



THE STATE FISHERIES DEVELOPMENT CORP. LTD.

(An ISO 9001:2015 Certified Govt. Undertaking)

Bikash Bhawan, Bidhannagar, Kolkata - 700091

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e-Tender Notice No. SFDC/MD/NIT- 27(e)/2023-24

Memo No: 2304/Const-194/2023

Date: 08/11/2023

The Managing Director, The State Fisheries Development Corporation Limited invites e-tender for the work detailed in the table below. (Submission of Bid through **online**)

Sl. No.	Name of work	Estimated Amount	Earnest Money	Period of completion	Eligibility of Bidder
		(In Rs.)	(In Rs.)		
1	Construction of 25 MT Ice plant in connection with the work "Construction of fish landing centre at Haripur, Block Namkhana, South 24 Parganas".	3,46,26,000/-	6,92,520/-	730 (Seven hundred thirty) days	Bonafide outsider resourceful & reliable agencies (reference Serial No. 5 of this e-NIT).

N.B.:- The successful L1 Bidder shall have to pay the fees of requisite set of tender documents for execution of formal agreement.

- Both Technical document and Financial Bid are to be submitted in technical (Statutory & Non- Statutory) and financial folder concurrently duly digitally signed in the website <http://wbtenders.gov.in>.
- Necessary Earnest Money will be deposited by the bidder electronically: online – through his net banking enabled bank account, maintained at any bank or: offline – through any bank by generating NEFT/ RTGS challan from the e-tendering portal. Intending Bidder will get the Beneficiary details from e-tender portal with the help of Digital Signature Certificate and may transfer the EMD from their respective Bank as per the Beneficiary Name & Account No., Amount, Beneficiary Bank name(ICICI Bank) & IFSC Code and e-Proc Ref No. Intending bidder who wants to transfer EMD through NEFT/RTGS must read the instruction of the Challan generated from E-Procurement site (i.e Unique transaction receipt) & must be uploaded in the EMD folder of Statuary Bid Document. Bidders are also advised to submit EMD of their bid, at least 3 working days before the bid submission closing date as it requires time for processing of Payment of EMD. Bidders eligible for exemption of EMD as per Govt. rule may avail the same and necessary documents regarding the exemption of EMD must be uploaded in the EMD folder of Statuary bid documents.
- The Technical document and Financial Bid submitted online only.
- The FINANCIAL OFFER of the prospective tenderer will be considered only if the TECHNICAL Document of the tenderer found qualified by the Managing Director, The State Fisheries Development Corporation Limited. The decision of the Managing Director, The State Fisheries Development Corporation Limited will be final and absolute in this respect. The both list of Qualified Bidders will be displayed in the website and also in the Notice Board of the office of the Managing Director, The State Fisheries Development Corporation Limited, on the scheduled date and time.
- Eligibility criteria for participation in the tender.**
 - The intending tenderers should produce credentials of a similar nature of completed work as a prime agency of the minimum value of 40% (i.e. Civil work 40% & Electro- Mechanical work 40%) of the estimated amount put to tender during 5 (five) years prior to the date of issue of the tender notice; or,

- ii) The intending tenderers should produce credentials of 2 (two) similar nature of completed work as a prime agency, each of the minimum value of 30% (i.e. Civil work 30% & Electro- Mechanical work 30%) of the estimated amount put to tender during 5 (five) years prior to the date of issue of the tender notice; or,
- iii) The intending tenderers should produce credentials of one single running work of similar nature work (Electro-Mechanical work) as a prime agency which has been completed to the extent of 80% (eighty percent) or more & value of which is not less than desired value at (i) above;

In case of running works, only those tenderers who will submit the certificate of satisfactory running work from the concerned Executive Engineer, or equivalent competent authority will be eligible for the tender. In the required certificate it should be clearly stated that the work is in progress satisfactorily and also that no penal action has been initiated against the executed agency, i.e., the tenderer.

The prospective tenderers must have sufficient credential to participate in the Tender as per Notification bearing No. 04-A/PW/O/10C-02/14 dated 18.03.2015 of Accounts Branch, PWD, Govt. of W.B. [Non Statutory Documents]. (If applicable)

Credential of Public Works department of State / Central, Fisheries department or its statutory bodies, Zillah Parisads, Municipal Corporations, HIDCO., or similar nature other Govt. bodies are preferred as per discretion of the executing Agency.

Capability statement in separate sheet should be submitted along with the technical bid.

The Bidders are required to produce the original documents for verification by the Tender Committee as and when required. Qualified firms will be intimated to attend the opening of cover II (financial bid). The venue will be intimated separately.

The prospective tenderers must have sufficient credential to participate in the Tender as per Notification bearing No. 04-A/PW/O/10C-02/14 dated 18.03.2015 of Accounts Branch, PWD, Govt. of W.B. [Non Statutory Documents].

N.B.:- Completion certificate should contain a) Name of work, (b) Name of Client, (c) Amount put to tender, (d) Schedule month and year of commencement and completion as per work order (e) actual month and year of completion.

Completion Certificate, Work Order and Payment certificate alongwith Summary sheet for details of works must be uploaded. Otherwise tender will be treated as non qualified.

iv) Payment certificate will not be treated as credential.

v) Credential certificate issued by the Executive Engineer or equivalent or competent authority of a state / Central Govt., State / Central Govt. undertaking, Statutory / Autonomous Bodies Constituted under the Central / State Statute, on the executed value of completed / running work will be taken as credential.

vi) The prospective bidders shall have in their full time engagement experienced technical personnel, the minimum being **One Degree/ Diploma holder of Electrical/Mechanical & Civil** (Authenticated documents in respect of qualification and engagement shall be furnished for Technical Evaluation). In this respect the bidder shall upload Form No. IIIB in Section-'B' duly notarized, failing which the bid may be treated as non responsive [Non statutory Documents].

vii) The working capital shall not be less than 25% (Twenty Five percent) of the amount put to tender and out of which minimum 10% shall be of applicant's own resource. Proper & authentic documents to be submitted through e-filing (along with supported up-to-date audited balance sheet). Evidence of access to or availability of credit facilities should be certified by the any commercial Bank [Non statutory Documents].

Available Bid capacity to be calculated on the basis prescribed Format as illustrated in Form- II A attached at Section A (Kindly note that this Form- II A must be submitted duly signed & sealed by the applicant / bidder & authenticated by Statutory Auditor's Firm failing which this application / bid will be rejected) The Bid capacity shall not be less than the estimated amount put to tender.

Bid capacity and Financial statement should be mentioned UDIN.

viii) Declaration regarding Structure and Organization duly digitally signed by the applicant to be submitted along

with application.

ix) In case of Registered Unemployed Engineers' Co-operative Societies and Registered Labour Co-operative Societies, documents of credentials as per Serial No. 5, Page No. 2 of this e-NIT. 'Certificate of Registration' and 'Certificate for Validity of Registration' from the respective Assistant Registrar of Co-operative Societies, Bye Law, PAN Card, Current P. Tax Challan, Valid 15-digit Goods and Services Taxpayer Identification Number (GSTIN) under GST Act '2017, Employees Provident Fund and Employees State Insurance registration number and current challan eligible list of Registered Unemployed Engineers' Co-operative Societies / Registered Labour Co-operative Societies issued by the concerned Assistant Registrar of Co-operative Societies showing the name of their Society must be documented through e-filing. Also in case of Registered Unemployed Engineers' Co-operative Societies, documents in satisfying the following criteria are required to be documented through e-filing:-

a) The Society consists of at least 10 (ten) members of which at least 60% should hold Degree or Diploma in any branch in Engineering as per Memo No. 44-A/4M-11/2002 dt. 09.01.2004 of Deputy Secretary-III, P.W.D.. Privilege will be allowed as per G.O. No. 378(9)-A/PW/O/10C- 17/05 dt. 31-05-2005 P.W.D. Accounts Branch by Deputy Secretary-III including necessary documents in support of the statement and along with other supporting papers. (Non-Statutory documents)

b) Above society shall be allowed to participate the work mentioned in this e-NIT as per G.O.

x) In case of proprietorship & partnership Firm & Company, System Generated Tax Audit Report in 3 CD & 3CB Form shall have to be furnished along with Balance Sheet & Profit & Loss Account & all schedules forming the part of Balance Sheet & Profit & Loss Account. Tax Audit Report, Balance Sheet & Profit & Loss Account including all schedules forming the part of Balance Sheet & Profit & Loss Account should be in favour of applicant. No other name along with applicant name in such enclosure will be entertained. (Non-Statutory Document).

xi) **Joint venture will not be allowed** to participate in the above e-NIT.

xii) The Prime Agency (Civil/Mechanical) must be either a Licensed Electrical Contractor holding a valid certificate of competency or having a notarized agreement with Licensed Electrical Contractor holding a valid certificate of competency for the particular tender mentioning the name of work / Tender ID & the Agreement (duly notarized) must be executed not before the date of publishing of the 1st eNIT. Otherwise, the participated bidder will be rejected.

The Prime agency (Civil/Mechanical) will have to give an undertaking in his/their company letter head (as per Section B FORM – IX, online) competency of the supervisor having valid supervisory certificate issued by Directorate of Electricity, Govt. of West Bengal in relevant SCC parts as 1,2,3,4,5,6a,6b,7a,7b,10,11,12./National, that he/they will engage an Electrical supervisor, for execution of items of electrical works.

The proof of engagement of electrical supervisor duly notarized for execution of items of electrical works by the lowest bidder (L1) along with the valid supervisory certificate of competency of the supervisor issued by Directorate of Electricity, Govt. of West Bengal in relevant SCC parts as 1,2,3,4,5,6a,6b,7a,7b,10,11,12./National in original must be submitted offline in the office of the tender inviting authority within the specified time mentioned during 'financial bid' proceedings. Otherwise, the tender inviting authority will have the full right to cancel his/their bid as lowest bidder (L1).

The prime bidder (Civil/Mechanical) or the Licensed Electrical Contractor [with whom the prime bidder (civil/Mechanical) intends to make agreement(duly notarized) as in 5 x (i)] must possess the Credentials in respect of similar nature of Electrical work in 5(a) (b) and (c).

xiii) Where there is a discrepancy between the unit rate & the line item total resulting from multiplying the unit rate by the quantity, the unit rate quoted shall govern.

xiv) Prevailing safety norms has to be followed so that LTI (Loss of time due to injury) is zero.

xv) The Tender evaluation committee will have sole discretion to decide eligibility of the contractor on the basis of e-filing documents and reserves the right to refuse any explanation to contractors found ineligible after scrutiny.

xvi) A prospective tenderer shall be allowed to participate in the particular work either in the capacity of individual or as a partner of a firm. If found to have applied severally in a single work, all his applications will be rejected for that work without assigning any reason thereof.

xvii) The partnership firm shall furnish (a) Registration certificate from Register of Firms, (b) The registered partnership deed & the company shall furnish (a) Incorporation Certificate & (b) Article of Association & Memorandum. (Non-Statutory Document).

6. No mobilization /secured advance shall be allowed.

7. Agencies shall have to arrange land for erection of Plant & Machineries, storing of materials, labour shed, laboratory etc. at their own cost and responsibility.
8. All materials such as cement, steel etc. are to be procured at his own cost including all Taxes. Quality of material should be maintain as per specification with reliable B.I.S. Code & as mentioned in the structural detail drawing & test certificate should be submitted as per direction of E.I.C. Authenticated evidence for purchase of cement & steel etc. are to be submitted along with the challan & test certificate. In the event of further testing opted by the E.I.C., then such testing from any Govt. approved testing laboratory shall have to be conducted by the agency at their own cost. The quality of materials & specifications of items as per provision of P.W.D. S.O.R. & relevant I.S. Code.
9. Recovery of 1% (one percent) cess on construction cost in accordance with the buildings and other construction worker's (Regulation of Employment & conditions of service) Act. 1996 will be implemented in this Tender.
10. Arbitration will not be allowed. The Clause No. 25 of 2911 is to be considered as deleted clause vide gazette notification no. 558/SPW-13th December, 2011.
11. Bids shall remain valid for a period not less than 180 (One hundred eighty) days from the date of opening of the Financial Bid. Bid valid for a shorter period shall be rejected by the The Managing Director, as non-responsive.
12. The prospective bidders shall have own the required plant & machinery or arrange through lease hold registered agreement in working condition. The contractor must furnish the documents in support of ownership or lease hold registered agreement & shall have to be submitted through e-filling [Non – Statutory Documents]. The minimum numbers of machineries are given in the form.
13. The prospective bidders shall be capable to establish field testing laboratory equipped with requisite instruments and technical staff so that if the work is finally awarded, he may establish such laboratory in the work site. Test of materials from outside recognized laboratory may be done, if required, at the discretion of the Engineer-in-charge. The cost for such testing will be borne by the agencies.
14. The intending bidders should clearly understand that whatever may be the outcome of the present invitation of bids, no cost of bidding is reimbursable from the department.
15. In case of inadvertent typographical mistake in the bill of quantity, the same will be treated to be corrected as to confirm with the prevailing relevant schedule of rates of PWD / PWD (Electrical) / PWD (Roads)/ I& WD for the concerned district or as per Technically sanctioned estimate.
16. No fixed Security Deposit will be allowed.
17. No Price Adjustment in respect of certain construction material (i.e. cement components, steel components etc.) will be considered.
18. If required ready Mix Concrete as per specification required for the construction work will be supplied by the agency through his own plant / from any reputed/recognized supplier if required.
19. Running payment for the work may be made on availability of the fund after necessary certification of work along with checking of contractor's bill.
20. Successful bidder (L1) will have to purchase atleast 2(two) copies of tender at usual cost which mentioned in e-NIT from the office of the respective MD, SFDCL.

21. A :- Important information

Date & Time schedule

Sl. No.	Particulars	Date & Time
1.	Date of uploading of e-N.I.T. Documents online) (Publishing Date)	10/11/2023 at 1.30 pm.
2.	Documents download/sell start date (Online)	17/11/ 2023 at 6.55 pm.
3.	Documents download/sell end date (Online)	11/12/2023 at 4.00 pm.
4.	Date of Pre Bid Meeting with the intending bidders In the office of The Managing Director, The State Fisheries Development Corporation Limited	30/11/2023 at 12.00 pm.
5.	Bid submission start date (Online)	17/11/2023 at 6.55 pm.
6.	Bid Submission closing date (Online)	11/12/ 2023 at 4.00 pm.
7.	Bid opening date for Technical Proposals (Online)	13/12/2023 at 4.00 pm.

22. LOCATION OF CRITICAL EVENT

**Pre Bid Meeting
And Bid Opening**



**Office of the Managing Director
The State Fisheries Development
Corporation Limited**

23. The Agency will be liable to maintain the work at working portion at the appropriate service level to the satisfaction of the Engineer-in-Charge at his own cost for a period as per prevailing Govt. rule from the date of completion of the work. If any defect/damage is found during the period as mentioned above contractor shall make the same good at his own cost expense to the specification at par with instant project work. Failure to do so, penal action against the Agency will be imposed by the Department as deem fit. The Agency will have to quote his rate considering the above aspect.
24. All Bidders are requested to present in the 'The State Fisheries Development Corporation Limited.', during opening the financial bid The Managing Director, **The State Fisheries Development Corporation Limited** may call **Open Bid/Sealed Bid** after opening of the said bid to obtain the suitable rate further, if it is required. No objections in this respect will be entertained raised by any Bidder who will present during opening of bid, or from any Bidder who will absent at the time of opening of Financial Bid. No informal tenderer will be entertained in the Bid further.
25. Site of work and necessary drawings may be handed over to the agency phase wise. No claim in this regards will be entertained.
26. **Earnest Money** : Necessary Earnest Money will be deposited by the bidder electronically: online – through his net banking enabled bank account, maintained at any bank or: offline – through any bank by generating NEFT/ RTGS challan from the e-tendering portal. Intending Bidder will get the Beneficiary details from e-tender portal with the help of Digital Signature Certificate and may transfer the EMD from their respective Bank as per the Beneficiary Name & Account No., Amount, Beneficiary Bank name(ICICI Bank) & IFSC Code and e-Proc Ref No. Intending bidder who wants to transfer EMD through NEFT/RTGS must read the instruction of the Challan generated from E-Procurement site & must be uploaded in the EMD folder of Statuary Bid Document. Bidders are also advised to submit EMD of their bid, at least 3 working days before the bid submission closing date as it requires time for processing of Payment of EMD. Bidders eligible for exemption of EMD as per Govt. rule may avail the same and necessary documents regarding the exemption of EMD must be uploaded in the EMD folder of Statuary bid documents.

Balance amount of earnest money if any required (calculated on the basis of @ 2% of total Estimated amount) has to be deposited by the successful bidder(s) at the time of formal agreement.

27. The Bidder, at his own responsibility and risk is encouraged to visit and examine the site of works and its Surroundings and obtain all information's that may be necessary for preparing the Bid and entering into a contract for the work as mentioned in the Notice Inviting Tender, before submitting offer with full satisfaction, the cost of visiting the site shall be at his own expense.
28. The intending Bidders shall clearly understand that whatever may be the outcome of the present invitation of Bids, no cost of Bidding shall be reimbursable by the Department. The Managing Director, The State Fisheries Development Corporation Limited reserves the right to reject any application for purchasing Bid Documents and to accept or reject any offer without assigning any reason whatsoever and is not liable for any cost that might have incurred by any Tenderer at the stage of Bidding.
29. **Prospective applicants are advised to note carefully the minimum qualification criteria as mentioned in 'Instructions to Bidders' before tendering the bids.**
30. **Conditional / Incomplete tender will not be accepted.**
31. The intending tenderers are required to quote the rate ***on line***.
32. Contractor shall have to comply with the provisions of (a) the contract labour (Regulation Abolition) Act. 1970 (b) Apprentice Act. 1961 and (c) minimum wages Act. 1948 of the notification thereof or any other laws relating there to and the rules made and order issued there under from time to time.
33. **Guiding schedule of rates - For building works:** Current Schedule of rates for concerned District P.W.D. with effect from 01.11.2017 for Building, Sanitary & Plumbing works P.W (R) SOR, P.W.D. (Electrical) SOR along with up to date Corrigenda & Addenda.
34. No price preference & other concession as per Order No. 1110-F dated 10.02.2006 will be allowed.
35. During the scrutiny, if it come to the notice to tender inviting authority that the credential or any other paper found incorrect/ manufactured/ fabricated, that bidder would not allowed to participate in the tender and that application will be out rightly rejected without any prejudice. The The Managing Director, The State Fisheries Development Corporation Limited reserves the right to cancel the N.I.T. due to unavoidable circumstances and no claim in this respect will be entertained.
36. In case if there be any objection regarding prequalifying the Agency that should be lodged to the The Managing Director, The State Fisheries Development Corporation Limited within 2 (two) days from the date of publication of list of qualified agencies and beyond that time schedule no objection will be entertained by the authority.
37. Before issuance of the **WORK ORDER**, the tender inviting authority / bid evaluation committee may verify the hard copy of earnest money, the credential and other documents of the lowest tenderer if necessary. After verification if it is found that the documents submitted by the lowest tenderer is either manufactured or false in that case work order will not be issued in favour of the said Tenderer under any circumstances.
38. If any discrepancy arises between two similar clauses on different notification, the clause as stated in later Notification will supersede former one in following sequence.
 - i) Form No. 2911.
 - ii) e-NIT
 - iii) Special terms & conditions.
 - iv) Technical Bid.
 - v) Financial Bid
39. The prospective tenderers or any of their constituent partner shall neither have abandoned any work nor any of their contract have been rescinded during the last 3 (three) years. Such abandonment or rescission will be considered as disqualification towards eligibility.

40. Qualification criteria.

The tender inviting & Accepting Authority will determine the eligibility of each bidder, the bidders shall have to meet all the minimum regarding.

a) **Financial Capacity.**

b) **Technical Capability comprising of personnel & equipment capability.**

c) **Experience/Credential**

The eligibility of a bidder will be ascertained on the basis of the digitally signed documents in support of the minimum criteria as mentioned in a, b, c above. If any document submitted by a bidder is either manufacture or false, in such cases the eligibility of the bidder/ tenderer will be out rightly rejected at any stage without any prejudice.

41. Where an individual person holds a digital certificate in his own name duly issued to him by the company or the firm of which he happens to be a director or partner, such individual person, either belonging to an appropriate cadre officer of the company or an authorized partner of a firm, having a registered power of attorney empowered by the board or by the firm, shall invariably upload a copy of registered power of attorney showing clear authorization in his favour, to upload such tender.
The power of attorney shall have to be registered to accordance with the provisions of the Registration Act, 1908.
42. The bidder should submit necessary labour license from the competent authority under contract labour (Regulation & Abolition) Act '1970.
43. No child labour will be allowed at the working site.
44. The prospective bidder to arrange sufficient construction materials & mechanical equipment's to ensure compliance with his obligations under the contract.
45. All the EMD/Tender Fees in respect of e-Tender will mandatorily be received and refund/settlement made as per Finance Department, Govt. of West Bengal vide No. 3975-F(Y) dated 28th July '2016.
46. Rate should be quoted including all duties, taxes & other levies Educational Cess etc. as imposed by Govt. of India & Govt. of West Bengal valid on date of bidding, payable by the Contractor under the Contract, or for any other cause. **The Managing Director, The State Fisheries Development Corporation Limited** will not make any payments towards taxes, duties, levies etc. for the entire contract period.
47. Bidder shall submit copy of :-
i) Valid PAN issued by the IT Deptt., Govt. of India & I.T Return for last 05 (five) years.
ii) Valid 15-digit Goods and Services Taxpayer Identification Number (GSTIN) under GST Act '2017.
iii) Tax invoice(s) needs by the supplier for raising claim under the contract showing separately the tax charged in accordance with the provisions of GST Act '2017.
iv) Employees Provident Fund and Employees State Insurance registration number and current challan.
48. Prospective Bidder shall have to execute the work in such manner so that appropriate service level of the Building under improvement is to be maintained during progress of the work and during **Defect Liability Period** of three months or one year or three years or five years, as the case may be (depending upon the nature of the work as described in the explanation appended hereto) hereinafter referred to as the **Defect Liability Period** and 5 (five) years defect Liability Period for Roof treatment works, from the actual date of completion as per Notification No. **5784- PW/L&A/2M-175/2017 dated 12/09/2017** of PWD, Govt. of West Bengal. If any defect/ damage is detected during this period as mentioned above the contractor shall make the same good at his own expense to the satisfaction of the of the Engineer in Charge or in default the Engineer in Charge may cause the same to be made good by other agency and deduct the cost (of which the certificate of the Engineer in Charge shall be final) from his security deposit or any sums that may be then, or at any time thereafter become due to the contractor. Security Deposit shall become payable only after expiry of the Defect Liability Period after making necessary deduction if applicable. Hence condition of refund of Security Deposit will be as per Notification No. 5784-PW/L&A/2M-175/2017

dated 12/09/2017 of PWD, Govt. of West Bengal. Provisions in Clause 17 contained in W.B. Form No. 2911 so far as they relate to DLP and refund of security deposit is to be treated as superseded.

49. Supplementary work/ deviation quantity if any should be followed as per Notification No. 6754-PW/L & A/2M-312/2017 dt. 18/12/2017.

Sd/-
MANAGING DIRECTOR
THE STATE FISHERIES DEVELOPMENT
CORPORATION LIMITED

Memo No. 2304/1(4)/Const.-194/2023

Dated : 08/11/2023

Copy forwarded for favour of kind information to the:-

- 1) The Secretary to the Govt. of West Bengal, Fisheries Department,
- 2) The Managing Director, BENFISH,
- 3) The PS to Minister in Charge, Fisheries Department,
- 4) Guard file

Sd/-
MANAGING DIRECTOR
THE STATE FISHERIES DEVELOPMENT
CORPORATION LIMITED

SECTION A
INSTRUCTION TO BIDDERS

1. General guidance for e-Tendering

Instructions/ Guidelines for tenderers for electronic submission of the tenders online have been annexed for assisting the contractors to participate in e-Tendering.

1. Registration of Contractor

Any contractor willing to take part in the process of e-Tendering will have to be enrolled & registered with the Government e-Procurement system; through logging on to <https://etender.wb.nic.in> (the web portal of public works department) the contractor is to click on the link for e-Tendering site as given on the web portal.

2. Digital Signature certificate (DSC)

Each contractor is required to obtain Digital Signature Certificate (DSC) for submission of tenders, from the approved service provider of the National Information's Centre(NIC) on payment of requisite amount details are available at the Web Site stated in Clause-2 of Guideline to Bidder DSC is given as a USB e- Token.

3. The contractor can search & download NIT & Tender Documents electronically from computer once he logs on to the website mentioned in Clause 2 using the Digital Signature Certificate. This is the only mode of collection of Tender Documents.

4. Participation in more than one work

A prospective bidder shall be allowed to participate in the job either in the capacity of individual or as a partner of a firm. If found to have applied severally in a single job all his applications will be rejected for that job. A prospective bidder (including his participation in partnership) shall be allowed to participate in single road /building work as mentioned in the list of schemes.

5. Submission of Tenders.

General process of submission, Tenders are to be submitted through online to the website stated in Cl. 2 in two folders at a time for each work, one in Technical Proposal & the other is Financial Proposal before the prescribed date & time using the Digital Signature Certificate (DSC) the documents are to be uploaded virus protected scanned copy duly Digitally Signed. The documents will get encrypted (transformed into non readable formats).

A. Technical proposal

The Technical proposal should contain scanned copies of the following further two covers (folders).

A-1. Statutory Cover Containing

- (i) Prequalification Application (Sec-B, Form- I).
- (ii) Tender Form No. 2911 & NIT (download properly and upload the same digitally Signed).
- iii) SPECIAL TERMS AND CONDITIONS_DECLARATION BY THE TENDERER_EXPERIENCE PROFILE.

A-2. Non statutory Cover Containing

- i) PAN Card, Current P.Tax Challan, Current IT Return for last 5 (five) years, Trade License, Valid 15-digit Goods and Services Taxpayer Identification Number (GSTIN) under GST Act '2017, Tax invoice(s) needs by the supplier for raising claim under the contract showing separately the tax charged in accordance with the provisions of GST Act '2017, Employees Provident Fund and Employees State Insurance registration number and current challan.

- ii. Registration Certificate under Company Act. (if any).
- iii. Registered Deed of partnership Firm/ Article of Association and Memorandum.
- iv. Registered Power of Attorney (For Partnership Firm/ Private Limited Company, if any).
- v. System generated Tax Audit Report in 3 CD/ 3CB Form shall have to be furnished along with Balance Sheet and Profit and Loss A/c for the last five years (year just preceding the current Financial Year will be considered as year – I).
- vi. Employees Provident Fund and Employees State Insurance registration number and current challan.
- vii. Clearance Certificate for the Current Year issued by the Assistant Register of Co-Op(S) (ARCS) bye laws are to be submitted by the Registered Labour Co-Op(S) Engineers' Co.-Opt.(S).
- viii. List of machineries possessed by own / arrange through lease hold agreement along with authenticated copy of invoice & challan. (Section –B, Form IV).
- ix. List of laboratory Instrument along with authenticated invoice & challan.
- x. List of technical staff along with structure and organization (Section – B, Form – III).
- xi. Credential as per Serial No. 5, Page No. 2 of this e-NIT. To be furnished (Section – B, Form – V).
- xii. Information regarding litigation etc. to be furnished (Section – B, Form – VI).
- xiii. Bank solvency certificate to be furnished (Section – B, Form – VII).

Note:- The eligibility of a bidder will be ascertained on the basis of scanned copy of all original documents duly digitally signed as stated in A-1 & A-2. Failure of submission of any of the above mentioned documents (as stated in A1 and A2) will render the tender liable to summarily rejected for both statutory & non statutory cover.

C. Financial proposal

- (i) The financial proposal should contain the following documents in one cover (folder) i.e. Bill of quantities (BOQ) the contractor is to quote the rate (percentage Above/ Below/ At par) online through computer in the space marked for quoting rate in the BOQ.
- (ii) Only downloaded copies of the above documents are to be uploaded virus scanned and Digitally Signed by the contractor.
- (iii) Financial capacity of a tenderer will be judged on the basis of working capital and available bid capacity as mentioned in the e-N.I.T. to be derived from the information furnished i.e., Application (for Pre-qualification) and Financial Statement. If an applicant feels that his/their Working Capital beyond own resource may be insufficient, he/they may include with the application a letter of guarantee issued by a first class Bank to supplement the applicant. This letter of guarantee should be addressed to the Tender Inviting/ Accepting Authority and should guarantee duly specifying the name of the project that in case of contract is awarded to the Tenderer, the Tenderer will be provided with a revolving line of credit. Such revolving line of credit should be maintained until the works are taken over by the Engineer-In-Charge/ Employer. The audited Balance sheet for the last five years, net worth bid capacity etc. are to be submitted which must demonstrate the soundness of Tenderer's financial position, showing long term profitability including an estimated financial projection of the next two years.
- iv) As per G.O. No. 4608-F(Y) dated 18.07.2018 of Finance Department, Govt. of West Bengal, Additional Performance Security @ 10% (Ten Percent) of the tendered amount shall be obtained from the successful bidder if the accepted bid value is 80% (Eighty percent) or less of the Estimated amount put to tender.

The Additional Performance Security shall be submitted in the form of Bank Guarantee from any Scheduled Bank before issuance of the Work Order.

The Bank Guarantee shall have to be valid upto end of the Contract Period & shall be renewed accordingly, if required.

Necessary provisions regarding deduction of security deposit from the progressive bills of the contractor as per relevant clauses of the contract shall in no way be altered / affected by provision of this Additional Performance Security.

6. Penalty for suppression / distortion of facts

Submission of false document by tenderer is strictly prohibited and in case of such act by the tenderer the same may be referred to the appropriate authority for prosecution as per relevant IT Act with forfeiture of earnest money forthwith.

7. REJECTION OF BID:-

The Employer (tender accepting authority / bid evaluation committee) reserves the right to accept or reject any Bid and to cancel the Bidding processes and reject all Bids at any time prior to the award of Contract without thereby incurring any liability to the affected Tenderer or Tenderers or any obligation to inform the affected Tenderer or Tenderers of the ground for Employer's (tender accepting authority) action.

The Tenderer whose Bid has been accepted will be notified by the Tender Inviting and Accepting Authority through acceptance letter/ Letter of Acceptance

The Letter of Acceptance will constitute the formation of the Contract.

The Agreement in Printed Tender Form in WBF No. 2911 / 2911(i) /2911(ii) will incorporate all necessary documents e.g. N.I.T., all addenda corrigendum, special terms and condition (Section –C), different filled-up forms (Section –B), B.O.Q. and the same will be executed between the Tender Accepting Authority and the successful Tenderer.

**Sd/-
The Managing Director
The State Fisheries Development
Corporation Limited**

THE ABOVE STATED NON-STATUTORY/TECHNICAL DOCUMENTS SHOULD BE ARRANGE IN THE FOLLOWING MANNER

Click the check boxes beside the necessary documents in the My Document list and then click the tab “ Submit Non Statutory Documents’ to send the selected documents to Non-Statutory folder. Next Click the tab “ Click to Encrypt and upload” and then click the “Technical” Folder to upload the Technical Documents.

Sl. No.	Category Name	Sub Category Description	Details
A.	CERTIFICATES	CERTIFICATES	<ol style="list-style-type: none"> Valid 15-digit Goods and Services Taxpayer Identification Number (GSTIN) under GST Act ‘2017. Tax invoice(s) needs by the supplier for raising claim under the contract showing separately the tax charged in accordance with the provisions of GST Act ‘2017. PAN Card, Current P.Tax Challan. Current IT return Current Trade License Employees Provident Fund and Employees State Insurance registration number and current challan.
B.	Company Details	Company Details – I	<ol style="list-style-type: none"> Society (Society Registration copy, Trade License). Power of attorney. Partnership Firm (Partnership Deed, Trade License). Bye Law. Eligible list of Registered Unemployed Engineers Co-operative Society /Registered Labour Co-operative Society. Current Audit Report. Current N.O.C. from A.R.C.S. Minutes of last A.G.M.
C.	Credential	Credential 1	<ol style="list-style-type: none"> Similar nature of work done & completion certificate which is applicable for eligibility in this tender.(ref. Serial no-5 of this e-NIT)
D.	Man Power, Machineries	Technical Personnel Machineries	List of Technical Staffs alongwith Structures & Organization (As per e-NIT), Section-B (Form-IV).
E	Financial Information	Work in Hand	<ol style="list-style-type: none"> Bid Capacity (Form-II A) Affidavits – X & Affidavits – Y (Section – B) Certificate of revolving line of credit by the Bank.
		Profit & Loss A/c. & Balance Sheet for last 5 (five) years	Profit & Loss A/c. & Balance Sheet (with Annexure & System generated 3CD & 3 CB form in case of Tax Audit).

Note:- Scan copy of all original documents stated above shall be uploaded duly signed by the bidder.

A. Tender evaluation by the The Managing Director, The State Fisheries Development Corporation Limited

- Opening of Technical proposal :- Technical proposals will be opened by Bid evaluation Committee constituted by the The Managing Director, The State Fisheries Development Corporation Limited, and his authorized representative electronically from the web site stated using their Digital Signature Certificate.
- Intending tenderers may remain present if they so desire.

- iii. Cover (folder) statutory documents (vide Cl. No. 5.A-1 of Section “A”) should be open first & if found in order, cover (Folder) for non-statutory documents (vide Cl. No. – 5.A-2 of Section “A”) will be opened. If there is any deficiency in the statutory documents the tender will summarily be rejected.
- iv. Decrypted (transformed in to readable formats) documents of the non statutory cover will be downloaded & handed over to the Managing Director, The State Fisheries Development Corporation Limited.
- v. Uploading of summary list of technically qualified tenderers.
- vi. Pursuant to scrutiny & decision of the Bid evaluation committee constituted by the The Managing Director, The State Fisheries Development Corporation Limited the summary list of eligible tenders & the serial number of work for which their proposal will be considered will be uploaded in the web portals.
- vii. While evaluation by Bid evaluation committee constituted by the The Managing Director, The State Fisheries Development Corporation Limited may summon of the tenders & seek clarification / information or additional documents or original hard copy of any of the documents already submitted & if these are not produced within the stipulated time frame, their proposals will be liable for rejection.

viii. Opening & evaluation of Tender :-

If any contractor is exempted from payment of EMD, copy of relevant Government Order needs to be furnished.

B. Financial proposal

- i) The financial proposal should contain the following documents in one cover (folder) i.e. Bill of quantities (BOQ) the contractor is to quote the rate (Presenting Above/ Below/ At per) online through computer in the space marked for quoting rate in the BOQ.
 - ii) Only downloaded copies of the above documents are to be uploaded virus scanned & Digitally Signed by the contractor.
6. Penalty for suppression / distortion of facts

If any tenderer fails to produce the original hard copies of the documents (especially Completion Certificates and audited balance sheets), or any other documents on demand of the **The Managing Director, The State Fisheries Development Corporation Limited** within a specified time frame or if any deviation is detected in the hard copies from the uploaded soft copies or if there is any suppression, the tenderer will be suspended from participating in the tenders on e-Tender platform for a 3 (Three) years. In addition, his user ID will be deactivated and Earnest Money Deposit will stand forfeited. Besides, the SFDCL may take appropriate legal action against such defaulting tenderer.

The Employer reserves the right to accept or reject any Bid and to cancel the Bidding processes and reject all Bids at any time the prior to the award of Contract without thereby incurring any liability to the affected Bidder or Bidders or any obligation to inform the affected Bidder or Bidders of the ground for Employer’s action.

7. AWARD OF CONTRACT

The Bidder whose Bid has been accepted will be notified by the Tender Inviting & Accepting Authority through acceptance letter.

The notification of award will constitute the formation of the Contract.

The Agreement in W.B.F.No.-2911 will incorporate all agreements between the Tender Accepting Authority and the successful Bidder.

Sd/-
The Managing Director
The State Fisheries Development
Corporation Limited

Form – II A

Information of audited financial statements for the last year to demonstrate the current soundness of the Bidder's financial position :

1. The Bidder's Net worth for the last year calculated on the basis of capital, profit & free reserve available to the firm should be positive.
2. Bidders, who meet the minimum qualification criteria, will be qualified only if their available bid capacity at the expected time of bidding is more than the total estimated cost of the works. The available bid capacity will be calculated as under:

Assessed Available Bid Capacity = $(A \times N \times 2 - B)$ where

A = Maximum value of engineering works in respect of projects executed in any one year during the last 5 (five) years (updated to the price level of the year indicated in table below under note) taking into account the completed as well as works in progress. The projects include turnkey project / item rate contract / construction works.

N = Number of years (i.e. _____ year) prescribed for completion of the works for which Bids are invited.

B= Financial Liability of the bidder to be incurred for existing commitments & on-going works during the period of the subject contract.

To calculate the value of 'A'

- i) A table containing value of Engineering Works in respect to Projects (Turnkey projects/item rate contract/construction works) undertaken by the bidder during the last 5 (five) years is as follows :

Sl. No.	Year	Value of Engineering Works undertaken w.r.t. Projects (Rs. In Crores)
1	Year – 5	
2	Year – 4	
3	Year – 3	
4	Year – 2	
5	Year – 1	

- ii) Maximum value of projects that have been undertaken during the F.Y. _____ out of the last 5 years & value thereof is Rs. _____ Crores. (Rupees _____). Further, value updated to the price level of the year indicated in Table is as follows:

Rs. _____ Crores x _____ (Updation Factor as per Table annexed)

Rs. _____ Crores (Rupees _____).

Table indicating the factory for the year for updation to the price level is indicated as under

Sl. No.	F.Y. / Calendar year	Updation factor
1	Year – 1	1.0
2	Year – 2	1.05
3	Year – 3	1.10
4	Year – 4	1.15
5	Year – 5	1.20

- iii) Net worth for the last year of _____ (name of the company)

.....

.....

Name of the Statutory Auditor's

Firm/Chartered Accountant

Signature:-

Seal of the Audit/Chartered Accountant Firm:

.....

 Signature:
 Name:
 Designation of Authorized Signatory
 For & on behalf of
 (Name of the Applicant)

Name of signatory (in capital) :
 Membership No.:-
 Firm Regn. No:-
 Date of Birth :-
 Mob:-
 UDIN :-

Note :

1. All the documents to be submitted in support of Annexure – P must be duly signed & sealed by the applicant / bidder & authenticated by Statutory Auditor's firm.
2. In case of a Joint Venture, Lead Member of such joint venture shall be required to meet 60% of required Bid Capacity & each of the Joint Venture Members shall be required to meet atleast 30% of requirement of BID Capacity. Bid capacity of all members in total should be atleast 100% of required Bid capacity **(Joint Venture is not allowed in this e-NIT).**

SECTION – B
FORM –I
PRE-QUALIFICATION APPLICATION

To
The Managing Director
The State Fisheries Development
Corporation Limited

Ref: - Tender for _____
_____(Name of work) _____

e-N.I.T.NO- _____ of 2023-24 of The Managing Director, The State Fisheries Development Corporation Limited

Dear Sir,

Having examined the Statutory, Non statutory and e-NIT documents, I /we hereby submit all the necessary information and relevant documents for evaluation. The application is made by me / us on behalf of _____In _____ the capacity _____ duly authorized to submit the order.

The necessary evidence admissible by law in respect of authority assigned to us on behalf of the group of firms for Application and for completion of the contract documents is attached herewith.

We are interested in bidding for the work(s) given in Enclosure to this letter.

We understand that :

- (a) Tender Inviting and Accepting Authority/Engineer-in-Charge can amend the scope and value of the contract bid under this project.
- (b) Tender Inviting and Accepting Authority/Engineer-in-Charge reserves the right to reject any application without assigning any reason.

Enclo:- e-Filling:-

- 1. Statutory Documents
- 2. Non Statutory Documents

Signed by an authorized officer of the firm

Title of the officer

Name of the Firm with Seal

Date

N.B. THIS APPLICATION MUST BE MADE IN THE LETTER HEADED PAD OF THE FIRM IN WHICH APPLICATION IS MADE, CLEARLY MENTIONING THE ADDRESS AND CONTACT NUMBER & email ID OF THE FIRM.

**SECTION – ‘B’
AFFIDAVIT – “X”**
**(To be furnished in Non – Judicial Stamp paper
of appropriate value duly notarized on after the date of publication of this e-NIT)**

Work in progress				Work order issued but work not started		
Sl. No.	Name of the work with Tender No.	Estimated Amount	% of work executed	Sl. No	Name of the work with Tender No.	Tendered Amount

Signed by an authorized officer of the firm

Title of the officer

Name of the Firm with Seal

Date _____

**SECTION – ‘B’
AFFIDAVIT – “Y”**
**(To be furnished in Non – Judicial Stamp paper
of appropriate value duly notarized)**

1. I, the under-signed do certify that all the statements made in the attached documents are true and correct. In case of any information submitted proved to be false or concealed, the application may be rejected and no objection/claim will be raised by the under-signed.
2. The under-signed also hereby certifies that neither our firm M/S _____ nor any of constituent partner had been debarred to participate in tender for Govt. works during the last 5 (five) years prior to the date of this e-NIT.
3. The under-signed would authorize and request any Bank, person, Firm or Corporation to furnish pertinent information as deemed necessary and/or as requested by the Department to verify this statement.
4. The undersigned understands that further qualifying information may be requested and agrees to furnish any such information at the request of The Department.
5. Certified that I have applied in the tender in the capacity of individual/as a partner of a firm and I have not applied severally for the same work.
6. Certify that the rates have been offered by carrying out & completing the work to the satisfaction by the Department by taking due consideration of all factors after inspection of the work site & going through the detailed Notice Inviting e-Tender & Schedule of probable items of work with approximate quantities & other documents.

Signed by an authorized officer of the firm

Title of the officer

Name of the Firm with Seal

Date _____

SECTION - B
FORM- III
STRUCTURE AND ORGANISATION

A.1 Name of applicant :

A.2 Office Address :

Telephone No. and Cell Phone No. :

Fax No. :

E mail ID :

A.3 Attach an organization chart showing the structure of the company with names of Key personnel and technical staff with Bio-data. :

A.4 PAN No. :

A.5 G.S.T. No. :

A.6 Details of Bank Accounts :-

i) Name of Bank :

ii) Name of Branch & Addressed with Phone No. :

iii) Account No. :

iv) MICR No. :

v) IFSC Code No. :

Note: Application covers Proprietary Firm, Partnership, Limited Company or Corporation.

Signed by an authorized officer of the firm

Title of the officer

Name of the Firm with Seal

Date _____

FORM- III B

[Ref. NIT Clause No. 3.0 (ii)]

(To be furnished in Non- Judicial Stamp paper of appropriate value duly notarized on or after the date of publication of this NIT)

List of Technical Personnel to be full time engaged/ appointed for the work “_____

_____ (Name of work)_____”

Sl. No.	Name of Technical Personnel	Qualification	Designation	Date of Joining	Mob No	PAN	Remarks

I on behalf of **(bidders name)** do hereby declare that the above information furnished by me are true to the best of knowledge and belief and shall be responsible if any information is found incorrect in due course and the Department has got all right to take any action as deems fit.

Witness : _____

Signed by an authorized officer of the firm

Title of the officer

Name of the Firm with seal

Date _____

Signature of Notary

SECTION - B**FORM – IV****C. DEPLOYMENT OF MACHINERIES (in favour of owner / lessee):-**

(Original document of own possession arranged through lease deed to be annexed)

(If engaged before Certificate from E.I.C. to be annexed in respect of anticipated dated of release of Machineries.)

Name of Machine / Instrument	Make	Type	Capacity	Motor / Engine No.	Machine No.	Possession Status		Date of release If Engaged
						Idle	Engaged	
1	2	3	4	5	6	7	8	9

Signed by an authorized officer of the firm

Title of the officer

Name of the Firm with Seal

Date _____

SECTION – B FORM – IV (contd...)**G. CONTRACTOR'S EQUIPMENT:**

MINIMUM PLANT AND EQUIPMENT TO BE DEPLOYED BY THE CONTRACTOR FOR THE WORK. Whereas it is entirely the responsibility of the Contractor to deploy sufficient plant and mechanical equipment to ensure compliance with his obligations under the Contract, the following list is an indicative list of the minimum essential basic holding of plant and mechanical equipment which should be owned or arranged through lease hold agreement by the bidders. Initially maximum age of the plants, machineries will be 5 years as on the date of publication of NIT. It may be extended up to 7 years after getting fit certificate from the manufacturer and this certificate should be produced at the time of submission of Bid.

All other machineries and equipments should be in running condition.

All plants, machineries and equipments will be verified by the Department before execution of the work.

SL. NO.	TYPE OF EQUIPMENT	NUMBER REQUIRED
01	Insulation Tester (500V or 1KV, 2KV Megger)	1
02	Earth Megger	2
03	Digital Multi-meter	1
04	Tong Tester	1
05	Drilling Machine & Welding Machine etc. required for Electro-Mechanical work.	1
06	Crimping Machine	1
07	Lux Meter,	1

Laboratory Equipment with testing arrangement as per sec. 120 of specifications of Roads and Bridge works 5th revision of MORT&H

Signature of applicant including title
and capacity in which application is made

SECTION-B

FORM-V

EXPERIENCE PROFILE

LIST OF WORKS COMPLETED WHICH ARE SIMILAR IN NATURE AND EXECUTED & RUNNING WORKS DURING THE LAST FIVE YEARS AS PER CLAUSE 5 OF THIS e-NIT.

Name of Employer	Name, Location & nature of work	Contract price in Indian Rs.	Value completed & certified in Indian Rs.	Original date of start of work	Original date of completion of work	Actual date of starting the work	Actual date of completion the work	Reasons for delay in completion (if any)

Note : a) Certificate from the Employers to be attached.

Signed by an authorized officer of the firm

Title of the officer

Name of the Firm with Seal

Date _____

SECTION-B

FORM-VI

INFORMATION REGARDING CURRENT LITIGATION, DEBARRING/EXPELLING OF TENDERER OR ABANDONMENT OF WORK BY TENDERER

1. a) Is the Applicant currently involved in any litigation : YES / NO
relating to the contract works.
- b) If yes, give details with reasons :
2. a) Has the Applicant or any of its constituent partners : YES / NO
been debarred / expelled by any Agency in India,
during the last 5 (five) years.
- b) If yes, give details with reasons :
3. a) Has the Applicant or any of its constituent : YES / NO
abandoned / suspended any contract during the,
last 5 (five) years.
- b) If yes, give details with reasons :

Note: If any information in this Schedule is found to be incorrect or concealed, pre-qualification application will be summarily rejected.

**Signature of applicant including title &
capacity in which application is made**

SECTION-B
FORM-VII
Bank Solvency Certificate

This is to certify that(name of firm) is a reputed company with a good financial standing.

If the contract for the work, namely “
“(As per NleT against Notice Inviting e-Tender No. of the **The Managing Director, The State Fisheries Development Corporation Limited** is awarded to the above firm, we shall be able to provide overdraft / credit facilities to the extent of Rs.....
(Rupees.....) **only to meet their working capital for executing the above contract during the contract period.**

Signed by an authorized officer of the Bank with seal
Name of the Bank
Address of the Bank
Phone No.
e-Mail ID
Date

SECTION-B

FORM-VIII

DECLARATION BY THE TENDERER

Ref: - Tender

for _____

_____ (Name of work)

e-N.I.T.No.: of 2023-24 of The Managing Director, The State Fisheries Development Corporation Limited

I/We have inspected the site of work and have made myself/ourselves fully acquainted with local conditions in and around the site of work. I /We have carefully gone through the Notice Inviting Tender and other tender documents mentioned therein. I/We have also carefully gone through the 'Priced schedule of Probable Items and Quantities'.

My/Our tender is offered taking due consideration of all factors regarding the local site conditions stated in this Detailed Notice Inviting Tender to complete the proposed construction in all respects.

I/We promise to abide by all the stipulations of the contract documents and carry out and complete the work to the satisfaction of the department.

I/We also agree to procure tools and plants, at my/our cost required for the work.

I/We have applied in the tender in the capacity of individual / as a partner of a firm.

Signature of Tenderer

Postal address of the Tenderer

SECTION – B

FORM –IX

DECLARATION

(To be furnished in Letter head of the Firm)

It is declared that I/we shall engage one electrical supervisor/ Civil Contractor for supervision of electrical/ Civil items of works having valid supervisory certificate competency issued by the Directorate of Electricity, Government of West Bengal in relevant SCC parts as :- 1,2,3,4,5,6a,6b,7a, 7b,10,11,12/National , if I/We are selected as Lowest bidder(L1) or Civil Trade License.

.....

.....

(signature , name and designation of Authorised Signatory)

Section – ‘C’
Special terms and conditions

1. Drawings

The tender must be based on the Departmental G.A.D. and execution of work shall be done as per detailed working drawings to be supplied by the Department from time to time.

2. Site Conditions

i) The tenderer must inspect and examine the site and its surroundings and satisfy himself before submission of his tender about the nature of the ground, sub-soil characteristics, the quantities and nature of the work, material necessary for completion of the work, the means to access to the working site, the H.F.L. & O.F.L., the accommodation he may require for his men and materials and in general he shall obtain all necessary information as to risks, contingencies overhead and other circumstances that may influence or affect his tender rates, and no claim whatsoever will be entertained after acceptance of his tender.

ii) The contractor must accept the entire site, as it is, including changes, if any, during the period of construction, and any work that may be necessary to carry out the entrusted job, except those otherwise specifically mentioned or included in the priced schedule of work / B.O.Q. shall be deemed to have been included for in the rates quoted by the tenderer.

3. Access Road

The contractor shall, construct and maintain through out the contractual period of work as access road, without intervening the water flow of the cross-channel suitable for the loaded trucks for carriage of his construction materials from the nearby State Highway to the actual place of work-site at his own cost and for which no separate, payment will be made.

4. Excavation and Earth Work

i) General

The excavation will generally refer to open excavation of foundation wet or dry.

ii) Excavation and Preparations of Foundation for Piling and Concreting

It shall include removal of all materials of whatsoever nature for all depths, whether wet or dry. necessary for the construction of foundation (including mass excavation) in accordance with lines, levels, shown on the Departmental drawings and the plan, dimension of the excavation shall be the theoretical dimensions Plus 0.16 meter on all sides or as directed by the Engineer-in-Charge. The Bottom of excavation shall be leveled both longitudinally and transversely or stepped as directed by the Engineer in- Charge. If the contractor excavate greater depth or width than shown on the Departmental drawings or as directed by the Engineer-in-Charge, he shall at his own expenses fill the extra depth or width with cement concrete in proportion as directed by the Engineer-in-Charge but in no case with concrete of mix leaner than 1:4:8 cement concrete.

The contractor shall report to the Engineer-in-Charge when the excavations are ready for piling or laying of lean concrete or soling or to receive structural concrete. No concrete shall be placed in foundations until the contractor has obtained the approval of the Engineer-in-Charge. In case, the excavation is done through different strata of soil and if the same is payable as per provision in the schedule of items with quoted rates, the contractor shall get the dimensions of the strata decided and approved from the Engineer-in-Charge. If no specific provision is made in the Schedule of Items with rates appearing in the priced schedule of items of work it will be presumed that excavation shall be in all

types of soil and the contractor's rate cover for the same. After the excavation is approved by the Engineer-in-Charge (and before commencement of piling work or laying of the concrete) the contractor shall get the depth and dimensions of the excavation and levels (and nature of strata if applicable as per Schedule of Items like hard rock, soft rock etc) and measurements recorded from the Engineer-in-Charge.

iii) Shoring

The sides of the excavations should be timbered and shored in such a way as is necessary to secure them from falling and the shoring shall be maintained in position as long as necessary. The contractor shall be responsible for the proper design of the shoring to hold the sides of the excavation in position and ensure safety from slips and present damages to work and property and injury to persons. The shoring shall be removed as directed after the items for which it is required are completed.

iv) Protection

All foundation pits and similar excavations shall be strongly fenced and marked with red lights at night in charge of watchman to avoid accidents. Adequate protective measures shall be taken to see that the excavation does not effect or damage adjoining road structures or any temporary structure erected at site for the work. All measures required for the safety of all people working in and near the foundation trenches and the people in the vicinity shall be taken by the contractor at his own cost. The Contractor will be entirely responsible for any injury and damage to property caused by his negligence or accident due to his constructional operations.

v) Stacking of Excavated Materials

All materials excavated will remain the property of the department and rate for excavation includes shorting out of useful materials and stacking unserviceable materials as directed. Materials suitable and useful for backfilling or leveling of the site or other use shall be stacked in convenient place but not in such a way as to obstruct free movement of men and vehicles or encroach on the area required for construction purpose.

vi) Backfilling

All shoring and frame work shall be removed after their necessity ceases and trash of any sort shall be cleaned out from the excavation. All space between foundation concrete and the sides of excavation shall be refilled to the original surface with approved excavated materials in layers of 15 cm. to 20 cm. thick, watered and rammed. The filling shall be done after concrete is fully set and done in such a way as not to cause undue thrust on any part of the structures. Where suitable excavated materials are to be used for refilling, it shall be brought from the place where it was temporarily stacked for use in refilling. Measurement of excavations, lean concrete or soling, piling work, concrete and other works below ground level are to be jointly recorded. Black Cotton soil shall not be used for backfilling.

vii) Dewatering

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

The excavation shall be kept free from water.

- a) During inspection and measurements.
- b) During placement of reinforcements.
- c) When concrete work is in progress and till its completion comes above the natural water level.
- d) Till the Engineer-in-Charge considers that the concrete is sufficiently set.

viii) Rate to Include for Excavation

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

- a) Clearing site.
- b) Setting out works as required.
- c) Providing shoring and shuttering to avoid sliding of soil and to protect adjacent Structure and subsequently removing the same.
- d) Bailing out and pumping out water as required and directed.
- e) Excavation at all depth (unless otherwise specified in the Schedule of Items) and removal of all materials of whatever nature wet or dry and necessary for the construction of foundation etc. and preparing bed for laying concrete.
- f) Sorting out useful excavated materials and conveying beyond the structure and stacking them neatly in the size for backfilling or reuse as directed.
- g) Necessary protection including labour, materials and equipment to ensure safety and protection against risk or accident.
- h) Drilling of holes / pits for local inspection as directed to explore the nature of substratum if necessary.
- i) Dismantling, cutting and removing under-ground drainage, concrete or masonry structure if any encountered during excavation.
- j) The excess excavation required for fixing for work or working space and refilling the same on completion of all works.
- k) Removing surplus excavated materials from site upto 450 metre including loading and unloading.

l) MEASUREMENT FOR EXCAVATION

Excavation for foundation shall be measured and paid as per drawing dimensions (or the actual work done at site whichever is less) of concrete (bed concrete where so specified) at the lowest level plus 0.46 metre in all sides. In regard to length and breadth, and depth shall be completed from the concerned excavation levels and ground levels taken before excavation. Any additional excavation required for working space for from work planking dewatering installation and shuttering etc. shall not be measured and paid for separately but rate quoted by the tenderer shall include for all these factors. No increase in bulk after excavation shall be made.

5. Concrete Work

A) General

i) Supervision

A competent person approved by the Engineer-in-Charge shall be employed by contractor whose first duty will be to supervise all stages in all preparation and placing of the concrete. All tests required shall be carried out as directed by the Engineer-in-Charge.

ii) Approval of Concreting Arrangement etc.

Well before construction commences the contractor shall supply to the Engineer-in-Charge his approved drawing showing the general detailed arrangement for his concreting plant, system of form work, conveyance of the concrete to the point of pouring and all other devices which he proposes to use for the construction of the structure.

iii) Samples and Tests

Every facility shall be provided to enable the Engineer-in-Charge to obtain samples and carry out tests on the materials and construction. If those test show that any of the materials for construction do not comply with the requirements of the relevant IS specification, the contractor shall be responsible for replacement of the defective materials, and or construction. The necessary cost of all such tests has to be borne by the contractor.

iv) Rejected Materials

All materials which have been damaged, contaminated or have deteriorated or do not comply in any way with the requirements of the relevant IS specification shall be rejected immediately from the site at the contractors own expenses.

v) Equipment

Contractor shall keep of work site testing equipment for aggregate, concrete like test sieves, balance, slump cones, cube testing machine, cube moulds, weightbatch, mixer machine with hoppers, vibrators, hoist, pile driving machineries etc. as required conforming to relevant IS specification.

B) Materials

All materials shall be of approved quality.]

i) Cement

Brand of Cement: Ultratech / Ambuja / Lafarge / ACC / Ramco / or equivalent (Cement from Mini Plant will not be allowed)

a) Ordinary Portland Cement shall conform to the IS specification IS:269-1967, Portland Pozzolona Cement shall conform to IS:1489-1967. PSC conforming to IS-455.

b) Cement shall be stored in dry Weather proof godowns (or shed) built at the cost of the contractor in the stocks which are not higher than 100 bags. Sufficient space shall be provided for circulation and rotation of bag in order to minimize the length of storage time of any of the bags. The floor of the godown shall consist of wooden planks resting on base prepared of dry bricks laid on edge and joints grouted with cement mortar.

c) Cement which is deteriorated, damaged or wet shall not be allowed to be used. All such cement shall be immediately removed from work site by the contractor. The cost of all such removal of cement shall be borne by the contractor.

ii) Steel

HYSD Bars conforming to IS 1786 of appropriate grade shall be used.

iii) Aggregates

All aggregates shall conform to IS:383-1970

iv) Fine Aggregate

a) The fine aggregate sand shall be hard, dense durable and clean with uncoated grains. The maximum size of particles shall be graded down. The sand shall be 4.75 mm. (3/ 16 in) and shall be graded down. The sand shall not contain any harmful materials such as iron, pyrites, coal, mica, silt, clay, alkali, sea shells, organic impurities, loam etc. or in case of reinforced cement work any material which might attack the reinforcement or detrimental to concrete. Aggregate which are chemically reactive with the alkalies of the cement shall not be used. The maximum quantity of the deleterious materials shall not exceed the limits specified in the relevant IS specification. The fineness modulus for such sand should normally not less than 2.

b) Grading the natural sand used for work shall have a grading conforming to one of the three grading zones of I, II & III of IS:383-1970.

v) Coarse Aggregates

a) Coarse aggregate unless otherwise stated shall consist of hard, dense, durable, uncoiled crushed rock of Pakur or Pakur variety.

b) The aggregate shall be free from soft, friable than or long laminated pieces. Aggregate shall be free from injurious amounts of alkali organic matter and other deleterious materials. Flaky or weathered stones shall not be used. The maximum percentage of deleterious materials shall not exceed those specified in the relevant IS specifications. The Engineer-in-Charge at his direction may allow the use of Graded Aggregate of nominal size to conform to the grading in the IS:383- 1970.

c) Contractor shall arrange to supply coarse aggregate, in single sizes. The single sizes shall be combined in suitable proportion to get desired over all grading of aggregates.

d) Size of Aggregates: Nominal maximum size of aggregate in R.C.C. piles, piers, shutters, slabs etc. should be restricted to 6 mm. less than the minimum clear distance between the main bars or 6 mm. less than the minimum cover to the reinforcement whichever is less. In no case the maximum size of the aggregate should be more than 40 mm.

e) In selecting the aggregate, the contractor shall satisfy himself that the source is suitable for regular supply and a watch shall be maintained that the particular shape and grading remain available uniformly throughout the progress of work. Unless authorised specified, this shall be obtained from Pakur.

f) Where directed by the Engineer-in-Charge, aggregate shall be washed by approved methods at contractor's expenses.

g) The sample of coarse aggregate for concrete work should be produced for the approval of Engineer-in-Charge and the whole work should be done with coarse aggregate conforming to the approved sample.

h) Stack - piling of aggregate

Unless otherwise directed with a view to maintain uniform water cement ratio, the aggregate shall be stocked in stack - piles. Where stock-pile are unused, the floor should be clear, the stock - piles should as far as possible be large, flat - topped and drained. It is recommended that the aggregate should not be drawn bottom 0.5 metre of the stock piles, since this is normally such than that above.

vi) Water

Water used for easing of aggregate, mixing and curing shall be potable, free from iniurious amounts of deleterious materials which are likely to affect the strength and durability of concrete pH value of Water shall be between 6 to 8.

In addition, water shall not contain an excess of acid, alkali, sugar or salt. The permissible limits of those materials shall be as stipulated in IS. 456-2000.

C) Mixing of Concrete

C.1) Machine Mixing

Concrete shall be mixed in a Batching Plant or as the case may be mechanical mixer. Mixing shall be continued until there is uniform distribution of materials and the mass is uniform in colour and consistency. Mixing shall be continued till individual particle of the coarse aggregates shown complete coating of mortar containing its proportionate amount of cement. The mixing time from the time of adding water shall be in accordance with IS:1951-61. but in no case mixing shall be done for less than two minutes. Mixers which have been out of use for more than 30 minutes shall be thoroughly cleaned before putting in a new batch. Unless otherwise agreed to by the Engineer-in-Charge the first batch of concrete from the mixer shall contain only two thirds of the normal quantity. Mixing Plant shall be thoroughly cleaned before changing from one type of cement to other.

C.2) Transporting, Placing, Compacting and Curing of Concrete

a) Transporting Concrete shall be handled from the place of mixing at site to the place of final deposit as rapidly as practicable by method which will prevent contamination, segregation or loss of any of the ingredients. If segregation occurs during transport the concrete shall be remixed before use. The concrete shall be placed in position and compacted before the initial set of cement has commenced and shall not be subsequently disturbed. During hot or cold weather concrete shall be transported in deep containers to reduce loss of water by evaporation during hot weather and loss of heat during cold weather. Deep containers are specified on account of their lower surface area.

b) Placing of Concrete

Unless otherwise agreed to by the Engineer-in-Charge, Concrete shall not be dropped into position from height greater than 1.2 metre.

c) Removal of Debris etc .

All debris dust etc. shall be removed from the shuttering at the cost of the contractor before any concrete is placed. Care should be taken to see that shuttering is watertight and has been properly treated with approved composition to prevent absorption of water. No concrete shall be placed in any part of the structure until the approval of the Engineer-in-Charge has been obtained.

d) Temperature of Concrete

Concrete when deposited shall be a temperature of not less than 4.5°C and not more than 38°C. When concreting under water, the concrete shall not be placed in water having a temperature below 4.5°C The temperature of the concrete, when deposited under water, shall not be less than 16°C nor more than 18°C.

e) Protection and Placing in Layers

Concrete shall be placed into the form in layer not exceeding 450 mm. in thickness. Concrete after placing shall be protected by use of covering subject to approval of the Engineer-in-Charge during first stages of hardening against high winds hot sun and/or rain or surface water. No shock or vibrations shall be allowed to be imported to forms supporting fresh concrete. No such vibration shall be given in reinforcing bars portion of which are embodied in fresh compacted concrete.

f) Compaction

All concrete shall be compacted to produce it dense homogeneous mass. Concrete shall be thoroughly compacted during operation of placing by the use of Mechanical Vibrators. It shall be compacted in its final position within 30 minutes of its discharge from the mixer unless carried in properly designed agitators operating continuously when this time shall be within 2 hours of the addition of cement to the mix and within 30 minutes of its discharge from the agitator. Sufficient number of vibrators (including standby) of adequate capacities shall be used for compaction of concrete. Vibration shall be carried out by trained men and in presence of a qualified supervisor trained in the use of vibrators and vibrated concrete. In certain portions where vibration is not effective, careful rolling and tamping shall be earned out and sufficient men employed to ensure that thorough consolidation taken place. Where manual compaction becomes necessary the workability of the mix should be controlled to suit such mode of compaction, subject of course to strength requirement if specified also being complied with. When concreting has to resume on a surface which has hardened, it shall be roughened swept clean, thoroughly wetted, and covered with a 13mm. layer of mortar composed of cement and sand in the same ratio as in the concrete mix itself. This 13 mm. layer of mortar shall be freshly mixed and placed immediately before placing new concrete. Where concrete has not fully hardened, all laitance shall be removed by scrubbing the wet surface with wire or bristle brushes, care being taken to avoid dislodgement of any particulars of coarse aggregate. The surface shall then be thoroughly wetted, oil free, water removed and then coated with neat cement grout. The first layer of concrete to be placed on this surface shall not exceed 150 mm. in thickness, and shall be well ram mad against old work.

g) Packing Round Reinforcement;

In the case of reinforced concrete work, the concrete shall be carefully consolidated and packed round the reinforcement and care shall be taken to ensure that the reinforcement is not displaced during the placing and compaction of concrete. If reinforcement moves out of the place, it must be brought back to position immediately.

h) Lapse of approval for Concreting & Method of Continuous Concreting

If concreting is not started within 2 hours of the approval being given, it shall have to be obtained again from the Engineer-in-Charge. Concreting shall be carried out continuously unto predetermined positions of construction joints. The position and arrangement for construction joints shall be approved by the Engineer-in-Charge. Fresh concrete shall not be placed against concrete which have been in position for more than 30 minutes unless a proper construction joint is formed. Rest, Panes for meals etc. shall be suitable to the approval of the Engineer- in- Charge.

i) Protecting & Curing

The contractor shall adequately protect freshly laid concrete from rapid drying due to strong sunshine, drying winds etc, and also from running of surface water and shocks. All concrete work shall be water-cured for a minimum period of 14 days after concreting as advised by the Engineer-in-Charge. Horizontal surface shall be kept covered with water pounded by means of builds and vertical surfaces like those of walls etc. by burlaps kept constantly wet with water sprays. More sprinkling of water of vertical surface without sacks or burlaps will not be allowed. In respect of concrete made out of Puzzolona cement, curing shall be continued for another 8 days.

j) Trained Supervisor

It is essential that the contractor's supervisor who is in charge of the construction of all concrete work whether reinforced or not, shall be skilled in this class of work and shall superintend personally the whole construction and pay special attention to:

- a) The quality, testing, proportioning and mixing of the materials particularly control of water cement ratio.
- b) Laying of materials in place and through consolidation of the concrete to ensure solidity and freedom for voids.
- c) Sizes and positions of reinforcements.

D) Construction Joints:

i) General

The position of all the construction joints shall be determined by contractor in consultation with the Engineer-in-Charge before the work commences. The joints shall be vertical (in rafts, beams etc.)

and horizontal (in walls, columns. etc.) as required, except in the case of inclined or curved member the joints shall be at right angles to the axis of the member. No Vertical Joint shall be formed without a proper stop-board at the joint. Where directed, the joints shall be of approved shape. All costs of the construction joint shall be included in the rates for the respective concrete items and no claim for extra amount on this accounts would be entertained.

E) Test for Concrete

i) General

Tests shall be conducted in accordance with IS:516/1956 with upto date amendments. It shall be the responsibility of the contractor to ensure that test moulds are prepared in work-man like manner. If in the opinion of the Engineer-in-Charge there is doubt regarding the quality of cement, the sample of cement shall be tested before being used in the work. The Engineer-in-Charge reserves the right to reject the structure (columns, coping, beams, girders, slabs etc.) if the results obtained from concrete cube tests falls short according to criteria as laid down in IS:456/2000 with latest amendment, and in such case, the dismantling and reconstruction of the structure or any component thereof shall be done by the contractor at his own cost.

ii) Test Cubes

a) Works test cubes shall be taken in sets of 6 cubes. The concrete for preparation of one set of 6 cubes shall be taken from the batch of mixed concrete discharged from mixture. The cubes shall be moulded in accordance with Indian Standard Code of Practice.

b) A minimum of one set of 6 cubes shall be taken for every 28 cum. or part thereof of concrete poured and they shall be considered as representative for the said quantity. This is an average figure, and may be decreased to cater to special conditions like different mixes, special structures etc. at the discretion of the Engineer-in-Charge.

c) The cubes shall be cured as per I.S. Code of Practice. The entire operation of casting, arranging and dispatch of cubes to Laboratory will be carried out by the contractor under the supervision of the Engineer-in-Charge. Out of 6 cubes, 2 cubes shall be tested at the age of 7 days and the other 4 at the age of 28 days in an approved Laboratory. Usually testing of the cube would be carried out at site by the cube testing machine of the contractor in presence of the Engineer-in-Charge or his authorized representatives. Out of the 4(four) sets to be tested at 28 days, the Engineer-in-Charge may arrange to have any two tested at any Government Engineering College whose report shall be binding on all parties concerned. The contractor shall have to install at site the machine for testing concrete test cubes. In such case the same shall have to be got approved by the Department before undertaking any test and the accuracy and performance of such machine(s) shall be subject to checking and inspection by the Engineer-in Charge or any person authorized by him to do so.

d) The cubes will be initialed, and dated jointly by contractor's representatives and the Engineer-in-Charge or his authorized representative with a piece of wire or nail so that an indicating of the initials is left on the cube.

e) The contractor shall arrange transport the cubes to the approved laboratory and arrange to have the testing results forwarded (in duplicate) directly from laboratory to the Engineer-in-Charge. The contractor shall bear all expenses in connection with the preparation of test cubes like cost of mould, cost of concrete, labour and transport charges to the approved laboratory etc, including necessary laboratory testing charges.

f) A Register shall be maintained at site by the contractor with the following details entered initialed by the contractors and the Engineer-in-Charge.

- 1) Reference to specific structural member receiving the batch of concrete from which the cubes were cast.
- 2) Mark on cubes.
- 3) Grade and/or mix of concrete.
- 4) Date and time of casting.
- 5) Water cement ratio by weight and slump.
- 6) Crushing strengths as obtained at the age of 7 days for 2 cubes out of a set of 6 and at the age of 28 days for the 2 cubes. In case of doubt the remaining 2 cubes shall be tested at any recommended Engineering College.
- 7) Laboratory in which tested and reference to test certificate.

8) Any other information directed by the Engineer-in-Charge.

g) A record of the quality of concrete incorporated in the work that is represented by the quality of concrete of the set of cubes along with the description of the structural members where such concrete has been deposited shall be maintained. This record shall be initialed by the contractor and maintained by the Engineer-in-Charge.

F) Vibration of Concrete:

a) Water Cement Ratio

The water-cement ratio (by weight) for all vibrated concrete (except controlled concrete) shall generally be 0.45 and it shall not be varied unless otherwise directed. In respect of Controlled concrete the water-cement ratio shall be as determined in the laboratory mix design suitable for vibrated concrete.

b) Placing

Concrete shall be placed in layers not over 15 cm. deep and each layer shall be vibrated into place by methods which will not permit the ingredients to separate.

c) Number and size of Vibrators

Vibrators shall be of sturdy-construction, adequately powered and capable of transmitting to the concrete not less than 3,500 impulses per minute when operating under load. The vibration shall be sufficiently tense to cause the concrete to flow or settle readily into place and visibly affect the concrete over a radius of at least 450 mm. (18") when used in concrete having slump of 25 mm. Sufficient number of vibration at least one vibrator for a rate of concreting of 1.5 cum (50 cft.) per hour shall be employed so that at the required rate of placement, vibration throughout the entire volume of each layer of concrete and complete compaction are incurred.

d) Manipulation of Vibrators

Internal vibrators shall be kept constant moving in the concrete and shall be applied at points uniformly placed not further apart than the radius over which the vibrator is visibly effective. The vibrator shall not be held in one location long enough to draw a pool of grout from the surrounding concrete. The vibration shall be such that the concrete becomes uniform plastic and there shall be at least 200 second of vibration per Sq.metre (20 second of vibration per sq.ft) of surface of each layer of concrete computed on the basis of visibly affected radius and taking overlap into consideration.

G) Grades of Concrete

i) General

Before taking up the concrete work the contractor shall have to get mix design desired and approved by the Engineer-in-Charge and necessary tests conducted to satisfy the requirement specified for the respective grade of concrete. Contractor when there is any change in the quality or aggregates (both coarse and fine) and alteration made in the mix which should be got approved by the Engineer-in-Charge before being carried out for the work. The preliminary test and work test results should conform to the requirement of I.S.Code of Practice 456-2000 with latest amendment. Cube tests shall have to be done in accordance with IS:516-1959.

ii) Criterion Regarding Strength

Although the works test cubes are specified to be conducted at the age of 7 and 28 days. compressive strength specified at 28 days shall alone be the criterion for acceptance or rejection of concrete.

iii) Sample size and Acceptance Criteria

All tests shall be carried out in accordance with IS:516-1959. The criteria for acceptance of a concrete of a specific grade shall be in accordance with recommendation of IS:456-2000.

H) Execution of Concrete Work

No concrete work shall be done in absence of Engineer-in-Charge or his representative.

I) Form Work

i) General

Form work shall include all temporary or permanent forms required for forming the concrete together with all temporary construction required for their support.

ii) Material and Design

The form work shall be of approved dressed timber/plywood true to line and level not less than 3 cm. thick. Surface in contact with concrete are to be planed smooth except where otherwise stated. Where timber is used for form work it shall be well reasoned. Free from loose knots, projecting nails, splits or other defects that may not affect the surface of concrete. As an alternative, sufficiently rigid steel shuttering may be used. In every case, joints of the shuttering are to be such as to prevent the loss of liquid from concrete. In timber shuttering the joints shall therefore be either tongued and grooved or the joints must be perfectly close and lined with kraft paper or other types of approved materials. In case of steel shuttering also the joints are to be similarly lined to ensure water tightness. The inside surface of the form work shall be properly greased to prevent adhesion of concrete. The form work shall be so constructed as to remain sufficiently rigid during placing of the concrete.

All shuttering and framing must be adequately stayed and braced to the satisfaction of the Engineer-in-Charge for properly supporting the concrete during the period of hardening. The forms shall have sufficient strength and rigidity to hold concrete and withstand the pressure of ramming and vibration without excessive deflection from the prescribed lines when the concrete is vibrated. Suitable device shall be used to hold corners of adjacent ends and edges of panels of forms together for accurate alignment.

iii) If directed by the Engineer-in-Charge suitable camber shall be provided in horizontal members e.g. R.C.C. beams, girders of the structure to counter act the effects of any deflection. The formwork shall be so fixed as to provide for such camber.

iv) Forms shall be so constructed as to be removable in sections in the desired sequence without damaging the surfaces of concrete or disturbing other sections.

v) Unless otherwise specified or directed, chambers or fillets of size 25 mm. X 25 mm. shall be provided at all angles of the formwork to avoid sharp corners.

vi) The form work shall conform to the shape, lines and dimensions to suit the R.C.C. member as shown in drawings. Formwork shall be adequately designed to support the full weight of workers, freshly placed concrete, without yielding settlement or deflection and to ensure good and truly aligned concrete finished in accordance with drawings.

vii) Staging with salbullah posts of adequate diameter to support the mould for concrete shall be sufficiently rigid with provision of stays and bracing. For the staging of sub-structure, the Salbullah posts shall be capable of sustaining dead load due to formwork, concrete etc. and working load on it without yielding. Before actual erection of the staging of the sub-structure the contractor shall have to get the drawing showing their arrangement of staging and form work along with supporting calculations approved by the Engineer-in-Charge.

viii) The arrangements for side shattering including supporting arrangement to be done by the contractor shall have to be get approved by the Engineer-in-Charge.

ix) The load carrying capacity of the Iron / Salbullah timber posts which will be considered in the design of staging for super structure shall be ensured at site prior to the erection staging by suitable arrangement of load testing to the satisfaction of the Engineer-in-Charge.

x) Cleaning and Treating of Forms

All rubbish particularly chipping, sawings and saw- cast shall be removed from the Interior of the forms before the concrete is placed and the form work in contact with the concrete shall be cleaned and thoroughly treated with an approved composition. Care shall be taken that such approved composition is kept out of contact with the reinforcements. Interior of all moulds and boxes must be thoroughly washed out with a hose pipe or otherwise so as to be perfectly cleaned and free from all extraneous matter prior to the deposition of the concrete. Prior approval of the formwork shall be taken from the Engineer-in-Charge before placing of reinforcements in the formwork.

xi) Stripping

Forms shall be left in place until their removal is authorised by the Engineer-in-charge and shall then be removed which reaches adequate strength so as to avoid injury to concrete. In no circumstances shall forms be struck until concrete reaches strength of at least twice the stress to which the concrete may be subjected to at the time of striking. The strength referred to shall be that of concrete using the same cement and aggregates with the same proportion and cured under conditions of temperature and moistures similar to those existing on the work. Where possible, the formwork should be left longer as it would assist the curing.

xii) Stripping Time

In normal circumstances (generally where temperatures are above 20°C) and where Ordinary Portland Cement is used, the shuttering for the vertical sides shall be retained for a minimum period of 2 days unless otherwise directed at site by the Engineer-in-Charge.

xiii) Tolerances

The following shall be maximum permissible tolerances :

- a) On general setting out for dimensions upto 4 metre in length a tolerance upto 3 mm. will be allowed.
- b) On lengths of more than 4 metre, tolerance of not more than 5 mm. will be allowed.
- c) On the cross sectional dimension of R.C. members, tolerance of more than 3 mm. will not be allowed.

If the work is not carried out within the tolerances set out above in (a) to (c), the cost of all rectification measure, dismantling and reconstruction as decided by the Engineer-in-Charge shall be borne by the contractor. In case of work dismantle, the same shall not be measured and paid for.

J) Defective / Poor Concrete – Procedure for Dealing with :

a) General

If in the opinion of the Engineer-in-Charge there is doubt as to the strength of the structure due to the works test cubes failing to attain specified strength or due to poor workmanship like honey combing etc. or displacing of concrete or similar circumstances or any reason attributing the negligence on the part of the contractor, then the decision of the Engineer-in-Charge regarding dismantling of such concrete or rectification of concrete allowed to be retained in its place shall be final and binding on the contractor.

b) Where Concrete in Structure is Allowed to Retain :

When the works test strength as revealed by cube tests lies below the specified strengths, then if in the opinion of the Engineer-in-Charge the lower strength attained is acceptable to be retained in the structure then such concrete shall be allowed retained in the structure and payment for such concrete to the contractor shall be made at such reduced rate as may be decided by the Engineer-in- Charge whose decision shall be final and binding on the contractor. For deficiency in strength upto 5 percent from the specified strength rates will be reduces by 5 percent and for deficiency above 5 percent and upto 10 percent rates will be reduced by 10 percent. Concrete deficient in strength beyond 10 percent of the specified strength if allowed to be retained the limit of reduction in rate will be limited to 15 percent of the rate.

c) Concrete ordered to be Dismantled

Where the Engineer-in-Charge does not accept the poor or defective concrete and order the same to be dismantled, then the contractor shall dismantle such concrete at his expense and reconstruct the same to the satisfaction of the Engineer-in-Charge. Concrete thus dismantled will not be measured and paid for.

d) Concrete Retained with Rectification

Where the Engineer-in-Charge in order to save time and where he considers adequate steps that defective concrete be strengthened as directed by him, the contractor shall carry out all rectification measures to the approval of the Engineer-in-Charge at contractor's expenses. The concrete of lower strength thus accepted shall however be paid for after necessary reduction of rate as would be decided by the Engineer-in Charge.

e) Quantity of Defective Concrete Represented by Cubes

In all cases of defective concrete as revealed by works test cubes strength failing below the specified strength the quantity of concrete thus affected and represented by the cubes shall be decided by the Engineer-in-Charge, whose decision shall be final and binding on the contractor.

f) Honeycombing:

a) Where honeycombed surfaces are noticed in the concrete the contractor shall not patch up the same until examined by the Engineer-in-Charge and decision given regarding the acceptance with rectification or rejection of the same. If the contractor patches up such defects without the knowledge of the Engineer-in-Charge, the Engineer-in-Charge will be at liberty to order demolition of the concerned concrete member to the extent he considers necessary. In such case, the contractor at his expense shall re-construct the same. Demolished work shall not be measured and paid for and the cost of cement thus wasted shall be recovered at penal rate from the contractor.

b) If in the opinion of the Engineer-in-Charge the honeycombing is harmful to the structure and where so directed by the Engineer-in-Charge the full structural members affected by honey combing as decided by the Engineer-in-Charge, shall be dismantled and reconstructed to the approval of the Engineer-in-Charge at contractor's expenses. The demolished concrete will not be measured and paid for and the cost of cement thus wasted shall be recovered at penal rate from the contractor.

c) Where in the opinion of the Engineer-in-Charge the structural member containing honeycombing can be allowed to be remained with rectification, the rectification shall be carried out as directed by the Engineer-in-Charge by guniting (with cement sand mortar 1 : 3 proportion) the areas concerned at contractor's expenses.

d) Where such honeycombed area are not severe in the opinion of the Engineer-in-Charge and where so directed shall be patched up with cement-sand mortar consisting of 1 part of cement to 3 parts of sand after removing defective concrete down to sound concrete to the satisfaction of the Engineer-in-Charge all at the expense of the contractor.

g) Other Defects

Any other defects in concrete shall be made good as directed by the Engineer-in-Charge at contractor's expenses.

K) Contractor's Rate to Include

The rate of contractor for providing and laying cement concrete in various grades or proportions shall apart from any other factors specified else, where in the tender documents include for the following :-

- a) For all factors and methods of work described in these specifications.
- b) For all materials, labour, tools and plants etc. mixing, conveying and placing concrete in position, ramming, vibrating trowelling, curing, providing necessary shoring and removing the same after the work is complete. Shuttering and staging are described as separate items in the Priced Schedule of Items / B.O.Q. being attached with the tender unless otherwise stated. As such the rates for shuttering and staging shall not be included in the rate of concrete. The rates for shuttering and staging are inclusive of all the work mentioned in specification for form work. The reinforcement in case of reinforced concrete work will be paid for separately unless otherwise stated in the particular items but the rate shall include for pouring concrete and packing around reinforcement.
- c) The measurement of concrete will be as per detailed drawings, shape and sizes based on net structural sizes as per drawings.
- d) Rates for concrete items shall cover for any shape on structural members like columns, girders, slabs, rafts etc.
- e) Testing of work test cubes shall be done as required by Specification in a laboratory approved by the Engineer-in Charge and for tests of materials and work required in the opinion of the Engineer-in- Charge as described in these specification.
- f) Fixing all inserts like pipes, plugs, forming holes etc. as described.
- g) Weigh batching using a Mechanical weigh batcher or a batching plant except where so specified for volumetric batching.

- h) For taking out dowel bars etc. through shuttering.
- i) For work at all levels.

iii) Cleaning of Reinforcement

Before steel reinforcement is placed in position, the surface of the reinforcement shall be cleaned of rust, grease and any oilier objectionable substance.

iv) Cutting of Reinforcement

Before the reinforcement bars are cut, the contractor shall study the length of bars required as per drawings and shall care out cutting only to suit the sizes required as per drawings. Reinforcements shall be securely placed in position and firmly supported or edged by precast concrete blocks of suitable thickness at sufficiently close intervals so that they will not sag between the supports or get displaced during the placing of concrete or any other operation of the work. It is most important to maintain reinforcement in its correct position without displacement and to maintain the correct specified cover. Contractor shall be responsible to all costs for rectification required in case the bars are displaced out of their correct position.

L) Welding

Welding of bars may be carried out as per I.S. Specification and code of Practice in place of placing. However no extra payment shall be allowed for the same.

M) Bending of Reinforcement

Bends etc. on steel reinforcement shall be carefully formed. Care being taken to keep bends out of binding. Otherwise all rods shall be truly straight. If any bend shows signs of brittleness or cracking, the rod shall be removed immediately from the site. Minimum radius of 2 times diameter of the bars shall be used unless otherwise specified in the drawing. In respect of standard hooks the radius of bend shall be 2 times the diameter of bar. Heating of reinforcement of bars to facilitate bending will not be permitted. The bars shall always be bend cold. In case of mild steel reinforcement bars of larger sizes if used, where cold bending is not possible, they may be bent by heating with written permission of the Engineer-in- Charge. Bars bent hot shall not be heated beyond cherry red colour and after bending shall be allowed to cool slowly without quenching. The bars damaged or weakened in any way in bending shall not be used on the work. High Strength deformed bars shall in no case be heated to facilitate bending.

N) Inspection of Reinforcements

No concreting shall be commenced until the Engineer-in-Charge or his authorised representative has inspected the reinforcement in position and until his approval has been obtained. A notice atleast 24 hours before concreting shall be given to the Engineer-in-Charge or his authorised representative by the contractor for inspection of reinforcement. If in the opinion of the Engineer-in-Charge any material is not to accordance with the specification or the reinforcement is incorrectly spaced, bent or otherwise defective, the contractor shall immediately remove such materials from the site and replace with new ones and rectify any other defects in accordance with the instruction of the Engineer-in-Charge or his authorised representative and to his entire satisfaction.

O) Net Measurements

Reinforcement shall be placed as shown in the structural drawings and payment will be made on the net measurements from drawings. Only such laps, dowels, chairs and pins in reinforcement as approved by the Engineer-in-Charge or his authorised representative or shown in drawings shall be paid for. The contractor shall consider in his Tender for all wastage in reinforcement work which will not be paid for separately. All lap lengths shall be as per I.S. specification or drawings.

P) Cover for Reinforcements

Cover for reinforcement shall be as per IS: 21-1972 / Drawings.

Q) Rate of the Contractor for Reinforcement shall in Addition to any Factors

- a) Recoiling, straightening (coiled bars, bent bars to facilitate transporting).

- b) All cutting to lengths, labour in bending and cranking, forming hooked ends, handling, hoisting and every thing necessary to fix reinforcement in work as per drawing.
- c) Cost of binding wire required as described.
- d) Cost of pre-cast concrete cover blocks to maintain cover and holding reinforcement in position.
- e) For fabrication and fixing reinforcement in any structural member irrespective of its location, dimensions and level.
- f) Removal of rust and other undesirable substances. using wire brush etc. as described.
- g) Work at all levels.

Notes :

a) Stone metal and chips of any size as required will have to be arranged by the contractor and cost will be deemed to have been included in the rate of respective items.

Bored Piling Work

Piling work has to be done as per latest IS specification IS 2911.

6. Specifications

A) Timber

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

B) Timber doors, windows etc. and their fittings

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

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

C) 1st Class Brick works

Cement mortar shall be prepared by mixing sand and cement in specified proportion. Sand shall be measured on the basis of its dry volume. In case of damp sand, its quantity shall be increased suitable to allow for bulkage.

D) Damp Proof Course

Damp Proof Course shall be laid to specified thickness over walls for the full thickness of the superstructure walls. The surface shall be levelled and prepared before laying the cement concrete. Edges of damp proof course shall be straight even vertical side shuttering shall consist of wooden frame and shall be strong and properly fixed so that it does not get disturbed during compaction and the mortar does not lead through. The concrete mix shall be of workable consistency and shall be tamped thoroughly to make a dense mass. When the sides are removed, the surface should come out smooth without any honey-combing. The damp proof course shall be laid continuous and surface shall be double chequered. Damp proof course shall be cured for at least seven days, after which it shall be allowed to dry. Water

proofing materials of approved quality shall be added to the concrete mixture in accordance with the manufacturer's specifications.

E) Cement Plaster

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

I/We have inspected the site of work and have made myself / ourselves fully acquainted with local conditions in and around the site of works. I/We have carefully gone through the Notice Inviting Tender including the Corrigendum Notices and other Tender documents mentioned therein. I/We have also carefully gone through the PWD(WB) Schedule and special terms and conditions and agreed to execute all the terms of the priced schedule as per General Conditions Specification as laid down in the said schedule. My / Our tender is offered taking due consideration of all factors and if the same are accepted I/We promise to abide by all the stipulations of the Tender Documents and carry out and complete the work to the satisfaction of the Department.

Sd/-
The Managing Director
The State Fisheries Development Corporation Limited