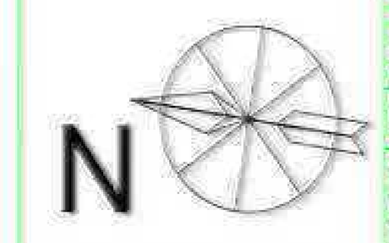
Basement level	+100.60	Difference level / Height =	0.15m
Proposed Road level (Scheme Road)	+100.45	– Difference level / Height =	0.45m
Existing Road Level (Average) (Kathivakkam High School Road)	+100.00	Total difference height with respect to Exist Road =	0.60m

AE AEE EE/FSE SE

6877 EWS FLAT - STILT + 13 FLOORS AT ERNAVOOR, CHENNAI



LEVELS SURVEY PLAN



DWG NO SIZE FILE NAME: ERNAVOOR-15-12-2021

SIZE: A1

REV: 0

SITE AREA DETAILS

DESCRIPTION	SQ.MT	ACRES
TOTAL SITE AREA	110486.906	27.302

NOTES :-

1. All dimensions are in metres.
2. Surveyed on th December 2021.
3. BM : 100.000 Marked On (TNHB Grou-1)N/W Plinth wall top.
4. Spot level interval taken by us per site condition.
5. Contour interval 10m.
6. Boundary Shown by your site person. Mr.K.Karunamoorthy, Mob:9444176084

SCALE: SCALE: 1:400

REFERECE DRAWING

REV.	DATE	SURVEYED	DRAWN	CHD	APPD
C					
B					
A					
0	15-12-2021	Sathish	Ganapathi	S.Gladwin Yoshuaraj	

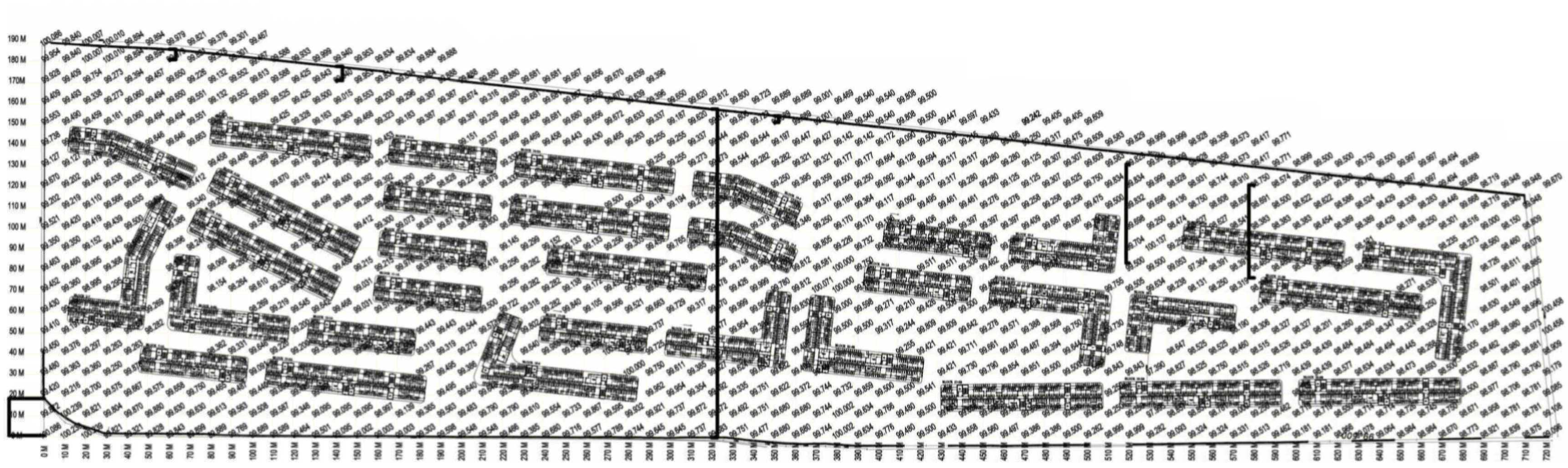
DWG TITLE: TOPOGRAPHICAL SURVEY PLAN

PROJECT: PROPOSED 6877 EWS FLATS SITE PLAN OF CCP FACTORY SITE IN BLOCK NO 8, TS .NO:- 2 PART (OLD SURVEY NO.29/2 PART, 3 PART, 4 PART) AT ERNAVOOR VILLAGE, THIRUVOTTIYUR TALUK, CHENNAI DISTRICT.

TAMILNADU HOUSING BOARD

AE AEE EE & ADO SE CHIEF ENGINEER

6877 EWS FLAT - STILT + 13 FLOORS AT ERNAVOOR, CHENNAI



TOPOGRAPHICAL SURVEY PLAN

N

DWG NO	SIZE	FILE NAME
0	A1	ERNAVOOR-15-12-2021

SITE AREA DETAILS

DESCRIPTION	SQ.MT	ACRES
TOTAL SITE AREA	110486.906	27.302

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4. Spot level interval taken by as per site condition.
5. Contour interval 10m.
6. Boundary Shown by your site person.
   Mr.K.Karunamoorthy, Mob:9444178084

SCALE: SCALE: 1:400

REFERECE DRAWING

REV.	DATE	SURVEYED	DRAWN	CHD	APP
C					
B					
A					
0	15-12-2021	Sathish	Ganapathi	[illegible]	

DWG TITLE: TOPOGRAPHICAL SURVEY PLAN

PROJECT: PROPOSED 6877 EWS FLATS SITE PLAN OF CCP FACTORY SITE IN BLOCK NO 8, TS .NO:- 2 PART (OLD SURVEY NO.29/2 PART, 3 PART, 4 PART) AT ERNAVOOR VILLAGE, THIRUVOTTIYUR TALUK, CHENNAI DISTRICT.

TAMILNADU HOUSING BOARD

AE / FSE DIVISION | AEE / FSE DIVISION | EE & ADO / FSE DIVISION | SE / SPC 2 | CHIEF ENGINEER (C)